Forensic analysis of graphic trademarks

A multimodal social semiotic approach

Industrial Ph.D.-thesis
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Danfoss A/S &
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University of Southern Denmark, 2010

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Introduction

1.1 Introduction

This is an Industrial PhD-thesis carried out at Danfoss A/S and the University of Southern Denmark. It has been partially subsidized by the Danish Agency for Science, Technology and Innovation.

The thesis aims at using insights from Multimodal Social Semiotics in the pursuit of trademark counterfeiters. Over the recent years, many Danish companies have begun to feel the full impact of operating in the BRIK-countries (Brazil, Russia, India, and China). With all the benefits of an introduction to these quickly expanding markets come a number of drawbacks such as counterfeiting of intellectual property (IP). Although the primary problem of counterfeiting is false merchandise, either in the form of 100% fakes or varying degrees of infringement,[1] the thesis explores a secondary aspect of the counterfeiting problem, which revolves around the company's trademark. More often than not, counterfeiters will attempt to market their false goods under infringing trademarks in order to exploit the brand value of the offended company.

The legal term for this phenomenon is *confusion of similar trademarks*. Whenever someone designs a trademark that is confusingly similar to someone else's mark, the reason is to create an association, to confuse the brand value of the infringed mark with one's own. This is a substantial problem for the offended companies, not only because the infringement facilitates the marketing of false merchandise resulting in lost revenue, but also because the infringement erodes the value of the trademark.[2] Although legal practice in this field is well established, new tools that can complement legal practice are in demand. This thesis aims to provide one such tool.

At the very heart of trademark legal practice lays the *comparison* of trademarks. Its aim is to determine whether two marks are indeed confusingly similar. Trademark practice has a specific term for this kind of comparison, which is *the assessment of likelihood of confusion.* This is exactly what the thesis proposes to improve: As I shall demonstrate in section 1.2.3, the arguments in many such comparisons are ad hoc and unsystematic – especially when it comes to comparing the actual look of graphic trademarks.

Therefore, the thesis proposes to develop an improved method of comparative analysis of graphic trademarks. In other words, the undertaking in this thesis falls within the overall scope of forensic science.[3]

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[1] An OECD report from 1998 (Vithlani 1998) suggests that as much as 5-7% of all goods traded on a global basis are counterfeits. On the television programme DR Kontant on January 24th 2007, a spokesman from The Trade Council of Denmark suggested that as many as 10 out of 11 Danish companies operating in China have been counterfeited.

[2] More often than not the counterfeit products are of a quality inferior to that of the original, and it is of paramount importance for the offended companies that their goods and services aren't confused with inferior quality counterfeits (DR Kontant, January 24th 2007).

[3] Forensic science is the application of a broad range of sciences to answer questions of interest to the legal system. Within the field of humanities, The International Association of Forensic Linguists and The International Roundtables for Semiotics of the Law are prevalent examples.

1.2 Background(s)

The project, of which this thesis is the result, does not have a background; it has several backgrounds and several beginnings. Although actual work on it did not begin until August 2007, the idea that a multimodal social semiotic approach could be of use in comparative forensic analysis of graphic trademarks had already been under way for quite a while.

1.2.1 My own background

One beginning was when I was in school and came to understand that I could draw and paint better than my fellow students. A few years later, there was another beginning. It was in 1994, when I enrolled as a student of Nordic Language and Literature at the University of Southern Denmark. I had decided to pursue an academic career rather than becoming an artist. At the university I was introduced to linguistics (among other things) and semiotics. Still, I kept on drawing and painting. Eventually, I began supplementing my income with illustration work.

In the autumn semester of 1999 I was first introduced me to Systemic Functional Linguistics (SFL) as part of my advanced degree in "International Virksomhedskommunikation" (IVK)[4]. SFL was taught to us at IVK in order to heighten our understanding of the Danish language so we could become efficient copywriters. We were also given an introductory course to graphic design theory so we could learn how our texts could be presented to the best effect. The lecturer was particularly interested in corporate identity design. Unsurprisingly, my past passion for drawing and painting caused me to become very interested in the subject, and this was when sparks began to fly.

Along with a fellow student I wrote my masters' thesis on systemic functional grammar of corporate logos in 2001-2002. Although we were quite happy with the result at the time, I never felt satisfied that the topic had been exhausted.

In 2004 I took a teaching position at IVK, teaching both SFL and an approach to analysis of visual texts called Multimodal Social Semiotics (MSS), which was derived from SFL. I felt that contemporary developments in MSS, which inquired into colour and typography as semiotic resources (e.g. Kress and Van Leeuwen 2003; Van Leeuwen 2005b) had the potential to take the description of logos to the next level. I wanted to continue my work on logos and do a Ph.D., and because funding was scarce, I began approaching companies to hear if they had an angle I could use. This was when I came in contact with Frank Petersen at Danfoss A/S, who found my ideas promising enough to meet me.

[4] Danish Business Communications, which has later become known as "International Virksomhedskommmunikation" (IVK).

1.2.2 Danfoss A/S's background

Danfoss A/S is one of the crown jewels of Danish industry. It was founded in 1933 under the name of "Dansk Køleautomatik- og Apparatfabrik".[5] By 2010, Danfoss A/S has grown into a multinational manufacturer of a range of mechatronic (mechanical and electronic) components for industrial and consumer heating and cooling as well as components for industrial automation. Many of Danfoss A/S's products, such as mechanical thermostats and various valves and solenoids, are characterized by being relatively low-tech and mass produced. Furthermore, they are largely invisible to end-users because they are implemented in various household appliances such as refrigerators. Still, Danfoss A/S has a strong brand in the markets the company operates in, and the company is especially well known in its home country of Denmark.

At the time I approached Danfoss A/S, the company had begun to feel the full impact of its introduction on the Chinese market. One of the negative effects was the increasing number of counterfeited Danfoss products in the marketplace. A number of different counterfeits had been seized in customs and in raids carried out by Chinese authorities, and many of them had one thing in common. They were not 100% fakes, but were marked with various trademarks that resembled Danfoss'; e.g. Dazhou, Damfoss, and Donfuse. Danfoss had already taken legal action against the most obvious cases, such as "Damfoss". However, a number of the cases were less obvious. For example, one company, Dazhou Heli Controls, Co. Ltd. produced a range of pressure differential controls that were knock-offs of Danfoss' controls so it was beyond question that the company was competing in an unfair way. However, because the company was located close to a Chinese town called Dazhou, it could be argued that the name Dazhou simply referred to the town and was not meant to confuse consumers about the origin of the products. In other words, Danfoss' best argument was that Dazhou's trademark *looked* like Danfoss'. But how does one describe the *look* of a graphic trademark in unequivocal terms, let alone compare that description with a description of another trademark? Which qualities of the look should the description capture? Which words – if any – should be used to capture the look? Such questions face anyone who, like Danfoss A/S, has to compare graphic signifiers. As we shall see in the next section, the practice of trademark law does not provide any clear answers.

[5] The name translates roughly to "Danish Cooling Automation and Appliances"

1.2.3 Current practice in trademark law

In order to illustrate how trademark practice currently compares the graphic form of trademarks, let us look at a typical example of argumentation.

In May of 2007, a trademark registration application was filed at the Trademark Trial and Appeal Board of the United States Patent and Trademark Office. The applicant was the official marketing, tourism and partnership organization for the City of New York, NYC & COMPANY INC. The mark was to be part of the identity for 'GreeNYC', which the mayor's office in its press release called:

> […] an integrated marketing and advertising campaign that is the consumer education component of PlaNYC, [... which] is designed to educate, engage and mobilize all New Yorkers on the simple steps they can take to reduce pollution and greenhouse gases.[6]

The application was published on September 18th 2007. Four months later, Kilpatrick Stockton LLP, legal representatives of the computer company Apple Inc., filed a consolidated notice of opposition against the application. Among Apple Inc.'s eighteen grounds for opposing the registration, the following copy states three (12-14), which are of particular interest:

> 12. Applicant's marks are very similar to Opposer's APPLE Marks in appearance and commercial impression. Applicant's Marks consist of an apple with a stylized detached and convex leaf element angled upwards. Similarly, Opposer's APPLE Marks famously evoke an apple and Opposer's Logo consists of an apple shaped logo with a stylized detached and convex leaf element angled upwards.
> 13. Certain of the goods and services cited by Applicant under Applicant's Marks are identical, or highly related, to goods and services Opposer has long offered in connection with its APPLE Marks.
> 14. Accordingly, Applicant's Marks so closely resemble Opposer's APPLE Marks that Applicant's use of Applicant's Marks is likely to cause confusion, mistake or deception in the minds of consumers as to the origin or source of Applicant's goods and services in violation of Section 2(d) of the Lanham Act, 15 U.S.C. §1052(d), with consequent injury to Opposer and the public (Consolidated notice of opposition in the matter of Application Serial Nos. 77/179,942 and 77/179,968, United States Patent and Trademark Office, Trademark Trial and Appeal Board, January 16th 2008).

The two marks in the case are depicted as figure 1.1 (Apple, Inc.) and 1.2 (NYC & Company, Inc.) below.

1.1

1.2

The following similar qualities are mentioned in the Apple's grounds for opposition: NYC & Company's mark consist of an apple with a stylized, detached and convex leaf element angled upwards. Similarly, Apple's mark consists of an apple-shaped logo with a stylized detached and convex leaf element angled upwards. In other words, the account stresses the coinciding denotation of 'apple' and 'detached convex leaf angled upwards'. For obvious reasons Apple's

[6] According to a press release issued by the office of the mayor of New York City on June 25th, 2007 (http://nycvisit.com/content/index.cfm?pagePkey=1958)

representative chooses to mention the factors that support Apple's claim of likeness at the expense of the differences of the marks. Thus, the following features of the marks remain without comment in this particular account: (i) The fact that NYC & Company's mark, apart from an apple and a leaf, also denotes a stalk on the apple and an infinity symbol. (ii) The fact that the Apple mark apart from the apple and leaf also denotes a missing bit. In other words, the comparison is based on a superficial and selective analysis, not a *detailed* and *systematic* one.

As far as qualities of the two marks that are not related to their motif are concerned, the argumentation is only of few words. The argumentation explicitly states that the leaf elements of both marks are "stylized" and seems to imply that this shared characteristic adds to the similarity of the marks. Further, the argument restricts itself to explicitly ascribing the 'stylistic' quality to the leaves in both marks although it seems evident that the marks in their entirety are characterised by stylization. The dictionaries tell us that "to stylize" means to "conform to the rules of a conventional style"[7] and that stylization generally implies a sort of degeneration of particulars to a generic convention. However, it can be argued that there are many such conventions. Circuit diagrams, cubist art and comic books all apply stylization in their representation but conform to very different conventions. By omitting a specification of the precise nature of the style in question and ascribing the 'stylistic' quality only to the leaves, the argument presupposes that the leaves and indeed the marks in their entirety are stylized in a similar fashion. But the concept of stylization used in not sufficiently *precise* to capture the different nature of stylization.

The case has since been dismissed. It took this turn after NYC & Company Inc. obtained Apple's consent to an amended mark, in which the leaf element had been deleted from the design. In order to cater for the overall graphic harmony of the new mark, the slant of the stem on the new mark was also altered slightly to make it fill the open space left by the deletion of the leaf. Other than these changes, the new mark is unaltered. The fact that this matter could be settled by deleting the leaf element in NYC & Company's mark illustrates the significance ascribed to the motif by contemporary trademark practise.

However, the nature of the graphic 'stylization' of apples in the two marks is radically different. Although it can be argued that Apple Inc.'s representative has abstained from going into this precisely because it could weaken Apple's case, the tendency to treat graphic 'style' in a general manner is quite typical in trademark practise. It is possible that this abstinence from comment on style can be ascribed a weak meta-language for graphic form; one that is not sufficiently *systematic*, *detailed*, *measurable* and *comparable* to be able to capture the nature of stylistic qualities.

[7] The online Oxford English Dictionary gives this definition of 'stylize': *trans.* To conform (an artistic representation) to the rules of a conventional style; to conventionalize. Chiefly in *pa. pple.* Hence **stylized** *ppl. a.*; also **stylization**.

1.3 Research question(s)

This is a theoretical thesis, which revolves around what the legal discipline of trademark law refers to as "likelihood of confusion". The specific scope of interest of the thesis can be summarized in the following research question:

How can a Multimodal Social Semiotic approach to graphic form be made applicable in a forensic comparative analysis of two-dimensional graphic trademarks in order to make the assessment of likelihood of confusion more (i) systematic, (ii) precise, (iii) measurable and (iv) comparable?

The social semiotic multimodal methodology, within the framework of which the inquiry will be conducted, is the subject of chapter 4 and will not be introduced further until then. However, the above statement entails certain theoretical and empirical delimitations, which I will elaborate and motivate in the following four sub-sections on the context of application (section 2.2.1), the object of the inquiry (2.2.2), the underlying hypothesis (2.2.3), and the aim of the inquiry (2.2.4).

1.3.1 The context of application

I aim to develop semiotic tools for forensic analysis of graphic form, which aid in determining if two graphic trademarks are confusingly similar or not. This says that the context of application is trademark law. But because I have based my inquiry on a Multimodal Social Semiotic (MSS) methodology rather than a legal one it also says that the requirements of the practice in which the tools have been developed (MSS theory) are very different from the requirements of the practice in which they will eventually be used.

This has consequences for the way one must regard the object of study, trademarks: I am not concerned here with the specifics of how confusingly similar trademarks are compared in different countries or within specific jurisdictions. First and foremost, taking a semiotic point of departure means regarding trademarks *as instances of a kind of communication* that goes on all over the world and which transcends national borders and jurisdictions.

It is true that from other points of view, such as law or business, trademarks may be regarded as 'immaterial assets' or 'economical vehicles'. However, in the context of this thesis they are regarded as *messages that are exchanged between people*. And a trademark designed by e.g. a Japanese for a Japanese company can in all likelihood convey some kind of meaning to a person from any country and culture in the world.

This point of view may seem odd at first to readers with a legal background, but it follows quite naturally from regarding trademarks from the perspective of communication theory. After all, this is a thesis about the potential for graphic form to make meaning rather than about the particularities of trademark law.

I will of course enter into a dialogue with legal practice where this is necessary in order to discuss forensic applications of the suggested methods for analysis. To the extent that I need to quote from legal practice, I will take European and Danish texts to be representative of legal practice as such. I will discuss the specific challenges presented to the theoretical suggestions I make in the course of the thesis by legal practice. These pertain to what is known in legal practice as *the principle of global appreciation*, which requires a person comparing trademarks to do so based on a judgement of the whole rather than on parts. An MSS analysis could be construed to be in violation with such a principle, although I do not find this to be so. This is the topic of chapter 8.

However, at the end of the day, I find it most appropriate to leave it to the legal profession to decide how best to apply the proposed MSS tools in various legal settings.

1.3.2 The object of inquiry

Because my aim is to develop tools for forensic analysis of trademarks, I am required to specify the trademarks on which the tools can be applied and those on which they cannot. This is important, because lots of very different things in the world count as trademarks: Think of famous examples such as the proper name of the Microsoft corporation, the Apple logo, the distinctive shape of Coca Cola's bottles, the black, beige and red tartan on Burberry's fashion products, the specific toned down turquoise colour of Tiffany's, Tarzan's call, or the particular sound of a Harley Davidson motorcycle.

The defining characteristic of a trademark is that it is a sign, which can tell the products of one manufacturer from those of another in a commercial context and all of the above are registered as trademarks with the proper authorities. This grants the owners the right to forbid others the commercial use of those particular signs.

In other words, the full extent of the object of trademark practice is far too broad to be described at the level of detail required here, and I have to concentrate on a delimited sub-set of them. Before moving on to the actual delimitation, I will briefly outline how trademark practice classifies the full range of signs eligible for trademark registration. A suitable point of departure is "the European trademark directive", [8] which defines its object like this:

> A trade mark may consist of any signs capable of being represented graphically, particularly words, including personal names, designs, letters, numerals, the shape of goods or of their packaging, provided that such signs are capable of distinguishing the goods or services of one undertaking from those of other undertakings (L299/25, Article 2).

This says that in principle a trademark can consist of *any kind of sign* whatsoever if only it can be represented graphically.[9] In practice, the authorities operate

[8]The full title is "Directive 2008/95/EC of the European Parliament of 22 October 2008 to approximate the laws of the Member States relating to trade marks."

[9] This requirement is due to an administrative need for an easy way to classify and identify trademarks. This means that it must be "[…] clear, precise, self-contained, easily accessible,

with the following classes of trademarks: *Word marks* (a linguistic sign, typically the name of a company or product), *figurative marks* (a two-dimensional visual sign, typically graphic in nature and what we commonly refer to as a logo or a logotype), *3D-marks* (a three-dimensional visual sign, for example the shape of Rolls Royce's radiator mascot "The Spirit of Freedom", or the shape of Coca Cola's bottles), *colour marks* (a specific kind of visual sign: A specific colour used consistently by a company to distinguish its services, e.g. Deutsche Telekom's use of magenta or American jeweller Tiffany's use of turquoise), *sound marks* (an auditory sign, typically a short sequence of notes as a jingle. Less frequently the distinct sound a product makes), and *hologram marks* (a specific kind of visual sign in which holographic technology is used to make a 3D-representation of a distinct visual form in a flat medium).

The vast majority of the world's registered trademarks are either Word marks or figurative marks. However, other kinds such as *3D marks*, *colour marks* and *sound marks* are relatively well established in practice as well. Even a few *hologram marks* have been registered. In addition, various companies lobby for legal practice to accept signs that have hitherto not been eligible for registration. For example, some cosmetics companies have attempted to acquire trademark rights to so-called 'olfactory trademarks' (see e.g. ECJ case No. C-273/00). In most cases these applications have pertained to particular scents of perfume products. So far, practice has resisted this trend because there has been no way of unequivocally representing scent in graphic form.

Trademarks, as practice defines them in all their diversity, would make a very interesting object of an MSS study if only one had sufficient resources. However, for practical purposes, I have chosen to concentrate on figurative trademarks for the simple reason that they are so very commonplace and because trademark practice finds it difficult to handle them analytically in spite of their ubiquity. Because 'figurative trademarks' as a class is still very diverse, I have chosen to focus on the specific subset delimited by the phrasing in the research question: Motionless, two-dimensional, graphic trademarks. This is, of course, the subset commonly known as *logos.*

The specific conditions of this delimitation warrant some elaboration especially because the trademark object lies at an intersection between MSS theory (and by way of MSS: linguistic- and visual semiotic theory alike), trademark theory, and graphic design theory, all of which can illuminate different aspects of the trademark phenomenon.

Motionless trademarks: I have chosen to explicitly delimit my object of study to "motionless" graphic signs. The semiotic resources of 'graphics' play a role in both motionless graphics and animated graphics – and simple animations are in fact also eligible for trademark registration. Hence, including aspects of meaning pertaining to temporal composition would indeed be relevant for trademark practice. However, 'motion' has no impact on the properties of trademarks, I wish to address. Furthermore, I find the object of this inquiry to present enough of a challenge at this state of development without the added

intelligible, durable and objective" cf. European Court of Justice, case No. C-104/01, paragraph 29. A graphic representation meets these requirements.

complexity of temporal integration. However, this would make an obvious future area of inquiry.

Two-dimensional trademarks: I am concentrating on two-dimensional trademarks although *3D marks* are indeed eligible for registration. Two-dimensional trademarks (logos) still account for the vast majority of visual trademarks and, furthermore, I shall propose an analytical scheme, which deals with, among other things, formal properties of *shape* and how shape can appear. And, as I shall demonstrate in chapters 6 and 7, even two-dimensional shape becomes very complex when its potential for distinguishing meaning is scrutinized. For these two reasons, one empirical and one practical, I have chosen to restrict my scope of interest to two dimensions.

Graphic: I have stressed the graphic aspect of trademarks because they tend to include semiotically ambiguous elements of typographically or calligraphically treated written language. These can appear either as sentences, words, abbreviations or single letterforms. In other words, many trademarks include elements that are meaningful both in terms of "what they say" linguistically and "how they look" visually. From one point of view they are instances of language and from the other they are coloured areas on a surface and have a specific appearance. Although this is precisely the quality of trademarks that makes them such an obvious object of multimodal study, my focus here is on the latter aspect because it is conceptually less developed in trademark practice and MSS theory alike. By maintaining this focus, I hope to achieve two different things. First, I aim to provide better tools for forensic analysis of figurative, graphic trademarks. Second, I aim to develop multimodal social semiotic theory, which does not currently have a very well developed metalanguage for the expression plane of graphics (this is the topic of chapter 5).

1.3.3 Hypothesis

The specific research question above is of course the result of a number of underlying assumptions, which I shall present in this sub-section.

It is the hypothesis of this thesis that an MSS methodology can indeed make forensic comparisons of trademarks more systematic, precise, measurable and comparable. Hence, I expect MSS theory to be able to meet a demand in current trademark practice for a consistent meta-language for the visual appearance of trademarks.

I expect to find that current legal practice considers *the event of confusion* to be exclusively psychological. This entails that, from the point of view of practice, the event constitutes a *black box*, which cannot be observed directly. Furthermore, I expect to find it productive to consider trademarks as *communicative utterance*s and hence the event of confusion as *a social, communicative event* as much as a psychological event. This is precisely why I expect multimodal social semiotic methodology to make a difference: By describing aspects of the event of confusion that (to the extent that we can all make meaning of graphic form) are common to us all, I can address qualities of trademarks that have hitherto escaped explanation with the psychological and social scientific methodologies preferred by trademark practice.

The inquiry rests on an assumption that the type of cases in which I have a special interest revolve around differences in form and meaning that are too subtle for the layperson, who is untrained in graphic articulation or appreciation, to be consciously or conceptually aware. However, I assume the same differences to be well within the conceptual awareness of the graphic designers that articulate the marks. Furthermore, I assume that these differences (of which the designer is aware, but of which the layperson is not) form an integral part of people's phenomenological experience[10] of the marks and that if one were to change them it would entail a phenomenological change as well. This says that I assume parts of the phenomenological experience of graphic form to escape the conceptual grasp and hence the "put-to-words-ability" of the general public because they have no concepts for it.

I find it reasonable to assume that, in order to describe the differences in form and function of motionless, two-dimensional, graphic trademarks, one has to address the question of *articulation of graphic form*.

I expect to find that such an analysis is beyond the present capability of MSS theory or indeed any other methodology I have become aware of. This is because - with a few exceptions (cited below) - the bulk of research in MSS has concentrated on describing the *content strata* of *lexicogrammar* and *semantics* and the ways in which they relate to *context*, whereas the *expression strata* analogous to *phonology* and *phonetics* in linguistics has been treated with less consistency.

This says that the *interface* between our bodies on the one hand and visual semiosis on the other has not yet been worked out any where near as exhaustively for graphic semiosis – or indeed any other visually mediated means of communication – as it has been for language.[11] Tentative studies have been made pertaining to colour (Kress and Van Leeuwen 2003), typography (Van Leeuwen 2005, Stöckl 2005) and simple graphic signs (Stötzner 2003). These studies have encouraged me to take this path. I fully expect to find that an investigation of the expression side of graphic semiosis will yield a rewarding insight into the conditions for recognizing and confusing figurative trademarks.

[10] Because I am assuming the conceptual awareness of these subtle differences in graphic form to be the product of schooling in graphic articulation, it follows that my use of the term 'phenomenological experience' conforms to the phenomenological tradition of Martin Heidegger (e.g. 1927).

[11] Halliday & Matthiessen regard *phonetics* and *phonology* as the interface between our bodies (i.e. our vocal tract) and the language system (2004:25-26).

1.3.4 The aim of the inquiry

The forensic context of application sets forth certain requirements of both theoretical and operational nature. As stated in the research question, a scheme for forensic comparisons of trademarks needs to be systematic, precise, measurable and comparable.

First, the scheme needs to be *systematic* in order to counteract the tendency for ad-hoc arguments in the comparison of visual trademarks as demonstrated in section 1.2. By being 'systematic' I mean that the descriptive scheme should consist of an exhaustive inventory of categories. Further, this inventory should be worked out within a stable theoretical framework in order for the ontological status of the categories to be clear at all times.

Second, the categories of the descriptive scheme need to be *precise.* The whole point of the exercise in this thesis is to propose an analytical tool, which is an improvement over the state of the art of current forensic analysis. In order for this requirement to be met, the delicacy of the categories must be of a quality that allows for detailed close-analysis. At the same time the categories must be unequivocal or *discrete*. These two requirements, *delicacy* and *discreteness,* however, reveal a tendency to be mutually dependent: The more delicate you make your categories, the harder it is to define them in an unequivocal manner and vice versa.

Third, the categories need to be *measurable*. Trademark practice favours evidence-based, empirically established truths over introspective or interpretative ones. As a result, the descriptive scheme needs to provide the means for falsifiable *measurements* of whichever qualities of graphic semiosis are considered apt for an improved forensic analysis. This will in all likelihood prove to be the most challenging of the requirements to fulfil.

Finally, the categories must afford *comparability*. For comparisons of practically all other variables in *the global assessment of likelihood of confusion* (see section 8.2.1 for a discussion of this expression) other than the visual appearance of the marks, legal practice relies on Case Law to establish the comparison's objectivity. However, where the visual appearance of the marks is concerned, the current analysis is more reminiscent of a *mathesis singularis* or "the impossible science of the unique being" (Barthes 1981:70), which explicates the conditions for perception of the marks as contingent, rather than a *mathesis universalis,* which explicates the conditions for perception as systemic*.* This makes it almost impossible to compare from case to case differences, which have been decisive for the outcome of the cases. Should we ever wish to perform large corpus based inquiries into such matters, a generalized, stable and operational descriptive scheme would go a long way to making forensic analysis comparable.

1.3.5 The structure of the thesis

The thesis is structured into 9 chapters, which apart from the present (1) *Introduction* count: (2) *Design of the Inquiry*, (3) *State of the art*, (4) *What is MSS*, (5) *Shortcomings of MSS*, (6) *Graphetics*, (7) *Graphology*, (8) *Application*, and (9) *Conclusion.*

Chapter 2, *Design of the Inquiry*, places this social semiotic thesis in its theoretical context of law and graphic design. Many theoretical issues pertaining to e.g. (i) what trademarks are, (ii) how their functions as signs should be understood, and (ii) how that function can be observed arise from the fact that the thesis straddles an interdisciplinary field of *social semiotics*, *legal practice* and *graphic design*.

Chapter 3, *State of the art*, presents a survey of semiotic accounts of the communicative function of trademarks in order to determine whether they can provide a metalanguage that meets the requirements of the research question.

Chapter 4, *What is MSS*, introduces the theoretical framework I have chosen for this undertaking and places it in a larger context of social semiotics and Systemic Functional Linguistics. The chapter revolves around a discussion of the so-called semiotic system and discusses two distinctly different ways of regarding it; one diachronic and one synchronic. Moreover, the chapter discusses some of the more recent developments in both MSS and SFL, which have become increasingly sensitive to ecosocial frames for understanding the system. These developments are crucial for the validity of the categories of the descriptive scheme, which I propose to apply in forensic comparisons of trademarks.

Chapter 5, *Shortcomings of MSS*, discusses the current state of the art of MSS descriptive schemes and demonstrates why a consistent theory of the expression plane of graphics needs to be developed in order to fulfil the requirements of the research question.

Chapter 6, *Graphetics*, discusses the expression plane of the graphic semiotic system from a diachronic perspective and hypothesizes how a social order of categories, which graphic designers apply in their articulation of graphic form, has emerged from countless individual acts of graphic articulation.

Chapter 7, *Graphology*, discusses the expression plane of the graphic semiotic system from a synchronic perspective and provides a snapshot of what the formal aspects of the graphic system currently look like.

Chapter 8, *Application*, discusses the challenges that arise from applying a MSS method of forensic analytical comparison in trademark practice. This is in order to show that a combined graphetic and graphological approach is not in violation with the so-called "principle of global appreciation" from trademark practice. The chapter proceeds to demonstrate how a combined graphetic and graphological approach can be applied by giving an exemplary analytical comparison of Danfoss and Dazhou's trademarks.

For the sake of clarity, each chapter has been provided with a short introduction and summary.

1.4 Corpus

This final, brief section of chapter 1 presents the empirical data in the thesis and discusses its status in relation to the inquiry. The data, which will serve to exemplify the theoretical discussion in the thesis, falls in three categories: A core corpus, which is the topic of sub-section 1.4.1, a peripheral corpus (1.4.2) and various miscellaneous data (1.4.3).

1.4.1 Core corpus

This thesis is theoretical and explorative. However, the theoretical discussions need to be related to the empirical world of confusingly similar trademarks. In order to achieve this, I have chosen a small core corpus of 12 trademark cases. A short presentation of each case as well as depictions of the trademarks involved can be found in Appendix 1. The depictions of the 24 trademarks of the core corpus in Appendix 1 are numbered as figure 1.3 to 1.26. Wherever the thesis mentions these figures, please refer to the appendix.

In choosing the 12 cases, the problem of representiveness had to be addressed. The object of inquiry has been delimited to motionless, two-dimensional trademarks, but how does one go about selecting the data? The present state of our knowledge of trademarks does not provide us with any criteria of representiveness. As a result, I have selected the 12 cases on the simple basis of whether they presented problem for the emerging hypothesis, or whether they are good examples for the theoretical discussion.

The descriptive scheme that has resulted from this explorative inquiry will have to be confronted with a representative corpus at a later stage in order to be validated.

The 12 cases consist of two logos, one of which is considered likely to be confused with the other, thus possibly infringing the trademark rights of the owner of the latter. The cases all revolve around logos which someone for some reason has found cause to wonder if they are confusingly similar. In 9 of the cases, this wonder has led to a formal complaint. In some of these cases the complaint has been dismissed whereas in others it has been met. The two hypothetical cases, however, revolve around logos that, from a structural point of view, might as well have been considered confusingly similar but for some reason have not been considered to warrant formal complaint.

Nine of the cases stem from Danish, European and American case law. The remaining three cases have never been made the subject of a formal complaint as trademark collisions. They have been included in the corpus in spite of this, because they are contextually associated by the fact that the organizations to which they refer have engaged in disputes over other intellectual property rights such as patent-, design- and 3D-mark rights or because observers in the trademark community have found cause to wonder about them.

1.4.2 Peripheral corpus

In addition to the core corpus, the inquiry will include a number of logos in what I have chosen to call the 'peripheral corpus'. These logos are all included because they somehow illustrate or problematize certain aspects of the argument in the thesis as it unfolds. They will be included and discussed wherever relevant.

1.4.3 Miscellaneous data

Finally, a third category of data, which I have chosen to term 'miscellaneous data' will be taken into account. In order to discuss the conditions of the articulation of graphic form, I have had to investigate some of the material means by which this articulated comes about. Because the specific object of the inquiry is logos, I have delimited my interest in these means of graphic articulation to those through which most logos are produced: Software applications for graphic production. This part of the inquiry is by no means exhaustive but merely serves to render probable the various categories and continuums of the descriptive scheme proposed here.

1.5 Summary

This chapter provides the background for the Ph.D.-project, of which this thesis is the product. The project has been carried out at Danfoss A/S and the University of Southern Denmark with partial subsidy from the Danish Agency for Science, Technology and Innovation.

The thesis revolves around the issue of counterfeiting, more specifically the problem of confusingly similar trademarks. The way trademarks are currently compared in trademark practice is the result of a well-established tradition known as "the assessment of likelihood of confusion", but the thesis proposes to improve it on very specific points. Hence, the research question, which the thesis seeks to answer, is "how can an MSS approach to graphic form be made applicable in forensic comparative analysis of graphic trademarks in order to make the assessment more (i) systematic, (ii) precise, (iii) measurable and (iv) comparable".

The chapter makes a few delimitations of the inquiry clear. First, it is necessary to point out that this is a social semiotic thesis, not a thesis on legal theory. Thus, trademarks are regarded as semiotic vehicles, the function of which does not adhere to national borders or jurisdictions. Second, the thesis is only concerned with the graphic aspects of figurative marks.

Finally, the chapter presents the hypothesis underlying the research question. The hypothesis can be summarized in these points:

- An MSS methodology can indeed make forensic comparisons of trademarks more systematic, precise, measurable and comparable.
- Legal practice considers *the event of confusion* to be singularly psychological. This entails that, from the point of view of practice, the event constitutes a *black box*, which cannot be observed directly.
- It is productive to consider trademarks as *communicative utterance*s and hence the event of confusion as *a social, communicative event* as much as a psychological event.
- Many trademark cases revolve around differences in graphic form that are too subtle for laypeople to be consciously aware of. The same differences are well within the conceptual awareness of the graphic designers that articulate the marks.
- Such differences form an important part of people's phenomenological experience.
- In order to describe the differences in form and function of motionless, two-dimensional, graphic trademarks, one has to address the question of *articulation of graphic form*.
- Such an analysis is beyond the present capability of MSS theory, because the *interface* between our bodies on the one hand and visual semiosis on the other has not yet been properly worked out.

2
Design of the inquiry

2.1 Introduction

In this chapter I will discuss the inquiry in the thesis. More specifically, I will discuss the specific mode of inquiry it represents. This is necessary to achieve a satisfactory level of transparency in the process of knowledge production. The nature of the thesis is exploratory and theoretical; it combines analytical insights from a scholarly discipline – MSS – and first-hand experience with graphic craftsmanship to yield a metalanguage aimed at forensic application. As far as the analytical insights from MSS are concerned, achieving transparency with respect to my results is fairly straightforward. As far as the practical experience with graphic articulation is concerned it is less so: Not only does the inquiry include retrospect introspection into first-hand experience with graphic design, the knowledge production in the thesis is to some extent the result of articulating graphic texts for the thesis itself. This says that the concept of *visual literacy* is crucial for the knowledge production.

Furthermore, I will discuss the overall conditions for categorization in the proposed scheme. Given that legal practice takes what it assumes to be the perception of 'the average consumer' as its point of departure for comparing trademarks, should my analytical categories somehow reflect a layperson's conscious experience of graphic form or is it valid to base analytical categories on the concepts of graphic craftsmanship?

2.2 The mode of inquiry

> The philosopher Polanyi ([1958] 1962, p.88) said, "I cannot say clearly how I ride a bicycle … (for I don't know it clearly), yet this will not prevent me from saying that I know how to ride a bicycle … For I know that I know perfectly well how to do such things, though I know the particulars of what I know only in an instrumental manner and am focally quite ignorant of them; so that I may say that I know these matters even though I cannot tell clearly, or hardly at all, what it is that I know". Likewise, a monolingual, monocultural person knows how to speak his own language without knowing how to analyze it. However, he or she may be taught to be aware of the phonetics of his own language. He may also be taught to use a disciplinary phonetic procedure to study another language (Pike in: Headland, Pike and Harris, Ed. 1990:33).

In the hypothesis in section 1.3.3, I wrote that the thesis is based on a number of assumptions: That people schooled in articulating graphic signs are aware of minute differences in graphic form at an entirely different level than lay-people. I am also assuming that the same minutiae still play an important (sub-phenomenological) role in lay-people's phenomenological experience of graphic form, either because they have some first-hand, unschooled experience with graphic articulation or because they have been exposed to countless products of skilled articulation.

I went on to ascertain that, if one wishes to truly understand how experience with practices of graphic articulation can affect the meaning potential of graphic form, one would have to address the actual processes of articulation. By doing so, I anticipated a discussion of the special nature of the knowledge produced by this inquiry: Given the truth of these assumptions, it stands to reason that an explorative inquiry into processes of articulation of graphic form is best achieved by a "native speaker" of graphics. Hence, the knowledge produced in this thesis is largely reached by combining theoretical reflection and articulatory action (and reflection) in abductive concert.

At one level, the input for this abductive reasoning is relatively straightforward. Scholarly inquiries into aesthetic objects have a long tradition and are fairly well understood. At another level, the input is less straightforward, because the experience gained through the practise of an aesthetic craft is not as commonly accepted as scholarly knowledge.

In this section, I will briefly present my own preconditions as a graphic practitioner for undertaking this investigation (2.2.1). I will then give a brief introduction to how reflective practice has become an ever more important component in design theory (2.2.2) before introducing *the event of confusion*, which is where *events of articulation* and *events of perception* converge (2.2.3). The event of confusion is the crux of integrating the approach of the thesis in trademark practice. In sub-section 2.2.4 I will discuss the usefulness of different ways of observing the event of confusion, and in sub-section 2.2.5 I will discuss the impact of visual literacy on participation in and observation of the event. Finally, in section 2.2.6, I will discuss emic and etic criteria for analytical categorization.

2.2.1 On not quite being a graphic designer

One very important precondition for the knowledge production in this thesis is that I am an illustrator and graphic designer myself, albeit an autodidactic one. When I was younger, I dreamed of training at the Royal Danish Academy of Fine Arts' Schools of Visual Arts, but at the crucial moment of choice I lacked the courage to commit to that dream. Even today I have yet to discover if my talent warranted such aspirations. The urge to preoccupy myself with articulating visual texts has never abated. Before committing to a career as a scholar, I was self-employed as a designer of visual communication of various kinds such as illustrations for schoolbooks and digital teaching materials, book covers, print layouts and web sites, and I still continue to work as a graphic designer when the occasion arises. My past scholarly activities of teaching graphic design theory and multimodal social semiotics to university students are in essence the result of a desire to intellectually grasp the seemingly intuition-based actions I perform as a graphic artist.

This has led me to become interested in very different topics such as photography and sculpture besides graphic design. The pre-understanding formed by my own experience with giving form profoundly influences this inquiry.

2.2.2 Research in Art and Design

Needless to say, although most certified practitioners would only consider me a fledgling designer, even an inconsequential body of experience such as mine cannot be made fully transparent for the sake of this argument. Hence topics that have preoccupied scholars in the overall field of *design studies* in recent years also reverberate in this thesis.

Although the thesis is not an inquiry into Art and Design per se, this area of scholarly interest can still inform the nature of the project to a certain extent, because the object of inquiry *is* a visually aesthetic object at one level.

Christopher Frayling[1] (1993) distinguishes between three kinds of inquiry[2] into Art and Design: He calls them research (i) 'into art and design', (ii) 'through art and design' and (iii) 'for art and design' (1993:5). Research *into* art and design, he observes, is the most straightforward of the three: It encompasses all inquiries into art and design that conform to a traditional idea of scholarly examination such as historical research, aesthetic or perceptual research as well as inquiries into various theoretical issues of social, economic, political, cultural, iconographical, structural etc. purport. Research *through* art and design is less straightforward: It encompasses research where *the act of designing* is an important aspect of the mode of inquiry. Examples of research through art and design are 'Materials research', the objective of which is to elicit the expressive potential of different materials, or 'development research', which could consist of

[1] Sir Christopher John Frayling is Rector at London's Royal College of Arts, where he also served as Professor of Cultural History.

[2] Frayling himself ascribes this distinction to Herbert Read (Frayling 1993:4)

the development and subsequent documentation of techniques or technology for artistic expression. The final kind of research distinguished by Frayling is 'research *for* art and design'. It is by far the most disputed type of research in art and design, and encompasses research where:

> […] the end product is an artefact – where the thinking is, so to speak, *embodied in the artefact*, where the goal is not primarily communicable knowledge in the sense of verbal communication, but in the sense of visual or iconic or imagistic communication. I've mentioned the cognitive tradition in fine art, and that seems to me a tradition out of which much future research could grow: a tradition which stands outside the artefact at the same time as standing within it (ibid.).

Frayling's paper has elicited several responses. Among them is Seago and Dunne (1999) who continue to reflect on the relation between 'object' and 'artefact' in research projects, which to a greater or lesser degree involve *the act of designing* as an aspect of the mode of inquiry. Based on an analysis of three such research projects, they conclude that:

> As experienced craftsman, graphic designer and product designer respectively, Ferguson, Johnson and Dunne acknowledge that there is a kind of tacit knowledge creative professionals possess which cannot be separated from their perception, judgement and skill (1999:16).

Although this thesis does not constitute research in art and design as such, because its trademark-object is not functionally defined as an 'aesthetic object' but rather by way of semiotics as a 'communicative utterance' and to a lesser extent by way of trademark practice as a 'vehicle of economic processes' (see Beebe 2004), its object in and of itself still coincides with many projects that do. Furthermore, as it shall become increasingly clear, the mode of inquiry does to some extent employ *acts of articulation of graphic form* as a heuristic: I design simple instances of graphics and subject them to change in order to (introspectively) gauge the nature of the differences made. These alterations are roughly analogous to the commutation tests of phonology, although they have not been designed as strict hypothetico-deductive methods of measurement. In other words, from a certain point of view the project does conform to Frayling's concept of 'research into art and design' as it inquires into structural issues of graphic semiosis, and to a lesser extent the idea of 'research through art and design' also resonates in the design of the inquiry.

2.2.3 The event of confusion

As stated above, the thesis addresses the question of likelihood of confusion of trademarks. This means that the design of the inquiry must somehow accommodate the 'event of confusion' during which someone is exposed to a trademark and consequently reacts with varying degrees of certainty or confusion. Before deciding on the place that the event should take in the design, we need to discuss its nature. What sort of 'event' are we talking about? Traditionally, trademark practice has regarded 'the event of confusion' as psychological. It is regarded as something, which takes place in the minds of the

consumers, and it is hypothesised that a psychological methodology is required in order to explain why some marks get confused where others do not (e.g. Koktvedgaard 1965:20; Zaichowsky 2006).

I fully recognize that, at the end of the day, the event of confusion is psychologically real and that psychological or cognitive schools of thought and modes of investigation are ultimately needed for a theory of likelihood of confusion to achieve explanatory adequacy. However, such schools of thought would seem to have a difficult time measuring the impact of graphic form on the event of confusion because, intuitively, the psychological reality of the event of confusion has too many variables for which they have no descriptive readiness. Hence, I propose to go the way of regarding the event of confusion as a communicative event, the ontological status of which is that of conceptual artefact. In so doing, I am opting for descriptive adequacy over explanatory adequacy in the hope that a robust descriptive hypothesis can eventually serve as an operational platform for a psychological explanation in the future. In practise, regarding the event as a communicative event rather than a psychological one has these consequences: In as much as trademarks make the same sense, at least to a degree, to both those who make them and those who perceive them, they must have qualities that permit shared understanding by both parties. In other words, my particular perspective on the event is not to regard it as something that takes place in people's minds, but as an event that arises between people. This removes the meaning making of trademarks from the black box of psychology and puts it in the realm of sociology, where we can begin to observe it.

This communicative perspective entails regarding the trademark as a semiotic vehicle. From the vantage point of the performer, it is the material product of his communicative intent, which is in turn fuelled by his communicative need (which is ultimately the need to sell his product). From this perspective a trademark's communicative function is to inform the consumer (the perceiver) of the origin of something (traditionally an article or a service, but to an increasing extent also the very expressive potential of the mark (see Beebe 2004)), which he considers buying. The unintentional *bona fide* infringement of trademark rights can on the one hand be regarded as *a communicative failure to inform one of the origin of an article in an unambiguous way*. On the other hand, the intentional *mala fide* misleading of consumers, the passing off of one's goods as if they were someone else's, must be regarded as *successfully communicating the origin in a sufficiently ambiguous way*.

However, as important as the performer-perspective may be for the inquiry, I cannot fully claim to regard the event of confusion as a communicative event without taking into account the performer and the perceiver alike. The data for the inquiry will consist of actual trademark cases, and whichever effect the performer's contribution has on the communicative event is in fact *there* to be observed in the trademarks. What is missing, in order to be able to observe the event of confusion as a communicative event, is of course the contribution of the perceiver. How this data is obtained is the topic of the next section.

2.2.4 Point of observation: 1st person or 3rd person?

In order to obtain insight into the perceiver's contribution to the communicative event, two different approaches could be taken: The first is the introspective 1st person perspective, which entails that the inquiry's 'observing subject' observes the effect on himself of the stimulus and takes that effect as representative. The second is the empirical 3rd person perspective, which entails exposing a number of research subjects to the stimulus and observing the effect it has on them. Taking into account the fact that to a certain extent I am working with my own articulatory actions and thus will be observing the effects caused by products of my own performance, the following investigation designs with permutations of 'observing subject', 'performer', 'performance' and 'research subjects' can be achieved:

1st person perspective

1. *The observing subject's observation of the effect on himself caused by a product of his own communicative performance.*
2. *The observing subject's observation of the effect on himself caused by the product of others' communicative performance.*

3rd person perspective

3. *The observing subject's observation of the effect on others caused by his own communicative performance.*
4. *The observing subject's observation of the effect on others caused by the product of others' communicative performance.*

Before committing to (a) particular design(s), let us take a look at how 'communicative situations in which the semiotic product is a trademark' are observed in different contexts.

As Mogens Koktvedgaard states, (1965:185) the *comparison* is the very lifeblood of trademark practice. By this he means the process by which two marks are compared in order to determine whether they are too similar or not. In legal practice the officials of the administrative authorities routinely perform such comparisons on a daily basis. His or her observation follows the 1st person design, where the object is of someone else's devising. Of course, such observation does not constitute unchecked relativism: Although ultimately introspective, such observations are 'objectified' (Wallberg 2004:29) by various directives and guidelines as well as an extensive body of Case Law.

The judicial authorities also routinely make observations of communicative situations involving trademarks. Sometimes, typically in high profile cases, the parties in a conflict will obtain the opinion of an *expert appraiser* in order to substantiate their claims. This usually means an individual schooled in graphic design. In short, the expert appraiser will bring his training and experience to bear in his assessment of the (lack of) similarities between the two marks. In such instances it stands to reason that the perceptions and judgments of the expert are influenced by more or less explicit knowledge of the craft. The very reason for obtaining such an appraisal is that the expert has a

conceptual grasp of the visual qualities of the marks, which would in all likelihood elude the attention of the layperson or at least be difficult for him to put into words. The expert appraiser's mode of observation is similar to that of the administrative official and the judge (1st person with object of others' devising) but, as I shall elaborate in the next section on visual literacy, their pre-conditions for observing are very different.

Quite different from these 1st person observations are the 3rd person consumer surveys employed in many trademark cases in order to substantiate e.g. claims of *acquired distinctiveness*[3] or *continuing commercial impression.*[4] Here, the observer observes the effect on others caused by the product of others' communicative performance. Practice seems to favour such quantitative empirical survey evidence above other kinds. As Gideon and Jacoby (2005) argue, this is probably because trademark practice primarily seeks to protect the interests of the *consumer*. Since the consumers' perspective is "determinative" (2005:10), it seems only reasonable to ask consumers if they find two conflicting marks likely to cause confusion. This is expressed in the following quote from Gideon and Jacoby's discussion of measuring 'continuing commercial impression', which is the term used in trademark practice for the sum total of the meaning of a given mark:

> Marks are deemed to be legal equivalents if they create the same continuing commercial impression. The impression is one that is *created in consumers*. Insofar as *the consumers' perspective is determinative, it seems counterintuitive to conclude, as have the Federal and Sixth Circuits, that the only relevant evidence is that of the visual or aural appearances of the marks themselves.* Rather, the determination of whether marks are legal equivalents should be a mixed question of fact and law, and the existence of a continuing commercial impression [...] and other contexts should be tested by a range of evidence – including *consumer survey* evidence, if it is available. Whether a likelihood of confusion exists is a mixed question of law and fact. This question is often resolved in modern trademark litigation with the use of survey evidence. While "there is no flat rule that a survey must be introduced to obtain a preliminary injunction, a permanent injunction, or to obtain damages, … an increasing number of opinions expressly rely upon survey evidence to substantiate the decision." (Gideon and Jacoby 2005:9-11, my italics)

However, as Gideon and Jacoby themselves point out (2005:11), if a survey suffers from bad survey design, its probative value is damaged. In a worst-case scenario, a flawed survey design can even prejudice the entire assessment of likelihood of confusion.

The four different designs also apply to Frayling's three kinds of research on art and design: (1) describes Frayling's 'research *through* art and design' and 'research *for* art and design': A designer documents the introspective

[3] As a measure of the relative 'strength' of a trademark (its ability to differentiate the trademark owner's product from that of others), practice operates with two kinds of 'distinctiveness': 'Inherent distinctiveness', which is a measure of the ability of a mark to stand out from other marks in and of itself and 'acquired distinctiveness', which covers the degree to which a trademark has become well known among the general public. Companies' efforts to brand themselves or their products can thus be seen to be an effort to 'acquire distinctiveness' [citation needed. Beebe?].

[4] In trademark practice, 'continuing commercial impression' is the term used for the sum total of the meaning of a mark (Gideon and Jacoby 2005).

observation of his own experience during the articulative event. (2) describes any sort of hermeneutic textual analysis of trademarks. This is for example the case when people analyse or comment on the work of (other) designers. (3) describes for example the situation in which a designer or a design agency performs focus group surveys to gauge the effect of a design. (4) describes the typical social scientific method for examining general properties of e.g. branding activities.

If the hypothesis (section 1.3.3), which assumes that lay-people have a limited vocabulary for a significant portion of the phenomenological experience of graphic expressions, is correct, how would one then go about designing a survey which asks them to put their experience in words? How would one ensure that all relevant criteria for the experience are given the proper weight – both in the questions and in the answers? And how would one ensure that the respondent's experience is not primed by the questions thus prejudicing the data? Such questions line up whenever the empirical measurement of likelihood of confusion is contemplated. This inquiry will be conducted as a 1st person observation. The bulk of the observation will be the effect caused by the products of others' performance on me, but there will also be a strong element of effect caused by products of my own performance.

2.2.5 Visual literacy

The crux of the matter in the above discussion of possible points of observation is of course not so much the nature of the object of observation (whether or not the object is one's own creation). It is the nature of the observation itself: What are the preconditions of the observer's gaze on the object?

This question requires me to address the concept of *literacy* in general as well as the more specific notion of *visual* (or indeed *multimodal*) *literacy.* One needs to ask two questions. The first is: To what extent is the observer visually literate? The second question follows from the first: What is 'visual literacy' in the first place? This second, more fundamental question has been the topic of much thought (see generally Walker and Chaplin 1997, Jewitt and Kress 2003). Unfortunately, it falls outside the scope of this thesis to discuss it at length.

However, as the distinction between two specific aspects of visual literacy is crucial for my objective and hence also for the way the inquiry has been designed, I will discuss it briefly. Walker and Chaplin describe the term 'literacy' in this way:

> To be literate means being able to read and write; more generally, it means being an educated or learned person. Literacy, therefore, is not an innate ability – it is something children have been taught over a number of years by parents and teachers. Tests have been devised to measure children's literacy, but what of their *visual* literacy? (1997:111)

They continue to elaborate their understanding of the term in this way:

> It is time to distinguish visual skills and literacy from cultural/historical literacy. Most children draw, paint and model. Consequently they gain some years of experience making visual artefacts. The early art of children is figurative but does not employ a coherent

> system of spatial representation such as perspective. Older children are encouraged to make more objective, naturalistic representations by observing and recording a motif, and they are taught perspective. At this point, or shortly afterwards, most teenagers cease to draw and paint. While children are growing up they are exposed to millions of still and moving images supplied by the mass media. Since the majority of children soon derive meaning from these images, they must have acquired a degree of visual literacy by means of looking. (id:113)

This last quote in particular opens up a can of worms. For instance, Walker and Chaplin seem to give equal status to "objective, naturalistic representations" and "perspective". If this were the case, it would indicate a certain Western (European) bias in their conception of visual literacy, because, as suggested by Rudolf Arnheim (1974:115), 'perspective' is probably a convention rather than an anthropological constant. More importantly, Walker and Chaplin seem to acknowledge that 'literacy' is achieved in two fundamentally different, yet complementary ways: They stress the fact that children up to a certain age "draw, paint and model" (id:113). Conversely, "[…] they must have acquired a degree of visual literacy by means of looking" (ibid.). Although they are not explicit on the subject, Walker and Chaplin seem to suggest that 'performing' and 'perceiving' is equally important in acquiring literacy.

However, these two quotes seem to introduce yet another level of complexity. Walker and Chaplin take a traditional sense of literacy as their point of departure. In this sense, being literate means having learned to read and write. Literacy, they say, "is not an innate ability – it is something children have been taught over a number of years by parents and teachers" (id:111). However, they stress the fact that children acquire a degree of visual literacy simply by being exposed to images in the mass media. Also, they stress that even young children "draw, paint and model" and only at a later stage in life become encouraged to produce conventionalized and codified representations. However, in their comparison of traditional and visual literacy, they seem to overlook the fact that children acquire language pretty much by themselves as well. A child will also learn to speak and understand speech simply by being exposed to speech and trying out speech sounds of its own. It is only when speech is represented in writing that instruction usually becomes necessary.

This suggests that visual or indeed multimodal literacy should also be regarded in a way that distinguishes between 'language acquisition' on the one hand and 'literacy' on the other.

A final set of quotes from Walker and Chaplin will introduce yet another level of complexity, that of 'concept formation' and analytical awareness, in the discussion:

> If students are already visually literate when they arrive at university, is there any point in teaching them anything more? The answer is 'yes' because students are unlikely to have a deep understanding of the mechanisms by which meaning is communicated in art and mass media: hence the need for explanations of codes, symbolism, cinematography, montage, editing techniques and pictorial rhetoric (id:114).

This quote stresses 'perceiving' communicative products made by others, but yet again, Walker and Chaplin acknowledge that also at an analytical level literacy seems to be heightened by experience with 'performance':

> A key objective of Visual Culture Studies is to raise the level of all students' visual literacy. One of the best ways of achieving this is through 'hands-on' practical experiences – for example, operating a film or video camera [...] (id:116)

I shall not pursue this line of thought much further, as it is now moving perilously close to research fields of a fundamentally different nature than the semiotic one that frames this thesis. Summing up however, it does not seem unreasonable to argue that there is an implicit hypothesis in Walker and Chaplin's discussion of visual literacy, namely that command of visual or indeed multimodal semiosis requires the individual to gain experience as both 'performer' and 'perceiver'.

Should one ever wish to truly understand this topic, there would probably be much insight to be gained by looking into the ways in which such experiences are cognitively processed and stored for later retrieval. Such processes could very well be understood in terms of 'cognitive representation'. The prevailing example to explain these distinctions is learning how to tie one's shoes: If a person who has acquired this skill is asked to teach it to someone else, he will have an extremely difficult time doing it using words alone. He will often resort to 'showing' how it is 'done', either by actually performing the act or at the very least by augmenting a verbal explanation with illustrative gesture. Representation theorists (e.g. Mandler 1998) argue that the experience one gains with tying shoes is implicitly processed and procedurally represented in memory. Only with difficulty can such experience be transformed into an explicitly processed declarative format, which allows for verbal expression.

The distinction between declarative and procedural representation might help explain why Walker and Chaplin's students benefit so much from hands-on practical experience. It could also quite possibly illuminate the "tacit knowledge creative professionals possess which cannot be separated from their perception, judgement and skill" (1999:16) which Seago and Dunne speak of with reference to designers and artists who do 'research through art and design' and 'research for art and design'. Finally (and most importantly for the argument in this thesis) the distinction between declarative and procedural representation could also in all likelihood help qualify the precise nature of the observer's preconditions for observing multimodal objects in general and trademarks in this specific case.

Because this thesis seeks to understand graphic *articulation* and because of the nature of the knowledge it seeks to produce, it will continually reveal itself to graze on such topics as *theory of mind* and *extended mind* (e.g. Donald 2001, Clark and Chalmers 1998, Clark 2008)*, perception psychology* (e.g. Arnheim 1974, Gibson 1986[1979]), *representation theory* (e.g. Mandler 1998)*.*

With regard to the four different constellations of 'point of observation' and 'status of the object of observation' outlined in 2.2.4 we can now begin to see the outline of an analysis of different setups in which trademarks are observed with

regard to the observer's pre-conditions for observing. We can ask the following three questions:

1. To what degree can the observer be said to be visually literate?
2. To what degree does this literacy pertain to 'performing' or 'perceiving' respectively?
3. To what degree does the observer command a metalanguage for (i) understanding and (ii) communicating his observation?

The particular mode of inquiry of this thesis combines two first observational stances: (1) *The observing subject's observation of the effect on himself caused by a product of his own communicative performance* and (2) *The observing subject's observation of the effect on himself caused by the product of others' communicative performance*.

2.2.6 Which level of literacy? Emic or etic categories?

As I discussed in section 2.2.4, trademark practice dictates that the comparison of trademarks should take the consumers' perspective (cf. my discussion of the quote from Gideon and Jacoby (2005)). However, this raises the question of whether or not it is possible for someone like me to disregard my pre-understanding thus placing myself in the position of the unwitting consumer. I have serious doubts about that. Even if it were possible, the forensic purpose for the whole exercise would be to analyse (conceptualize) the (perceptive) observational experience in order to put it into words, thus making legal transaction possible.

I find it useful to think of observation in terms of *emics* and *etics* and of *insider* observation and *outsider* observation in the tradition of Kenneth Pike and Marvin Harris (see generally Headland, Pike and Harris, Ed. 1990). If we substitute action by 'perception' in the following quote, Pike (1990) offers the following insight:

> A person knows how to act without necessarily knowing how to analyze his action. When I act, I act as an insider; but to know, in detail, how I act (e.g., the muscle movements), I must secure help from an outside disciplinary system. To *use* the emics of nonverbal (or verbal) behaviour I must act like an insider; to *analyze* my own acts, I must look at (or listen to) material as an outsider. But just as the outsider can learn how to act like an insider, so the insider can learn to analyze like an outsider. (Pike 1990:34)

A brief example will illustrate the point: In 2008, the Danish Tax and Customs Administration (SKAT) commissioned an updated typography, designed by Danish agency 11Design ApS, for all newly minted automotive license plates (shown as figure 2.2. The previous design is shown as figure 2.1). When the first plates began to appear in the urban environment, few people knew about the change. However, I suspected that most were still instantly aware of something being different. My suspicion was confirmed when, during a presentation of my research project at the Institute of Language and Communication at the University of Southern Denmark on March 25th 2009, I asked the participants if

they were aware of something different and if they could articulate the more specific nature of the change. Everyone had noticed something different, but no-one knew exactly what had be altered.

In the terms of Kenneth Pike, people perceived the change as *insiders* and were *emically* aware of the change. However, they were unable to analyze the precise conditions of their perception.

In 2008, a new series of license plates were commissioned in Denmark. 2.1 and 2.2 show examples of the typography on the plates before and after the implementation. When the first new plates began to appear, many people were unaware that a new look had been decided upon, but were still instantly able to tell that something was different. However, they could not put words to the exact nature of the difference.

2.1

2.2

This observation strengthened the hypothesis stated in paragraph 4 of section 1.3.3 that lay-people's phenomenological experience of graphic form relies on differences of which they are not conceptually aware. In other words, it takes the *etics* of outside disciplinary systems, such as the graphic design profession, to analyze the *emics* of laypeople's perception of graphic form. It is in the nature of forensic observation of trademarks to place oneself as an outsider, regarding the 'emics' of the 'consumer system' through the 'etics' of one's outside 'disciplinary system', be it legal practice, semiotics or schooling in graphic design. For an outsider to attempt to perceive a trademark as an insider strikes me as counter-productive to a claim for objectivity. As I discussed in section 2.2.3, legal practice makes the consumers' perspective determinative in the assessment of likelihood of confusion. From this point of view it might seem counter-intuitive to base the descriptive scheme of this thesis on anything but categories, which the consumers would deem appropriate and meaningful. But, as I have just demonstrated, I do not believe that a consumer survey could get to the heart of consumers' experience. For this inquiry I see no viable alternative to taking an analytical outsider perspective on trademark perception knowing full well that the resulting descriptive scheme will require empirical validation afterwards.

2.5 Summary

In this chapter, I have presented the design of this inquiry. I have phrased the specific research questions for the thesis and discussed their theoretical implications. I have presented my object of study - graphic trademarks - and the specific aspects of that object I wish to address as well as the conditions under which I am examining them.

The discussions in the chapter have all addressed the challenges of combining the very specific requirements for a method of comparative forensic analysis, which trademark practice dictates, with the state of the art insights into multimodal social semiotics and design theory, which I am assuming to be productive cf. the hypothesis.

The challenges are mainly due to the integration of knowledge at two distinct levels: At the first level, the integration of knowledge from MSS theory and trademark practice is problematic: Trademark practice has a very specific concept of the event of confusion, which is in contrast to the way MSS regards such an event: In trademark practice, the concept is built around the notion that the event is singularly psychological and that it unfolds in the minds of consumers. As a result, trademark practice prescribes a method of comparison in which the examiner places himself in the place of the uninformed consumer, who typically has a relatively low level of visual literacy. This is in stark contrast with the scholarly MSS approach I am inquiring into here. Although this approach fully recognizes that the event of confusion is psychologically real, it regards the event as a communicative event that arises between people. Among the consequences of this perspective is that we can begin to describe the qualities of trademarks that permit shared understanding of them albeit those qualities may elicit a sub-phenomenological experience in the less literate consumer and a conceptually conscious experience in the literate graphic designer. Such asymmetry aside, regarding the event as communicative removes the meaning making of trademarks from the black box of psychology and puts it in the realm of sociology where we can begin to observe it.

At the second level, the integration of knowledge from a traditional practice of scholarly reflection such as MSS and knowledge gained through articulatory performance is also challenging. One frame of understanding, which may be able to accommodate both, is representation theory (Mandler 1998), which hypothesizes the mental representation of experience in two distinctly different formats, one declarative and one procedural. This could illuminate the status of ‘tacit’ or ‘implicit’ knowledge, which is quite likely to be a factor in the meaning making of trademarks.

3

State of the art

3.1 Introduction

Although there is a very large body of e.g. legal-, marketing- and design-literature on the subject of figurative trademarks, they have not hitherto been the subjects of a systematic MSS inquiry. This is in spite of the fact that their combination of linguistic and graphic resources in a single signifier would seem to make them an obvious case for multimodal study of how they function as vehicles of interaction.

So how does one go about the task of developing a systemic, precise, measurable and comparable method of forensic comparison of trademarks within an MSS framework? A likely starting point would seem to be a survey of what existing literature on trademarks has to offer in terms of analytical categorization. In this chapter, I will present such a survey on the basis of relevant literature. Because this is a social semiotic study, I have limited myself to discussing literature, which illuminates trademarks from a semiotic perspective.

Interestingly, this means including literature on the practice of trademark law: Over the years, trademark practice has developed an implicit concept of trademarks as signs, which is unmistakably semiotic in nature.

Hence, this chapter serves two purposes in the overall argument of the thesis: On the one hand, it will help readers with a background in trademark practice understand the exact place the topic of this thesis occupies in their own conception of trademarks as signs. On the other hand, it will clarify if existing literature can provide a basis for a multimodal social semiotic approach to forensic comparison.

The chapter will fall into three main sections. In section 3.2 I will present the three predominant paradigms preoccupied with trademarks from a semiotic perspective, (1) Legal trademark theory, (2) Marketing- and branding theory and (3) Graphic design theory, and discuss how each of them defines and delimits the trademark phenomenon. In section 3.3 I will discuss how each of them copes with analysing an object of a multimodal nature. Finally, in section 3.4, I will address the fact that these fields are interested in trademarks for very different reasons, which causes them to inquire into trademarks with different emphasis on their various aspects. The section analyses the similarities and differences between the three fields by describing and categorizing them according to whether they stress diachronic or synchronic inquiry, and whether their knowledge production is of a reflective or a practical nature. By doing so I will take the first step to showing the value of a combined synchronic/diachronic and reflective/practical approach to understanding graphic form as a resource for meaning making.

3.2 One phenomenon; many names

Before beginning my survey of the literature concerned with trademarks, I need to make one point of terminological clarification: The term 'trademark', which I will use consistently for my object throughout the thesis, is only one of the terms for the phenomenon, which concerns us here. It is the proper term to use in a forensic context.

However, in marketing and branding theory, as well as in everyday speech, the phenomenon is usually referred to as a 'logo'. For the practical purposes of most laypeople, the terms refer to the same thing: The (relatively) simple graphic texts commonly used by companies and organizations to distinguish, to name a few, their products, services, employees, assets, and communications from those of others. However, the terms stem from different professional fields and, technically speaking, there are differences in the way they are defined and in the scope of their coverage. These differences are the result of the diverging interests of trademark theory, branding theory and graphic design theory. In this section, I will discuss how trademark law, branding theory and deign theory each define and delimit trademarks.

3.2.1 'Intersign' or 'intrasign': Two diverging interests

The first trademark laws were passed in Europe and the United States in the 19th century, but trademarks have been in use long before that. According to Mollerup (1997), the origin of trademarks can be traced to ancient Greek monograms (1997:24) and medieval heraldry (id:17ff).

The communicative function of trademarks has been an object of interest for designers, semioticians, marketing professionals and lawyers alike for decades: For example, Wally Olins, the renowned co-founder of the influential London-based design agency Wolff-Olins, published on the subject in his seminal *Corporate Identity* in 1989.

Semiotic literature on the subject of trademarks counts many influential examples from various professions: From the realm of graphic design comes Mollerup's *Marks of Excellence* (1997), which has received considerable accolade. From marketing- and branding theory comes for example the works of Benoit Heilbrunn (1997, 2001) and Jean-Marie Floch (1995), which present a management perspective on the semiotics of trademarks. As a final example, Barton Beebe (2004) has written a very insightful semiotic account of the practice of American trademark law.

These works all have a common cynosure based on an explicitly semiotic approach to the communicative function of the trademark based on a *triadic analysis* of the structure of the sign, which is probably due to the specific communicative function of trademarks.

A little elaboration is in order here: Most treatises on semiotics refer to two distinct paradigms, or schools of semiotics: One is the European, Saussurean tradition (following Swiss linguist Ferdinand de Saussure, 1857-1913) and the

other is the American, Piercian tradition (following American philosopher Charles Sanders Pierce, 1839-1914).

The Saussurean tradition is characterised by a 'dyadic' analysis of the structure of the sign into two "components". Saussureans refer to them as *signifier* (the sign's perceptible form) and *signified* (the mental idea for which the signified stands) (Saussure 1972[1913]:158). For example, in the Saussurean tradition, the example depicted as figure 3.1 below could be analysed in terms of its signifier, which in this case is constituted by two distinct, black areas with certain shapes. The signified is then the mental idea of everything this shape stands for: The concept of the fruit 'apple' as well as the company 'Apple Computer, Inc.' and all its products and services.

3.1

The other tradition, the Piercean one, is characterised by a 'triadic' analysis of the sign into a *representamen*, an *interpretant,* and an *object.* In the common interpretation of Pierce's concept of the sign, the *representamen* is the expression plane of a sign, the *interpretant* is the content plane, and the *object* is the phenomenon, which the sign refers to. For example, with regard to figure 3.1, the delimited black area on the surface of this page is the representamen. This shape gives rise to the interpretant, which is the particular idea of 'appleness' in a particular way. This particular idea of 'appleness' refers to a particular material manufacturer of computers and consumer electronics (Apple Computers, Inc.), which is the object.

As noted above, the triadic structure of trademarks as signs is common in trademark literature (see Mollerup 1997:78, Heilbrunn 1997:180-182, 2001:89, Beebe 2004:637). I find it reasonable to assume that the preference for a triadic analysis of the sign's structure in these specific fields has to do with the specific communicational function carried out by trademarks: The fact of the matter is that a trademark specifically stands for a material object in the form of a product or a service as well as the commercial origin of that object all the while (often) depicting something else altogether as in the case of figure 3.1. Benoit Heilbrunn (1997:176) comments on this complex of relations between the components of the sign from the point of view of branding theory:

> The representative power of the logo must be accepted in two different meanings: First, the logo represents, often simultaneously, entities such as organisations, brands, countries, etc. This representative power is linked to legitimacy. Second, the logo represents graphic elements (a face, a character etc.); this representative power is linked to analogy.

Such a complex of components and relations, which functions at two levels, is perhaps more adequately captured with a triadic structure than with a dyadic one (which could only capture one level of representation).

In other words, the various approaches to trademarks as signs are rather alike because they conceptualize the internal structure of the sign after the triadic model. However, as we shall see, they emphasise the meaning making of the individual mark and the mark's relation to other marks differently.

In order to explain, I will turn to how trademark practice regards trademarks as signs. Beebe (2004:638) offers an insightful semiotic analysis of the practice of American trademark law. He does so in terms of what he calls their *intrasign* structure (the dyadic or triadic structure of the components that make up the sign) and their *intersign* relations to all other signs (based on the notion that a sign is meaningless without reference to other signs. If everything in the world were blue, 'blue' would be meaningless). His distinction between *intrasign* structure and *intersign* relations is based on Saussurean principles of *signification* and *value* (see Beebe 2004:638-645; Saussure 1972[1913]:158ff). More specifically, he writes:

> To be sure, signification involves a relation of equivalence, but this relation occurs *within* the sign, and is incomplete. Intersign relations of value are necessary to perfect signification by delimiting it, by placing it within everything that is outside of and different from it (2004:642).

In other words, the signification of the trademark for Apple, Inc. depicted as figure 3.1 above and 3.3 below needs to be regarded in the light of its specific value in relation to all other trademarks in the world (and ultimately, because trademarks are a specific kind of sign, to all other kinds of signs in the world), both those that are pretty similar to it (figure 3.4) and those that are less so (figure 3.2). A sign derives much of its meaning by being different, both in terms of expression and content, from other signifiers.

3.2

3.3

3.4

The gist of Beebe's article is that, in his semiotic analysis, trademark doctrine comes out as being primarily concerned with a trademark's intersign relation to all other trademarks in the greater trademark system rather than with its individual intrasign signification. He does not himself explicitly say so, but this conclusion must be tied in with his opening argument, which stems from the hypothesis of The Chicago School of law and economics that "[…] the law is trying to promote economic efficiency" (2004:623) in society in general by:

> [...] lessen[ing] consumer search costs by making products and producers easier to identify in the marketplace and [...] encourage producers to invest in quality by ensuring that they, and not their competitors, reap the reputation-related awards of that investment (ibid.).

Thus, the comparison of trademarks in for example the 'assessment of likelihood of confusion' is designed to test a trademark's ability to *differentiate* the goods and services of one producer from those of all others.

When comparing the ways in which trademark doctrine, branding theory and graphic design theory regard the trademark phenomenon, Beebe's analysis is quite enlightening: Although marketing- and branding theory is also very much interested in a trademark's ability to differentiate one company from others, it is aimed at promoting the interests of the producers rather than those of society in general. It does so by providing the means for producers to create signs (brands) that encourage consumers to choose their products over those of others. Thus, marketing- and branding theory is primarily concerned with what Beebe refers to as "the positive meaning of the sign" (id:239) and only as a means to this end with the "negative difference or distinctiveness of the sign as against all other signs" (ibid.).

These differences in the interests of trademark doctrine and branding theory result in differences in subject matter: On the one hand, the 'trademark' of legal doctrine encompasses any one sign in any medium that can differentiate a commercial entity's products or services from those of its competitors. On the other hand, the 'brands' of branding theory consist of a complex of signs, of which the trademark is only one, and stress *signification* over *value*. In the words of Mollerup (1997:56):

> A brand is a product (or a class of products) including its trademark, its brand name, its reputation and *the atmosphere built up around it* [...] A brand is fuelled by whatever is associated with the product: always a trademark and by product quality, sometimes by packaging and often, to a great extent, *by advertising* (my italics).

Testimonial to the gaps in terminological consistency, Mollerup chooses to use the term 'trademark'. This is of course entirely consistent with trademark doctrine. However, Mollerup also positions himself in the marketing-, branding- and graphic design traditions where the preferred term seems to be 'logo'. One can only speculate on the reasons for this choice, but Mollerup states in the introduction to his book, that:

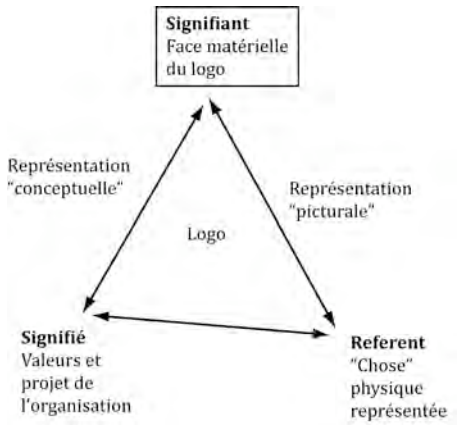
> In spite of their omnipresence, very little has so far been written about trademarks. An exception is the subject of legal protection, which has been dealt with in depth elsewhere, because of the economic implications. As legal protection differs from country to country, and this book focuses on the function of trademarks per se, legal protection is not explored here (1996:11).

This, along with his strong affiliations with the Scandinavian trademark community,[1] is probably the reason for his choice. In fact, Mollerup proposes a definition of the term 'trademark' that is more idiomatic than any other definition seen in trademark doctrine, which actively seeks to span the gaps between trademark doctrine and branding theory (1996:96-97). Thus, in more ways than one, Mollerup's contribution covers the middle ground between marketing- and branding theory and trademark theory.

3.2.2 Three different concepts of intrasign structure

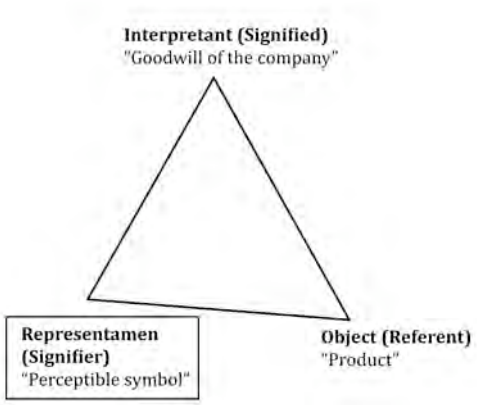
As stated in the previous section, literature with an explicitly semiotic focus on trademarks seems to prefer a triadic concept of the *sign.* Heilbrunn (2001:89), Beebe (2004:637) and Mollerup (1997:78) even present their own versions of *the semiotic triangle* first presented by Ogden and Richards (1923). The discrepancies between these three triangles are an indication that the different interests of these professions cause terminological differences between the paradigms to run deep. Figures 3.5, 3.6, and 3.7 below illustrate the three different concepts of *intrasign structure*: 3.5 depicts the concept of Heilbrunn (2001:89), 3.6 is from Beebe (2004:637) and 3.7 is from Mollerup (1996:78). Heilbrunn is the only one of the three to offer explicit comments on the nature of the intrasign components in his illustration. For the other two illustrations, I have found definitions of the terms in the accompanying text. They are bracketed with double quotes in 3.1. It is apparent that the three authors have distributed the intrasign components differently in the triangle. I have chosen to remain faithful to their choices in my reproduction, but for reasons of clarity I have put the one thing they all have in common, the material sign or 'signifier', in a box.

3.5

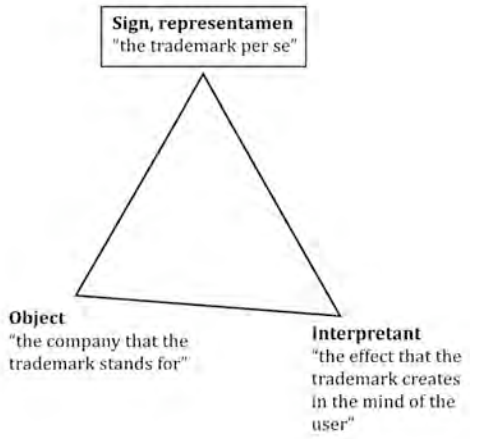


[1] For example, Mollerup has contributed with his 'visual identity design' perspective to several interdisciplinary collaborative works on trademarks (Holger and Holmberg (Ed.) 2002, Schovsbo, Wallberg, Riis, Breddam and Thielke (Ed.) 2005).

3.6



3.7



The three triangles are conceptually different in several ways.

(1) As Heilbrunn states, the representative power of the trademark is two-fold: On the one hand the trademark represents 'a product' or 'an undertaking' or both, on the other hand it has a motif i.e. it denotes meanings, either verbally or visually, that are not necessarily motivated by the nature of the undertaking or the product. For example, the fruit depicted in figure 3.1 has little to do with the consumer electronics manufactured by Apple, Inc.
Beebe's and Mollerup's conceptions concentrate on the relation between sign and product, company etc. while Heilbrunn's conception concentrates on the relation between sign and motif.

(2) The inclusiveness of the sign concept differs. Heilbrunn (left) has the narrowest scope of the three: He is very emphatic that his triangle adheres only to 'icotypes';[2] that is 'graphic marks' with a pictorial content. Mollerup (right) is not entirely clear about the specific nature of the material signifiers but, judging from his overall account, he must be referring to graphic trademarks as such (both 'logotypes', 'icotypes' and 'mixed types'). Finally, Beebe has the broadest

[2] A discussion of the distinction between 'logotype', 'icotype' and 'mixed logo' can be found in section 3.3.1.

scope. He includes as his 'signifier' the object of trademark doctrine, that is: "[…] any signs capable of being represented graphically [and] capable of distinguishing the goods or services from one undertaking from those of other undertakings" (L299/25, Article 2). In section 2.1.2 I presented all the different types of trademarks currently supported in practice.

(3) Heilbrunn specifies the values and purpose of the undertaking as the sign's signified. In contrast, Beebe specifies the undertaking's goodwill as signified. It seems reasonable to argue that Heilbrunn's perspective is that of the undertaking while Beebe's perspective is that of the general public. In other words, their concepts are at different ends of the 'encoding' vs. 'decoding' axis. This reflects the very same difference between marketing- and branding theory and trademark theory, which I discussed in the previous section. Again, Mollerup seems to occupy the middle ground and to attempt to span the gap between the two perspectives by making 'the organization' and thus implicitly also its values and mission the 'object' of the sign and 'the effect of the trademark in the mind of the consumer' the interpretant.

Because the theoretical framework for the thesis is a social semiotic one, and because I choose to regard 'the event of confusion' as a communicative event rather than a psychological one, the observation of this difference between (i) marketing- and branding theory and (ii) trademark theory is extremely important. Because, as two of the key proponents of multimodal social semiotic theory, Kress & Van Leeuwen, state:

> [...] we define communication as only having taken place when there has been both articulation and interpretation. (In fact we might go one step further and say that communication depends on some 'interpretative community' having decided that some aspect of the world has been articulated in order to be interpreted.) (2001:8).

Thus, from a social semiotic point of view, a semiotic account of the trademark phenomenon should – in order to be explanatorily adequate – accommodate articulation and interpretation in equal measure. I shall go into this discussion in more depth in chapter 6.

Unfortunately for the undertaking of this thesis, given their level of generality, none of the above conceptions of intrasign structure can determine whether two trademarks are likely to confuse a consumer. All three accounts, even that of Heilbrunn, which is the more specific of the three, fail to provide tools for any measure of close analysis. For instance, Heilbrunn's 'referent' ("chose" physique représentée) does not provide us with categories to distinguish between the apples in figure 3.3 and 3.4. To be sure, all three concepts can probably account for the fact that both marks depict an apple with a single attached leaf. But what of the obvious differences in the way the two marks look? Neither Heilbrunn's, nor Beebe's nor Mollerup's schemes can tell us how to proceed with analysing the fact that one apple is drawn with a line of varying width whereas the other is represented by a massive black shape. Such differences are, as I shall argue throughout the course of the thesis, crucial for the potential of graphic meaning making.

3.3 Words and images

As the proverb says, there is more than one way to skin a cat. Although trademark theory, marketing- and branding theory and graphic design theory each conceptualize the trademark phenomenon in their own ways, they all recognize the fundamentally hybrid, or multimodal, nature of trademarks: A communicative phenomenon, the meaning of which rests equally on verbal and visual aspects. As a result, they have all had to accommodate these two aspects of trademarks in their terminology. However, once again their different outlooks cause them to do so in different ways.

3.3.1 Logo: Logotype, icotype and mixed logo

A very straightforward approach to the semiotically hybrid nature of trademarks is expressed by Heilbrunn (1997:177) who, from the point of view of branding theory, states that: "Even though the logo may always be analyzed as a visual message, three types of logos can be identified: the *logotype*, the *icotype*, the *mixed logo".*

3.8

3.9

3.10

An example of a 'logotype' from the thesis' core corpus can be observed in figure 3.8. It is, as Heilbrunn states in his definition of the term, "exclusively composed of alphanumeric signs" (1997:178). Heilbrunn's remark that a logo "may always be analyzed as a visual message" is of particular importance with respect to how the 'logotype' is regarded in the marketing and branding paradigm. Because, as Heilbrunn continues (with reference to Scott 1992 & 1993): "The choice of typography and colors gives the logo its identity features and in some way tends to iconize these alphanumeric signs so that the logo becomes an image" (ibid.).

Figure 3.9 illustrates an 'icotype' from the corpus. Such a trademark is "constituted of an image" (ibid.). Heilbrunn points out that the choice of an image can be conventional in two different senses: It can be a motivated choice or an arbitrary one. In the first case, "the logo really acts as an iconic and indexical sign […] Telephone companies are, for instance, often represented by a phone" (ibid.). In the latter case, the "[…] logo might also be chosen by virtue of pure convention (…) Such logos are semiological, that is, structures combining elementary signs taken from a discrete repertory, which is the product of an arbitrary convention" (ibid.). Their original arbitrariness aside, such marks "[…] can in any case

become, by virtue of heavy repetition, indexical or even iconic signs of the organization, because the organization's public has learned to associate such signs with the company" (ibid.).

The third, 'mixed', type can be observed in figure 3.10. It is by far the most troubling type of the three, because as Heilbrunn comments: "The complexity of the internal structure of such logos involves a further semiotic issue, based on the relationship between linguistic and iconographic discourses" (ibid.). He specifies four kinds of relationships between the verbal and visual constituents of trademarks:

> Such logos illustrate various types of relationships between the linguistic and iconographic discourses (Barthes 1964; Nöth 1990:453-454; Goodman 1968). The linguistic message (logotype) and the iconic message (icotype) might be related through such relations as anchorage (the logotype directs the reader through the various possible signifieds of an ambiguous icotype), relay (the logotype and the icotype are considered as complementary fragments of a more general syntagm). Labelling (the logotype plays an indexical reference to the icotype), and mutual determination (the logotype and the icotype coexist thanks to a mixed relation of anchorage and relay, so that they become interdependent) (id:178-179).

However, the issue of the 'mixed' trademarks is in reality even more troublesome than Heilbrunn's account reveals. The four types of relationships outlined above all specify ways in which the conceptual *content* relayed by means of verbal and visual substrates respectively can be said to elaborate or complement one another. But Heilbrunn's account does not take into consideration the fact that the *expression*, which is, in the case of both semiotic modalities, achieved through an *articulation of graphic form*,[3] of the verbal and visual constituents is also interrelated to a varying degree of interdependency.

Moos & Johannessen (2005:54-56) outline a descriptive scale, which runs through various steps of *integration* between the verbal and visual constituents of a trademark. At one end of the scale are trademarks where the 'logotype' and 'icotype' are structurally discrete entities which have merely been juxtaposed. The trademark for Pelikan Vertriebsgesellschaft mbH & Co. KG from the core corpus, which is illustrated as 3.10, is an example of this. At the other end of the scale, the verbal and visual substrates have melted into a single, semantically ambiguous articulation. In between are an indeterminate number of intermediate steps. The trademark for Dansk Supermarked A/S's Netto from the core corpus (figure 3.11) is an example of such an intermediate step: The articulation of the graphic form of the 'N'-letterform in the logotype accommodates the shape of the icotype. A case of an even higher degree of integration can be observed in 3.12; the trademark for American outdoor apparel manufacturer The North Face Apparel Corp. (which is not in the core corpus). In this 'mixed logo', aspects of the individual structures of the 'logotype' and 'icotype' have been aligned; more specifically the overall heights of the two elements have been matched and the space between the three arches in the icotype and the typographical spacing of the lines of the copy are similar.

[3] See chapter 6 for a discussion of the articulation of graphic form.

3.11

3.12

3.13

Finally, the epitome of integration can be observed in figure 3.13, which is the trademark for Finnish fixtures manufacturer, Oras Oy. In this trademark, a single graphic form simultaneously suggests two different interpretations as either an 'r'-letterform or a stylized iconographical representation of a water spout.

Summing up, although the marketing- and branding paradigm's approach to trademarks does indeed cater for the verbal aspect of the hybrid nature of trademarks by specifying the 'logotype', the paradigm emphasizes the visual aspect. Heilbrunn remarks that a logo – and hence also a logotype – may always be analyzed as a visual message, thus making the visual aspect an analytical base line. Furthermore, he expresses the point of view that "the choice of typography and colours [is what] gives the logo its identity features and in some way tends to iconize these alphanumeric signs so that the logo becomes an image" (1997:178). In other words, visual perception is a determining factor in defining the term 'logo'. A logo cannot be spoken. However, as we shall see in the following section, many trademarks can (in trademark practice's definition of the object of our concern).

3.3.2 Trademark: Word-mark and figurative mark

Trademark practice deals with the hybrid nature of trademarks in a way that is very different from that of the marketing- and branding theory. It uses the distinction to delimit the scope of legal rights. In other words, one can register the right to a word without claiming a particular look. Many trademarks can be spoken. In legal doctrine the dual nature of trademarks has given rise to two different categories: *Word-marks* and *figurative marks*. In cases such as French fashion legend Lacoste S.A. from *Lacoste S.A. vs. Føtex A/S* (case No. 3 in the corpus), the distinction is straightforward and makes perfect sense: Lacoste S.A. has two Community Trademark registrations in OHIM's database: CTM No. 002979524 is a registration of the word-mark 'LACOSTE' and CTM No. 004104626 is a registration of the figurative mark  . Our knowledge of the Lacoste-brand aside, the word-mark 'LACOSTE' and the figurative mark have very little to do with each another. In Heilbrunn's terminology, they are mutually determinate. Nothing about the word 'lacoste' indicates any inherent connection to crocodiles and vice versa. In other words, in such cases it is straightforward to classify the two marks differently. However, the straightforwardness of the Lacoste-case is almost an exception to the rule. At the other end of the scale are the trademark registrations of the Danish manufacturer of the ubiquitous plastic building bricks, LEGO A/S (case No. 2). LEGO holds a number of Community

Trademark registrations of both the word-mark and figurative mark categories. The word-marks are registrations of the word 'LEGO' whereas the figurative marks are registrations of the *figurative design* of the word, as depicted in 3.14.

Community trademark No. 002829463, which is owned by LEGO Juris A/S. This registration is for a figurative mark. 3.14

A registration of *a figurative design of a word* does not automatically entail a right to the word as such. However, in cases where a word is either intrinsically distinct or has acquired distinctiveness through use, a registration of they way it is designed graphically may extend its protection to the word per se (Wallberg 2005:197).

While word-marks are well defined as verbal signs, figurative marks are not. In fact, to the extent that the terminological ambiguity, which follows from the hybrid nature of trademarks, has to be assigned to either the verbal or the visual aspect, trademark practice does this in a way that is exactly opposite to that of the marketing- and branding theory. In marketing- and branding theory, the unequivocal category is the 'icotype', and the 'logotype' is ambiguous. In trademark doctrine, however, the unequivocal category is the 'word-mark', whereas the 'figurative mark' is ambiguous.

3.3.3 Graphic design theory

In the search for a terminological point of departure in our quest for an adequate descriptive scheme for trademarks, graphic design theory seems to be the most promising of the three paradigms. Mollerup's contribution (1996) has an explicitly semiotic stance and will of course be considered here. However, there is also a host of works from within and around the graphic design community which also deserves attention, although those works are not strictly theoretical in nature.

3.3.3.1 Mollerup's taxonomy of trademarks

In the introduction to *Marks of Excellence*, Mollerup reveals his motivation for the book:

> The main purpose of *Marks of Excellence* is to look at the nature of trademarks and the way that they produce meaning. In so doing, the book should also encourage clients to commission trademarks that are both distinctive and descriptive, and inspire designers to design them (1996:11).

Mollerup covers a lot of territory in the book. He gives an account of the history of trademarks from their origins thousands of years ago as owners' marks that, for example, showed that a weapon belonged to a certain individual. The account moves from these pre-historic beginnings over heraldry and monograms to the 'branding' of modern times. He also describes the pragmatic functions of the modern trademark phenomenon in relation to organizational identity. Related to both these topics but of more immediate interest for our purpose, however, is his inquiry into the communicative function of trademarks, which culminates in his presentation of a "taxonomy" of trademarks (id:95-126). His intentions with the taxonomy is to "expand our understanding of them by highlighting their similarities and differences" (id:95), and he finds the substance for his classes in the semiotics of Jakobson (id:75), Guiraud (id:80) and, most importantly, Peirce (id:78, 84-85).

The taxonomy itself is an interesting mix of ontological and functional differences between trademarks. The ontological distinctions stem mainly from the fact that the hybrid nature of trademarks has also come to Mollerup's attention. As a result, the most general distinctions in his scheme distinguish between 'graphic marks' versus 'non-graphic marks' and 'picture marks' versus 'letter marks'. He proceeds to identify a host of semiotic functions (e.g. whether they are 'descriptive', 'metaphoric' or 'found' (id:95)) in each of the ontological classes, which lead to the most delicate levels in the taxonomy. Here, Mollerup distinguishes four kinds of picture marks; 'descriptive marks', 'metaphoric marks', 'found marks', and 'non-figurative marks' as well as eight kinds of letter marks; 'proper names', 'descriptive names', metaphoric names', found names', 'artificial names', acronyms', non-acronym initial abbreviations', and 'non-initial abbreviations'. I will comment on the usefulness of Mollerup's taxonomic scheme and compare it to others from the graphic design profession in section 3.3.3.3.

The last big part of Mollerup's contribution is an alphabetized section with 35 selected 'motifs' of trademarks (id:127-194). The motifs show an interesting mix ranging from the iconical 'Animals' to the symbolic 'X, and other conspicuous letters'.

3.3.3.2 Other classification schemes from design

The design of trademarks is considered to epitomise graphic design by many in the profession. Trademark design is generally recognized as the most challenging of all the various disciplines of 'identity design', which also covers such areas as web-, stationary- and print-ad design. As a result, many graphic designers and design agencies showcase their trademark designs in authoritative collections as an indication of their skill. These collections typically include hundreds of trademark designs that seem only to have the graphic substrate in common. Such collections typically make use of a classification scheme of sorts for easier reference. It stands to reason that the principles of such schemes might provide useful clues as to how a descriptive scheme for forensic analysis of trademarks might be worked out. In this section I will discuss two such collections: The first was collected and edited by an individual, Michael Evamy,

and published in his book *Logo* from 2007. The trademarks showcased in the second collection, *Logolounge*[4] (Gardner (Ed.) 2003), were submitted by designers themselves into an on-line database on logolounge's web-site and subsequently reviewed and collected by a panel of 9 peers, all of which are renowned designers of and commentators on graphic design. Neither of these two collections are anywhere near as explicit about the choices they have made in establishing the architecture of their classifications as Mollerup is. *Logolounge* is the least explicit. It simply states that:

> In the book and on the companion Internet site, the logos have been arranged categorically to allow for fast access and to show off the dramatic diversity of style used to depict similar subject matter (Gardner (Ed.) 2003:7).

Although this quote does not offer much in terms of an explanation, it does provide us with two interesting variables: (i) diversity of style and (ii) subject matter. Below are three examples from the book, all of which have been sampled from the collection's 'Heads' category (id:109):

3.15

3.16

3.17

It is apparent that - glasses, headphones and helmets aside - all three trademarks indeed depict the same 'subject matter', which also headlines the category. It is also apparent that the three marks are vastly different in what Gardner refers to as their 'style'. 3.15 (not unlike the apple in figure 3.1) is rendered as an all black surface, whereas 3.17 has been rendered with black pen or brush strokes (as the apple in figure 3.4). 3.16 is different altogether as it is questionable if it has even been articulated in the same semiotic modality[5] as 3.15 and 3.17.

This way of classifying trademarks in terms of their 'subject matter' rather than by other qualities such as 'style' is consistently used throughout *Logolounge.* There are 21 different areas of 'subject matter' in the book: (1) Initials, (2) Typography, (3) Enclosures, (4) Display Type, (5) Calligraphy, (6) Crests, (7) Sports, (8) Heads, (9) People, (10) Mythology, (11) Birds, (12) Fish, Bugs, Reptiles, (13) Animals, (14) Nature, (15) Shapes, (16) Symbols, (17) Arts, (18) Miscellaneous, (19) Food, (20) Structures, and (21) Transportation.

[4] "Logolounge" is a multiplatform business franchise. The hub of the undertaking is a database of trademarks into which designers submit their work. Since the beginning in 2003 each year a panel has reviewed the years' crop and selected the best submissions for publication in the annual *Logolounge* collection. I have based my observations on the first volume from 2003. The subsequent volumes (*Logolounge 2-6*) do not deviate substantially from the template established here.

[5] For an in-depth discussion of the conditions of 'articulation' and thus also a discussion of the different modalities of 3.15, 3.16 and 3.17 respectively, please refer to chapter 6.

It is of note that the categorization in *Logolounge* falls into two overall sections. The first, which includes the first five categories, favours verbally constituted trademarks. The common denominator is letterforms, either by themselves (initials) or grouped into words (logotypes). The second section favours visually constituted marks (icotypes). In other words, it seems that the hybrid nature of trademarks is also a key heuristic for the authors of *Logolounge*.

A similar structure can be observed in Michael Evamy's *Logo* from 2007. His scheme also falls in two overall sections, one dedicated to "logotypes and letters" (2007:24-143) and one dedicated to "symbols" (id:145-321). Evamy offers the following thoughts on how his classification has come about:

> How are logos arranged? Marks have been categorized according to their most significant visual *features* or *characteristics*, for example, overlapping type, square symbols, symbols containing trees. To create a sense of the impulses and trends currently at play in identity design, *the material was given the chance to order itself*; groups of logos were allowed to coalesce *naturally* into categories. Some did this more naturally than others. Also, there were many instances in which a logo could have legitimately been placed in any of three or four categories (Evamy 2007:4, my italics).

The quote anticipates my discussion in chapter 4 of key terms in the multimodal social semiotic theory. For a detailed discussion of these terms, please refer to that chapter. For now, however, Evamy's words are very interesting and warrant comment at some length.

According to the jacket of *Logo* (2007), Michael Evamy is "[…] a design journalist, author and copywriter and works with major design companies on branding and identity projects". He is not, in other words, a graphic designer. He is *an observer of the effect on himself caused by the products of others' performance*, as I outlined in section 2.3.3. With respect to my discussion of 'literacy' in section 2.3.5 and 'emics' versus 'etics' in section 2.3.6, Evamy must be assumed to have based his analytical decisions on a certain kind of experience, which is neither strictly theoretical nor practical. In other words, his categories reflect an *emical* awareness of differences between categories of marks. He expresses this particular state of awareness himself by saying that "the material was given the chance to order itself". In other words, he was not consciously, *etically*, aware of the precise conditions of his choices. At first glance, the resulting categories seem to be incommensurable. For example, the 'representational' categories 'trees' (2007:252-253) and 'woven' (id:226-227) have different ontological status (one represents a substance and the other a process), as do the 'symbol' categories 'squares' (id:154-155) and 'radiating' (id:180-185). However, a multimodal social semiotic approach reveals that Evamy's categories are *metafunctionally* (Halliday and Matthiessen 2004:29-31) different and that he makes use of 'salience' (Kress and Van Leeuwen 2006:201-203) as a differentiating mechanism. Thus, some of his categories order trademarks according to salient qualities of an interpersonal nature (e.g. 'illustrative', Evamy 2007:88-89) while other categories adhere to ideational (e.g. 'trees') or textual features (e.g. 'intertwined characters', id:48-49).

3.3.3.3 Are such schemes useful?

The classification schemes of both Gardner and Evamy make distinctions based on ontological qualities of trademarks rather than on a functional idea about what it is people do when they articulate or interpret them. It stands to reason that such an approach cannot ever be descriptively adequate: In my opinion, a classification scheme based on ontological categories can never become truly exhaustive because the number of ontological phenomena in the world is infinite. If descriptive adequacy is required, I see no alternative to a functional approach to categorization.

Mollerup's contribution shows more promise to the agenda of this thesis: Like Gardner and Evamy he is also compelled to make certain ontological distinctions. He refers to them as 'material' distinctions himself, and specifies them as "what the trademarks show" (1996:95). Examples are his distinctions between 'picture marks' and 'letter marks' and between 'figurative picture marks' and 'non-figurative picture marks' (Mollerup 1996:99).

However, Mollerup's contribution distinguishes itself by the most delicate levels in his taxonomy (id:98), which are functionally defined rather than ontologically. Mollerup himself refers to this criterium of distinction as 'referential qualities' (id:95), which he explains as "what the trademarks mean" (ibid.). He bases these referential qualities on the intrasign relation between the representamen and object following the Peircian tradition with *iconical, indexical* and *symbolical*[6] relation types further broken down into *images, diagrams, metaphors, designations* and *reagents.* Unfortunately, although it seems that Mollerup's taxonomy exhaustively accounts for all possible instantiations of graphic trademarks, the level of delicacy in his 13 *infima species* is too general to have explicative power in any of the cases of the core corpus. For example, although evidently very different, Mollerup's categories fail to distinguish between the trademarks illustrated as 3.15, 3.16 and 3.17.

As it turns out, none of literature explicitly interested in the communicative functions of trademarks seems able to provide a terminology, which allows for the level of close analysis of trademarks needed to adequately deal with the question of likelihood of confusion in cases like the ones in the core corpus of this thesis. However, if we broaden the scope of our search beyond the literature, which explicitly deals with trademarks, there is hope.

3.3.4 Typography

The various interpretations of the hybrid nature of trademarks presented above indicate that the object of this thesis can be regarded as 'graphic representations of verbal and visual content'. In chapter 6 I shall discuss the relation between 'articulation' and 'interpretation' of graphic representation and explain why I believe that this enquiry must address the question of 'articulation of graphic form' in a way and to a degree of detail, which has not previously been

[6] Mollerup cites Pierce 1931-58:vol2, p229

attempted. For now, however, it must suffice to say that I believe that the graphic design profession as representatives of *performers* of graphic articulation hold the key to a descriptive scheme which meets our requirements.

As I have demonstrated above, the key is not to be found in the graphic design profession's treatment of the trademark phenomenon as such. However, at least as far as the one face of their hybrid nature is concerned, the 'articulation of graphic representation of verbal content', the craftsmanship that goes into the articulation of trademarks rests upon a well-established tradition with a rich terminology. I am, of course, referring to *typography*. Literature on typography is abundant (e.g. Reimer 2003a, 2003b, Lupton 2004) and has also sparked some interest from multimodal social semiotics (see generally Stöckl 2005 and Van Leeuwen 2005).

In other words, there is a rich terminology for typographic articulation. This thesis proposes to develop a descriptive scheme, which can accommodate both typography and illustration as instances of 'graphic form', which can be described using a single, unifying terminology. This is what this thesis proposes to do. It will unfold in chapters 6 and 7.

3.4 Craftsmen versus theoreticians

Before moving on with the inquiry as such, the review in this chapter of literature concerned with trademarks has revealed certain insights, which I have hitherto not commented on. However, they are certainly interesting enough to warrant some discussion. Furthermore, as it shall become evident in my discussion of 'language as a system' in section 4.2 and again in the discussion of the origins of my descriptive categories in chapter 6, they are quite relevant to a discussion of how we can hypothesize meaning to be made in trademarks.

3.4.1 Synchronic versus diachronic

The overall impression I get from the body of literature presented here is that the status of the knowledge it presents is entirely dependent on the mode of inquiry preferred by the represented professions. In itself, this observation is hardly surprising. Neither is the observation that the theoretical discourse on trademarks (represented here by Beebe, Heilbrunn and to some extent also Mollerup) preselects a synchronic mode of inquiry, whereas the practical discourse (represented by Evamy and Gardner) is much more diachronically inclined. Not surprising maybe, but definitely interesting. This tendency as well as professionally motivated differences in preference for a general (systemic) or particular (contingent) focus and also in preferences for functional or ontological criteria of distinction can be inferred from the body of literature:

The synchronic versus *the diachronic*: Although some theoretical accounts of trademarks do tend to take a case-specific point of departure and outline the history of a given organization and the various stages of development of its visual appearance,[7] their primary aim is to synchronically explain *how* the meaning of trademarks comes about. This tendency is evident in section 3.1.2, in which I outlined three conceptualizations of intrasign structure. However, when design practitioners reflect on trademarks, they are very preoccupied with the history of individual trademarks and organizations. In Evamy's book, many of the presented trademarks come with a short historical introduction to the mark (e.g. "Kellogg's"; Evamy 2007:38-39, "Shelter"; id:60-61 and "CNN"; id:90-91). In *Logolounge,* an entire section is devoted to case studies such as design agency Cato Purnell Partner's work for Australian "Channel 7" (Gardner 2003:38-41). Another indication of this tendency is the angle of many 'identity design blogs' on the Internet such as UnderConsideration.com's "Brand New", which presents reviews of different undertakings' re-branding efforts. Each review presents the

[7] As for example David Scott's (1993) analysis of Air France's 'Hippocampe' and BOAC's 'Speedbird', which accounts for the two companies' use of the marks in the period between the 1930s and 70s, but whose explicit aim is synchronic: "[...] I shall investigate the function of the images as it operates in the commercial poster, focusing in particular on the role of the *logotype* as a visual/verbal signifier."

undertaking's trademarks 'before' and 'after' the rebranding and offers contextual information such as the management's motivation as well as the designer's thoughts on the design.

The general (systemic) versus the particular (contingent): The theoretical discourse on trademarks, whether it conceptualizes its object from the point of view of *encoding* (marketing- and branding theory) or *decoding* (trademark theory), seeks to achieve a general description of the trademark phenomenon as such. The aim is to describe the phenomenon exhaustively so it can adequately account for any possible contingency. In contrast, the practical discourse is entirely content to single out instances of trademarks that are outstanding in one way or the other – either as examples to learn from or in more rare cases as cautionary tales. The practical discourse seems relatively disinterested in accounting for the connections between the instances.

Functional distinctions versus ontological distinctions: Although both practical and theoretical discourses recognize the hybrid nature of trademarks and cater for both verbal and visual aspects of their functions as a sign, the theoretical discourse unsurprisingly seems to realize the apparent futility of an exhaustive, ontologically distinct taxonomy of all possible types of trademarks and *what* they mean, and instead focuses on a functionally distinct account of *how* they do it. As I mentioned above, the practical discourse on the other hand is primarily preoccupied with particular cases of interest. For purposes of user friendliness, however, their accounts are typically indexed by ontological distinctions of *what* they represent (animals, plants, crosses, letters).

The table below presents principles that seem to characterise theoretical and practical approaches to reflection on trademarks:

	Theoretical discourse	**Practical discourse**
Mode of inquiry	Synchronic	Diachronic
Scope of object	General	Particular
Differentiating mechanism	Functional	Ontological

Again, Mollerup's contribution seems to bridge the gap. His mode of inquiry is both synchronic and diachronic in that he presents a concept of the intrasign structure of the modern trademark but also gives a historic overview of its origin from pre-historic time over history to the present. The scope of his object is also both general and particular. His historical account is ripe with particular case presentations but his taxonomy of trademarks is exhaustive. The taxonomy itself is a mix of functional and ontological differences, and finally Mollerup presents an indexed list of 'motifs'.

One can only speculate on the reason why Mollerup's contribution is so interestingly ambiguous. However, Mollerup was the founder of "Mollerup Designlab", a very successful Danish design agency with an impressive portfolio. He is, thus, a practitioner, all the while writing several books on graphic design and industrial design. It seems reasonable to assume that Mollerup has practical as well as theoretical pre-conditions for observing the trademark phenomenon, which results somehow in a more adequate description.

3.4.2 Typological and topological meaning making

At this point it should have become clear that the ways in which trademarks have hitherto been studied from a semiotic perspective are of little help for the concerns of this thesis. Chapter 4 will inquire into the Multimodal Social Semiotics paradigm (MSS) in order to determine if it can make a difference. However, before moving on to present MSS as such, one observation from Jay Lemke (see e.g. Lemke 1998, 2001), who is a key proponent of MSS himself, provides valuable insight on two distinctly different "strategies for making meaning", which seem to capture the different natures of the descriptive schemes of e.g. Mollerup, Heilbrunn and Evamy, which I presented in chapter 3 on the one hand, and that, which I shall propose here on the other. He writes:

> I am beginning to believe that we make meaning in two fundamentally different ways: (a) by classifying things into mutually exclusive categories, and (b) by distinguishing variations of degree (rather than kind) along various continua of difference. Language operates mainly in the first way, which I call *typological*. Visual perception and spatial gesturing (drawing, dancing) operate more in the second, *topological,* way. As I have already argued, real meaning making generally involves combinations of different semiotic modalities, and so also combinations of these two rather general modes (Lemke 1998:290).

Lemke moves on to exemplify 'typological' and 'topological' meaning making in order to show their differences. Because precise definitions of typological and topological meaning making have still not been achieved and because Lemke captures the nature of their differences quite well, I find quoting him at some length to be warranted. On typological meaning he writes:

> [...] it helps to distinguish these two rather different kinds of meaning, or strategies for meaning making, that all human cultures seem to have evolved. We make [typological] meaning by contrasting types or categories of things, events, people, and signs. For instance, we distinguish right from left, up from down, male from female, fruit from vegetable, motion from rest, red from blue, x from y, ahh from ohh, buying from selling, live from dead, and writing from drawing. This is the basis of the semantics of natural language, and of the analogous representations of identifiable types, kinds, categories, qualities and so on, in other media (ibid.)

On the subject of topological meaning he offers the following explanation:

> Some of these categorical distinctions also allow differences by degree, so that there is now a possibility of intermediate cases that are in some measurable or quantifiable sense in between others: higher and lower, nearer and further, faster and slower, or more reddish orange. [...] Space and time, movement, position and pacing define for us the possibility of meanings that are more topological, matters of degree, of almost the same, and just-a-bit-more-or-less, of what is *like* because it is near to or almost equal to rather than *like* because it does or does not possess certain criterial properties for membership in a category (id:291).

If we allow Lemke's distinction between 'typological' and 'topological' meaning-making strategies to illuminate the relationship between the descriptive schemes outlined in chapter 3 on the one hand and the trademark cases in the

corpus of this thesis on the other, we can begin to understand exactly why such schemes are of little help in this venture: Mollerup's, Evamy's, Heilbrunn's and Beebe's accounts of the communicative function of trademarks are all based upon typological differences: Different semiotically functional types (Heilbrunn, Mollerup) or different types of concept referred to (Mollerup, Evamy, Gardner). The fact that such schemes are of little help here should not be understood as a dismissal. None of these schemes were developed with the assessment of likelihood of confusion in mind. For example, Mollerup's intention in making his taxonomy was to show graphic designers what they have to work with: And, as he says, "You can hardly fault a jack saw for not being a handy piece of cutlery".[8]

In order to be able to adequately discuss (i) how the two depictions of crocodiles in case No. 3, the two pelicans in case No. 8 and the two apples in case No. 7 are different or (ii) how the dog and painting utensils in case No. 10 are alike or (iii) what is even at stake in cases 1, 2, 4, 5, 6 and 9, we need to be able to discuss meaning in terms of differences by degree. In the above quote, Lemke suggests "space, time, movement, position and pacing" as domains of experience that are more topological and 'matter of degree' than typological. Of course, 'time', 'movement' and 'pacing' play only a small part in the making of meaning in the cases of the corpus because the object of inquiry is 'motionless', but factors such as 'space' (as in the relative distribution of positive and negative space in the mark) and 'position' (as in the relative position of shapes) are quite vital, as I shall demonstrate in chapter 7. So is the degree to which the crocodiles, apples, pelicans, dogs and painting utensils in the cases can be said to look 'real'. The difference between naturalism or realism on the one hand and 'un-realism' on the other hand is a matter of degree. Further, so is a large range of scales on which the marks can be said to be *like* because they are real or unreal in a similar way.

As we shall see during the course of the next chapter, MSS provides a good point of departure for exactly this kind of discussion.

[8] Mr. Mollerup expressed this point of view in a personal communication after he was presented with a first draft of chapter 3.

3.5 Summary

In this chapter I have discussed various semiotic ways of regarding the trademark phenomenon based on a survey of relevant literature. The aim of this exercise was to determine if trademark practice, marketing- and branding theory or graphic design practice could provide a starting point for an analytical classification capable of capturing the differences between the marks in the cases of this thesis.

In section 3.2 I discussed the different interests of these professions, which have caused them to emphasize different aspects of the sign function of trademarks: Trademark practice tends to emphasize the intersign relation between marks because the ultimate aim of trademark practice is to promote overall economical efficiency in society in general. It does so by lessening consumer search costs by making products and producers easier to identify in the marketplace. Marketing and branding theory tends to emphasize the intrasign structure of the individual mark, because its aim is to promote economic growth for the individual company by providing the means to develop appealing brands.

In section 3.3, I discussed how trademark practice, marketing- and branding theory and graphic design practice have each accommodated the fundamental multimodal nature of trademarks. First of all, a 'trademark' and a 'logo' is not necessarily the same thing, though in many cases the terms overlap. The 'logo' of marketing- and branding theory is always visually perceived. It cannot be spoken. The 'trademark', however, can. Trademark practice distinguishes between linguistic 'name marks' and visual 'figurative marks'. Because it is language, the former can be spoken. The classifications of trademark practice are too general in nature to be adequate for our purposes (hence this thesis). Marketing- and branding theory seems to have a preference for criteria of distinction based on types of semiotic reference between the mark and the company or product. These are also too general to meet our requirements. Finally, graphic design theory tends to prefer ontological criteria for classification based on what the trademark depicts. Although such an approach affords a very high degree of delicacy in the classification, attempting to exhaust all possible motifs in trademarks is a futile quest. In other words, functional criteria of classifications seem to be too general and ontological criteria seem to be too specific to ever become exhaustive.

In section 3.4 I suggest that these classification schemes cannot meet our requirements because they are typological in nature. Maybe a topological approach, in which we specify an inventory of dimensions of difference by degree rather than difference in kind, would be better suited. Such an approach is the topic of chapters 6 and 7. First, however, I will present the Multimodal Social Semiotic framework for my analytical scheme.

4

Multimodal Social Semiotics

4.1 Introduction

In the previous chapter, I surveyed the state of the art of semiotic accounts of the trademark phenomenon. My aim was to determine whether or not such work could provide a useful point of departure for solving the problem of this thesis. Although this exercise was very instructive as far as the overall communicative function of trademarks is concerned, its fundamentally *typological* position on categorization did not seem able to pinpoint the exact nature of co–occurring meaning in the cases in my corpus. Furthermore, a typological view did not provide a convincing point of departure for the development of a descriptive scheme capable of capturing the differences and similarities between the marks in a way that would significantly enhance the probative value of a forensic analysis beyond the capability of current legal practice.

In this chapter, I will provide an overview of what has become known as Multimodal Social Semiotics (MSS) and present the theoretical framework for the analytical scheme I will propose in chapters 6 and 7.

However, because no account of MSS can be adequate without a brief introduction to its origin in social semiotics and Systemic Functional Linguistics (SFL), I will devote some space to a discussion of the ancestry of MSS and how that ancestry has come to influence the fundamental concepts of the paradigm. This is the topic of section 4.2.

A crucial concept in social semiotics is *the system,* which refers to the sum total of the potential for meaning making, which we humans tap into. The system concept appears at many levels in social semiotic theory. In section 4.3, I will explore the concept and discuss the implications of regarding the system from synchronic and diachronic perspectives based on the assumption that both aspects are necessary to understand not only the system as a resource for meaning making, but also how it has come about and how it develops.

In section 4.4, I will go into depth with the synchronic architecture of social semiotic conceptions of the system in order to determine which is the better framework for developing a descriptive scheme that meets our requirements.

4.2 What is MSS?

MSS is not a trademark–specific theory. Rather, it has made a move from its point of departure as a media–oriented semiotic theory to a more general theory of the ways in which meaning is made in the intersections between any and all meaning making modalities, whether relying on senses for perception (visual, auditive, olfactory, gustatory, tactile) or for proprioception. Without ever becoming as explicit about the typology/topology distinction as Jay Lemke (1998), many proponents of MSS recognize the fundamentally *topological* nature of their object of study. Hence, in my opinion, MSS currently offers the most promising framework for describing and explaining aspects of meaning as those, which co–occur in several of the corpus' cases.

I say 'promising' because, as I stated in the hypothesis of this thesis, I believe that MSS in its current state of development will actually fail to describe and explain, in a way that is exhaustive and consistent, the issue of co–occurring meaning in my cases. I shall demonstrate why I believe this to be so in chapter 5.

With only a few minor exceptions (Kress and Van Leeuwen 2002, Van Leeuwen 2005b), most research in MSS is concerned with higher–level organization of meaning in complex texts – in other words with the *content strata*[1] of *semantics* and *lexicogrammar* and the ways in which they relate to *context*. In my opinion, however, MSS has yet to develop a solid theory of the *expression strata* and hence of *articulation*[2] which is as adequate as the linguistic descriptions of *phonology* and *phonetics*. Because my object of study is 'motionless two–dimensional graphic trademarks', which are essentially graphic manifestations, I suggest the terms *graphology*[3] and *graphetics* for the analytical scheme proposed in this thesis.

This chapter has two functions in the overall argument of the thesis: The first one is to provide an introductory overview of MSS. The second one is laying

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[1] The idea that semiotic systems are *stratified* into levels of semiotic abstraction is a key heuristic in social semiotics. The Sydney school of social semiotics called Systemic Functional Linguistics operates with the following strata in its description of language (in descending order): *Context*, *semantics*, *lexicogrammar*, *phonology* and *phonetics*) The principle of stratification and its consequences for the purposes of this inquiry will be discussed in section 4.5.2.

[2] In MSS the term 'articulation' is widely used with a general reference to 'expressing meaning' (e.g. Kress and Van Leeuwen 2001:40–44). However, my use of the term here is equivalent with its meaning in phonetics, where it can be defined as: "[…] the physiological movements involved in modifying an airflow to produce the various types of speech sounds, using the vocal tract above the larynx (Crystal 2008[1980]:34)". I will discuss the articulation of graphic form in chapter 6.

[3] I have chosen the term 'graphology' in spite of its coinciding use in neurological diagnosis and forensic analysis (as well as for other, sometimes scientifically questionable, practices). My use of the term is terminologically consistent with Halliday's use of it in his "model of levels (strata)" from Halliday, McIntosh and Strevens (1965:18), where it is equivalent to phonology in verbal systems. However, as I shall explain in chapter 6, I extend the scope of the term to include all instances of graphic form rather than only those realizing a logographic or ideographic representation of speech.

the necessary groundwork for a tentative theory of graphology and graphetics, which will be discussed in more detail in chapters 6 and 7.
In the first parts of the chapter, I shall attempt to simultaneously introduce the terminology of MSS and discuss its theoretical implications for my specific purpose. To that end, I shall attempt to provide sufficient explanation of the terminology for the reader to make sense of my argument. Because MSS theory is, in spite of its relative youth, already so extensive, it will not be possible to give an exhaustive account for everything that has been written on the subject. I will, thus, only focus on those aspects that are relevant to my argument.

No account of MSS could be achieved without a brief introduction to *Systemic Functional Linguistics* (SFL – see generally Halliday and Matthiessen 2004), from which MSS has inherited its fundamental stance towards communication as well as its key heuristics; *instantiation* (which I shall discuss in section 4.4.2), *metafunction* (4.4.3) and *stratification* (4.4.4). Because so many of the basic assumptions in MSS have been inherited from SFL, my account here will serve as an introduction to the theoretical foundations of SFL and MSS equally.

According to two of the foremost proponents of MSS, Gunther Kress and Theo Van Leeuwen (2006[1996]:6), MSS is the third school of semiotics to apply "[…] ideas from the domain of linguistics to non–linguistic modes of communication". The first one was the Prague School (including such scholars as: Mukarovsky, Honzl, Jakobson, Bogatyrev) of the 1930s and 40s. The second one was the Paris School (e.g. Schefer, Barthes, Lindekens, Metz, Nattiez, Fresnault–Dereulle) of the 60s and 70s, which built on ideas from Saussure. The third one is MSS, which builds on Hallidayian SFL. Where SFL is a theory of language, MSS has evolved through a series of steps[4] into a general theory of communication, which would – ideally speaking – encompass all modes of communication, including language.

The overview of the development of SFL (and thus also of MSS) given in this section is largely based on Christian Matthiessen's article "Systemic functional theory: developments since the 1970s" (Matthiessen 2007) to which the interested reader is generally referred for a comprehensive historical overview of the development of the social semiotic paradigm.

Both SFL and MSS are characterized by their 'functional' and 'systemic' orientations towards communication: The development of MSS from SFL, and indeed the development of SFL itself – and hence of their functional and systemic nature, is best characterized as an evolutionary kind of process rather than a revolutionary one. In the next two sections I will touch briefly upon the meaning of the terms 'functional' and 'systemic' in this context.

[4] According to Boeriis (2009), current Multimodal Social Semiotic theory has evolved from (1) its origin in Halliday's linguistic theory, which theorized only one semiotic system, language, to (2) 'Visual Social Semiotics' in the 90s, which applied the linguistic theory on images to (3) the more advanced 'Polymodal Social Semiotics' in the early 00s, which regarded texts as composites of elements of different discrete semiotic systems called modes (e.g. images, music, writing and speech) to (4) current 'Multimodal Social Semiotics', which is a general semiotic theory investigating the basic principles of all meaning making based on an assumption that general principles derived from SFL apply.

4.2.1 What does 'functional' mean?

British linguist Michael Allen Kay Halliday founded SFL in the early 1960s. He took as his point of departure the work of his immediate predecessor, John Rupert Firth (and through him Firth's own predecessor, social anthropologist Bronislaw Malinowski), with whom he had himself studied at the University of London. Halliday adopted, developed and refined the ideas of Firth and Malinowski: For example, Halliday adopted Malinowski's emphasis on social aspects of language through Firth:

> What this implies is that language comes to life only when functioning in some environment. We do not experience language in isolation – if we did we would not recognize it as language – but always in relation to a scenario, some background of persons and actions and events from which the things that are said derive their meaning (Halliday 1978:28).

This gives rise to a functionalist view of grammar, in which the grammar of language is considered to be "that which is socially acceptable" (1978:16–21) rather than, for example, a quality somehow intrinsic to the biology of the human species. Language is regarded as a social resource for meaning making. It serves a social end; it has a socially determined function. Society determines the language functions it requires, not, for example, our neurology. Hence, the study of society – or context – is considered to be critical for a functionalist study of language.

In recent years much effort has been put into allowing social semiotics to accommodate theories of *that, which is social* as a complex dynamic system[5] (e.g. Lemke 1998, 2000, 2001 and Matthiessen 2009) and hence into explaining semiotic phenomena as socially emergent. These recent developments are critical for my discussion of the emergence of the communicative phenomena I describe as 'graphological' as well as of our 'graphetic' resources for articulating graphic form.

4.2.2 What does 'systemic' mean?

The 'systemic' in Systemic Functional Linguistics and in the sub–heading to this section should not be confused with the 'system' in "the social as a complex dynamic system" from the previous section. Or rather: Both uses of the term reflect the idea that language is somehow 'a system'. But whereas the use of the term in 4.2.1 reflects a diachronic view of language and hence 'the social' as a dynamic open system in the sense of *complex systems theory* (e.g. Prigogine 1997), in which language exists, changes and adapts *over time*, the use of the term 'systemic' in this section reflects a synchronic perspective on language as a

[5] The theory of social systems was pioneered by Niklas Luhmann (see generally Luhmann 1988).

resource for making meaning, which is available to us in its entirety *at a given time*. I shall discuss this terminological polysemy in greater detail in section 4.3.[6]

In the beginning of his career as a linguist, Halliday did not refer to his theory as 'systemic' but rather as 'scale–and–category–theory' (Matthiessen 2007:508), which emphasized *scale* or what we have later come to know as *stratification* (see generally section 4.4 and specifically section 4.4.3 for a discussion of stratification). It was not until the late 1960s, when Halliday transformed the 'system–structure theory', which he inherited from Firth, into 'systemic theory', that social semiotics began to take the shape in which we find it now. Firth's system–structure concept required a linguist to give syntagmatic and paradigmatic relations in language equal weight, which distanced Firthian linguistics from the contemporary structural linguistics of Leonard Bloomfield. By transforming his theory from 'system–structure theory' to 'systemic theory', thus favouring the paradigmatic 'choice–relation' of language at the expense of syntax, Halliday further distanced his theory from Chomsky's mentalist linguistics.

With the advent of MSS, the social semiotic tendency to favour system over structure seems to have become ever more pronounced. There would seem to be a perfectly good reason for this development: A great deal of MSS research has an object of inquiry which is fundamentally different from the linguistic object in one respect over all others: Language, whether spoken or written, whether written logographically or ideographically, is always in a sense sequential. One has to articulate or interpret a temporally integrated sequence of sounds or a spatially integrated sequence of letters or symbols in order to encode or decode the typological constituents of language and ultimately to make linguistic meaning. It is this quality of language which linguistics describes in terms of a 'syntagmatic axis' or 'structure'. Much MSS research, however, has been concerned primarily with the development of methods for analysing other semiotic modes than language, most notably different kinds of visual communication (e.g. O'Toole 1994, Kress and Van Leeuwen 1996, Baldry and Thibault 2005, O'Halloran (Ed.) 2006, Lim Fei 2007, Boeriis 2009, Kress 2009). Visual communication is fundamentally different from language in that its constituents are ordered simultaneously rather than sequentially.[7] If we take into account Lemke's typology/topology distinction discussed in section 3.4.2, we can begin to see a pattern: The primary strategy for meaning making in language is typological and sequential, which suggests that syntax will always be relevant in a study of language. However, the objects of study of much MSS research make meaning in a way, which is characterised by topology and simultaneity. This suggests that the relevance of syntax is questionable and that paradigmatic choice relations are of the utmost importance.

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[6] Halliday and Matthiessen (1999:507) discuss this polysemy of the system–term. They refer to the diachronic sense of 'the system' as "system–&–process" and to the synchronic sense as "semiotic system".

[7] There are, of course exceptions to this rule: The panels of comic strips are sequentially ordered, albeit the information structure in the individual panel is simultaneous. Other exceptions are "moving images" (Kress and Van Leeuwen 2006:258–265), which are temporally (sequentially) integrated as well as spatially integrated (cf. ibid.).

4.2.3 Linguistic and semiotic positions in MSS

One might ask how the development of MSS from SFL came about. It seems to me that, although Michael Halliday is a linguist, his professional ancestry (Malinowski and Firth) in social anthropology led him to be primarily interested in meaning making in general, and that his interest in language was derived from that more general interest. In his seminal *Language as Social Semiotic* (1978), Halliday comments on the nature of the difference between social dialects and states that such differences cannot be adequately accounted for in terms of phonological and lexicogrammatical features. There has to be something more, beyond the traditional scope of linguistics:

> The sort of differences that are in question, insofar as they are linguistic, are probably to be interpreted along the lines of Bernstein's 'codes', as linguistic manifestations of differences in the social semiotic, different subcultural 'angles' on the social system. There are styles of meaning which distinguish one culture or one subculture from another: semiotic melodies and rhythms which may be actualized in various ways, for example as behavioural rhythms, various forms of body symbolism and the like. *Language is just one of the forms through which these meanings are realized* (Halliday 1978:98–99, my italics).

Although, at the time, Halliday may have had in mind only what is commonly referred to as 'para–linguistic signals' i.e. gesture, prosody, mimicry and other resources that are brought to bear in dialogical interaction, the essence of his words in this quote seems to have engendered a certain line of reasoning in social semiotic theory; that language (as in the linguistic object of study) is only one means among many for realizing meaning. The next step towards a multimodal view on language seemed inevitable. Social Semiotics is a fundamentally functionalistic paradigm and so in 1989 Halliday and Hasan discuss a functionally determined definition of the concept of 'text', which necessarily must be a crucial element in any semiotic theory concerned with complex signs:

> We can define text, in the simplest way perhaps, by saying that it is language that is functional [...] So any instance of language that is playing some part in a context of situation, we shall call a text. It may be spoken or written, *or indeed in any other medium of expression that we like to think of* (Halliday and Hasan 1989:10, my italics).

By that time, however, the assumptions underlying quotes such as these had seeped from SFL into a range of other research fields,[8] which are typically concerned with the critical analysis of language use, for which SFL has proven theoretically very apt. It was only natural that the more useful aspects of SFL were applied in critical analysis that included 'paralinguistic' signals and that such methods for analysis were subsequently brought to bear on non–linguistic phenomena.

[8] Boeriis (2009:42) enumerates a number of analytical traditions that are all to a greater or lesser degree rooted in Hallidayian linguistics: Halliday and Hasan's (1989) "Text Grammar", Fairclough's (e.g. 1992) "Critical Discourse Analysis", O'Toole (1994), Kress and Van Leeuwen's (1996, 2001) "Multimodal Discourse Analysis", Hodge and Kress' (1988) "Ideology–critical social semiotics" and a host of others.

In order to avoid issues of terminological confusion in the following discussion, allow me to recapitulate: SFL is a linguistic theory. Its interest is exclusively the study of language. MSS, on the other hand, is a general social–semiotic theory of communication. It is interested in meaning "in all its forms" (Kress 2009:54). Or to put it differently, MSS has as its object of study the countless ways in which various semiotic systems (also referred to as semiotic modes or modalities, the terms are often used interchangeably) – including language – cooperate in the making of meaning. It follows that MSS is a very diverse theoretical domain. In this section, I will adhere to Gunther Kress' suggestions that anyone engaged in multimodal work "[…] needs to be clear what theoretical frame they are using; and make that position explicit" (2009:54). Kress observes, that:

> […] There are several, relatively distinct strands of Social Semiotics, which derive from the writings of Michael Halliday (1978, 1984). Viewed from a relatively abstract level, they tend to differ in relation to one issue: whether they base themselves on the *linguistic* or the *semiotic* perspective of Halliday's theory. While there is agreement both in broad outline and in much detail among proponents of either of the two possibilities, the differently placed emphases do have significant effects (Kress 2009:54).

As already noted, MSS is far from the first semiotic undertaking to apply ideas from the domain of linguistics in the study of non–linguistic semiotic systems. The "Prague-" and "Paris-schools" of semiotics also took ideas from the domain of linguistics as their point of departure. Kress (2009:61) is explicit about the threat of finding questionable language-like qualities in non-linguistic phenomena, which is imminent to all such attempts. He describes the nature of this threat as:

> […] when a *linguistic* theory and its categories are used to describe *multimodally* constituted texts. The descriptive, analytical and ideological apparatus of the prior theory is brought along and leads, necessarily, to a mis-description of the domain to which it is now applied but for which it had not been developed (ibid.).

In order to avoid such a fallacy, most MSS adopts the semiotic aspect of Halliday's theory while largely disregarding linguistic aspects. Among other things, this means that most MSS theory has maintained the general Hallidayian principles of instantiation[9] and metafunction,[10] but has a different concept of stratification. The reason for these differences in the conception of stratification is crucial for the specific position I take within the overall MSS paradigm. In section 4.4 I shall discuss the issue in detail and explain why I divert from the general trend in MSS, but a few comments are in order here.

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[9] *Instantiation* (see generally Halliday and Matthiessen 2004:27–28) is a key heuristic of social semiotic theory. It describes semiotic systems as a *potential* for meaning making, which is *instantiated* in particular texts. Please refer to section 4.3.2 for further discussion.

[10] *Metafunction* (see generally Halliday & Matthiessen 2004:29–31) is another key heuristic of social semiotic theory. It describes the simultaneous construal of our experience in three domains of meaning: *ideational, interpersonal* and *textual.* Refer to section 4.3.3 for my discussion of these concepts.

The reason why much of the semiotically-oriented social semiotic theory has largely the same concepts of instantiation and metafunction as SFL but deviates with regard to stratification, probably has to do with the much debated issue of whether or not *duality of patterning* (or *double articulation* to use Martinet's (1967) term) is unique to language.[11] Generally speaking, the 'architecture' of stratification in linguistically-oriented social semiotic theory (including Sydney–school SFL) is hierarchical and reflects the duality of patterning. Thus, the content–stratum of *lexico–grammar* corresponds with the first articulation (combinations of meaningful units) and the expression stratum of phonology corresponds with the second articulation (sequence of meaning–differentiating segments that are in themselves meaningless). The relation between the two articulations is one of *meta-redundancy* (see Lemke 1984:39–41). Semiotically-oriented social semiotic theory, on the other hand, has a different perspective on the matter, which is best expressed in the words of Kress and Van Leeuwen themselves (2001):

> Where traditional linguistics had defined language as a system that worked though *double articulation*, where a message was an articulation as a form and as a meaning, we see multimodal texts as making meaning in multiple articulations. Here we sketch the four domains of practice in which meanings are dominantly made. We call these *strata* to show a relation to Hallidayian functional linguistics, for reasons of compatibility of description of different modes. We do not however see strata as being hierarchically ordered, as *one above the other*, or some such interpretation. Our four strata are discourse, design, production and distribution (2001:4).

The question of whether or not any semiotic system besides language can be said to have two articulations instead of just one (the coupling of a form and a meaning without an intermediate layer of meaning–differentiating segments that are in themselves meaningless) is much debated (e.g. Eco 1971). The above quote could be regarded as a departure from the principles of *duality of patterning* and *metaredundancy*.[12]

Whether or not Kress and Van Leeuwen choose to deviate from linguistically inclined duality–determined stratification because they subscribe

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[11] Hockett's term *duality of patterning* and Martinet's *double articulation* are more or less interchangeable. Because I will later use the term *articulation* in my suggestions for a theory of graphetics (see chapter 6) for the bodily actions that make differences in the world, which make communicative differences, I will use Hockett's term for the notion that linguistic meaning is constituted by individually meaningful units that are in turn made up of meaningless segments.

[12] However, close reading of Kress and Van Leeuwen's collaborative and individual work suggests that the two have different opinions on the matter: In the preface to the collaborative *Multimodal Discourse* (2001) they write, that "even now, after almost seven years of discussing these issues, we do not feel we have been able to come to an agreement about them all". Although they do not specify exactly the issues on which they disagree, the concept of stratification outlined in the quote (2001:4) above smacks of at least one compromise: In his 2009 book *Multimodality*, Kress states that he takes "[…] the approach set out in Hodge and Kress, 1988; Kress 1993, 1997a, 2003; Kress and Van Leeuwen 1996/2006; Kress and Van Leeuwen, 2001; *and, in most respects*, Van Leeuwen, 2005[a] (Kress 2009:54, my italics)". In his book *Introducing Social Semiotics* Van Leeuwen (2005a:51) takes the example of Lego–bricks to argue that duality of patterning is *not* unique to language thus deviating somewhat from the direction he and Kress charted in 2001:4.

to the point of view that duality of patterning is unique to language and thus cannot be a determinant in a model of multimodally constituted meaning (lest the description becomes linguistically biased) remains unclear.

However, as I stated in the introduction to this chapter, I believe that one possible solution to the problem outlined in my research question is development of a theory of *graphology* and *graphetics*. This necessitates that I address the issue of *duality of patterning* with regard to graphic meaning making. A Sydney–school SFL–inspired concept of stratification seems more apt for such an undertaking than the 'multiple articulation'–approach (2001) suggested by Kress and Van Leeuwen. In other words, my position within the paradigm of MSS theory is more akin with Van Leeuwen (2005a) and more inclined towards Sydney–school SFL than with Kress, whom I suspect to disregard the descriptive adequacy of *duality of patterning* in relation to non–linguistic semiotic systems. It will, however, become increasingly clear – especially after my discussion of the status of the paradigmatic and syntagmatic axes in section 4.4.5 – that I will propose a notion of the principle of *duality of patterning* that is somewhat different from the strictly linguistic one.

4.3 What is 'the system'?

Because MSS has evolved from SFL, it has inherited SFL's tendency to refer to the 'system'. However, in the case of MSS, the 'system' is not restricted to 'language', but includes any semiotic resource available for meaning making. In the introduction to section 4.2.2, I briefly touched upon the terminological polysemy of 'the system' in social semiotic theory: The two senses of the term reflect two different points of observation of the system: (1) A diachronic mode of observation, in which a semiotic system exists, changes and adapts *over time* and (2) a synchronic mode of observation, in which a semiotic system is regarded as a resource for meaning making, which is available to us in its entirety *at any given point in time.* Thus, 'the system' should be observed 'synoptically' or from both perspectives at once (Halliday and Matthiessen 1999:509).

The purpose of this thesis dictates that I give consideration to both these aspects of the system.[13] My purpose is to develop a method for forensic analysis of trademarks, which is "systematic, precise, measurable and comparable" (cf. section 2.2). These specific requirements entail a synchronic mode of observation, which will have priority in my account: I must describe, in their entirety (ideally, at least), whatever graphic resources are responsible for the making of similar meanings in the trademarks of the cases in my corpus. However, in order for such a synchronic description to be adequate, it must also in some way include in its theoretical base the forces that shape the system. In Lemke's terms:[14]

> An adequate structural description thus entails a dynamical analysis. For the systems we study here the synchronic structure is a dynamical structure: it contains information about the possible histories and futures of the system. Dynamical analysis must include the sources of change as well as of stability, based on the recognition that every structural feature at some level subserves both these functions (Lemke 1984:31).

It should be mentioned, that – even if it is possible to provide an exhaustive and accurate description of all possible synchronous choices within a given system at a given time – one cannot provide an equally exhaustive and accurate description of past and future states of the system on the same terms thus theorizing the forces that shape and change the system:

> The development of a system over time and through interaction with an environment can lead to dynamical possibilities in principle unpredictable from a knowledge of the system at any one time. (Self–organizing, open dynamical systems cannot in general be analyzed

[13] Of course, I shall only take into account a very small and strictly delimited portion of the total system for human meaning making: That of graphic form. However, the basic distinction between describing the semiotic system in a synchronic or diachronic way applies to my object of inquiry in the same way as it does to the total system of human meaning making.

[14] It should be noted, that the 'structure', which Lemke refers to in this quote is the 'deep structure' of structural linguistics (Chomsky) and structural anthropology (Levi–Strauss) and hence a nativist rather than a functional point of view. Since the 80s Lemke has become ever more interested in social semiotics.

> at single moments of time. They exist in a sense only over–time, and across many temporal scales; they move or die.) (Lemke 2001:209)

However, one perspective can serve as a frame of understanding for the other. In other words, the two views are mutually exclusive but complementary. This is an important point, because although a synchronic graphological perspective may have priority in this particular context, an understanding of how the semiotic system of graphic form can be said to have developed in recent years is of importance to how the descriptive system presented in chapter 7 should be understood. A diachronic, graphetic frame for a synchronic description allows us to better understand the place of graphic form in the great(er) scheme of things. Also, as it shall become apparent in chapter 6, it gives us a base for discussing graphic meaning other than in terms of the strictly iconographical.

The following two sections introduce and discuss diachronic and synchronic conceptualizations of semiotic systems and serve as a terminological base for the discussion of the legitimacy of my descriptive categories.

4.3.1 Semiotic systems as 'dynamic open systems'

At the heart of social semiotic theory lies the assumption that *a system* exists. I shall refer to this system as the *communicative system*[15] throughout this discussion. We use the communicative system to make meaning. The communicative system is dynamic rather than static, changing over time; in fact, change is a condition for its existence as a system (Halliday and Martin 1993:108).

Systems theory envisions many different kinds of interrelated systems in the world. A common, but also disputed (e.g. Latour 1993), way of conceptualizing the interrelations of systems is as 'a nested hierarchy' of systems in which the simplest systems combine into increasingly complex systems. For example, biological systems can be conceptualized as a nested hierarchy in which sub–atomic particles, or 'quarks', can be regarded as systems, which combine into atoms, which combine into molecules, which combine into, for example, proteins, which combine into cells, which combine into tissues, which combine into organ systems such as nervous systems, which combine into individual organisms which may combine into swarms, which are systems on a complexity level that combine into ecosystems and so on and so forth from the scale of quarks to the scale of galaxies.

The system under consideration here is a biological system of a particular type in terms of its order of complexity. SFL refers to 'the language system' as "a complex adaptive system of the fourth order of complexity" (Matthiessen

[15] In SFL, which is a linguistic theory, 'the system' is typically referred to as 'the language system'. SFL recognizes the fact, that language is just one out of many semiotic systems, and that the language system is interrelated with other systems for meaning making (cf. Halliday and Hasan 1985). From an SFL–perspective, however, language is "[…] in some rather vague, undefined sense, the most important, the most comprehensive, the most all–embracing; it is hard to say exactly how."

2009:206).[16] Very simply put, semiotic systems are biological systems with the added traits of 'social order' and 'meaning'.

The inspiration in SFL to regard semiotic systems as 'complex adaptive systems' is mainly due to Jay Lemke. With his background in natural sciences such as theoretical physics, he has pointed out that all 'human systems',[17] and hence also all 'human super–systems', of which 'social semiotic systems' are an example, are of a type known in systems theory as *dynamic open systems* (1984:9–11). Such systems have a number of defining characteristics, which I shall briefly enumerate here:

That they are *open* means that dynamic open systems freely exchange the substances (whether matter, energy, information or structure), which they are made of, and which they require in order to continue to exist, with their environment. This exchange takes place in a way that does not cause the system to lose its definable identity within the environment. They do so by 'extracting' resources that exist in a relatively high state of structural order from their environments and return 'waste products' in a low state of order in a way, which does not overload the environment. This interactive exchange of order from the environment to the system and return of disorder from the system to the environment causes the system to change. Because exchange with the environment is a condition for the existence of the system, so is change. Thus, the system is ever changing or *dynamic*.

Lemke (1984:10–12) uses the example of a particular kind of human system, an infant, to illustrate the point: A baby requires matter and energy from the environment in order to develop and maintain its body. It can eat and drink foods and liquids, which are matter in high states of order (matter ordered into fats, proteins, carbohydrates and minerals in particular constellations of meats, vegetables, fruits, beverages and so on and so forth). It returns energy and matter in lower states of order to the environment: Energy in the forms of e.g. friction and heat and matter in the forms of e.g. urine and faeces. A similar dynamic is in play when the baby develops its language and other social skills: It requires information and structure in high states of order to develop, and extracts these resources in the form of language and behaviour on the part of its parents and other caretakers, who speak with it in ordered words, sentences and texts, and interact with it in socially ordered ways. In return, the baby babbles and wreaks havoc, thus exporting information and structure in low states of order. All human systems maintain their integrity in this way, whether they are systems, sub–systems or super–systems such as social semiotic systems. Further,

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[16] Halliday and Matthiessen (1999:509–511) and Matthiessen (2007:545–547) outline an ordered typology of systems, which are is (in order of increasing complexity): (1) Physical systems, (2) biological systems, which are physical systems with the added quality of 'life', (3) social systems, which are biological systems with the added quality of 'social order' and (4) semiotic systems, which are social systems with the added quality of 'meaning'. The language system is a semiotic system.

[17] Lemke (1984:8–9) proposes the analytical "human systems concept", in which 'a human system' refers to either (1) an individual human organism, (2) a characteristic sub–system of such an organism such as the nervous system or (3) a human super–system whose characteristic elements are human beings (e.g. a community).

such systems are *self–organizing*, which is to say that the processes by which the interactive exchange between system and environment moves along are *emergent*:

> What does it mean to say that ecosystems, and therefore ecosocial systems, are self–organizing? Hurricanes and gas flames are self–organizing. They are defined by systems of processes, by exchanges of matter, energy, and information with their immediate environments, in such a way that from calm or randomly disorganized air currents, from turbulent gas and oxygen mixtures, emerges a spontaneous pattern, form, order, and organization. […] Living systems are self–organizing in the same sense, although much more complexly (Lemke 1997:41).

A final point of great importance with regard to dynamic open systems is that they exist over time. Of course, from a certain point of view, that can be said to be true of all kinds of systems. But the concept of time does not matter to all kinds of systems, because not all systems 'come to life' and 'age' and eventually 'die' like organisms, gas flames and hurricanes do:

> These [dynamic open] systems are individuals, they have histories, in some cases even histories that matter to their present reactions, and sometimes histories that can matter to new systems of their kind not yet born. Such systems age and some of them die. Electrons are not self–organizing systems (so far as we know), they do not age, they do not die; they are not individually distinguishable, they have no histories that matter to their behaviour. […] The most specified systems, those with the most properties that matter, the most kinds of differences that make a difference, are ecosocial systems (not individual human organisms). Ecosocial systems, and most living organisms, are also *developmental systems;* they have a relevant history, a trajectory of development in which each stage sets up conditions without which the next stage could not occur (ibid.)

Thus we can begin to understand 'the communicative system' with its plethora of subordinate semiotic systems – and hence also the semiotic system of graphic design – as something, which interacts with its environment and thus develops and has a history, which is relevant to its immediate organization. In the next two sections, I will briefly outline two different attempts (among many) at conceptualizing 'time' with relation to semiotic development. They are Halliday and Matthiessen's (1999) concept of 'semogenesis' and the concept of 'multiple time scales' (e.g. Lemke 2000). Both concepts are attempts at capturing the fact that history impacts on the making of meaning in various ways: On time scales ranging from the span of a communicative exchange over the history of an interpersonal relationship, the history of an individual, of a socio–cultural group, of a semiotic system to the very history of our species. This will become crucial when we attempt to theorize how graphological differences can be said to make meaning, and also when we discuss which kinds of meaning they can make.

4.3.1.1 Halliday and Matthiessen's 'semogenesis'

In SFL, the term 'semogenesis' is widely recognized as covering "the processes by which meaning, and particular meanings, are created" (Halliday and Matthiessen 1999:17). Semogenic processes are processes of systemic change and "take place through time" (ibid.). Three major timeframes, or 'semohistories' (ibid.), for semogenic processes are usually specified in social semiotic accounts of semogenesis, although Halliday and Matthiessen point out that this is probably not an exhaustive categorization. The three timeframes are: (i) *Phylogenesis*, (ii) *ontogenesis* and (iii) *logogenesis*. They theorize three different statuses of the greater semiotic system in (i) culture (the human species) (ii) the individual and (iii) the text.

From a point of view of change, phylogenesis describes the 'expansion of culture' through an 'evolutionary' process (Martin 1999:124). It is the timeframe of the swarm, in which the human species has developed into semiotic beings and during which different ways of making meaning and communicating spontaneously emerge and fade away cf. the quote from Lemke in the previous section. It is the time frame in which 'writing' has spontaneously emerged [as a convenient way of representing speech] and new ways of making meaning in visual substrates continue to pop up. It is also the time frame in which new technologies for meaning making and communication emerge and add to the shaping of the ways in which we make meaning by presenting new opportunities as well as new restrictions. The written letter was rather an important innovation, phylogenetically speaking, as was tele– and wireless communication. However, it is impossible to predict, from knowledge of the system at any given point in time, which meaning making resources will emerge and which will fade away again. Language, both verbal and written, although ever changing, has proven remarkably resilient. As I shall argue in chapter 6, the emergence of a digital substrate for meaning making has catalyzed a rapid sequence of changes in the way many visual semiotic systems are used, and hence phylogenesis is a vital component in the unfolding argument about trademarks in this thesis.

Ontogenesis describes the development of the semiotic competence of the individual through a process of growth. It is the time frame of the individual meaning maker, during which a human being develops (or acquires, depending on one's nativist or environmentalist convictions) a maternal tongue, body language, gesture and resources of facial expression as well as written proficiency and other kinds of literacies such as 'musical–' and 'visual literacy' (cf. generally section 2.3 and specifically 2.3.5 of this thesis). For our purposes here, the concept of ontogenesis is important insofar as it provides a conceptual framework for discussing a performer's proficiency in 'articulating' in a graphic substrate (cf. chapter 6) as well as an interpreter's proficiency in perceiving graphic form and making meaning of it.

Logogenesis describes the 'instantiation of the system in a text' through a process of 'unfolding'. It is the timeframe during which a particular communicative event unfolds. However, the term is not delicate enough to capture the different conditions set forth by different communicative modes. For example, the time scale of verbal interaction – whether face–to–face or

technologically mediated – is different than the time scale during which a trademark is articulated and subsequently perceived. The articulation of a trademark is a process which can take days or months. And the perception of the trademark by a given perceiver can take place years after. Also, where verbal interaction typically entails an iterative exchange of utterances, the exchange between the performer of a graphic articulation and an interpreter is different by virtue of its nature. Thus, for our purposes here, the concept of 'logogenesis' must necessarily be understood differently than it is in SFL.

The three timeframes of semiotic systemic change are interdependent in the way that "phylogenesis provides the environment for ontogenesis which in turn provides the environment for logogenesis; conversely, logogenesis provides the material for ontogenesis which in turn provides the material for phylogenesis" (Martin 1999:125).

It seems to me that the analytical tri–partition of semiotically relevant timeframes into phylogenesis, ontogenesis, and logogenesis presented in the semogenesis concept is sufficiently general to be analytically manageable. Thus, it has the potential to inform many of my observations with regard to graphic form. However, as we shall see in chapter 6, in some respects it falls short. For example, a score of important points on particular resources of graphic form such as 'the calligraphic stroke' (see section 6.6.1) require analytical tools capable of capturing graphic differences (which make a communicative difference), the articulations of which measure in fractions of seconds as the hand holding a graphic device traces shapes on a surface leaving apparent traces of the most minute micro–movements.

4.3.1.2 Lemke's 'Multiple Time Scales'

This apparent lack of delicacy in Halliday and Matthiessen's analytical tri–partition of semogenic time scales can be remedied with the addition of the 'multiple time scale' concept from complex systems theory (Lemke 2000, 2001). Although Lemke's object of interest is quite different from the one which concerns us here, his concept of multiple time scales is still quite useful as a conceptual framework. Lemke begins his 2000 article "Across the scales of time: Artefacts, activities and meanings in ecosocial systems" with these observations:

> Every human action, all human activity takes place on one or more characteristic timescales. A heartbeat, a breath, a step, a spoken word takes but a moment; a stroll, a conversation extends over many such moments; and an education or a relationship may be a lifetime project. The great cathedrals of Europe were built over many human lifetimes, and the languages and discourse patterns of our communities have developed over still longer times. And yet a conversation consists of many momentary utterances; a relationship may be built of many strolls and conversations together; a building or a social institution is erected by the sum of many individual actions in community (2000:273).

The focal point and fundamental unit of analysis of Lemke's concept of time scales is *the process* (id:275) rather than material substances: We usually define things, organisms, persons and institutions in terms of their invariant properties. We tend, says Lemke, to think of what they are rather than what they do. An

ontology of substance cannot account for dynamic properties such as changing and doing. But in order to conceptualize the systemic conditions of change in, for example, the language system, one needs a *process ontology*:

> In a dynamical theory, an ecosocial system is a system of interdependent processes; an ecosocial or sociotechnical network is described by saying what's going on, what's participating and how, and how one going–on is interdependent with another. (ibid.)

Lemke enumerates a number of time scales representative for a study of his object, education and learning, along with their typical processes and selected reference events. The list ranges (to name a few) from 'neurotransmitter synthesis', which is a chemical synthesis process ranging in the 10^{-5} second timescale over events at the edge of our awareness, such as 'vocal articulation processes' ranging in the 10^{-1} second timescale, 'utterances' (1–10 second timescale), 'exchanges' (2–10^{2} second timescale), 'lifespan educational development' (10^{9} seconds), 'educational system change' (10^{10} seconds) up to 'cosmological processes' at 10^{18} seconds (or 32 billion years).

It seems to me that a sound theory of the semiotic systems of *graphology* and *graphetics* should be able to account for processes on many timescales: Logogenetic micro–processes in the 'articulative event' such as micro–movements of the hand (which I would roughly estimate to be in the 10^{-1} second time scale) and the iterative process of articulation and evaluation (1 to 10^{2} second timescale) as well as micro–processes in the 'perceptive event' such as saccadic eye movements (10^{-2} second timescale). Furthermore, the logogenetic processes of the articulative event (ranging from hours over days to months) and the perceptive event, as such (ranging from fractions of seconds to minutes), are relevant logogenetic time scales to take into consideration.

In addition, a theory of *graphology* and *graphetics* must ideally also be able to account for the processes and time scales by which an individual becomes proficient in graphic articulation and interpretation (ontogenesis) as well as the processes and time scales by which the graphic resource as such develops and changes (phylogenesis). This will all be discussed in greater detail in section 5.4.

In the next section, I shall turn from this diachronic sense of the term 'system' to the synchronic one, which attempts to describe the totality of the communicative system 'at once'. Before I do so, however, a few closing remarks on the topic are in order. As Lemke points out, a self–organizing, dynamic open system cannot be analysed at a single moment in time because it exists, in a sense, over time. The system as a self–organized, dynamic entity is not conceived of as 'a thing', let alone many co–ordinate things, but rather as a process, which happens to involve things. So, from this diachronic process perspective, the static analysis of the system, which I will discuss in the next section, would seem to be problematic.

Or maybe not entirely so problematic: The notion of the 'language system' as an ever–changing phenomenon is reflected in SFL by the idea that every particular instance of language ever so slightly perturbs or changes the system by changing the probability by which a particular choice occurs (e.g. Matthissen 2009:209). By the same token, every time a language user makes a meaning,

which has never been made before (if that is a passable notion), the system 'grows' by adding that meaning to the total potential of meanings. In other words, from the observational level of the communicative instance (logogenesis), the system is in constant flux. But that does not rule out the possibility of describing more or less stable general features of the communicative system from a higher level of observation (phylogenesis). After all, from the highest possible cosmological level of observation, communication and language as such have only existed very briefly. From this perspective, galaxies, planets, ecosystems, species and languages come and go like the characters in a Punch and Judy show. The synchronic description of the system attempts to generalize the relatively stable properties of language seen from a phylogenetic level of observation, all the while recognizing the inherent instability of the system. As Fawcett puts it:

> […] the components of the model do not disappear in the periods between those times when they are being used in the 'dynamic' processes of producing and understanding texts: they remain in existence, still specifying the 'potential' ((in press):19).

4.3.2 Semiotic systems as paradigmatic choice relations

The synchronic view of 'the system' entails a description of all the possibilities (and their probabilities) for meaning, which make up 'language' and 'individual languages' as well as various other semiotic systems, such as the one under consideration here. A common metaphor for such a view of a semiotic system is 'the architecture of language' (cf. Matthiessen 2007, Fawcett (in press)). According to Fawcett (Fawcett (in press):19), this metaphor has been imported into SFL and consequently also into MSS[18] by systemicists working in the field of Natural Language Generation (NLG). Fawcett discusses the aptness of such a metaphor and observes that Halliday himself dislikes it "because it sounds too static". The problem is, claims Fawcett, that "language is not a static physical object, as a building is, but something that is essentially […] 'a program for behaving'" (ibid.). In terms of the hierarchy theory of complex systems (Lemke 2000, 2001), this seems to reflect the observation that 'the system' is indeed best described as *a process* and that processes of individual 'behaviour' are socially constrained (i.e. they conform to a program).

From a synchronic point of view, 'the system' should not be regarded as 'a process' unfolding over time but rather as a (large) group of interrelated choice relations. In terms of the system–structure discussion in section 4.2.2, which assumes that a semiotic system can be described in terms of paradigmatic and syntagmatic axes, the system from this point of view is a very large, very complex paradigm of paradigms. As Halliday and Matthiessen put it:

[18] Although no MSS–theoreticians I know of have spoken explicitly of 'the architecture' of their respective objects of study, I would venture the claim that the metaphor is also implicit in MSS models by virtue of the heuristic devices (stratification, instantiation, metafunction, rank, realization, specification) inherited from Hallidayian linguistics.

> Structure is the syntagmatic ordering in language: patterns, or regularities, in what *goes together with* what. System, by contrast, is ordering on the other axis: patterns in what *could go instead of* what. This is the paradigmatic ordering in language […]. Any set of alternatives, together with its condition of entry, constitutes a **system** in this technical sense (Halliday and Matthiessen 2004:22).

The concept of *the text* is crucial to a synchronic understanding of 'the system'. They are regarded as particular manifestations of the potential which the system makes available. In social semiotic theory, the relation between system and text is called *instantiation* (see section 4.4.2). A text is an instance of the system and conversely the sum of texts in the world make up the system. Naturally, the entire system (i.e. every meaning which has been made in the sum total of texts through all times) cannot be instantiated in any one text – let alone any one individual language or semiotic mode other than the linguistic.

The observation of a relation between something like the system and something like a text is by no means unique to Social Semiotic theory. Indeed the same general concept reverberates in Saussure's notion of *langue* vs. *parole* and Chomsky's *competence* vs. *performance* albeit from very different positions on what language is and where it resides. From an SFL and thus also (in many cases implicitly) from an MSS perspective, the system can then be described thus:

> A text is the product of ongoing selection in a very large network of systems – a **system network**. Systemic theory gets its name from the fact that the grammar of a language is represented in the form of system networks, not as an inventory of structures. Of course, structure is an essential part of the description; but it is interpreted as the outward form taken by systemic choices, not as the defining characteristic of a language. A language is a resource for making meaning, and meaning resides in systemic patterns of choice (id:23).

The 'system' term in reference to paradigmatic relations is ubiquitous in social semiotic theory. It is taken to mean any of the following things: (1) The system as such, which I have chosen to term 'the communicative system', is the paradigmatic relation of anything and everything we humans do to make meaning; from throwing rocks or doing nothing (provided that is ascribed meaning in relation to the situation) to writing poems or painting abstract pictures. (2) Semiotic system, which is a rather vague term: In general, it is used as a cover term for any structural manifestation of value, which has been further transformed into meaning. Practically, it is used in various ways. For example, it is used to distinguish different meaning making modalities from one another. In that respect, language, music, drawing and countless others are different semiotic modalities, which each afford different semiotic sub-systems. The term semiotic system is, then, also used to denote any part of such a modality–determined semiotic system. These sub-systems are typically the focal point of analytical observation in social semiotic theory.

I would venture the proposition that, as we approach the centenary of Ferdinand de Saussure's (1913), *Cours de linguistique générale*, we have a relatively good synchronic understanding of 'the architecture' of modern languages such as English. However, the question of how language has developed 'over time' from the very beginning of language as such (or what the future of language will be like) is quite hard to answer because we have no reliable

sources that can tell us what the totality of the language system looked like at a given point in time a hundred thousand years ago. The times scales in which we can reliably observe changes in the architecture of language only range in the thousands of years. This is if we count the period from which we have testimony recorded in writing. If we count the period from which we have testimony recorded as speech, the scale ranges in mere decades (or at least less than a century). As a result, we must resort to e.g. primate studies in order to hypothesize the development of language in our species.

A study of graphic resources for meaning making, in my opinion, provides an interesting new opportunity for theorizing the conditions of 'change' in semiotic systems: The very first versions of software for graphic articulation (assuming that the architecture of the software is a model of the architecture of a 'graphic social order') is only some 10–15 generations old[19] averaging at a new software generation every one or two years. In other words, not only did the original 'translation' of wild, analogical graphics into a digital substrate occur only twenty years ago, the mapping of changes in the categorizations of the 10 or so successive software versions is still a manageable task. Moreover, a theory of how and why the model changes could still be mapped onto the way these changes manifest themselves in graphic articulations (with a reasonable amount of effort).

[19] As I write this, Adobe Systems Inc. have just released their CS5–suite, which includes the 12th generation of PhotoShop and the 15th generation of Illustrator.

4.4 The system's 'architecture'

As I stated above, the specific requirements of this inquiry (to establish a descriptive scheme, which is 'systematic', 'precise', 'measurable' and 'comparable') demand that I give priority to a synchronic point of view on 'the system' over a diachronic one. In other words, the aim is to describe the relatively stable (from a diachronic point of view) synchronic 'architecture' of graphic meaning making. In this section, I shall discuss which architecture best suits my objective of developing a theory of *graphology* and *graphetics*.

4.4.1 Differences in SFL and MSS architecture

In social semiotic terminology, describing the architecture of the system entails theorizing a number of overarching, 'global' dimensions called *stratification*, *metafunction* and *instantiation*.

Depending on one's specific position within the larger social semiotic framework, the internal organization of these global dimensions is different. Or rather, the principles of *instantiation* and *metafunction* are largely the same, whereas the internal organization of *stratification* is different as it should rightfully be. Language, it seems, is so different from everything else that describing e.g. photography and language at the level of grammar with the same descriptive categories would be meaningless.

In sections 4.2.2 and 4.2.3, I briefly touched upon two interrelated features of our models of language that combine to set them apart from models of any other semiotic systems. The first one is that language is sequentially ordered (cf. 4.2.2) as a string or chain of components, which linguistics refer to as 'structure' or 'syntagmatic axis'; the second one is that language is characterized by *duality of patterning* (cf. 4.2.3). Thus, the first of the two articulations of *duality* is the one at which meaningful components, or *morphemes,* are combined one after the other (e.g in the nominal group "the/flesh/eat/ers"). The second level of articulation is the one at which the meaningful morphemes are analysed as a sequence of meaningless but meaning–differentiating segments called *phonemes* (e.g in "f/**l**/e/s/h" as opposed to "f/**r**/e/s/h"). Both articulations are sequentially determined. No other semiotic system we can think of works in exactly this way.[20] For example, music is definitely linear and may be sequential, but it is not doubly articulate. Conversely, static visual icons may very well work through combinations of meaningful elements that may be made up of meaningless segments, but they are not sequentially constituted in the same strict sense as language.

The differences in SFL and MSS models of *stratification* can thus be regarded as the result of the attempts of the two approaches to cater for these differences in the fundamental nature of their objects.

[20] This may be slightly inaccurate: Programming languages (xml, php, mysql and such) could be said to be doubly articulated.

Because *instantiation* and *metafunction* are conceptualized similarly in SFL and MSS theory, I shall introduce them very briefly in the next two sections. *Stratification*, however, will take a little more elaboration, because a theory of *graphology* must conceptualize graphic form as a sort of configuration or combination of meaning–differentiating features, whether sequential or simultaneous, from a finite inventory of structural differences. The duality–determined SFL–concept of stratification seems better suited to accommodate such a notion of graphic form, and in section 4.4.4 I shall discuss the necessary theoretical precautions for avoiding precisely the kind of mis–application of a linguistic framework on a non–linguistic object, which Gunther Kress (2009:61) warns us of.

4.4.2 Instantiation

The previous sections have provided all the building blocks necessary to explain the social semiotic concept of *instantiation*. Instantiation theorizes the relationship between 'that, which is general' and 'that, which is particular' as opposing ends of 'the instantiation continuum'. Of course, 'the general' is equal to 'the system' as discussed in section 4.2 and 'the particular' is equal to 'the instance' or 'the text'. Hence, 'system' and 'text' are merely different ways of looking at the same phenomenon. 'The system' in its combined synchronic and diachronic sense is the sum total of all texts produced by all humans at all times. Out of all these texts emerges the system. Each time someone produces a new text, the system is changed ever so slightly, even if only by changing the probability of a specific state in the system.

This principle is critical to understanding the aptness of regarding the event of confusion as a social event, which takes place 'between people', rather than as a psychological event, which takes place in our heads (cf. generally chapter 2).

In my discussion of 'the event of confusion', I argued that, in as much as trademarks make the same sense, at least to a degree, to both the ones who make them and those who perceive them, they must have qualities the understanding of which is shared by both parties. This observation should be seen in the light of instantiation: The event of graphic trademark confusion is a social, communicative, logogenetic event, in which the phylogenetically developed graphic trademark 'system' is instantiated in a particular text – a trademark. The observation that 'understanding' of the trademark comes by degrees is in effect an observation that, ontogenetically speaking, people are performatively and perceptually literate to different degrees. In other words, they have varying knowledge of, and experience with 'the system', much in the way literate and illiterate people both have command of the language system to the extent that they can speak and understand a language, but not necessarily read and write it. Hence, the graphic designer is etically aware of the differences in form that make differences in meaning, whereas the consumer in general is less so.

4.4.3 Metafunction

Along with the concept of instantiation, the principle of *metafunction* is understood similarly in the SFL and MSS traditions. The principle describes the simultaneous making of three distinctly different types of meaning in any text. Any instance of the system thus performs three semiotic functions at once. They are called the *ideational metafunction,* the *interpersonal metafunction* and the *textual metafunction.* By no means is social semiotics the first school of semiotics or linguistics to acknowledge the multi–functionality of semiotic systems: The Prague School worked with similar ideas, for example Jakobson's referential, aesthetic, emotive, conative, phatic and metalingual functions (1960), which reverberate in Halliday's metafunctions. However, where Jakobson's concept makes one function dominant over the others dependent on the type of text, social semiotics regards the three metafunctions as always, inherently present in the making of meaning. Moreover, all three metafunctions are grammatically realized and directly observable in the substance of the text.

Very generally speaking, *the ideational metafunction* refers to 'construing experience' (cf. Halliday and Matthiessen 2004:29–30). It serves to represent elements of our experience and their relations. Simply put, a grammatical theory of the ideational metafunction provides the analytical means to label the functional elements of a text as *processes, participants* and *circumstances*. A 'process' is a representation of 'something happening'; a 'participant' represents an entity involved in the process by making it happen, by being affected by it, by being instrumental to it, or simply by being the medium through which the process manifests itself. A 'circumstance' somehow represents the setting in which participants are involved in processes.

The interpersonal metafunction serves to "enact interpersonal relations" (id:30) by supplying us with "the communicative means to constitute and express the relations between the communicating parties" (cf. Johannessen (in press)). Any meaning in the text which somehow strikes an inter–subjective chord in the relationship between the communicating parties is interpersonal. This includes the text as a negotiation of the exchanged meaning, of offering or requesting and of inter–subjectively enacting one's stance towards the exchanged meaning through polarity and modality (see generally Halliday and Matthiessen 2004, Kress and Van Leeuwen 2006[1996], Boeriis 2009)

Finally, *the textual metafunction* supplies us with the means to construct out of ideational and interpersonal meaning(s) a cohesive and coherent 'whole' – a text (cf. Boeriis 2009:38).

In order to illustrate how the principle of metafunction could apply to graphic trademarks, let us take as an example the two apples from case No. 7, *Apple Computers Inc. vs. NYC & Company, Inc.,* which are depicted in figures 4.1 and 4.2:

4.1 

4.2 

Case No. 7 from the corpus: Apple Computers Inc. vs. NYC & Company, Inc.

Ideationally speaking, both of the illustrations above evoke, or denote, apples. Both apples have leaves at the top and the apple in figure 4.2 also has a stem attached to it. By denoting these specific ideational categories, the marks evoke all kinds of other ideational categories to which they belong, including for example: 'fruits', 'plants' and 'things'. They also implicitly evoke all the ideational categories in which they are specifically not members (cf. the Saussurean principle of value) including for example: 'Pears', 'oranges', 'strawberries', 'vegetables', 'legumes', 'nuts', 'animals', 'machines', 'buildings' and 'ideas'.

One might say that 'apples' are the only *participants* in both marks, although it is not immediately clear, in which *process* they participate. Neither of the two apples seem to be doing anything, nor do they seem to be affected by[21] or instrumental to processes of other's doing. They are just 'there', so to speak, existing independently of *circumstances* or other participants.[22]

Interpersonally, the two apples – regardless of their ideational similarity – are quite different: They are not different kinds of apples (because they are too generic to be told ideationally apart as 'granny smiths' or 'cox oranges' or 'ripe' versus 'unripe'), rather they are apples in different ways. You might say that they 'enact' different inter–subjective stances towards 'appleness': In 4.1, the apple is rendered as a black mass whereas in 4.2 it is rendered as an outline. This kind of difference is absolutely crucial to the argument in this thesis, as it will become apparent in chapters 5 and 6.

Textually, both marks are regarded as cohesive wholes although, strictly speaking, they both consist of several shapes: The almond shapes, which we recognise as leaves, are detached from the larger round shapes, which we recognise as the fruit bulbs. Grammatical forces are at play, which lead us to understand that the two individual shapes in each mark are really a *clustered*, functional whole (cf. Baldry and Thibault, 2005). If one were to gradually increase the distance between the leaf– and bulb shapes, at some point they would no longer be regarded as a textually integrated, cohesive whole, but rather as two individual shapes.

[21] One might argue that the apple in 4.1 has been bitten into and hence has been the object of a biting process on someone's part. However, this process is not explicitly expressed in the mark.

[22] Such processes fall within the scope of what Kress and Van Leeuwen refer to as *conceptual processes* (cf. 1996[2006]:79–113, Johannessen and Moos 2005:37).

4.4.4 Stratification

So far, we have discussed the global dimensions, about which SFL and MSS theory have similar concepts. However, the third and final global dimension, *stratification*, is a different matter. As I stated above, the crux of the difference between the different concepts of stratification in SFL and MSS lies in the fundamental differences in the nature of their objects of interest. More specifically, it is determined by whether or not the modelled phenomenon – language or non–linguistic semiotic systems – is characterised by *duality of patterning*. As I already pointed out towards the end of section 4.1.3, I believe the SFL concept, which accommodates duality, to provide a more apt framework for a discussion of *graphology* and *graphetics.*

This section will introduce the SFL and MSS concepts of stratification first. Then it will proceed to discuss the theoretical precautions necessary to avoid treating graphic form as if it were linguistic form, hence deliberately looking for and finding qualities in graphic form that are not really there.

4.4.4.1 The SFL concept of stratification

I began my discussion of social semiotics in section 4.2.1 by pointing out the legacy of John Rupert Firth, which is the very base on which Michael Halliday built his social semiotics: That "[…] we do not experience language in isolation […] but always in relation to a scenario, some background of persons and actions and events from which the things that are said derive their meaning" (Halliday 1978:28). This 'backdrop' for communicative instances of meaning is of course the *context*, which is crucial in any functional theory of semiosis.

Social semioticians assume the (synchronic) system to be embedded in the context. In other words, context can be regarded as roughly equivalent to the environment of the diachronic system. It is, so to speak, the synchronic system's 'place' in the grand scheme of things. This relation between system and environment is described in SFL's synchronic architecture by the stratification principle.

In this account of the SFL concept of stratification, I will generally refer to Halliday and Matthiessen's (2004:24–26) explanation of the principle in *An Introduction to Functional Grammar, 3rd Edition*. This version of the principle marks some changes in relation to previous versions (e.g. Halliday 1985), which have some rather important theoretical implications for the discussion of a semiotic system's environment. I shall outline these differences in this section, but the full extent of their theoretical importance will not become fully explicit until my discussion of the affordances[23] of 'the acting body' in chapter 6.

[23] In this thesis, I shall use the term 'affordance' consistently with the way it was defined by Gibson (1986[1979]:127–128): "The affordances of the environment are what it offers the animal, what it provides or furnishes for good and ill […] It implies the complementarity of the animal and the environment (ibid.)". By 'affordance', I understand the sum total of possibilities for– or restraints on action set forth by a given substance in relation to a given actor. Others, e.g. human–computer interaction theorist Norman Donald (2002[1988]), use the term to cover only

According to Matthiessen (2007:506), the stratification principle has been in place in SFL from the beginning (e.g. Halliday 1961), when Halliday took over the notion of 'levels of analysis' from Firthian Linguistics and developed it into a hierarchical model of language. In the two most recent versions of *An Introduction to Functional Grammar* (Halliday 1985; Halliday and Matthiessen 2004), commonly referred to as 'IFG', the language system is described as a hierarchy made up of 4 levels called 'strata'. They are, in ascending order, (1) phonetics/graphetics, (2) phonology/graphology, (3) lexico–grammar and (4) semantics. (1) and (2) combine into the expression plane of language and (3) and (4) into the content plane.

From one perspective, the four strata are interrelated by virtue of their degree of 'semiotic abstraction' (cf. Andersen and Smedegaard 2005:15). At the lowest level, we find language as manifest form (the sound waves of speech or the markings of writing) and at the topmost level, we find language as an abstract semantic potential for meaning making.

From another perspective, the four levels are divided functionally into 'interfacing–' and 'organising' functions. This means that the language system is regarded as a hierarchy "[…] of redundancies by which we link our *ecosocial environment* to nonrandom *disturbances in the air*" (Halliday and Matthiessen 2004:26, my italics). This notion is important, so I shall discuss it at some length here.

At the top of this hierarchy of redundancies, we find semantics, which is the system's interface to the 'ecosocial environment'. At the bottom, we find phonetics (and the linguistic notion of 'graphetics'), which is the interface to our biological bodies (Halliday and Matthiessen 2004:25). The stratal relationship between language and contexts through semantics is explained as follows:

> We use language to make sense of our experience, and to carry out our interactions with other people. This means that the grammar has to interface with what *goes on outside language*: with the happenings and conditions of the world, and with the social processes we engage in […] The way it does this is by splitting the task into two. In step one, the interfacing part, experience and interpersonal relationships are transformed into meaning; this is the stratum of semantics. In step two, the meaning is further transformed into wording; this is the stratum of lexicogrammar (Halliday and Matthiessen 2004:24–25, my italics)

The relationship between language and body through phonetics is explained like this:

> It might be asked whether an analogous stratification took place within the expression plane; and the answer would appear to be yes, it did […] Here, however, the environment is the human body, the biological resource with which sounding (or signing) is carried out. Taking sound (spoken language) as the base, the stratification is into **phonetics**, the

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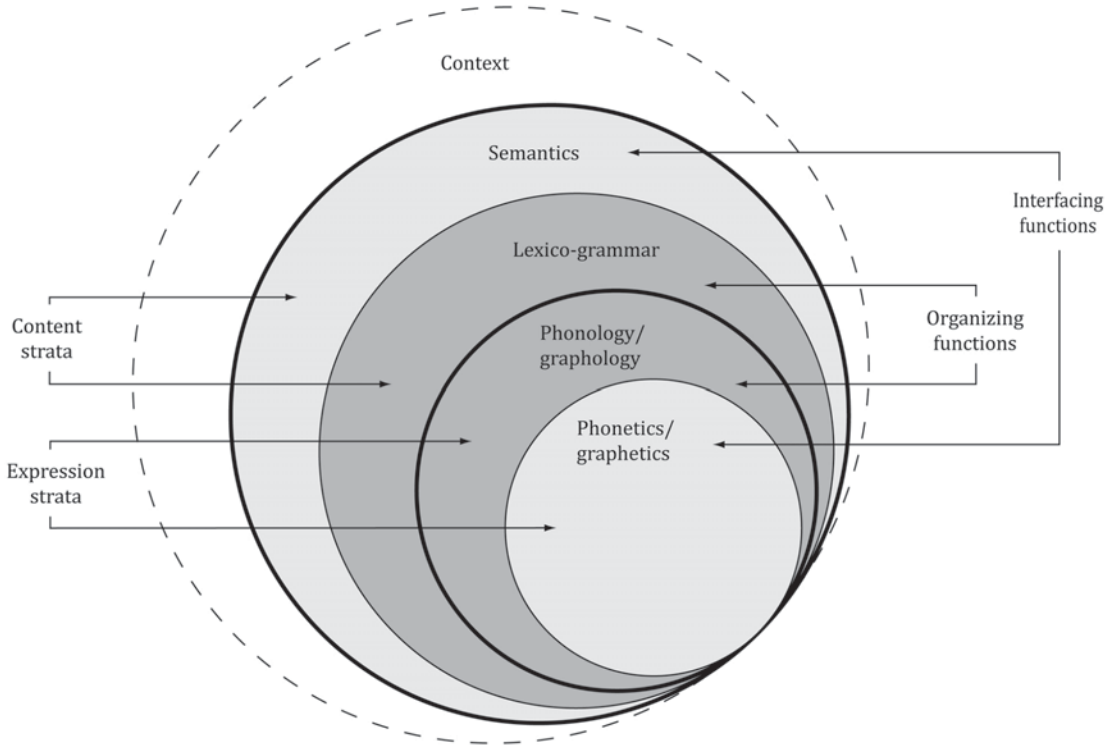
perceived possibilities and restraints. However, the design of a ballpoint pen requires it to be held at very steep angle (typically no less than 60°) in order for it to function properly. This places restrictions on how it can be held while in use, regardless of whether someone approaching it is aware of it or not. In other words, I use the term for affordances that are *intrinsic* to a substance rather than only those that are *perceived*.

> interfacing with the body's resources for speech and for hearing, and **phonology**, the organization of speech sounds into formal structures and systems (ibid., original bold).

The relationship among the strata is called 'realization'. A higher stratum is realized by a lower stratum, and a lower one realizes a higher one. For example, in language, the interpersonally semantic speech function *Question* can be realized lexico–grammatically by the *Interrogative* clause structure. The words of the clause structure are in turn realized phonologically or graphologically by a sequence of phonemes or graphemes from the formal inventory of phonological or graphological structures (such as the alphabet and orthographic signs of English). The phonemes and graphemes are realized by the phonetic sound space or the 'etic' graph space, and vice versa all the way up again. The SFL model of stratification can easily accommodate the *duality of patterning*. The first articulation is lexicogrammatical. On this stratum, meaning-bearing 'lexical' items are chosen from a paradigm of possible items and combined 'grammatically' into syntactical units of increasing length and complexity: Morphemes into words, words into word–complexes, word–complexes into clauses, clauses into clause–complexes and ultimately into texts. The second articulation is phonological or graphological. On this stratum, meaningless but meaning–differentiating phonemes or graphemes are sequenced into higher–level morphemes. Figure 4.3 graphically represents 'stratification' as a nested hierarchy labelled with the terms outlined above.



4.3 *A common way of visualizing 'stratification' in social semiotics is as a nested hierarchy. This figure has been adapted from Boeriis (2009:31).*

4.4.4.2 Towards an ecological theory of stratification

The notion of 'the interfacing functions of 'semantics' and 'phonetics'' is of a recent date and marks one of the major potential changes in the theoretical scope of SFL. It would seem that SFL is developing an increasing sensitivity to ecological views on semiotics, which were absent in the 2nd edition of IFG (Halliday 1985).

The trend seems to have begun in earnest with Halliday and Matthiessen's (1999) systemic functional approach to cognition in *Construing meaning through experience*, in which they explore, among other things, "[…] the representation of meaning in language in relation to other semiotic systems" (1999:603). Here, they follow a line of thought, which is in many ways similar to the later one from 2004. In discussing the environment for the language system, they distinguish two broad categories of 'other semiotic systems' to which the language system relates: *socio–semiotic systems* and *bio–semiotic systems* (1999:605). 'Socio–semiotic systems' are defined as semiotic systems that are "realized through language" (ibid.). They are higher–level systems with language as their plane of expression. Among such systems count: Religions, theories, ideologies etc. (ibid.). 'Bio–semiotic systems' are "[…] systems through which language interfaces with its biological environment" (ibid.). Among these count (a) perceptive systems, themselves semiotic, because "what the organism "sees" is what is construed by the brain into meaning" (ibid.), (b) physiological systems and processes of the production and reception of speech and "[…] analogous systems […] for the production and reception of visual expressions" (ibid.) and (c) neurological systems of the brain, also "in the broadest sense semiotic" (ibid.).

In the third edition of IFG (2004), a similar conception of the environment, analysed in terms of both the social context and the physical body, is also a factor. In their discussion of semantics as the interfacing function to the environment, Halliday and Matthiessen write that "[…] the grammar has to interface with what *goes on outside language*: with the happenings and conditions of the world, and with the social processes we engage in" (2004:24). This could be regarded simply as a different way of expressing the language system's (1999) relation to 'socio–semiotic systems'. Similarly, they discuss the environment to which phonetics interfaces as: "[…] the human body, the biological resource with which sounding (or signing) is carried out" (2004:25). This is remarkably similar to their 1999 discussion of the language system's relation to 'bio–semiotic systems'. Interestingly, close reading of these passages reveal what seems to be a slight shift in their orientation towards the ontological status of 'the language system's environment'.

In the 1999 version of the concept, they seem more reluctant to discuss the relationship of language with the world beyond the realm of meaning: They make a point out of the semiotic status of bodily aspects of the environment (they regard perception and neurological processes as semiotic in a broad sense) and the world beyond the body is described in terms of the socio–semiotic.

In (2004), however, they write: "[…] the grammar has to interface with what goes on outside language". They mention three aspects of 'what goes on outside language: On the one hand, we have "[…] [1] the happenings and

conditions of the world, and [2] the social processes we engage in" (2004:24) and on the other we have "[…] [3] the human body, the biological resource with which sounding (or signing) is carried out" (2004:25). Together, the happenings and conditions of the world, the social processes we engage in and our biological bodies seem to combine into what they refer to as language's "eco–social environment" (2004:26). This discussion of the eco–social environment smacks heavily of Lemke's (2001) discussion of "material sign processes and emergent ecosocial organization" in which he argues that there are complex, dynamic chains of causality at work between large–scale systemic organizations, such as the Earth's ecosystem, and much smaller ones, such as various semiotic systems.[24] In other words, Halliday and Matthiessen's 2004 discussion of the world beyond the language system seems to address the world beyond the semiotic.

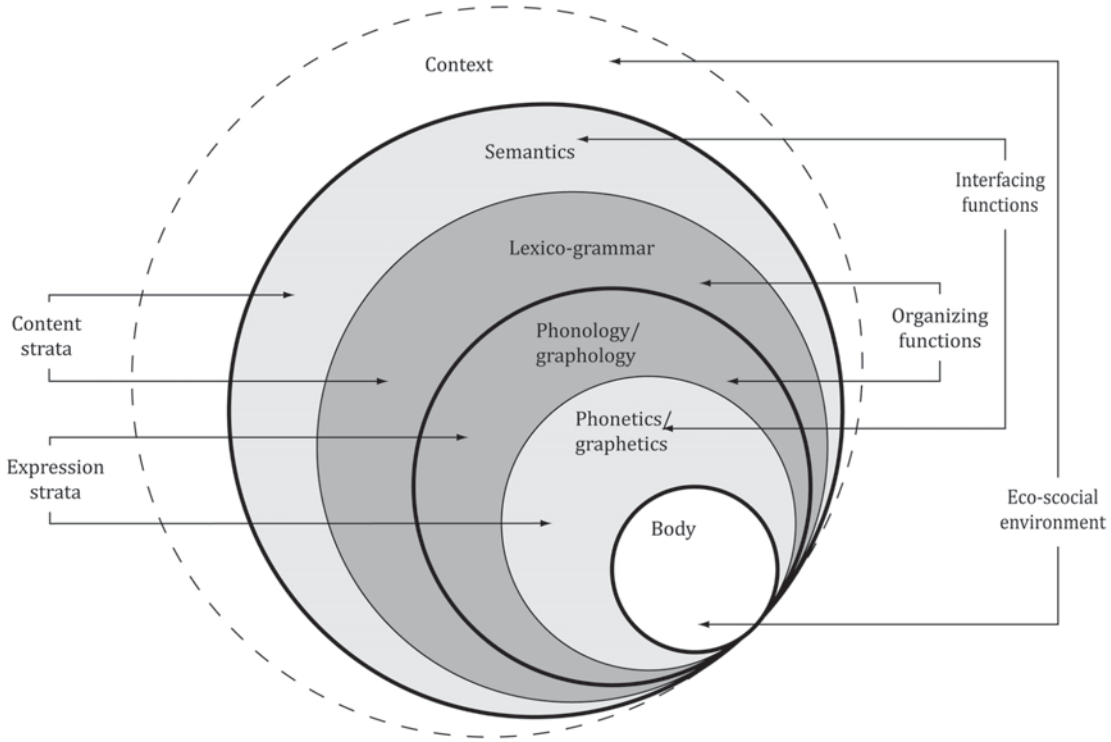
Although there seems to be a shift from 1999 to 2004 in favour of discussing the system's environment as more than the realm of meaning, both accounts can be seen as a departure from the more traditional, linguistically inclined position of the second edition of IFG (Halliday 1985). There are, in all likelihood, many sources to this theoretical development. There seems to be a general trend in linguistics and semiotics to seek answers in the cognitive sciences.[25] In turn, the cognitive sciences seem to seek answers beyond the human brain (e.g. Lakoff and Johnson 1999; Donald 2001; Clark 2008) in 'the body' and through concepts of the 'extended body' in our ecological environments. Similar trends seem to pervade MSS. For example, Gibson's (1986[1979]) ecological approach to visual perception is an important source of inspiration in Baldry and Thibault's (2005) work on multimodal meaning making, and Lemke's work on both language (1984) and multimodal semiotics (1998, 2000, 2001) draws heavily upon theories of complex, self–organizing systems.

This shift is extremely important for my discussion of graphetics, (and indeed for the development of a social semiotic theory of multimodality) because it seems that we must look in many places for an explanation of graphetics, not just in graphic texts or in the physiology of our bodies (however important they may be). We need to look at the various affordances of the material world for graphic meaning making in graphic software, in computer hardware, in paper, in linoleum, in wood, in pens, pencils, paintbrushes, inks, paints, chisels, knives and so on and so forth.

[24] For example, our species' dependence on energy or a given culture's preference for specific food stuffs is determined by 'meaning' and in turn that dependence is re–shaping the ecology of our planet.

[25] Examples are in abundance. See e.g.: Johnson 1987; Varela, Thompson and Rosch 1991; Johnson and Lakoff 2002; Zlatev (2008)

This is why I suggest an amended version of the representation of stratification, which takes the consequence of the emerging ecological frame of explanation in SFL by explicitly making place for the acting, signifying body and explicitly labelling the combination of 'context' and 'body' as the 'ecosocial environment' for the language system. Although this model is far from perfect, it does do a better job of accommodating 'the interfacing functions' of semantics and phonetics.



4.4 *An amended representation of the stratification principle, which accommodates the body and the context as the eco–social environment for the language system.*

4.4.4.3 The MSS concept of stratification

The basic concept that 'the system' has intermittent levels referred to as 'strata' has also been embraced by the MSS theory. However, the MSS concept of stratification is a lot different than the one I have discussed hitherto. The fundamental difference lies, unsurprisingly, in the question of *duality of patterning.* The concept, as it is widely used in MSS theory, was coined by Kress and Van Leeuwen (2001), who offer the following insight on the number of articulations one can speak of in relation to multimodally constituted texts:

> Where traditional linguistics had defined language as a system that worked through *double articulation*, where a text was an articulation as a form and a meaning, we see multimodal texts as making meaning in multiple articulations. Here, we sketch the four domains of practice in which meanings are dominantly made. We call these *strata* to show a relation to Hallidayian functional linguistics, for reasons of the potential compatibility of description of different modes. We do not however see strata as hierarchically ordered, as *one above the other* for instance, or some such interpretation. Our four strata are discourse, design, production and distribution (2001:4).

It is apparent from this quote that the MSS concept of stratification describes a completely different aspect of communication than the SFL concept.

In the SFL concept, language is "a series of redundancies by which we link our ecosocial environment to nonrandom disturbances in the air (soundwaves)" (Halliday & Matthiessen 2004:26). The 'ecosocial environment' in this quote from Halliday and Matthiessen is of course equal to the combination of 'context' and 'body' in the stratification model.

The MSS concept also theorizes a link between an 'ecosocial environment', to which it refers as 'discourse', and the manifest text. However, it does not do so as a series of 'redundancies', but rather as a series of 'practices'. For example, Kress and Van Leeuwen explain the 'production' stratum as: "[referring to] the organisation of the expression, to the actual material articulation of the semiotic event or the actual material production of the semiotic artefact" (2001:6). This one 'practice' actually seems to encompass the whole expression side of the sign, in that it entails both of SFL's expression 'redundancies': The organising 'phonological redundancy' and the interfacing, articulative 'phonetic redundancy'.

The use of the term 'domains of practice' seems to introduce an element of time, however abstract, in the MSS concept of stratification. The internal organization of the strata is not one of synchronous redundancy, as in the SFL model, but rather seems to be 'poly–synchronous'. Discourse, design, production and distribution seem to be conceptualized as four discrete, synchronic potentials, the interrelation of which is temporally motivated to a certain extent: A practice of production must necessarily precede a practice of distribution. Thus it seems that the MSS concept of stratification is more akin to Halliday and Matthiessen's logogenetic semohistory – the timeframe in which a text unfolds (cf. section 4.3.1.1) – than to the SFL concept of stratification, which relates differences in form and differences in meaning and hence is a model of the internal functioning of the sign.

With the exception of their work on colour (Kress and Van Leeuwen 2002) and Van Leeuwen's individual work on typography (2005b), Kress and Van Leeuwen generally seem reluctant to commit to a theory of the internal mechanisms of the individual sign – on *depiction* and *recognition*, as they refer to it (1996[2006]:47). They are not interested in *graphology* and *graphetics* or as they say it: The ways in which we come to see "[…] configurations of pencil marks or brush strokes or pixels as pictures of trees […]" (ibid.). Instead they focus on what they call "visual structuring" (ibid). They justify this choice by pointing out that *depiction* and *recognition* have been given adequate thought by other scholars such as Hermeren (1969), Eco (1976), Barthes (1977) and Panofsky (1970) among others, whereas visual structuring has been dealt with less satisfactorily. As I stated in the introduction to this chapter, this means that MSS theory generally deals with the *content strata* of *semantics* and *lexicogrammar* and the ways in which they relate to *context*.

This focus on the inter–sign structuring of visual signs rather than the "*denotative conditions*" (Eco 1976:230) of the 'intra–sign structure' fits well with the MSS concept of stratification. An SFL model of stratification would force the analysis to commit to considering the principles of how depiction and recognition comes about, something, which Eco refers to as the *iconic code*:

> For example, an iconographical code codes the conditions of recognition and determines that a half naked woman carrying a head on a platter connotes Salome, whilst a more fully clad woman with a decapitated head in her left hand and a sword in her right connotes Judith (Panofsky, 1932). These *connotations* arise without the conditions of denotation having been specified by the iconographical code. What should the visual syntagm 'woman' entail in order to fully depict a woman? The iconographical code identifies as distinctive features the contents "woman", "decapitated head", "platter" or "sword", but not the articulative elements of these symbols. These are coded by another, more analytical code, which is the iconic code (1976:230; my translation).

What is required in this thesis, of course, is something which is analytically apt in relation to trademarks in and of themselves. This entails a discussion of the particular relationship between expression and content in graphics and of how the different kinds of meaning which social semiotics hypothesizes can be realized by graphic form. In other words, this thesis must take a long, hard look at pencil marks, brush strokes and pixels in order to be able to discuss not how they come to depict trees but rather in what way they depict trees by means of their particular articulatory elements.

4.4.5 Dare we speak of duality of patterning?

Entertaining notions of duality of patterning in non–linguistic semiotic modalities is bold. The question is, do we dare? I fully appreciate that such a position is problematic because of all the reasons outlined by Gunther Kress (2009:61) in his warning not to mis–apply linguistically determined models in the analysis of multimodally constituted texts. Nonetheless I believe that if one keeps in mind the differences between language and graphics, the duality–friendly SFL architecture can yield an understanding of graphic expression otherwise unaccounted for.

There are (at least) three aspects of this particular study which differ from the majority of semiotic studies of visual communication. These differences are significant in relation to the question of whether or not notions of *duality* should be entertained here:

(1) The first difference is theoretical. Social Semiotics has opened the domain of semantics to other kinds of semantic meanings than those supported by other linguistic schools by introducing the concept of *metafunction*. All semiotic schools acknowledge the many facetted aspects of meaning in signs, for example by distinguishing between denotative and connotative meaning. But in social semiotics, the three metafunctions are all *grammatically* realized, which is different. Thus, they can be theorized in terms of principles (grammar) governing the relation between *differences of form* (phonology) and *differences of meaning* (semantics). The meaning, which is considered to be grammatically realized in non–functional schools, is roughly equivalent with *ideational meaning* in social semiotic theory. What social semioticians refer to as *interpersonal* and *textual* meaning is considered by non–functionalists to fall outside of semantics and within the domain of other linguistic sub-disciplines, such as *pragmatics*.[26]

This difference between systemic functional and non–functional schools of linguistics and semiotics is crucial to understanding why the principle of *duality of patterning* could be considered here. I believe that it could be re–considered in the light of metafunctionality. A difference in form can make a distinctive difference in terms of *interpersonal, textual* and *ideational* meaning alike. In Eco's terms, the articulative elements of a graphic sign do not only serve an iconic (ideational) code, but also interpersonal and textual codes (grammars).

(2) The second difference has to do with the delimitation of the object of this study as opposed to the delimitations of objects of other semiotic studies of visual meaning making. Many other studies of the semiotics of visual communication attempt to establish a theory of all visually mediated texts, regardless of whether they are e.g. graphic or photographic (e.g. Eco 1976, Sonesson 1989). The object of this thesis, however, is strictly delimited to graphic trademarks and claims no descriptive or explanatory adequacy in cases of e.g. photography. Moreover, as I shall discuss in chapter 6, I assume visually mediated meaning, in terms of e.g. graphic and photographic semiotic potentials,

[26] Pragmatics is the study of utterance meaning: "Pragmatics deals with the specific meaning of actual instances of language use, that is, with the meaning conveyed by a linguistic expression in a particular context of speech (McGregor 2009:133)".

to be only superficially alike (much in the same way that speech and writing are only superficially alike). If one addresses the question of the articulation of graphic and photographic form, it becomes apparent that the two are fundamentally different. Thus, I assume duality of patterning to be able to illuminate certain qualities of graphics, but not necessarily photography.

(3) The third difference is empirical and concerns the nature of my object of study. In section 4.2.2, I wrote that the social semiotic tendency to favour system over structure has become ever more pronounced with the advent of MSS. This probably has to do with the fact that the structure of the typical MSS object of study is not defined in terms of sequence and typological constituency, but rather in terms of simultaneous, topological composition. Thus, one could argue that the MSS object of study is *inherently paradigmatic* and that syntax – as linguists understand the term – is hard to justify. This must also be taken into consideration in a discussion of the concept of duality of patterning: Its basis is the commutation test, which works in terms of changing one element in the sequence and determining whether the difference makes a difference in terms of meaning. Thus, the constitutional sequence, or syntax, is the point of departure for the linguistic concept of duality of patterning.

This ties in with what I discussed above, because, what would happen if we were to flip this way of thinking about duality of patterning over and make the paradigmatic axis the concept's point of departure instead of the syntagmatic axis? What if all there was to say about the 'conditions of denotation' or 'iconic code' had not been exhausted with discussions about how a given graphic 'form' refers to a constituency–based ideationally semantic category such as the kinds of fruit (apples) in figure 4.1 and 4.2, but should also account for the kinds of ways in which appleness can be represented graphically cf. the difference between 4.1 and 4.2?

In chapter 6 I shall discuss these issues further and ultimately present a theory of *graphology* and *graphetics*, which accounts for the articulative conditions for different interpersonal stances towards the depicted ideational content based on a duality–friendly SFL model of stratification.

4.5 Summary

In this chapter I have given a general introduction to the social semiotic paradigm and discussed both the origin of MSS in Halliday's SFL as well as the ways in which these two theoretical schools differ. Generally speaking, the discussion has revolved around three theoretical issues:

The first issue has to do with how we regard 'the communicative system', which is probably the most crucial concept in social semiotic theory. The system is what we humans use to interact with each other and to make meaning. It comprises language as such (as well as any individual language) and any other semiotic modality we can think of. There are two fundamentally different ways of regarding it, a synchronic and a diachronic way. When we regard the communicative system from a synchronic perspective, we attempt to map the system as a paradigm of paradigms, or in other words, as the sum total of the potential for meaning making *at a given moment in time*. This is ultimately what we must attempt in the development of a descriptive scheme for trademarks. From the diachronic perspective, we can appreciate the fact that the system is dynamic and ever changing. Or differently put, that it exists *over time*. We can appreciate its history on a range of time scales from the micro-scale of a muscle movement during an articulative event to the macro-scale of the emergence and disappearance of semiotic modalities (or indeed the communicative ability of our species). A diachronic perspective allows us to discuss semiotic phylogenesis in our species and specific cultures (and hence how a social order of graphics can be hypothesized to have emerged), the ontogenetic growth of the individual (and hence how we become visually literate to varying degrees) and the logogenetic events of articulation and perception (on which the communicative event of confusion of trademarks rests).

This ties in with the second theoretical issue I discussed. This has to do with the increasing awareness in social semiotic theory that theories of ecosocial organization are required in order to understand the conditions of systemic change and stability. The emergence in recent years of theoretical concepts of distributed language and cognition, as well as the idea the mind extends to the body and beyond, forces social semioticians to renegotiate otherwise comfortable demarcations between communicative system and body, and wonder if not the social context is also physical and, conversely, if the physical body is not also social. Such ideas' extensive ramifications for the theory of graphetics I shall propose, because they suggest that the meaning of graphics is not only socially determined but also the result of each individual's first-hand experience with bodily acts of graphic articulation.

The third and final issue has to do with the nature of many MSS objects of study, including the one that concerns us here, in comparison with the linguistic object of SFL. As a theory, MSS has become, in a way, inherently paradigmatic because its typical object of study is simultaneously rather than sequentially constituted. In this respect, the object of MSS is fundamentally different from that of SFL. Among the theoretical consequences this has had, is the tendency in MSS

to favour a theoretical architecture, which does not accommodate duality of patterning in the same way as SFL. More specifically, the system is stratified into a number of poly-synchronic "practices" rather than into a hierarchy of redundancies. However, I have argued that the paradigmatic nature of MSS description may allow us to propose a different concept of duality of patterning than the linguistic one. In this concept the paradigmatic axis (as opposed to the syntagmatic) is taken as the point of departure. If one does so, there should be nothing in the way of regarding graphics as made up of structural differences that are in themselves meaningless, but which distinguish meanings at a higher stratum. In turn, this would allow us to adopt the duality-friendly SFL concept of the structure of the system without linguistic fallacy.

In the next chapter, I will address the point from my hypothesis that the MSS theory – in spite of its apparent promise – will in fact fall short of adequately accounting for the similarities and differences of the trademarks in the corpus, because no consistent concept of expression strata equivalent to phonology and phonetics in linguistics has so far been devised. In order to demonstrate this, I will analyse one case from the corpus using the current state of the art of MSS.

5
Shortcomings of MSS

5.1 Introduction

In this chapter, I will give a review of the possible insights into the meaning of trademarks yielded by current MSS theory (see generally O'Toole 1994; Kress and Van Leeuwen 1996, 2001, 2002; O'Halloran (Ed.) 2004; Van Leeuwen 2005a, 2005b; Baldry and Thibault 2005; Lim Fei 2007; Boeriis 2009; Kress 2009).

Section 5.2 will give a brief overview of the corpus in order to give an impression of its diversity. Section 5.3 will present an analysis of a single case, case No. 3, using current state of the art descriptive schemes from MSS. Section 5.4 will offer my critique of these schemes and my reasons for developing a theory of graphetics and graphology. The purpose of these exercises is neither to give an exhaustive theoretical critique of the entire MSS toolbox nor an exhaustive analysis of every trademark in the corpus according to state of the art MSS. That would require a different undertaking altogether.

Rather, the intent is to substantiate my claim that MSS theory in its current state of development will fall short of exhaustively explaining the issue of co-occurring meaning in several of the cases in my corpus. Therefore, I will base my review on a representative selection of analytical tools from MSS. In the course of this review, I find it necessary to comment on the general status of MSS text analysis in relation to the specific nature of my object of study and to give a critique of some of the more promising theoretical developments in the MSS paradigm.

In section 4.4.4, I discussed the two dominant concepts of stratification in social semiotic theory: (1) The SFL model of stratification, which orients itself towards double articulation and conceptualizes semiotic systems (language) as a nested hierarchy of redundancies. (2) The MSS model, which is oriented towards "multiple articulations" (Kress and Van Leeuwen 2001:4) and conceptualizes semiotic systems as a series of practices "in which meaning is dominantly made" (ibid.). In that section I concluded that because my aim is to develop a theory of *graphology* and *graphetics*, I find the 'duality-oriented' SFL model more apt.

However, so far I have not shown why I believe a theory of graphology and graphetics to be either possible or necessary for the development of a systematic, precise, measurable and comparable method of forensic analysis of graphic trademarks cf. the research questions stipulated in section 2.2. Therefore, in discussing the applicability of state-of-the-art MSS analysis on graphic trademarks, I shall also discuss the theoretical status of MSS's descriptive and analytical categories and show that (i) for the most part, they belong in the content strata of lexico-grammar and semantics and that (ii) a theory of the formal qualities of graphic semiosis is more apt for explaining some of the trickier cases in the corpus.

5.2 An overview of the corpus

Casual observation of the 24 trademarks in the corpus reveals the diversity of graphic trademarks as a category. From a multimodal point of view, it is striking that the marks employ such a diverse range of *modes*.[1] Although all meaning in graphic trademarks must necessarily be expressed in a graphic substrate and is thus subject to graphic variation, a few of the marks are made up only by graphically realized verbal meaning in the form of alphanumeric letters (figures 1.3, 1.4 and 1.21) whereas another few are made up only by graphically realized iconic imagery (figures 1.9, 1.17 and 1.26). The majority of the marks, however, combine alphanumeric letters with various kinds of non-verbal visual devices ranging from readily identifiable iconic images to more or less abstract visual forms and various kinds of frames. These overall categories correspond with Heilbrunn's *logotype*, *icotype* and *mixed type* (cf. section 3.3.1).

Table 5.1 (next page) gives an overview of the marks in the corpus and the different modes used to realize their meaning, as well as a labelling of which (if any) readily recognizable depictions they contain. Further, the marks have been labelled according to Heilbrunn's categories in order to establish a rough, preliminary classification.

In that respect, case No. 10 poses a classificational challenge: What should one call a trademark comprised of just a single alphanumeric letter (figure 1.21)? Is it a *logotype* or an *icotype*? According to Heilbrunn, logotypes are exclusively composed of alphanumeric signs (1997:178) but one must keep in mind that all logos may always be analysed as visual messages. Thus, a particular choice of various graphic resources such as colour or typography "[…] gives the logo its identity features and in some way tends to iconize these alphanumeric signs so that the logo becomes an image" (ibid.). This description is certainly true of both the trademarks in case No. 1 (figures 1.3 and 1.4), but does it also adequately describe 1.21? And what of 1.22, in which circular visual devices frame the alphanumeric sign? Is that a logotype or a mixed type?

[1] By 'mode' I understand a given resource, acknowledged by a given community, for realizing the full potential of 'ideational-', 'interpersonal-' and 'textual meaning' following Kress (2009:84-92).

#	Involved parties	Trademark #1	Trademark #2
1	Danfoss A/S vs. Dazhou Heli Controls	*1.3: Logotype* Alphanumeric letters	*1.4: Logotype* Alphanumeric letters
2	Lego A/S vs. Mega Brands, Inc.	*1.5: Mixed type* Alphanumeric letters Rectangular frame	*1.6: Mixed type* Alphanumeric letters Rectangular frame
3	Nike, Inc. vs. Li-Ning Company, Ltd.	*1.7: Mixed type* Alphanumeric letters Abstract visual form	*1.8: Mixed type* Alphanumeric letters Abstract visual form
4	Lacoste S.A vs. Føtex A/S (DKPTO)	*1.9: Icotype* Iconic representation of alligator	*1.10: Mixed type* Alphanumeric letters Iconic representation of crocodile wearing t-shirt and baseball cap Circular frame
5	Boehringer Ingelheim Pharma KG vs. Decathlon S.A. (DKPTO)	*1.11: Icotype* Abstract visual forms Frame	*1.12: Icotype* Abstract visual forms Frame
6	Aalborg Industries vs. Intrade Finans A/S	*1.13: Mixed type* Alphanumeric letters Symbolic representation of circles combining into a triangle	*1.14: Mixed type* Alphanumeric letters Symbolic represen-tation of boiler system Triangular frame
7	Rolls Royce PLC vs. PR Chokolade A/S	*1.15: Mixed type* Alphanumeric letters Rounded, rectangular frame	*1.16: Mixed type* Alphanumeric letters Rounded, rectangular frame
8	Apple, Inc. vs. NYC & Company, Inc.	*1.17: Icotype* Iconic representation of apple	*1.18: Mixed type* Iconic representation of apple and eternity symbol Alphanumeric letters
9	Pelikan Vertriebsgesellschaft mbH & Co. KG vs. Dainichiseika Colour and Chemicals Mfg. Co. Ltd.	*1.19: Mixed type* Alphanumeric letters Iconic representation of bird (pelican) with chicks Circular black frame	*1.20: Icotype* Iconic representation of bird (pelican) Circular frame, which doubles as symbolic representation of globe
10	Diesel S.p.A. & Diesel Danmark ApS. vs. Montex Holding Ltd.	*1.21: Icotype* Single alphanumeric letter	*1.22: Icotype* Single alphanumeric letter Circular frames
11	Dansk Supermarked A/S vs. Frederik Tuemand (Net2Maleren)	*1.23: Mixed type* Alphanumeric letters Symbolic representation of terrier holding shopping basket	*1.24: Mixed type* Alphanumeric letters Symbolic representation of painting utensils
12	NBA Properties, Inc. vs. Football Sport Merchandise S.p.A.	*1.25: Mixed type* Alphanumeric letters Iconic representation of human figure with ball Rounded rectangular frame	*1.26: Mixed type* Iconic representation of human figure with ball Rounded rectangular frame

5.3 Nike versus Li-Ning Company

As mentioned in the introduction to this chapter, the scope of this thesis does not allow a full MSS analysis of every one of the 24 trademarks in the corpus. Fortunately, I do not believe such meticulousness to be necessary for my purpose: Case No. 3, which stands between American sports equipment retailer Nike, Inc. and one of the company's fiercest competitors in the Chinese market, Li-Ning Company, Inc., poses enough of a challenge to state-of-the-art MSS to substantiate my hypothesis that current MSS theory will fall short of explaining the nature of co-occurring meaning in this as well as several other of the corpus' cases. Hence, I will base my review of current MSS theory on case No. 3 and include the other cases as well as peripheral cases where they are needed to illustrate my points.

Nike, Inc. is widely recognized as the owner of one of the world's best-known and most easily recognizable trademarks. The so-called 'swoosh' was designed by design student Carolyn Davidson in 1971. In the original design brief, Nike founder Phil Knight asked Davidson for "something that suggested movement",[2] and she came back with the swoosh.

Li-Ning Company, Inc. has rapidly grown into one of the leading brands in sports wear and shoes in the People's Republic of China. It was founded in 1990 by the former Olympic gymnast Ni-Ling, who won Olympic gold in the 1984 games in Los Angeles. The trademark, sometimes referred to as "the stroke", is said to represent Li-Ning's initials (L.N.) as well as a flying flag symbolic of 'youth'.[3]

The case is hypothetical in the sense that neither company has ever found reason to file a legal claim on grounds of likelihood of confusion against the other. Of course, this could be seen as an indication that the two marks are simply quite different and hence there is no case, legally speaking. And based on intuition, I would have to agree. But that does not necessarily mean that the juxtaposition of these two marks in a comparative analysis is completely haphazard: Nike, Inc. and Li-Ning Company, Inc. compete in the same markets both geographically and in terms of the nature of their products, their products look very similar and many commentators and bloggers in the marketing and branding profession have found Li-Ning's stroke (figure 5.2) suspiciously similar to Nike's swoosh (figure 5.1).[4]

[2] According to the article "Origin of the Swoosh" from Nike, Inc.'s corporate website, retrieved by Google on April 13th, 2007 at http://web.archive.org/web/20071023034940/http://www.nike.com/nikebiz/nikebiz.jhtml?page=5&item=origin

[3] According to an article of September 13th 2009 on chinadaily.com: http://www.chinadaily.com.cn/en/doc/2003-09/13/content_263804.htm

[4] See e.g.: http://www.oregonlive.com/business/index.ssf/2009/12/chinese_shoe_maker_slips_into.html or http://www.deadlysins.info/wordpress/?tag=china

5.1

5.2

Furthermore, at the structural level, only a few instances of variation separate the two marks. The question is whether current MSS theory can provide an analysis of these two graphic trademarks, which can adequately hypothesize or explain their similarities and differences. Or differently put, can MSS theory provide an analysis, which can explain why no trademark attorneys have found cause to file a complaint when so many non-attorneys seem to find them suspiciously alike? As I wrote in my statement of the hypothesis of this thesis (section 2.2.3), I do not believe it will.

5.3.1 What *is* MSS good at?

In order to substantiate this hypothesis, I will begin with demonstrating what current MSS theory would in fact be good at before showing where it falls short. Figure 5.3 (next page) shows a print advertisement from Nike, Inc.'s sub-brand for women. This is exactly the kind of text which would make a typical object of inquiry for an MSS analysis (see for example Kress and Van Leeuwen 1996:189; Yuen 2004, Van Leeuwen 2005a:35; Baldry and Thibault 2005:25 for analysis of similar objects). On this preference for print advertisements as objects of observation, Van Leeuwen writes the following:

> It is always a good idea to begin with a small and quite specific pilot study, and then gradually to enlarge the collection by adding other kinds of examples. Magazine advertisements are often a good starting point for studying aspects of visual communication, because they are obtained easily and tend to use a wide range of semiotic resources (2005a:8)

Evidently, figure 5.3 makes use of multiple semiotic modes. There is written verbal language as well as photographic, graphic and typographic resources in play. A typical MSS analysis would inquire into 'what' is represented (ideational meaning) in the text, 'how' it is represented and how the text enacts interpersonal relationships between performer and perceiver (interpersonal meaning) as well as the ways in which ideational and interpersonal meanings are structured into a cohesive whole (textual meaning).

With regard to ideational meaning, such an analysis would probably break figure 5.3 analytically down to a number of nested functional constituents following, for example, Baldry and Thibault's concept of functional clusters (2005:21-30). At the entry-level of analysis, figure 5.3 could thus be said to

comprise: (1) A photo of an athlete,[5] (2) a number of calligraphic, bamboo-like motifs, (3) elements of written language (copy), and (4) Nike's 'swoosh' device mark.

5.3 *Print advertisement (above) from Nike's women's sub-brand. Note the two instances of Nike's 'swoosh' device mark (1) on the athlete's shorts and (2) to the right of the text "nikewomen.com" on the lower right side of the ad.*

These overall functional clusters could then be subject to further analysis in terms of the 'nested clusters' they consist of: The athlete is made up of a number of distinct elements: (1a) the visible parts of her body (legs above the knee, lower left arm, hand, individual fingers, belly) and (1b) her running attire. The running garment, in turn, is made up of ($1b_1$) its dark front; ($1b_2$) white trim and ($1b_3$) white Nike swoosh device mark.

Similarly, the bamboo-embellishment can be broken down into three individual motifs, each of which is again made up of a number of individual brush strokes and paint splatters.

[5] Of course, at the entry level of analysis we cannot jump to the conclusion that the depicted person is an athlete. We need to draw on experience with relevant discourses in order to do that: For example, the person's thigh muscles are well developed. We know that such muscle mass is gained through hard work such as intense athletic activity. We also recognise the shorts as typical of an athlete's attire. Finally, we know that Nike produces apparel for athletes. Hence, it is likely that the person in the picture falls into the 'athlete'-category.

Finally, the copy can be broken down into a headline, a body text consisting of 5 paragraphs, a pay-off and a URL. All of these can be analysed in terms of typographical units each of which is at a distinct level of nested clusters: Paragraphs, words and individual letters.

With regard to interpersonal meaning, the analysis would probably inquire into the way in which the position of the viewer is constructed in relation to the depicted athlete and what that means (see Kress and Van Leeuwen 1996:130-148; Boeriis 2009:254-269). It would also inquire into the level at which the depicted participant can be said to establish a connection with the viewer through eye contact or body language (Kress and Van Leeuwen 1996:121-130). Finally, the interpersonal part of the analysis would inquire into the use of colour and various other resources for 'modality' (see e.g.: Kress and Van Leeuwen 1996:159-168; Van Leeuwen 2005a:160-176; Boeriis 2009:269-271 or section 5.4.1): What does it mean that some parts of the ad are in grey scale whereas others are in colour? What could be the possible meaning of those particular colours?

Finally, with regard to the textual meaning in the ad, the analysis would probably explore how the functional units are set apart from each other and conversely how they are tied together into a cohesive whole. It would likely point to two 'attractors' of modality that are used in the text to assign different functions to elements and tie them together through visual 'rhyme' (see: Kress and Van Leeuwen 1996:217): The greyscale of the photographically rendered athlete is rhymed in the greys of the body text and the washes of colour that fill the otherwise 'flat' graphic bamboo elements are rhymed in the headline and pay-off. These instances of rhyme tie various elements of the text together thematically.

At this level, the analysis would maybe also turn to colour or the specific typographic meaning (following e.g. Van Leeuwen 2005b) conveyed by the particular typeface used; the relative size and strength (whether the type is set in e.g. 'regular', 'bold', 'extra bold' or 'black') of the type, the spacing between letters, between lines and between paragraphs and so on and so forth, and ask whether these particular choices could be said to convey ideational, interpersonal or textual meanings.

It is important to note that an MSS analysis does not restrict itself to the particular choices and their subsequent meanings that have actually been instantiated in the text. Because of the theoretical and analytical priority given by social semiotic theory to the paradigmatic axis, it is also crucial to ask what could have been used instead of the instantiated choices and how that would have affected the overall meaning. What if the athlete had been cropped differently or had been photographed from a different angle? What if the athlete had been in full colour? What if everything had been in greyscale? What if the bamboo-blossoms had been brown or any other colour for that matter? What if they had a different shape? It seems as if the vast number of possible choices the analyst must take into account is overwhelming, but this is not necessarily so. Colour, point of view, cropping etc. are well established as topological descriptive systems in the MSS toolbox and one does not need to know every possible

instance of every system's potential. One only needs to know the principles and dynamics of a given system in order to theorize any instance of it.

Although very superficial, the example shown here demonstrates the theory's preference for a level of observation at which elements from different semiotic systems co-occur in complex composite texts and cooperate in making meaning. It is this very preference which Kress and Van Leeuwen refer to in saying that their "[…] emphasis is not on *depiction*, nor on the question of *recognition*, on how we come to see configurations of pencil marks or brushstrokes or pixels as pictures of trees" (1996[2006]:47), but rather on "visual structuring" (ibid.). However, this preference comes at the expense of the level of observation at which individual elements have a sign function independently of the larger text.

As the problem underlying this thesis suggests, this focus does not meet the requirements for forensic comparative analysis of graphic trademarks. In current MSS analysis, the Nike swooshes in the print ad in figure 5.3 would be regarded as functional constituents in a complex, multimodally constituted whole.[6] The point, however, is that - depending on one's scale of observation - they can also be regarded as autonomous texts in themselves.[7] The question then is: How does one go about analysing a text, which contains as little information as for example the Nike swoosh or its counterpart, the Li-Ning stroke? Which tools in the MSS toolbox can shed a light on the similarities and differences of these two marks?

5.3.2 A structurally simple subset of visual texts

These questions challenge the MSS toolbox because graphic trademarks as a subset of visual texts are comparatively minimalistic. I say 'comparatively', because – although they are generally very simple compared to e.g. the print ad in figure 5.3 – a trademark can be more or less complex compared with other trademarks. Think, for example, of Nike's and Li-Ning's marks compared with Unilever's 'U' (depicted as figure 5.4).

5.4 Unilever's 'U' is an example of a much adorned and relatively complex device mark.

[6] This is also true of the London Transportation *slogo* (slogan+logo) in Baldry and Thibault's analysis of a London Transportation folder (2005:25-30).

[7] This is precisely the object of the *comparison* of the marks in trademark doctrine's assessment of likelihood of confusion. Regardless of how the Nike swooshes in figure 5.3 are instantiated (i.e. ($1b_3$) stitched onto a garment and photographed at an oblique angle or (4) represented graphically at a neutral angle), both marks are tokens of the same type. The object of the protection of trademark law is the type, not the individual tokens of the type. We can, of course, only analyse tokens of that type.

Structurally as well as conceptually the typical trademark is simple and strictly economical in its use of visual means. A well-known credo in the graphic design industry is "less is more".[8] As a matter of fact, to many in the industry, structural and conceptual simplicity is a measure of a logo's artistic and subsequent commercial value and a designer's ability to devise and execute simple solutions is a measure of his or her talent. Whether this is due to tradition, taste, or evidence that simple logos are in fact more effective in terms of brand equity or recognisability shall remain unanswered here.

However, because graphic trademarks are comparatively simple, any feature of their structure is relatively more noticeable than it would be, had the overall structure been more complex (as is the case in 5.3). A given structural feature of graphic form is to a trademark what a whisper is to an otherwise quiet room (not a whisper at a noisy party).[9]

To illustrate this point, contemplate the differences between the drawings in figures 5.5 and 5.6. Given the right context, both images would in all probability suffice to denote 'apple' with 'stem' and 'leaf'. Both drawings have been made with the same 3-millimetre felt tipped calligraphic pen. Evidently, 5.6 is far more structurally complex than 5.5 for the obvious reason that a lot more strokes (63, all told) have been used to represent the ribbed texture of the leaf, the knobbiness of the skin and the shading of the fruit bulb. If I were to change the features of one of the strokes in 5.6, e.g. make it thicker overall or change the contrast between its thickest and thinnest parts, the change would be hardly noticeable. Conversely, because 5.5 is made up of only 2 or 3 strokes depending on how you segment them, a change in one of the strokes would be far easier to detect and its potential impact on the look of the whole would be much larger.

5.5

This drawing of an apple is made up of only three strokes. A change in one of the strokes would have significant impact on the overall look of the apple.

[8] This credo was coined by architect Ludwig Mies Van der Rohe in his precept for minimalist design.

[9] This insight is derived from Ernst Heinrich Weber and Gustav Fechner, who discovered that the 'just noticeable difference' (jnd) in a change of magnitude in a given stimulus is proportionate to the the magnitude of the stimulus rather than a constant. This principle is generally known as the "Weber-Fechner Law" (see generally Mook 2004, chapters 44 and 45). This observation is crucial to the MSS concept of 'salience' (e.g. Kress and Van Leeuwen 2006[1996]:176).

This apple is made up of 63 strokes. A change to one of the strokes would in all likelihood have no impact on the overall look of the apple (unless it was a change large enough to be noticeable).

5.6

In line with the priority MSS gives to the paradigmatic axis, contemplate what would happen with the meaning of Nike's swoosh if even a single feature of its shape were changed as in figures 5.7 and 5.8, where a single curve has been exchanged for an angle. It is a small structural difference which makes a big difference overall. Figures 5.7 and 5.8 are no longer Nike's swoosh. Whether or not the result would be close enough to cause likelihood of confusion is a different question, but it would be something else altogether.

5.7

5.8

Because logos are typically so simple, and because their overall meaning can be so easily affected by even the smallest changes, it makes sense to subject these minute structural features to rather intense scrutiny. However, as I have demonstrated above, the MSS toolbox has not been developed to cater for such close analysis.

5.3.3 Ideational meaning in case No. 3

The question, then, is just how far *can* we expect to get with MSS theory in its current state? If we were to look into the meaning potential of the various metafunctions outlined in social semiotic theory, what insights into Nike's swoosh not to mention its similarities and differences to Li-Ning's stroke could be yielded by, for example, an ideational analysis in terms of experiential meaning such as 'narrative representations' (Kress & Van Leeuwen 2006[1996]:45), 'conceptual representations' (id:79) or 'logico-semantic structures' (Van Leeuwen 2005a:220-247, Boeriis 2009:194-200)?

The answer, of course, is not much. This is partly due to the fact that these specific marks are extensionally under-specified. They are both simple to the extent that their intensional properties cannot establish an unequivocal reference to objects or concepts, to which we can relate as the 'participants' of an unfolding ideational process: There are no readily identifiable dogs (as in figure

1.23), paintbrushes (figure 1.24), apples (figures 1.17 and 1.18), reptiles (figures 1.9 and 1.10), pelicans (figures 1.19 and 1.20), ball players (figures 1.25 and 1.26) or other such depicted concepts. Of course, Li-Ning's mark is said to represent the founder's initials and a flying flag, but neither extension is sufficiently specified. Overall, both marks are simply distinctive shapes that are quite open to interpretation as far as participants go. In that respect, the marks are quite similar.

Of course, Nike's 'swoosh' could be said to successfully execute the design brief given to Carolyn Davison by suggesting 'movement', but exactly how does it do that (and does the very same description not apply to Li-Ning's stroke)? A possible answer to this question could be provided by the concept of *the vector*, which is a visual counterpart to *the process* in language. It is introduced by Kress and Van Leeuwen in their account of *narrative representations* (2006[1996]). They define it like this:

> In pictures, these vectors are formed by depicted elements that form an oblique line, often a strong, diagonal line [...]. The vectors may be formed by bodies or limbs or tools 'in action', but there are many other ways to turn represented elements into diagonal lines of action (2006[1996]:59).

From this perspective, the Nike 'swoosh' could be said to represent a vector indicating movement and directionality, which is unrelated to any recognizable participants. Unfortunately, the concept of vector does not in itself explain how it is that we come to see a shape such as the Nike 'swoosh' as suggestive of movement. The vector concept does not theorize the full function of the sign. Or rather, it theorizes vector as a meaning potential but does not theorize our resources for realizing that meaning beyond the suggestions from the above quote. There is one promising but also underdeveloped line of thought on the formal aspects of vectors, which has been implicitly suggested elsewhere in MSS literature: In (2001), Kress and Van Leeuwen coin the term *experiential meaning potential*, which is described thus:

> This refers to the idea that material signifiers have a meaning potential that derives from what it is we *do* when we articulate them, and from our ability to extend our practical experience metaphorically and turn action into knowledge (ibid.).

Following such a line of reasoning, it does not seem unreasonable that Nike's 'swoosh' suggests movement in terms of experiential meaning potential. In comics, for example, a specific kind of line is often used as a means to represent movement. In most cases, the shape of such lines will be the direct result of the artist's movement of his pen over the paper. The artist draws them counter to the represented direction (for example, to indicate the movement of a car, he will draw the lines beginning at the car and moving away from it). The more vigorous the movement, the more distinctly vigorous-looking the line will become and the more energetic the represented movement will look.

As a general rule of thumb, because many artists use pointed, springy tips for their graphic instruments, these movement-lines will have characteristic tapered ends. They will be thicker at the beginning of the stroke and gradually

become thinner as the artist releases pressure on the instrument and ultimately breaks contact with the surface.

In other words, the meaning potential of these 'movement-lines' in comics can be said to derive from a specific kind of action by the performer in the event of articulation.[10] Of course, Nike's swoosh does not have the contingent "look" of a comic book-line, but it seems reasonable to argue that Carolyn Davidson has executed her brief by creating a stylized or conventionalized version of a 'movement-line', which we are able to interpret as a suggestion of movement because we have individually been exposed to many instances of such a convention and it has become a part of our general visual literacy (cf. section 2.3.4). But again, the same seems to be true of Li-Ning's mark. Neither the vector-concept nor experiential meaning potential has been developed to a degree of delicacy which enables us to capture analytically the differences between Nike's and Li-Ning's marks.

A similar analysis applies to the two marks in case No. 5 *Boehringer Ingelheim Pharma KG vs. Decathlon S.A.*: Both these marks are also extensionally underspecified to the extent that no participants are readily identifiable. According to the statement of the opposer (Boehringer) in the transcription of the DMCC's verdict, the ideational content of the two marks can be described like this:

> The marks are abstract, but both can be taken to depict a mountain-scape. Boehringer's mark [1.11] can represent an upper case M whereas Decathlon's mark [1.12] can represent a hand-written m (DMCC V109/02:4, my translation).

As is the case in *Nike, Inc. vs Li-Ning Company, Ltd.*, the marks of case 5 may very well be suggestive of many things, such as mountains or alphanumeric letters, but they do not unequivocally denote either. Apart from the number of 'zigs' and 'zags' on the represented line, the only difference seems to be in the actual shape of the lines and as a result of that, maybe, in their experiential meaning potential. And how would one go about analysing the two 'figurative designs of words' (cf. section 3.3.2) in case No. 1, *Danfoss A/S vs. Dazhou Heli Controls Co., Ltd.*?

In all three cases, the question of difference and similarity seems to boil down to 'shape'. Unfortunately for this undertaking, MSS theory has no descriptive readiness for 'shape' as a formal resource, which is quite puzzling: Shape is mentioned in many contexts in MSS, typically in the same breath as colours and materials (e.g. in: Meng 2004:35; Alias 2004:68; Lim Fei 2004; Van Leeuwen 2005a:212; Thibault 2007:136) as an important resource for meaning making, but so far no-one has proposed a social semiotic description of it.

The closest thing to a descriptive categorization is Lim Fei's (2006[2004]:238) suggestion, that shape can be classified in terms of 'geometric' versus 'non-geometric' and 'regular' versus 'irregular'. However, as Lim Fei himself points out, these suggestions are not exhaustive but merely meant to

[10] This is also a very apt description of what the American *action painters* (e.g. Jackson Pollock) of the 1950s and 60s sought in their abstract expressionism: The meaning potential of their imagery derives solely from material traces of their gesture-like actions. The more energy they exerted in a given movement, the more distinct the potential for experiential meaning.

"illustrate how systems on the expression plane contribute to the overall meaning of the text" (ibid.).

5.3.4 Interpersonal meaning in case No. 3

So far we have been able to conclude that MSS descriptions of the potential for making ideational meaning are of little help in analyzing the similarities and differences of the two marks in cases No. 1, 3 and 5. As far as the remaining cases are concerned, which actually depict readily identifiable participants, its explanatory value seems questionable. What then of interpersonal meaning? Kress and Van Leeuwen give this characteristic of the interpersonal metafunction:

> [...] visual communication also has resources for constituting and maintaining another kind of interaction, the interaction between the producer and the viewer of an image. Another way of saying this is that images (and other kinds of visual) involve two kinds of participants, represented participants (the people, the places and things depicted in images) and interactive participants [...] interactive participants are therefore real people who produce and make sense of images in the contexts of social institutions which, to different degrees and in different ways, regulate what may be 'said' with images, how it should be said, and how it should be interpreted (2006[1996]:114).

Many of the Kress and Van Leeuwen's descriptions of resources for making interpersonal meaning fall under the heading "designing the position of the viewer". In other words, they describe what resources are available to establish representations of the relationship between a text's interactive participants in terms of contact, power, equality, inferiority, intimacy, distance and such concepts. They do so by describing the ways in which images can represent contact between represented and interactional participants through gazes. Also, they describe the resources for establishing a virtual 'space' in which texts can enact interpersonal relationships. This is done, for example, by placing a viewer in a position of power above the represented scene, of inferiority by placing him below the scene or equality by placing at the same level as the scene. In addition, by cropping an image close to participants a representation of closeness to a scene is achieved and conversely, by including a lot of background distance to the scene can be represented.

None of this really seems to adhere to graphic trademarks. As I discussed in section 5.3.2, graphic trademarks are typically very simple structurally. One aspect of this simplicity is that only very few trademarks contextualize represented participants to any degree. If a graphic trademark depicts anything it usually does so in a decontextualized, generic way (see e.g the alligator in figure 1.9, the apples in figures 1.17 and 1.18, the pelicans in figures 1.19 and 1.20, the dog in figure 1.23, painting tools in figure 1.24 and ball players in figures 1.25 and 1.26). The general 'style' of graphic trademarks does not provide enough visual cues for a viewer to establish the virtual space needed to represent an elevated or lowered position in relation to the depicted scene.

MSS theory shows more promise in its discussion of 'modality' as a resource for enacting interpersonal relationships. Modality has been a point of

particular interest for MSS theory ever since Michael O'Toole first made the connection between linguistic modality and its visual counterpart (1994:9). In SFL, modality describes the linguistic resources with which a speaker can express his subjective stance towards to the truth condition of an utterance through a grammatical system called 'modal auxiliaries'. This includes verbs such as 'may', 'will' and 'must' as well as adjectives such as 'possible', 'probable' and 'certain' (Machin 2007:47). With these resources it is possible to "slant" an ideational figure with different degrees of certainty or truth as in "I *will* have to work late tonight" as opposed to "I *may* have to work late tonight" or "I will *certainly* have to work late tonight" as opposed to "I will *probably* have to work late tonight". Of course, the kinds and degrees of truth expressed in other semiotic modes are different. Theo Van Leeuwen explains the more general nature of the study of modality this way:

> Linguists and semioticians therefore do not ask 'How true is this?' but '*As how true* is it represented?' They are concerned not with the absolute truth but with the truth as speakers and writers and other sign producers *see* it, and with the semiotic resources they use to express it (2005a:160).

From this view on 'truth' follows that:

> Each realism has its naturalism, that is, a realism is a definition of what counts as real, a set of criteria for the real, and it will find its expression in 'the right', 'the best', the (most) 'natural' form of representing that kind of reality, be it a photograph or a diagram. This is not to say that all realisms are equal. Although different realisms exist side by side in our society, the dominant standard by which we judge visual realism and hence visual modality, remains for the moment, naturalism as conventionally understood, 'photorealism' (Kress and Van Leeuwen 2006[1996]:163).

MSS literature enumerates a number of resources used in the expression of visual modality (e.g. Van Leeuwen 2005a:167): (1) Articulation of *detail* on a scale from the simplest line drawings to the sharpest photograph. (2) Articulation of *background* ranging from no background to maximally sharp and detailed backgrounds. (3) Degrees of *colour saturation* ranging from black and white to maximally saturated, vibrant colours (bamboo). (4) Degrees of *colour modulation* ranging from flat, unmodulated colour to nuanced, plastic representations of texture and shading. (5) Degrees of *colour differentiation* ranging from monochrome to the use of a full range of colours. (6) Degrees of *depth articulation* ranging from no depth to the maximally deep perspective. (7) Articulations of *light* and *shadow* ranging from zero to the maximum number of degrees of shading. (8) The articulation of *tone range*, which ranges from two shades of tonal gradation to maximum tonal gradation.

Moreover, Kress and Van Leeuwen suggest that, because each realism has its own naturalism, different kinds of "modal profiles" can be classified in terms of Bernstein's (1996) *coding orientations* (Kress and Van Leeuwen 2006[1996]:165). A given use of visual resources may be considered perfectly inconspicuous in some social groups and very remarkable in others. For example, black make up around a person's eyes would be inconspicuous in the "Gothic" subcultures in London's Camden Town but highly inappropriate in an

office environment in London City. Kress and Van Leeuwen enumerate four such coding orientations: (1) *Technological coding orientations*, which are characterized by their 'effectiveness' of visual communication as blueprints. Here, colour for example is only infrequently used. When it is, it has low modality and is very conspicuous. (2) *Sensory coding orientations*, which are used in pleasure-oriented contexts, for example advertising, food and fashion. Here, colour is the rule rather than the exception. (3) *Abstract coding orientations*, which are used by socio-cultural elites in high art, scientific and academic contexts. Here, modality is higher the more an image is reduced from the particular to the general. (4) The common sense n*aturalistic coding orientations*, which is the dominant one in our society.

As I said above, this approach shows some potential for our purpose – but unfortunately not for case No. 3. If one were to comparatively analyse Nike's 'swoosh' and Li-Ning's 'stroke' in terms of their respective modality and coding orientations, they would come out exactly alike. They both show virtually non-existent articulation of detail (although one could argue that Li-Ning's mark is ever so slightly more structurally complex because of the extra bend on its curves and the angular bit on its left), they have no articulation of background, and they are both flat and unmodulated.[11] Moreover, there is no articulation of shadows and the tonal range is the lowest possible in both marks. If one was to try to determine which of Kress and Van Leeuwen's suggested coding orientations best characterise these marks, the outcome would be the same: They would both best be described as examples of 'the abstract coding orientation'.

However, there are other cases in the corpus where an analysis of 'modality' might be more useful than in case No. 3. Take for example the two apples in case No. 8: In section 4.4.3 I wrote that the two apples – regardless of their ideational similarity and the fact that they have almost identical shapes (cf. figure 5.11) – are represented differently: They do not seem to be different kinds of apples but rather to be apples in different ways, 'enacting' different inter-subjective stances towards 'appleness': Figure 5.9 (next page) renders the apple as a black mass whereas 5.10 renders it as an outline.

[11] Although Li-Ning's mark is shown in black and white throughout this discussion, it is usually shown in bright red, which is of course different. But Nike's swoosh, on the other hand, is used in practise in pretty much any colour at any time. So any one colour does not seem to be a factor here.

Figure 5.11 shows figure 5.9 and 5.10 super-imposed on each other. Note the near identical match of the shape of the bulbs, which only differ in the bite and stem and leaf arrangements

5.9

5.10

5.11

In the understanding of this case, there is also preciously little help to be found in the current state of the theory of visual modality. Again, if one were to analyse the individual modality of these two apples in terms of the descriptive systems outlined above, the outcome would be identical: Virtually no detail, no background, flat, unmodulated, monochromatic, two-tone black on white and no shading.

However, the concept of modality underlying these descriptive variables, as described by Kress and Van Leeuwen in the above quotes, seems to capture the general nature of the differences between the two apples. They have been articulated by different people in different situations intended for different audiences and have each found *apt* expressions in different ways. In section 5.3.3 I concluded that we need a more delicate theory of the formal properties of 'shape' in order to capture the differences in case No. 3. This case shows us that we also need a more delicate theory of the different ways in which a shape can be realized or 'enshapened'.

5.4 Theoretical critique

Current MSS theory describes a host of potentially meaningful qualities – called resources – of multimodally constituted texts. However, having committed to a hierarchical concept of stratification, which accommodates double articulation, it is difficult to determine at which level in a semiotic system these qualities belong. One of the seminal works of Multimodal Social Semiotics (Kress and Van Leeuwen 2001) explicitly distances itself from hierarchical concepts of stratification, yet in discussions of "Colour as a semiotic mode" (Kress and Van Leeuwen 2002) and "Typographic meaning" (Van Leeuwen 2005b), it is suggested that 'distinctive features' drive these qualities. Such suggestions entail a level of analysis equivalent to 'phonology' in linguistics. To me, this indicates that the MSS paradigm in its current state of development ever more frequently encounters the need for a multimodal theory of the *sign function*. However, as I discussed in section 4.4.4.2, the paradigm has not so far taken on the challenge of developing it. What I shall propose in the following two chapters may be regarded as the first steps towards a social semiotic multimodal theory of the expression side of the sign function of graphics. However, it must be stressed that this is a preliminary attempt, which will require further development by future research.

It can be useful to think of the various observed qualities of multimodally constituted texts in terms of whether they are 'above the line' or 'below the line'. In this respect, 'the line' is the analytical demarcation of a semiotic system's 'expression strata' and 'content strata' within a spatial conception of the hierarchical structure of stratification.[12] In this sense, any observed quality of a text, which pertains to the text's expression, is 'below the line' and a quality pertaining to the content of the text is 'above the line'. From the point of view of this thesis, the MSS paradigm's reluctance to discuss the internal sign function of specific elements of multimodally constituted texts (or in the present terminology the relation between their 'below-' and 'above the line' qualities) is frustrating. In general, MSS is more preoccupied with the level of analysis at

[12] In SFL literature, the hierarchical concept of stratification has given rise to a heuristic metaphor, which is widely used by scholars to visualize semiotic systems. In this metaphor, high(er) degrees of semiotic abstraction are equivalent to 'up' and low(er) degrees of abstraction are equivalent to 'down'. Thus, semiotic abstraction is translated into spatial dimensionality and a semiotic system is visualized as spatially organized phenomena with 'top-layers' (context) and 'bottom-layers' (phonetics). This metaphor is apparent in several aspects of SFL theory: For example, it is common to discuss 'realization' in terms of "a higher stratum being realized by a lower stratum and lower ones realizing higher ones" (Boeriis 2009:31, my translation). The 'trinoccular perspective' on language (e.g. Halliday 2005:31) is another example. According to this principle a functional study of a semiotic system should be performed from three perspectives simultaneously: 'From below', 'from above' and 'from around'. When one takes as one's point of observation the 'lower' expression strata of a language, language is regarded and described as a (sequential) configuration of formal constituents (although in a functional analysis these are regarded as contextually motivated quantities). Conversely, if one takes a contextual and semantic point of view, language is regarded as a relation to meaning (and context) (Boeriis 2009:40).

which individually meaningful elements are structured into texts. The question, of course, is whether the various observed qualities of the text belong 'above the line' in the content strata of *lexico-grammar* and *semantics* or 'below the line' in expression strata that are equivalent to *phonology* and *phonetics*.

5.4.1 An example: Modality

In order to illuminate the distinction between qualities that belong above and below the line respectively, let us take a look at the system of 'modality' as an example.

With regard to the print advertisement in figure 5.3, at least two different kinds of visual modality can be pointed out. The first is the specific modality of the represented athlete. The second is the modality of the graphic ornaments which resemble bamboo leaves or a similar kind of growth. Clearly, the athlete is represented photographically whereas the bamboo is graphic. The athlete leaves us with little doubt as to what it is: Although much of the body has been cropped away, the visible parts are all in the right places and correctly proportioned in accordance with our experience of such things. The skin and cloth is richly and naturalistically textured and lit in a way we can relate to. However, the photograph is in black and white. If one takes full colour photography as the current dominant standard of naturalism as Kress and Van Leeuwen suggest, this quality of the representation of the athlete detracts from the naturalism of the representation.

The bamboo in comparison is under-specified: It does not supply a sufficient amount of cues for us to identify it unequivocally. It may resemble bamboo to me, but to anyone else it could be many other things. It is certainly not a photorealistic representation. However, as Kress and Van Leeuwen point out, reality is in the eye of the beholder (2006[1996]:158). A Japanese master calligrapher would probably argue that his brush strokes capture the true essence of bamboo in a way a photograph never could.

5.4.2 Colour and modality

It is evident from the descriptions of these systems that *colour* plays a pivotal role in expressions of modality. Many of the modality systems theorise different uses of colour or absence of colour: Colour modulation, colour differentiation, light and shadow and tone range are all grammatical conventions for the use of the same formal substrate. As such, these qualities of a visual text belong 'above the line'. Colour saturation, however, is a different matter. It belongs 'below the line'.

As I mentioned above, inspired by Jakobson and Halle (1956), Kress and Van Leeuwen (2002) have suggested that colour functions as a semiotic resource by way of *distinctive features*. On their particular understanding of the term they note that:

> These distinctive features indicate, as in Jakobson and Halle's (1956), distinctive feature phonology, a quality which is visual rather than acoustic, and is not systematized, as in

> phonology, as structural oppositions but as **values on a range of scales.** One such is the scale that runs from light to dark, another is the scale that runs from saturated to desaturated, from high energy to low energy and so on. Again, in ways that provide echoes of Jakobson and Halle, we see these features not merely as distinctive [...] but also as **meaning potentials** (2002:355, my bold).

In other words, their understanding of distinctive features follows the lines of Lemke's *topological* qualities (this was discussed in section 3.3.2) whereas the linguistic understanding of distinctive features as "structural oppositions" follows the lines of *typological* qualities. This fundamental difference in the understanding of the nature of the distinctive features of visual semiosis is what makes MSS a more apt theory for describing trademarks than the other descriptive schemes presented in chapter 3.

In their article, Kress and Van Leeuwen propose six distinctive features of colour: (1) Value, (2) Saturation, (3) Purity, (4) Modulation, (5) Differentiation and (6) Hue. Note that some of these systems (2, 4 and 5) coincide with the descriptive systems of 'modality' presented above.

I agree with Kress and Van Leeuwen that colours are signifiers that "carry a set of affordances from which sign-makers and interpreters select according to their communicative needs" (2002:355), or in other words that they have meaning potential, but my preference for an architecture of the system which accommodates duality causes me to have doubts with regard to some of their proposed distinctive features of colour. If one takes their source of inspiration in Jakobson and Halle's phonology at face value, there are certain theoretical requirements one must meet:

> Linguistic analysis gradually breaks down complex speech units into MORPHEMES as the ultimate constituents endowed with proper meaning and dissolves these smallest vehicles into their ultimate components, capable of differentiating morphemes from each other. These components are termed DISTINCTIVE FEATURES (1956:14).

If one applies these distinctions to Kress and Van Leeuwen's conception of the distinctive features of colour, it follows that *any given colour* is the equivalent of such an "ultimate constituent endowed with proper meaning" whereas the features required for distinguishing one colour from all other colours, its hue (6), saturation (2) and value (1),[13] are its 'distinctive features'. So far everything is in order. A colour is 'above the line' and comparable to the morphemes of language whereas 'hue', 'saturation' and 'value' are all 'below the line' and comparable to 'phonemes'.

[13] The analytical breaking down of a colour into its hue, and its degrees of saturation and value is not a new practice. Sir Isaac Newton wondered about the colour phenomenon in his *Opticks* (1730[1704]) and Johann Wolfgang von Goethe wrote extensively on the analysis of colour in his *Zur Farbenlehre* (1810). The current convention of analysing a colour in terms of its 'hue' (what you could call the actual colour; red, reddish orange and orange are all different hues), its 'saturation' (what you could call its intensity; from the most vibrant reddish orange to the most subdued reddish orange verging on grey) and its 'value' (or its 'brightness'; from the lightest reddish orange (verging on white) to the darkest reddish orange (verging on black)) is mainly due to Albert Munsell (1932). The HSB colour model built into many graphic software systems is evidence of this convention's success.

The other three qualities are somewhat trickier. 'Differentiation', for instance, is described in the article as "the scale that runs from monochrome [i.e. one 'colour'] to the use of a maximally varied palette [i.e. all colours]" (2002:357, my brackets). If both ends of the scale entail the use of at least one constituent endowed with proper meaning (a colour), it follows that the scale cannot describe a distinctive feature of colour. A phenomenon cannot be one of its own defining characteristics. Similarly it can be argued that 'modulation' at one end of the scale has "flat colour" (ibid.) and at the other end is "richly textured with different tints and shades" (ibid.) all of which are, of course, different colours. Finally, in their explanation of the 'purity'-scale, Kress and Van Leeuwen write that: "terms like 'purity' and 'hybridity' already suggests something of the meaning potential of this aspect of colour" (2002:356). In this discussion they involve meaningful colour names as well as other discursively contingent factors in determining its categories. For example, they write that the colours associated with the simplest, prototypical names (e.g. red, orange, yellow, green, blue, violet) are 'pure', whereas colours associated with more complex suggestive names such as those with ideational modifiers (olive green, turquoise, sky blue, Payne's grey) typically belong to the 'hybrid' category. Given that the definition of the categories depends on differences in 'meaning', the categories cannot be of 'meaningless' meaning-differentiating distinctive features.

From the point of view of SFL architecture of stratification, it appears that 'hue', 'saturation' and 'value' are indeed visual, topological equivalents to distinctive features in language and belong 'below the line'. 'Modulation' and 'differentiation', on the other hand, are grammatical systems that describe resources for structuring and combining meaningful constituents (colours). They belong 'above the line'. Finally, 'purity' and its 'hybrid' counterpart are at yet another level of observation: These categories are endowed with social value. They also belong above the line, but not at the lexico-grammatical stratum. They are semantic qualities of colour.

One can also look at these observations of the formal resources and meaning potential of colour through Halliday's trinoccular perspective (see footnote 25). It then becomes clear that the categories of 'purity' and 'hybridity' result from observing colour 'from above', from context. 'Hue', 'saturation' and 'value' are the result of colour observed 'from below', from strata equivalent to phonetics and phonology. 'Differentiation' and 'modulation' result from observing colour 'from around' or, in Boeriis's words, from "the paradigmatic environment in the relations between sub-systems and grammatical categories and the interdependency between choices in different metafunctions" (Boeriis 2009:40, my translation).

Kress and Van Leeuwen do not randomly pick their categories in "Colour as a semiotic mode: Notes for a grammar of colour", which is crucial for the usefulness of the article for the undertaking in this thesis. Rather than randomly picking out descriptive categories, they implicitly suggest how the *categories of their grammar* of colour (which I have argued to be of both semantic, grammatical and graphological nature) and *material practices* of articulating colour can be linked. They give a historic account of how people have thought about and worked with colour over the centuries and how colour can be

assumed to have developed into a full fledged semiotic system with planes of expression and planes of meaning as well as a grammar that organizes them.

The phylogenetic processes by which a material practice gives rise to a semiotic mode can be understood as an on-going analytical abstraction of the phenomenon in question. This says that, with regard to colour, the development of abstract principles for the physics of colour seems to have developed in tandem with the development of colour as a semiotic system.

On the one hand, as far as the physics of colour are concerned, Sir Isaac Newton wrote about this in his *Opticks* (1730[1704]) and Johann Wolfgang von Goethe in his *Zur Farbenlehre* (1810). On the other hand, according to Kress and Van Leeuwen, colour theory and colour practice seem to have been developed simultaneously into a semiotic system sometime after 1600 AC, when new techniques allowed colour pigments to be mixed without threat of chemical reaction (2002:351). Their account mentions many noteworthy individuals who have developed descriptive schemes for colour, thereby influencing the development of colour as 'a semiotic system': Runge (1810), Munsell (1912) and Ostwald (1917). These descriptive schemes are all derived from colour theory as it was applied in the mixing of pigments for painting, and they reverberate in Kress and Van Leeuwen's (2002) distinctive feature approach to colour.

In other words, Kress and Van Leeuwen's article can be regarded as an attempt at explaining how colour as a medium - a "[…] material resource […] used in the production of semiotic products and events (2001:22)"[14] - gradually gave way to colour as a 'mode'.[15]

From the point of view of SFL architecture (which accommodates duality of patterning), Kress and Van Leeuwen's approach to colour and in turn its impact on modality may seem slightly inconsistent. However, their approach is still the most promising for our purposes. Both because it shows us how we can theorize what is below the line in a synchronic description of the system and because they indicate how we can motivate our categories in a diachronic understanding of systemic development. Unfortunately, so far it has only been explicitly applied in their writings on colour (Kress and Van Leeuwen 2002) and typography (Van Leeuwen 2005b). However, Stötzner (2003) uses a similar approach in his discussion of 'signography'. His work has been a source of inspiration for the architecture of the graphology presented in chapter 7.

[14] Kress and Van Leeuwen's full definition of 'media' is: "[…] the material resources used in the production of semiotic products and events, including both the tools and the materials used" (2001:22).

[15] By doing so, Kress and Van Leeuwen contribute one particular example of the more general relationship between media and modes, which they imply in (2001): "It follows that media become modes once their principles of semiosis begin to be conceived of in more abstract ways (as 'grammars' of some kind). This in turn will make it possible to realise them in a range of media. They lose their tie to a specific form of material realisation" (2001:22).

5.5 Summary

In this chapter, I have discussed why state-of-the-art MSS theory cannot adequately account for the similarities and differences of graphic trademarks such as those in the corpus of this thesis.

The discussion has revolved around two issues: First, the relative structural simplicity of trademarks poses a challenge to the MSS toolbox, which has been developed for the study of much more complex texts such as the Nike advertisement in figure 5.3. Second, the focus of MSS theory has been on the structuring of visual meaning in multimodally constituted texts on content strata parallel to lexicogrammar and semantics of language rather than the expression strata parallel to phonology and phonetics.

Because MSS schemes of description have been developed for analysis of grammatical and semantic features of far more complex texts than those that concern us here, concepts such as "narrative representation" (Kress and Van Leeuwen 2006[1996]:45), "logico-semantic structure" (Van Leeuwen 2005a:220) or the representation of relationships between interactional participants (Kress and Van Leeuwen 2006[1996]:114) are of little use in analysis of trademarks for the simple reason that they contain too little information.

One well established concept in current MSS does hold some promise, however. At a superficial level, the interpersonal system of modality seems to address the exact nature of the difference between, for example, the two apples in case No. 8. However, at a more delicate level, only the impact of colour on visual modality has been discussed in a way that offers analytically operational suggestions. Aspects of graphics such as 'shape' and the more specific realization of shape are still a long way from being operationally viable.

Yet the very trend in MSS to conceptualize such modal variables as colour and typography in terms of distinctive features suggests an awareness of the necessity of theorizing the expression strata of multimodally constituted texts. It must be possible to discuss, for example, 'shape' in terms of distinctive features.

In the next two chapters, I will propose a theory of graphic form, which entails both a synchronic descriptive scheme of the structural variables (graphology) and a diachronic hypothesis of how this social order of graphic form has emerged from countless acts of graphic articulation (graphetics).

6
Graphetics

6.1 Introduction

In chapter 5, I concluded that current MSS theory lacks descriptive readiness when it comes to graphic form. In this chapter and the next, I will discuss one way of approaching graphic form and present a tentative descriptive scheme, which is an improvement of what the MSS paradigm has so far developed.

As I discussed in chapter 4, the assumption underlying the development of this scheme is that graphics constitutes a semiotic system, from which we choose between resources that are apt for making meaning in specific situations. Such as system can (and indeed should, cf. section 4.3) be regarded from two fundamentally different perspectives, one synchronic and one diachronic, because: "[…] an adequate structural description entails a dynamical analysis" (Lemke 1984:31). In chapter 6, I will undertake the dynamical analysis of the graphic system as suggested by Lemke. In chapter 7, I will present a synchronic structural description of the variables of graphic form. Together, these two approaches should fit conceptually into the expression strata of the hierarchical SFL model of stratification, which accommodates duality of patterning.

The graphetic approach in this chapter revolves around the notion of *articulation*. By articulation, I specifically understand a dynamical process, by which humans act bodily to make differences in the world, which make communicative differences.[1] These acts can, and indeed often do, involve various artefacts such as tools. I am assuming that the graphic system has emerged from countless acts of articulation and thus that the synchronic structure of the system is conditioned by affordances[2] and restrictions of the substances involved in articulation. Therefore, a dynamic analysis of the system must entail an analysis of those affordances. In section 6.2, I will give a general introduction to the concept of graphetics. Furthermore, I will discuss the status of performer and perceiver and explain why it is necessary to take a performance perspective in order to explain the perceptive event (and ultimately to explain the event of confusion in trademark practice). In section 6.3, I will discuss the concept of articulation on which this theory of graphetics rests. This entails an analysis of the affordances of the body, tools and substances involved in acts of articulation. My use of the affordance-term is heavily inspired by James Gibson's (1989[1976]) *The ecological approach to visual perception*, to which the reader is generally referred. In section 6.4, I will offer my suggestions to how acts of graphic articulation can be distinguished from all other acts of articulation by applying Gibson's ecological laws of surfaces in order to determine which ones are eligible for graphic manipulation. Finally, in section 6.5, I will discuss how graphetics are linked to graphology by demonstrating how the diachronic dynamics of the system manifests itself materially as a synchronic model of the system in the tools used for graphic articulation.

[1] This is inspired by Bateson (1972)

[2] James J. Gibson coined the term 'affordance' in his ecological theory of visual perception (1986[1979]). He defines it like this: "The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill" (id:127).

6.2 What is graphetics?

In section 5.4.2, I discussed how Kress and Van Leeuwen have set a first example for a graphetic approach to synchronic description in "Colour as a semiotic mode: notes for a grammar of colour" (2002). Although they have an explicitly systemic "distinctive feature" approach to colour (in an expression stratum equivalent to phonology) they also implicitly theorize the diachronic origin of the object of their synchronic categorization (in an expression stratum equivalent to phonetics) by motivating their distinctive features in the material practices of articulating colour. This is the ideal, which must also be pursued in the present undertaking. Any descriptive scheme for graphic form must be motivated in a coherent theory of the link between conventions and material practices of articulation.

6.2.1 The apple case revisited

In order to illustrate why this point is important, I will once again turn to the example of the apples from case No. 8, *Apple Computers, Inc. vs. NYC & Company, Inc.* However, in order to be able to appreciate the variety of ways in which the same overall 'appleness' can be represented with only black on white background, I have added another eight depictions taken from OHIM's trademark database.[3] The apples are shown as figures 6.1-6.10, and will be used as a reference for the discussion throughout the chapter.

First, note the ideational similarity of the ten depictions. All share the same ideational elements as the apples in case No. 8. They represent an apple from a normal perspective. Apple, Inc.'s mark consists of a fruit bulb and a leaf. So do an additional four of the marks. NYC & Company's mark also have a bulb and a leaf, and in addition it has a stem. So do yet another four of the marks.
Note also how differently the ten apples have been executed. Six of the marks (figures 6.1-6.6) have been executed with lines in various ways. Three have been executed as solid, filled shapes (figures 6.7-6.9). The final mark (figure 6.10) stands out from the rest by having been executed as a negative shape (the apple shape appears to have been cut away from a circular black disc).

[3] Eight of the apples in the table (6.1, 6.2, 6.3, 6.6, 6.7, 6.8, 6.9 and 6.10) have been extracted from OHIM's trademark database by searching for the design code '5.7.23' (plants, fruits, apples) following the categorization-scheme outlined in the Vienna-agreement. I have drawn 6.4 myself using Adobe Illustrator CS4 in order to illustrate a point later on in the discussion. The question of 'shape' and the various ways in which it can be realized are of pivotal importance to the discussions in chapters 6 and 7. In order to ease the comparison of these variables in the marks, I have taken the liberty of removing unrelated variables such as colour. I have also removed the typography wherever the marks were presented in so-called 'lock-ups' (a figurative element collocated with type). Needless to say, a discussion of shape also pertains to typography, but I wish to make a comparison based on as homogenous a set of examples as possible for the sake of the clarity of the argument.

But that is far from all we can say about the differences. For example, the apples shown here reveal that all lines are not alike. Figures 6.1, 6.2 and 6.3 all have a distinctly hand-drawn, heterogeneous look, which is very different from the artificial, homogenous look of the lines in figure 6.4. But even so-called hand drawn lines look different, as we can see in figures 6.1-6.3. To elaborate the point, figure 6.1 could very well have been rendered with some kind of felt tipped pen. However, no actual graphic device (whether a pen, pencil, paintbrush etc.) produces exactly the kind of traces seen in figure 6.3. Rather, they seem to be a stylistic convention of the kind of stroke a paintbrush might produce.
If we wish to truly understand the difference between all these apples, we must first understand the conditions under which a practice of something like 'drawing lines' (or printing a solid shape) can give rise to a conventional way of representing something like 'handdrawnness' (or printedness).

I have chosen to call my suggestions for the analysis of graphic form *graphetics* and *graphology*. These terms are already in use by linguists, but I propose to use them differently than linguists do. According to Crystal (2008[1980]:220), graphetics is used in reference to:

> […] the analysis of the graphic substance of written or printed language. For example, it is theoretically possible to define a universal set of graphetic features which enter into the formation of distinctive letter shapes. There are also several properties of the written medium which exercise a considerable influence on communication, e.g. colour, size of writing or print, spacing. There is plainly an overlap here with the fields of graphics and typography (and graphics is in fact sometimes used as a label for this field). So far little analysis of texts in these terms has taken place, and the relationship between graphetics and graphology remains unclear".

In other words, the somewhat underdeveloped graphetic and graphological disciplines in linguistics have as their object the formal aspects of writing and written language. Waller (1996) gives a comprehensive overview of the state of the art of research in these topics, and points to the fact that some linguists draw upon the field of typography and typographical terminology in order to explain how formal aspects of writing influence communication. However, as he says, there is lack of a common framework for theoretical discussions of graphological (and graphetic) features of texts.

This results in a contrast between, for example, Crystal and Davy's (1969) technical analysis of phonological matters "and their nontechnical, ordinary language descriptions of graphological features" (1996:348). Another example of this tendency can be found in Thibault's (2007) suggestions for analysis of graphology, which uses some typographic terminology (2007:137), but does not suggest how resources of typography and handwriting, or 'calligraphy', (2007:120) are related to or different from each other.

I would not imply that the suggestions presented in this thesis fully remedy this lack of meta-language, but it is exactly such an integrative framework, we must pursue. We must extend our understanding of the field of graphetics to cover, ideally, any instance of graphic sign making rather than merely those, which fall in the category of writing. Setting such a scope entails that we regard the formal aspects of writing systems and the fields of typography

and calligraphy, traditionally associated with the terms 'graphetics' and 'graphology', as mere subsets of the overall formal aspects of graphics. At the end of the day all instances of graphic form (at least the ones we are concerned with) are 'simply' compositions of "[…] visual invariants that are co-extensive in a topological-continuous visual field" (Thibault 2007:121). Hence, it must be possible to treat instances of handwriting, typography as well as the various ways in which the apples in figures 6.1 to 6.10 have been executed as instances of the same formal potential.

6.1

6.2

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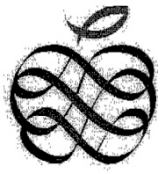
6.4

6.5

6.6



6.7

6.8

6.9

6.10

6.2.2 Performer and perceiver

In section 2.3.3, I discussed the event of confusion during which someone is exposed to a trademark and consequently reacts with varying degrees of certainty or confusion with regard to the origin of the mark. This is the object of the trademark practice's *assessment of the likelihood of confusion*. Typical forensic analysis of trademarks only theorizes a single subject in the event of confusion: The consumer, who perceives the marks in the course of day-to-day commerce.

I expressed my intent to regard the event of confusion as a communicative event rather than a psychological one because such a perspective opens up hitherto untried avenues of inquiry. This entails conceptualizing (at

least) two involved subjects. A *performer* (who articulates the trademark) and a *perceiver* (who perceives and interprets the trademark).

Such a perspective presupposes that trademarks make similar sense to those who articulate them and those who perceive and interpret them – at least to some degree. The performer makes choices that are apt with regard to his intent in the specific situation (as well as his anticipation of the perceiver), and the perceiver responds to the communicative result of these choices in one way or the other. For example, as we have seen, 'appleness' can be expressed in a number of different ways. It must be assumed that these differences occur for a reason – that the different expressions of 'appleness' are apt in different situations.

If we assume that (i) the perception event is conditioned by the choices of the performer and (ii) that those choices are conditioned by the meaning potential of graphics and finally that (iii) the meaning potential is conditioned by material practices of graphics, it stands to reason that we must examine the material practices of graphic articulation in order to explain the perceptive event.

In other words, one has to understand the ways in which the graphic craft, its tools, materials and skills of the hand (cf. the 'etics' of graphic meaning making discussed in section 2.3.6) have given rise to the graphic conventions that we have all come to take for granted to the point of no longer being conscious of them[4] (for example the conventionalized paintbrush strokes of the apple in figure 6.3).

This says that we need a theory of 'articulatory graphetics' in order to analyse the sub-phenomenological differences that make a phenomenological difference in the perception event.

Of course, one cannot say that the perceiver will necessarily make the same meaning as the performer or that performer and perceiver have similar pre-conditions for engaging in the communicative event. For example, a graphic designer may be more likely to make meaning in terms of two articulations whereas a lay-man may make it in one (following Van Leeuwen 2005a:51): The reader of this thesis who has just encountered the ten apples in the beginning of the chapter may very well be oblivious to the very different kinds of actions it took to articulate them. Somehow, they simply look different.

As a final point, the distinction between performer and perceiver, as I have discussed them here (which is reminiscent of e.g. sender and recipient or similar notions), is in fact misleading. Because an act of performance is a sensori-motor occurrence, it is also at the same time an act of perception (see Gibson 1986[1979]:120). Conversely, I am assuming, as many contemporary MSS theoreticians have come to do, that an act of perception is also a simultaneous act of "inner, invisible 'parallel' performance" (Kress 2009:76).

[4] Cf. the 'emics' of graphic meaning making discussed in section 2.4.2.

6.3 What is articulation?

The term 'articulation' is used in several senses in MSS literature. A very broad use of the word is roughly exchangeable with 'expression'. It refers to the processes by which a given meaning potential finds a form. For example, discourses are 'articulated' in texts (See e.g. Kress and Van Leeuwen 2001:27 and 32). 'Articulation' is also used in a narrower sense to refer to mode-specific resources for 'production'[5] of texts, for example in this quote:

> We need in each case to look at the environment in which the practice has its place; it is not the case that technology alone is responsible. In some cases technology plays no part at all. In the case of multimedia production technology is the issue. The possibilities of representation of a variety of distinct semiotic modes in one digitised, electronic form (whether sound in its various modal aspects, or image, or word) and providing a technological means of production which at that one level need not distinguish between modal *articulation*, makes the previously technically, materially and professionally distinct forms of *production* come together through and in the affordances of the new technology (2001:123, my italics).

Both of these uses of the term are quite necessary in the overall study of multimodally constituted texts. However, in this chapter, which discusses the general *graphetic* basis for a theory of general *graphology*, I will use the term in an even narrower sense analogous with 'articulatory phonetics' in linguistics. As a field of study, 'articulatory phonetics' has been described thus:

> Speech sounds can be described in terms of the bodily motions, called *articulation*, that produce them. [...] This study is called *articulatory phonetics*. In it, we are not particularly concerned with the phonemic status of the sounds [...] but rather with the sounds themselves as articulatory and acoustic events (Hockett 1958:62).

At the risk of oversimplifying the matter; articulatory phonetics is the study of how humans use the different organs that make up 'the vocal tract' to produce the sounds of speech by manipulating a flow of air through it. In other words, air flowing through the vocal tract can be regarded as *the material substance of speech*. Thus, we can regard 'an act of speech' as an event during which a performer (i) acts bodily (i.e. with his vocal tract) (ii) to make a difference in a material substance in the world (air), (iii) which makes a communicative difference to a perceiver.

If we broaden Hockett's definition of *articulation* to a point where it retains the necessary conditions to describe the event of speech articulation all the while becoming productive in studies of multimodal meaning making, we can say that: *Articulation occurs when a performer, as an effect of his communicative*

[5] In MSS, the 'production' of a semiotic artefact "[...] refers to the organization of the expression, to the actual material articulation of the semiotic event or the actual material production of the semiotic artefact. A whole other set of skills is involved here, technical skills, skills of the hand and the eye, skills not related to semiotic modes, but to semiotic *media*" (Kress and Van Leeuwen 2001:6).

intent, acts bodily to manipulate the material substance of a semiotic mode. It follows that in order to discuss articulation from such a multimodal perspective, we need to factor in (at least) three sources of affordances, which influence the potential for expressing meaning: (1) The acting body, (2) the substances (if any) which are acted upon and (3) the tools (if any) with which the body acts upon the substance.

Before moving on with the discussion of these sources of affordances, a quick comment on my use of the affordance-term is in order because my use of it is slightly unorthodox (from a Gibsonian point of view). A Gibsonian would find it odd to speak of the affordances of the body. The affordance-term stems from Gibson's ecological theory of visual perception (1986[1979]). Gibson's object of inquiry is perception psychology, which entails that he hypothesizes the way the organism (or indeed the biological system or, body) interacts with its environment. From this follows that an affordance is something which the environment imposes on the biological system:

> The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill (1986[1979]:127).

However, my point of departure has explicitly not been perception psychology but social semiotics. In other words, my object of study is not (i) the relation between the biological system (the body) and its environment, but rather (ii) the relation between the semiotic system and its eco-social environment (cf. section 4.4.4.2), of which the human biology is a part. From the point of view of the semiotic system, it is perfectly reasonable to argue that the body is a source of affordances.

6.3.1 The acting body

In section 4.3.4, I discussed the two main concepts of stratification underlying social semiotic models of semiotic systems: (1) The duality-friendly hierarchical SFL model and (2) the 'multiple articulation' concept of mainstream MSS. In order to explain the differences in graphic form, which make communicative differences, I find the hierarchical SFL approach more apt. However, as suggested in section 4.4.4.2, our concerns here make it necessary to factor eco-social domains beyond the realm of the semiotic into the model. This is illustrated in figure 4.4, which accommodates the body as a part of the language system's eco-social environment.

First, it is necessary to discuss the particular point of view on the body we should adopt in a theory of graphetics. Most textbooks on phonetics discuss only the part of the body directly involved with the production of speech sounds, which makes sense. This is the vocal tract. It is usually discussed using some kind of conventionalised schematic sagittal section of the speech tract (e.g. Hockett 1958:64, Lodge 2009:14), which depicts the relative positions of larynx, vocal chords, epiglottis, pharynx, tongue, aveolar ridge, teeth, lips and so on and so forth. This schematic drawing of the anatomy of the speech tract gives rise to a

further conventionalized and stylised representation of e.g. the vocoid[6] space as a trapezoid, in which the vocoid space is divided into e.g. 'front' (close to the teeth), 'high' (the soft part of the palate), or 'back' (near the uvula). It makes sense to model the articulation of speech systemically based on a static model of the stable and invariant properties of the speech tract because its different parts produce distinctly, audibly different sounds, which distinguish the meanings of spoken language. However, such a static concept of the body will not be very productive in a theory of articulatory graphetics – let alone a more general multimodal theory of articulation.

First of all, it is not easy to delimit the parts of our bodies, which can potentially make differences in the world, which make communicative differences to others. Graphic artists have been known to dip their hair or various other parts of their anatomy in paint and use them to trace shapes on different surfaces.

Second, even if we assume that the upper limbs are generally more economical for producing graphic signs than the rest of the body, you could probably not say that an individual feature of the anatomy of our arms; the shoulder, elbow, wrist or fingers, in and of themselves give a graphic sign visibly distinct features.

Rather, in a discussion of multimodal articulation, it seems much more productive to discuss what it is we do with our bodies rather than where its various parts are placed in relation to one another. Lemke expresses this distinction like this:

> In dynamical theories of complex systems, the fundamental unit of analysis is a process [...] It is in relation to the process that its participants are defined, as filling a role in that process. *Things,* or *organisms*, or *persons*, or *institutions*, as usually defined, are not dynamical notions: they are ordinarily defined in terms of their stable and persistent, or invariant properties. They are not about dynamics, not about change and doing, but about what they are (Lemke 2000:275).

It follows that our shoulders, elbows, wrists and hands may indeed be crucial for graphic articulation, but because of what they do (in concert with the rest of the body)[7] rather than what they are. Hence, in this discussion of articulatory graphetics I will concentrate on what it is we do with our bodies (the body's affordances for acting) rather than the body in itself.

In order to illustrate the importance of the point, let us once again contemplate the Nike 'swoosh' and the Li-Ning 'stroke' from case No. 3. In section 5.3.3, I discussed the various similarities and differences of the shapes of the two marks and suggested that both marks could be analysed in terms of conventionalised 'motion-lines' of the kind known from comics. It follows that the convention must in some way rest upon what it is illustrators do to produce such lines. A specific kind of bodily action results in a specific kind of line, which is used consistently over time in a specific communicative context thus

[6] Vocoids are speech sounds, which do not depend on some contact between the articulators of the speech tract, e.g. the tongue and alveolar ridge. 'Vowel' is the vernacular term for vocoid.

[7] Muscles in the back and chest are crucial for controlling our arm movements. Also, the systems involved in sensori-motor control are important factors.

engendering a convention. We must keep in mind that regardless of culture, there is at least one constant in the genesis of such conventions: The human anatomy. All humans have fingers, hands, wrists, arms, elbows and shoulders that work biomechanically nearly identically. Moreover, all humans have eyes that are positioned in nearly the same place in relation to the rest of their bodies. Finally, we have nearly identical sensori-motor systems coordinating perception and action. And regardless of where we come from, inks ands paints are wet and will smear if a performer drags the heel of his hand through the ink before it dries. In other words, the body (as well as the substances it works upon and the tools with which it acts upon the substances) affords certain kinds of actions while restricting others. Thus, human biology is a crucial component in the genesis of graphic convention. Among the ways in which our anatomy and physiology afford and restrict bodily action in graphic articulation are the following:

First, there seems to be a general consensus that our anatomy favours curved motion when we manually trace graphic lines, whereas straight lines take considerably more control and effort (cf. Arnheim 1974:174; Frutiger 1978:22). That is not to say that we cannot produce straight lines. But more spontaneous acts of line tracing tend to be curved, because our limbs are joined the way they are:

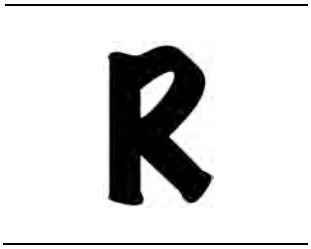
> […] das spontane Zeichen eines Striches ist durch die Aufhängung des Ellbogens, der Achsel oder des Handgelenkes bedingt und führt in diesem Falle zuerst zu einer Kreisbewegung (Frutiger 1978:22).

Second, ergonomic efficiency is a factor in the conventions of manually produced graphic signifiers. Many (Danish) people will have recollections of their primary school teachers instructing them to rotate the pad on which they were writing 45° counter clockwise in order to obtain a more relaxed posture. This is because a movement parallel to the frontal plane of the torso is ergonomically the least economical as opposed to movement at right angle to the frontal plane or diagonal to it.[8] As an example of how ergonomical efficiency can be hypothesized to give rise to graphic conventions, contemplate the difference between the two majuscule 'R'-letterforms depicted below. Figure 6.11 is the majuscule 'R' of the typeface "Arial Black", which is bundled with Microsoft's "Office"-suite of software applications. Figure 6.12 is the 'wide' majuscule 'R' of an equally common typeface, Marker Felt, which is included in Apple Computers' 'Mac OS X' operating system.

[8] Sirat (2006) gives a comprehensive overview of the history of writing practices. She refers to Belgian physician Henri Callewaert, who in the 1940s to 1960s studied various styles of script in order to determine which of them best corresponds to "rational", or ergonomically efficient, movements and postures (2006:423). Among his finding were that the most rational style of script is obtained if the scribe has relaxed muscles in the hand, rests the hand completely on the table, holds the writing device almost horizontally (20°-25°), rests the elbow on the table, has an upright torso and places the paper diagonally to the frontal plane of the torso.

6.11

6.12



It is important to note that both letterforms are typographic instances and that consequently no manual tracing of lines has been involved in their articulation here (although it would be reasonable to expect that the type designer behind 'Marker Felt' has, at some point in the design process, used actual manually produced felt marker strokes as a reference). Evidently, the two letterforms look very different. Figure 6.12 has a distinctly more hand-drawn look than 6.11. Now, the question is how that can be? What are the cues that lead us to think that figure 6.12 looks hand drawn whereas 6.11 does not? Among several factors,[9] which can explain this occurrence, is the direction of the strokes of the letterforms. Note the angle at which the lines of the 'bowl' (the rounded enclosure at the top of the letter) in the two letterforms connect with the 'trunk' (the vertical line on the left hand side of the letter). In figure 6.11 the lines of the bowl are at right angles to the trunk whereas in figure 6.12 they are at an oblique angle, which is more ergonomically efficient. This is how casual handwriting typically looks – or at least how we expect casual handwriting to look due to a graphic convention in part based on ergonomics. A stroke parallel to the frontal plane of the torso as those in figure 6.11 connecting the bowl to the trunk is ergonomically less efficient and thus less likely to be made. It is not that we cannot trace the lines of figure 6.11 if we choose to do so but rather that our hands and fingers more naturally trace the lines in figure 6.12.

Third, control is crucial in the tracing of graphic lines. In order to have 'a steady hand' many people tend to rest or slide some part of the hand or arm on the surface they work on. Such support restricts the possible fluctuation of the movement and reduces the element of fatigue-induced muscle tremor or 'writer's cramp' (Sirat 2006:417). For fine work and simple curves people may rest the heel of the hand or even the knuckles (interphalangeal points) on the surface they work on and movements will generally pivot around those points.

[9] In section 6.2, I observed that (at least) 3 different sources of affordances must be considered as contributing factors in multimodal articulation. They are affordances of: (1) the acting body, (2) the substance (if any) acted upon and (3) the tools (if any) acted with. The present section discusses affordances of the acting body, which can be traced in the graphic convention of manually produced signifiers such as 6.12. However, 6.12 also displays traces of the other two sources of affordances. The substance acted upon is visible in 6.12 due to the fact that a stroke made on paper with a felt tipped marker usually causes the paper to absorb slightly more pigment from the marker's tip in the micro-events of making and breaking contact between paper and pen. This results in the characteristic, bulbous protrusions at the ends of the strokes where ink bleeds into the paper. Affordances of the tools used to work upon the substance are visible due to the fact that felt tipped markers of the type usually referred to as 'poster markers' have rigid tips with rectangular or square profiles. This causes the strokes of such pens to be of varying thickness relative to the angle of the stroke much in the way of a broad pen. This can also be observed in 6.12, most explicitly in the curved stroke of the bowl.

For larger work and more complex curves, which require greater freedom of movement, they rest on the elbow. In fact, forces of economy[10] and habit cause performers to have preferences for postures in which they experience the highest degree of control. Habits, which cause them to move the surface they work on (e.g. by rotating or moving the paper as discussed above) rather than changing their posture.

Fourth, in general people will trace lines in such a way that the line of sight between their eyes and the work they are doing remains unbroken. If at any point the line of sight is broken, so is the flow of information in the hand-eye coordination loop.

Finally, in general people will trace lines in such a way that the part of their body, which is in contact with the surface thus offering support, cannot disturb fresh pigments.

Bodily affordances such as these must be factored in if we wish to truly understand graphic conventions. Of course, our ability to appreciate such conventions rests on our degree of literacy. And, as I discussed in section 2.3.5, literacy depends on both performance and perception of texts. It follows, that for someone who has extensive experience with manual graphic sign making, the lasting traces of the bodily acts of sign making will be more salient. But even for someone whose literacy is solely the result of interpretation because he or she has little or no experience with drawing or writing, the bodily affordances of manual sign making must still be taken into account. Every instance of distinctly manual looking graphic communication he or she has ever been exposed to is determined either by the affordances of the body directly (say for instance if a parent is exposed to a child's drawing) or by convention in which bodily affordance is a factor as in figure 6.12.

6.3.1.1 The extended body

An MSS theory of articulation must, ideally, accommodate any conceivable instance of articulation – even the ones in which the performer's body is not, as it is in natural speech, in direct contact with the material substance encountered by the perceiver, a point which is particularly relevant to a study of graphetics. It is evident from the discussion of graphetics so far that it is almost impossible to discuss the acting body as a source of affordances without giving frequent mention to other sources such as the substances acted upon (e.g. paper) and the tools involved in the act (e.g. felt markers). This is probably because practically

[10] I acknowledge the fact that using an 'economy'-metaphor is potentially problematic. However, I find the underlying assumption plausible. The various processes in a living system all require energy. Because the system cannot create energy out of nothing, it has to acquire from the environment whatever is required by its metabolism to produce energy – processes which also require energy. Thus it becomes reasonable to use the economy-metaphor for the balance between the "expended" energy and the "gained" energy. In other words, a system can have an energy "surplus" or "deficit". An act of articulation expends surplus energy gained by other processes (acquiring food as well as eating and digesting it). It seems reasonable to argue that a system will seek to minimize the dip into its energy reserves. Thus, some articulatory acts can be described as 'economical' or 'rational' whereas others are the opposite.

all acts of graphic articulation, save drawing signifiers in sand with one's fingers or toes, involves the use of some kind of manually operated tool, whether a stylus or the digitizer[11] part of an HCI (human-computer interface) to a graphic application. Other MSS theoreticians have observed this point:

> Indeed, dependence on technology may be one of the strongest features of graphically realized semiotics; it distinguishes them from semiotic modes in which signs are articulated by the body without any technological aids (as, for instance, in speech, singing, 'non-verbal communication', dance) (Kress and van Leeuwen 2006[1996]:217).

It seems only natural that a theory of graphetics must somehow be able to distinguish between the affordances of different tools. A steel-nib pen and a ballpoint pen afford different movements and body postures. The most ergonomically efficient use of a steel-nib pen is obtained when the pen is held at 20°-25° whereas a ballpoint will not work if held at less than 60° (Sirat 2006:425). Furthermore, unlike a ballpoint, a steel-nib is not omni-directional: It cannot draw lines at certain angles lest its pointed, feathering blades snag on the texture of the surface, resulting in ink splatters.[12] A ballpoint, however, draws equally well in any direction. In other words, the tools we use and the substances we act upon are of a greatly varying nature.

It seems futile, however, to attempt a classification of all the tools and substances that have influenced the conventions of graphic meaning making. Sirat (2006) makes a valiant effort at describing *Homo sapiens* as a writing species regardless of race or culture with all that entails of our different writing implement and practices. However, writing is only one aspect of graphic meaning making. The affordances of drawing implements not to mention the technologies for graphic (re)production add to the almost overwhelming complexity of the field. Again, rather than attempting a synchronic description of all possible affordances, it seems more productive to inquire into the processes we engage in. What is it that we do with tools that makes communicative differences in the world? Only subsequently should we inquire into how qualities of tools afford and restrict those acts.

Adopting such a dynamic process oriented view on tool use poses a whole new set of challenges. To begin with, it makes it difficult to distinguish analytically between the affordances of the acting body and the tool used in the act. Gibson provides this comment on the relationship between body and tool:

> When in use, a tool is a sort of extension of the hand, almost an attachment to it or part of the user's own body, and thus is no longer a part of the environment of the user [...] This *capacity to attach something to the body* suggests that the boundary between the environment and the animal is not fixed at the surface of the skin but can shift. More generally it suggests that the absolute duality of "objective" and "subjective" is false. When

[11] In graphic terminology, a 'digitizer' refers to a pen and paper-like pointing device. Such devices are very popular, in all likelihood because they afford and restrict bodily action in a way that is very similar to more traditional tools of graphic craft.

[12] Sirat (2006:411) discusses the directional affordances of the Arabic 'reed pen' (a writing implement made from reed grass or bamboo, which was used in the ancient Mediterranean and Middle Eastern regions), which displays similar characteristics.

> we consider the affordance of things, we escape this philosophical dichotomy (1986[1979]:41).

A tool, it would seem, works both ways, as the above discussion of steel-nib pens and ballpoints indicates. Not only can tools shape the substances we act upon on, they also seem to shape the acting body by restricting movement and posture. In other words, for a multimodal theory of articulation, the distinction between body and tool must necessarily become blurred. Furthermore, to the extent that perception is an integral part of articulation, it is difficult (and indeed unnecessary) to unequivocally delimit the 'agent' from 'the world' in the sensory-motor feedback loop. Andy Clark (2008:31) gives an eloquent example of stick-augmented perception (inspired by Niels Bohr (1934)) to illuminate such observations:

> Fluently using a stick, we feel as if we are touching the world at the end of the stick, not (once we indeed are fluent in our use) as if we are touching the stick with our hand. The stick, it has sometimes been suggested, is in some way incorporated, and the overall effect seems more like bringing a temporary whole new agent-world circuit into being rather than simply exploiting the stick as a helpful prop or tool (Clark 2008:31).

A similar example, which is perhaps more relevant to this discussion is the use of a steel-nibbed pen on paper. Anyone fluent in the use of such pens has a sense of the grain of the paper he works on and its affordances and restrictions for his purposes, which is much more acute than what he would have if he felt the paper with the tips of his fingers. Detailed information about the grain of the paper translates through the feathering point of the pen much like the stylus on the record player's pickup arm picks up the information on a record. The performer feels the grain of the paper, not vibrations in the shaft of the pen.

Thus, in discussing the affordances of graphic implements, it seems of great relevance to discuss them in terms of augmentations of the body or maybe even as extensions of the body, rather than merely as tools. Clark (2008:37-43) discusses several experimental indications that users become fluent in the use of tools to an extent that the tool is *transparent* to them. That is to say that the use of the tool requires no conscious thought. Such a line of thought could very well be what we need in order to fully understand something like graphetics. As I mentioned in section 2.3.4, this thesis seeks to understand the conditions for graphic articulation and will so ever so often graze on such topics as *theory of mind* and *perception psychology*. This is precisely one of those points in the argument. The line of thought implied by this section will take me far into the reaches of the ontologically 'real' realms of psychology and physiology. However, I shall not venture beyond the ground I have already covered in this context. Further inquiry into these matters must be conducted in future research.

6.3.2 Substances

It follows from the view of multimodal articulation proposed here that an event of articulation always involves that someone acts bodily to make a difference in the world, which makes a communicative difference to someone, as discussed in

section 6.4. These differences, which make communicative differences, are always made in the material world of substances. A performer always does something with his or her body, which somehow changes the world. Conversely, a perceiver always encounters some substance, the qualities of which give cause to his or her perception.[13]

For example, when speaking, we use the muscles in our midriff to compress whichever gaseous substance is in our lungs and force it past the various parts of our vocal tract causing non-random shifts of pressure in the gas to occur. These shifts of air pressure, or sound waves, are a difference we make in the world by acting upon it with our bodies. When someone perceives these shifts in pressure, provided they take a "language stance" (Tylén et. al. 2009), they make a communicative difference to that someone. Interestingly, articulatory phonetics, as linguists typically practise the field, rarely gives mention to the way properties of the air itself influences on speech. However, as my discussion of the use of a steel nib pen should have made clear, the substances in which we make differences, which make communicative differences, always have properties, which afford possibilities and restraints on articulatory action. With regard to articulatory phonetics, air is simply so commonplace a substance that linguists seem to take it for granted as a constant in their theory. Yet, as anyone who has inhaled helium from a balloon in order to amuse his or her friends at a fun fair has experienced, some gaseous substances (as, in this case, helium) have properties, which afford distinctly different possibilities and restraints for articulating speech sounds than air. The density of a given gas restricts the frequency range at which the vocal chords can oscillate and in turn affords an overall pitch of voice. Because helium is lighter than atmospheric air the chords can swing faster in it causing us to sound like Mickey Mouse. In such a context, different gases produce communicatively different results.

6.3.3 Tools

In a modern, multimodal theory of articulation, where the point of departure for an articulative event is the bodily action taken by a performer and the end result is a difference in the world, which makes a communicative difference to a perceiver, the tools involved in the action are a particularly important – and challenging – issue. This is because tools seem to be very different. Intuitively, using a pencil to draw a signifier and drawing a similar signifier using software such as Adobe Illustrator seems like two very different situations, which call for very different actions. Indeed, Kress and Van Leeuwen (2006[1996]:217) distinguish "three major classes of 'production technologies", which seem to grasp our intuitive understanding of the differences between pencils and graphic applications. The first one (which corresponds with the pencil), they call "technologies of the hand, technologies in which representations are, in all their aspects, articulated by the human hand, aided by hand-held tools such as chisels,

[13] Of course, we do have phenomenological experiences such as the coloured afterimages, which occur after exposure to strong light, that fall outside the focus of this discussion.

brushes, pencils, etc." (ibid.). The second one they call "recording technologies […] which allow more or less automated analogical representation of what they represent, for instance, audiotape, photography and film" (ibid.). The third one (which corresponds with Adobe Illustrator) is "synthesizing technologies which allow the production of digitally synthesized representations. While remaining tied to the eye (and ear), these reintroduce the human hand via a technological 'interface', at present still in the shape of a tool (keyboard, mouse), though in the future perhaps increasingly through direct articulation by the body" (ibid.). The second class of production technology is only of passing relevance to a theory of graphic articulation, because, from this point of view, such technologies merely record the effects of an articulative event without affecting the potential for bodily actions on the part of the performer.[14]

Kress and Van Leeuwen's way of classifying tools seems to fit well with the way we feel most comfortable when thinking of our body and its environment. Namely, by classifying the environment by degrees of remoteness from the body. By this token, a 'tool of the hand', which produces materially real traces of pigment on substantial surfaces, is somehow closer to the body than a 'synthesizing' tool, which produces digitally synthesized representations in a virtual space. But the really interesting question is whether the two kinds of tools are really that different? When we draw images on screen using a digitizer to input the articulative actions into the computer, is it really so different from using a pen or pencil? A fully satisfactory, explanatorily adequate answer to such questions is beyond the scope of our concerns here, but it is clear from works such as Andy Clark's (2008) that the biological systems of humans (and primates) are so profoundly capable of constantly renegotiating the agent-world boundaries that the distinction between 'technologies of the hand' and 'synthesizing technologies' relies more on culturally determined boundaries than on how our bodies in fact seem to work in relation to their environments. As an example of the blurriness of the boundaries between agent and world Clark (2008:33) cites work by Bach y Rita, Tyler and Kaczmarek (2003) on 'Tactile-Visual Substitution Systems" in which blind subjects can learn to use visual data from a head-mounted camera relayed through a grid of blunt nails fitted on their backs to orient themselves in their environments to a point where they will instinctively duck if a ball is thrown at their face. Another example from Clark (2008:36) is the U.S. Navy's "tactile flight suit" (Schrope 2001), which allows a pilot to steer a helicopter by changing his body posture making the helicopter behave like an extended body. If our biological systems are indeed adaptable

[14] This is, of course, only true to a certain extent. The recording gear, such as microphone stands, in a sound studio may indeed afford certain restraints on the possible actions of a performer thus ultimately changing the potential for articulation. Also, certain software products for 'tracing' (a specific way of scanning and digitally processing line drawings (e.g. Adobe Streamline)) have been known to require that all strokes outlining 'closed' forms in an illustration were in fact joined in order to be properly processed as closed vector objects. If this were neglected, the software would 'see' them as open forms. It was important to take such precautions if one wanted the convenience of assigning colour to those forms as vector shapes (which takes considerably less effort than the alternative, working in bitmap) at a later stage in the production, but it affected the illustrators stylistic freedom to merely 'suggest' a closed form.

enough to learn how to use advanced technological interfaces enabling them to substitute tactile input for visual input or giving us phenomenological experiences of controlling a helicopter as if it were our body, Kress and Van Leeuwen's distinction between technologies of the hand and synthesizing technologies would seem unnecessary.

However, for our purposes here, we must ask whether tools of the hand and synthesizing technologies are different in a way that is relevant in a theory of graphetics, that is to say, if they are different in a way that makes a communicative difference? The answer, at least to some extent, would appear to be yes – which speaks in favour of upholding the distinction. Consider the two circles depicted as figures 6.13 and 6.14.

6.13

6.14

One (figure 6.13) has been painted using a paintbrush and watered down acrylic paint on paper (80 grams/m^2), the other (figure 6.14) has been drawn using the 'ellipse-tool' in Adobe Illustrator CS4.

I would argue that, unsurprisingly, only with considerable effort could a circle as regular as the one in figure 6.14 be articulated with the use of 'technologies of the hand' – even using several, careful strokes to fill in guidelines drawn with a compass, as in figure 6.15. And (more surprisingly) I would argue that it would take an almost equal amount of effort to produce a result, which displays the same kind of irregularity as figure 6.13, using a synthesizing technology.

6.3.3.1 Technologies of the hand

When articulating graphic form using technologies of the hand, producing a regular, homogeneous result takes considerable effort. This is in all likelihood best explained by the nature of tools or the self-organizing negative feedback loop by which hand-eye action is coordinated. No hand movement ever follows a 'perfect' trajectory. Rather, it is the result of continuous error and correction. The more skilled a person is, the better he will probably be at anticipating errors and the smaller the effects of the errors become.

It is useful to discuss an event of articulation in terms of 'multiple time scales' (recall section 4.3.1.2) as suggested by Jay Lemke (2000a, 2000b). The actual performance of a graphic signifier, such as a trademark, can be delimited. At some point in time the performance begins and at a later time it ends. This is level 'L' in our observation, or 'the articulation event'. Its duration can vary from mere seconds to days or months. If a tool of the hand is used for the performance, each of the hand movements leaving a visible trace on the signifier

can be analysed as separate sub-events to the articulation event. For example, many people writing a majuscule letter 'E' do so in three separate movements. In the first, they draw the vertical trunk starting at the top and without breaking contact proceed to draw the lowest of the horizontal lines in a single stroke. They then proceed to draw the top and middle horizontals in that order. In other words, the manual drawing of an 'E' can be analysed as three separate events at 'L-1'. But we can go even further in our analysis, because each hand movement can be regarded as a sequence of micro-events. Every time pressure on the tool is increased or decreased or the direction of the movement is changed even slightly, or every time a single hair in a paint brush separates from the general mass of hairs and leaves an individual streak of paint or a drop of paint separates from the general mass of paint and splatters onto the surface it can be regarded as a separate event at 'L-2' which leaves a visible trace in the result.

Figure 6.15 illustrates how, when articulating a homogenous shape (a circle) with tools of the hand (in this particular case a sable-hair brush and watered down acrylic paint), considerable effort is required not to paint 'outside' the lines of the compass mark-up. Every 'L-2' micro-movement of the hand in the negative feedback loop of the sensory-motor coordination (ranging in the 10 millisecond timescale) potentially leaves a visible trace in the signifier. Note in this case how relatively irregular the delimitations between the black shape and the white counter-shapes are. Note also the distinct traces of individual hairs (or groups of hairs) from the paintbrush, which are visible in the unfinished upper part of the shape. Each of those minute traces is the result of an individual 'L-2' micro-event during which the hair or group of hairs separates from the main mass of the brush to leave an individual streak of paint before breaking contact with the surface.

6.15

When painting a regular, smooth shape – even as in this case where a compass has been used to mark up guidelines – considerable effort is required in order to control both the movements of the hand and the flow of paint from the brush. Even small deviations produce visible results as on the lower part of the inner demarcation of the circle.

Recall my discussion of the ten different apples at the beginning of this chapter. I commented on figures 6.1, 6.2 and 6.3, which all have a "distinctly hand-drawn, heterogeneous look". Each of those marks is the product of a level L articulation-event, which can be analysed in terms of a number of 'L-1' hand movements.

In all likelihood, figure 6.1 was articulated in two – or four – individual movements (depending on whether you base your analysis on directionality of movement or the making and breaking of contact), one to produce the stem and the bulb and one to produce the leaf (or one to produce the stem, one for the bulb and two, one in each direction, for the leaf). Note the small rounded protrusion at the top of the stem. When people use felt markers on paper, such bulbous protrusions at the beginnings and ends of strokes can be observed quite frequently. They are the visible results of 'L-2' pauses in the movement where contact between marker and pen is made but no movement can help distribute pigment evenly onto the paper. This results in pigment bleeding into the paper. It is such a characteristic quality of felt marks on paper that it has become a graphic convention, as I also noted in relation to the typeface "Marker Felt" in section 6.3 of this chapter.

The apple in figure 6.2 is different. To begin with, I am not convinced that it draws upon conventions of 'drawing' so much as of those of cutting silhouettes in black cardboard. Assuming, however, that figure 6.2 is in fact a drawing of an apple, it too can be analysed in terms of a number of 'L-1' strokes (3) which display traces of 'L-2' micro-events, most notably in the stroke forming the fruit bulb. Note the variations in thickness of the stroke. Such variations could be the visible traces of changes in pressure on a paintbrush such as a sable hair. Because they are elastic, the hairs in the brush head are straight when no pressure is applied causing the head of the brush to be narrow. When pressure is applied, the hairs bend causing them to fan out. It is not uncommon for a performer who changes the direction of movement mid-stroke to unwillingly also change the amount of pressure applied ever so slightly. The uneven thickness of the stroke in figure 6.2 could be evidence of precisely that.

Figure 6.3 is an interesting example. It is made up of two 'L-1' strokes. Note the distinct negative shapes (the white lines), which cut into the shape of the stroke forming the heart-shaped bulb. These are reminiscent of the traces of 'L-2' events during the use of paintbrushes in which the hairs of the brush separate causing individual traces to be made (as I demonstrated with figure 6.15). However, no individual materially real paintbrush would ever produce 'L-2' traces in such a deliberate way. The traces in the strokes of figure 6.3 are an example of a graphic convention of how paintbrush marks look, which is perhaps even stronger than the convention of felt marker marks. Examples of this convention is commonplace in trademarks, as can be witnessed in figures 6.16 (Oure Folk School), 6.17 (Plan International) and 6.18 (Medecins Sans Frontieres). In these three examples, the evidence of 'L-2' brush hair events is simply too well orchestrated, too neat, to be the material traces of actual material brush hairs. Consequently, they must be considered conventional.

6.16

6.17

6.18

A final example of the degree to which we have come to take graphic conventions stemming from particular qualities of certain tools (as well as affordances of the body) for granted is *humanist letterforms.* Typographers have delicate analytical schemes, which classify typefaces (see e.g. Reimer and Birkvig 2003[2001]) according to their historical origins as well as their structural characteristics. For example, the use of serifs and the variations in thickness of strokes are important distinguishing features in the classification of typefaces. In *Thinking with Type*, Ellen Lupton notes that: "Humanist letterforms are closely connected to calligraphy and the movement of the hand. Transitional and modern typefaces are more abstract and less organic" (2004:42). Humanist letterforms are characteristic of their use of serifs and their contrast in thickness between stems and hairlines (Reimer and Birkvig 2003:4). But the distribution of thick and thin in humanist typefaces is not random. Rather, it follows a very consistent pattern. Vertical lines and diagonals pointing southeast by northwest are (almost always) quite fat, horizontals and diagonals pointing southwest by northeast are very thin. Similarly, curves are typically thin at northwest and southeast and thick at northwest and southeast. There is a very straightforward explanation for this. This is the distribution of thickness afforded by the broad-edge pen, which has traditionally been used in western calligraphy for centuries.

> Let us come right to the point: the point of the pen. The pen usually used for handwriting at present is the ball-point, which makes a line [...] like that of the pencil. No matter in which direction this line is drawn, it maintains a uniform thickness. The calligraphy pen does not end in a point, but an edge, and so it is sometimes called a "broad-edge pen" [...] The line it makes is thick or thin depending on the direction in which it is drawn (David 1985:19).

The first book printers, e.g. Johann Gutenberg (1400-1468) and Nicolaus Jenson (1420-1480) took great care to make their typographic products indiscernible from handwritten manuscripts. Gutenberg, who used a gothic style of handwriting known as "blackletter" as his model took care to reproduce the erratic texture of handwriting "by creating variations of each letter as well as numerous ligatures (characters that combine two or more letters into a single form)" (Lupton 2004:13). Similarly, Nicolaus Jenson, who used humanist styles of handwriting as his model, evidently cut his letterforms from models written with a broad-edge pen (Reimer 2003:32). For centuries, the pattern of thick and thin as well as other traces of the affordances of the body and broad-edge pen were obligatory in the design of typefaces – or rather, I would find it reasonable

to argue that an alternative did not, could not, occur to the book printers at the time.

This did not change until the Enlightenment. In 1693, a committee appointed by Louis XIV in France began the construction of a Roman alphabet, the *Romaine du Roi*, using a finely meshed rational grid (Lupton 2004:17), which began the process of distancing typography from calligraphy thus 'dis-embodying' it. This process was finally brought to full accomplishment by Giambattista Bodoni in Italy and Firmin Didot in France, whose typefaces have a wholly vertical and horizontal orientation and extreme contrast between thick and thin (ibid.). Their concept of typography was essentially structuralist and analytical. Thick and thin, straight or curved, serif or no serif were facultative, structural building blocks out of which a typeface could be constructed. Thus, over the centuries a convention of typography - the humanist typefaces - has been engendered out of structural differences that stem from the affordances of the human body and the tools used for handwriting.

6.3.3.2 Synthesizing technologies

In general, synthesizing technologies have a different set of affordances for graphic articulation than technologies of the hand. Drawing a homogenous circle such as figure 6.14 in a graphic software environment typically takes drastically less effort than drawing a heterogeneous one such as figure 6.13.

Current state of the art of digital technology for graphic articulation can be roughly categorized into two distinct categories depending on how they translate 2D-space. One is the 'bitmap'-model, which – popularly speaking – breaks a surface down into "a map of bits" in the form of a rectilinear grid. Information about graphic form is represented in this format as a description of the colour of each individual cell in the grid. The other format is known as the 'vector-model'. Here, a surface is translated into a 2D coordinate system with an 'x' and a 'y' axis. Information about graphic form is represented as a number of coordinates called 'anchor points' connected by curves called 'bezier-curves' after the French engineer and mathematician Pierre Bezier who developed them for CAD/CAM machining systems in the 1970s. Both technologies are currently used extensively everywhere in graphic production and distribution, but - although there is an increasing degree of spilling over from one realm of graphic production to the other - bitmap-formats are typically and traditionally associated with photography and screen based media whereas vector formats are typically associated with graphics and print media. In general, graphic designers articulate graphic form in vector formats. This is true of type designers (the current industry standard for type design is a vector-based software application called "FontLab") as well as trademark designers (who generally use Adobe's vector-based "Illustrator" application). For this reason, I shall focus my discussion here on the particular affordances of vector-based graphic articulation.[15]

[15] To the best of my knowledge, software for graphic articulation such as Adobe Illustrator has not hitherto been the subject of much scholarly inquiry. However, there is an extensive body of

Generally speaking, a vector-based representation of graphic form will always employ the simplest possible description (i.e. the lowest possible number of anchor points) required to adequately account for a given instance of graphic form. Thus, a straight line is described as a linear function between two coordinates, a triangle requires no less than three coordinates, a rectangle four and so on. A circle requires four coordinates and corresponding functions for the mono-radial segments of circumference that connect them. Why, one might ask, does the programme not simply describe a circle by its radius? The answer is that any instance of shape in the software environment must remain potentially manipulatable or, in other words, potential subject to further articulatory action. It must be possible to create a circle, grab its anchor points and drag it into an ellipse and further kneed it into a bean-shape if that is required. Describing the circle by its radius would be the simplest, if the circle were to remain a circle. Describing it with four coordinates and connecting mathematical functions combines the need for simplicity with functional requirements of versatility. In other words, there is good functional sense in keeping the description of a given graphic form as simple as possible in software environments because fewer data points means less load on the computer's CPU. For this reason, the software is designed to calculate the simplest description of graphic form. It will do so by default. However, manually adding (redundant) anchor points to a bezier-curve is a simple task.

Because it is in the design of the software to calculate descriptions of graphic form using the lowest number of data points required, vector based graphic software generally affords structurally simpler shapes. This is the reason for my claim that it takes considerably more effort to articulate a heterogeneous, irregular shape using synthesizing technologies than if technologies of the hand are used.

Figure 6.19 (next page) illustrates my point. It is a screen dump of the virtual workspace in Adobe Illustrator CS4. It gives us an idea of how vector based graphic software represents graphic form. I have had Adobe Photoshop CS4 automatically trace the outline of the hand-painted circle from figure 6.15. The resulting vector path has been imported into Adobe Illustrator CS4. The hand-painted circle has now been translated into a vector-based representation. Note how the numerous irregularities stemming from 'L-2' micro-events in the original articulation event have been translated into individual data points. Now, this instance was of course articulated in a material substance using technologies of the hand. It has only subsequently been recorded using a scanner and fed into the virtual substance of the graphic software. Imagine the increased effort it would take to manually place each and every one of those anchor points if the same shape was to be articulated directly in the virtual substance. Figure 6.20, by comparison, shows the four anchor points (the boxes on the circular vector) of a circle articulated directly in Adobe Illustrator CS using its 'ellipse'-tool.

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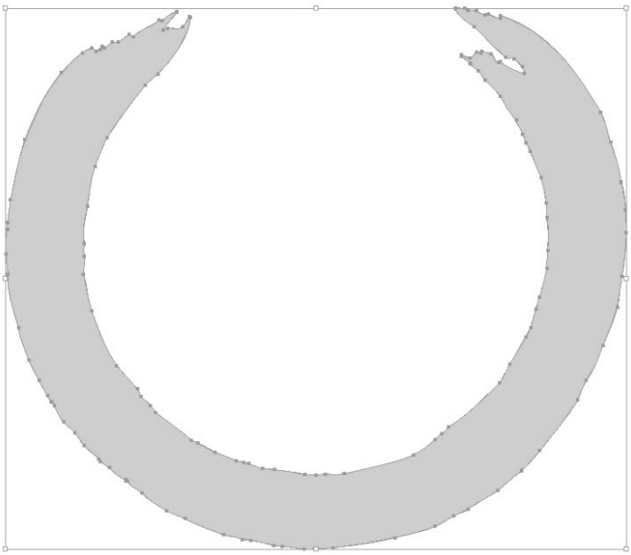
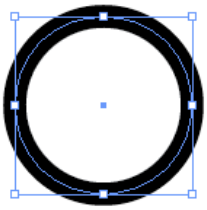
literature on how to work with the software, e.g. *Adobe Illustrator CS4. Classroom in a Book. The Official training workbook from Adobe Systems* (2009) by Adobe Systems, Inc.

6.19



6.20



In section 6.4.1.1, I quoted James Gibson's comments on tool use:

> This *capacity to attach something to the body* suggests that the boundary between the environment and the animal is not fixed at the surface of the skin but can shift. More generally it suggests that the absolute duality of "objective" and "subjective" is false. When we consider the affordance of things, we escape this philosophical dichotomy (1986[1979]:41).

It seems that synthesizing technologies create even greater metaphysical challenges for a theory of articulation than tools of the hand, to which Gibson refers. I have already defined an articulatory event as an event during which a performer acts bodily to make a difference in the world, which makes a communicative difference. This definition works well in all cases where a bodily act affects a manifest substance. When we speak, or when a sculptor uses his hands and fingers to shape a malleable substance (e.g. clay, wax, cernite), he acts with his body directly on the material substance of the becoming semiotic artefact. But what should we call the phenomenon, which a graphic designer shapes on the screen of his graphic application when working on a graphic trademark? Surely he does not shape the same material substance on, say, a train station billboard later to be encountered by a commuter who perceives the designer's creation. In other words, when we use a synthesizing technology, what is the ontological status of the differences we make in the world, which makes a communicative difference?

It is beyond question that the designer acts bodily. He holds a mouse or a digitizer pen and moves his hand around. The mouse is connected to his workstation. Something measurable happens in the circuitry; electrical currents are affected, flip-flops change states,[16] the intensity of light in the pixels of the screen increases or decreases. But a graphic designer does not act bodily on flip-

[16] In electronics, a flip-flop refers to a specific kind of circuit with two stable states (a 'bi-stable multivibrator'). When affected by an electric current, the circuit changes state thus serving as one 'bit' of memory.

flops or pixels. He acts bodily on the shape on the screen, or at least so is his experience. So how do we make these two ends meet? Where does "the rubber meet the road", to put it in Andy Clark's words? How can we uphold the definition of articulation, which works so well with regard to tools of the hand but seems to break down when faced with a synthesizing technology?

The answer, I believe, lies in the distinction between the 'ontology of substances' and the 'ontology of processes', which I discussed in section 4.2.1.2. In that section, I cited Lemke (2000), who emphasises the importance of maintaining a process-ontological point of view whenever we wish to account for dynamical events such 'changing' or 'doing'. According to Lemke, we tend to think of 'things' in terms of their invariant properties, of what they are, rather than what they do (as for example is the case of 'the vocal tract' in articulatory phonetics). For a discussion of 'the articulation event', it is tremendously helpful to distinguish the substances (body, tools, substance) involved in such an event in order to understand how their individual affordances make some actions possible while restricting others and thus shape communicational conventions. However, when we address the articulation event as an action, *a process*, as when we say that a designer articulates a shape on a computer screen, the distinctions stemming from the substance-ontology do not apply. In my discussion of technological augmentations of the body ('the extended body') in section 6.3.1, I referred to Andy Clark, who uses "stick-augmented perception" as an example and states that "[…] the overall effect seems more like bringing a temporary whole new agent-world circuit into being, rather than simply exploiting the stick as a helpful prop or tool".

In other words, the reason why we seem to become grounded when discussing what kind of differences in the world results from articulatory action using synthesizing technologies (do we articulate the shape of a virtual substance or the electrical currents in the circuitry of the computer thus altering the luminance of pixels, or the states of flip-flops?) is that we mix up 'the body' (which is delimited from the world by the outer surface of the skin) with 'the agent' of the process-ontology, who cannot be located as unequivocally.[17] These issues must all be resolved in order for a modern theory of multimodal articulation to become satisfactory.

[17] Steffensen and Cowley (2010) propose a *principle of non-localizability* in order to counteract what Whitehead calls "the fallacy of simple location" (2010:336), which entails that processes cannot be confined to determinate space-time zones. However, it is relevant to observe that processes can have a higher density in some zones than in others. Here, they draw upon Clark (2008:xxvii) who argues that cognitive processes are not "brainbound" but rather extend into the world (e.g. a notepad). However, the cognitive density is higher in the brain than in the notepad.

6.3.4 Combining body, tool and substance

In the past sections I have discussed the acting body, the substances it acts upon and the tools it acts with and proposed a way of understanding them as sources of affordance for multimodal articulation. By no means has this discussion exhausted these topics and we still do not fully understand e.g. the interfaces between our bodies and their environments or the ontological issues arising from working in virtual environments. Furthermore, the suggestions made here are merely tentative. A multimodal theory of articulation must be able to account for any instance of articulation. Surely others will be able to think of scenarios for which the proposed suggestions have no readiness.

Table 6.1 is an attempt at integrating the previous discussions and describes different modes of communication according to which sources of affordance play a role in their articulation and should thus be taken into account in a discussion of their respective *etics*.

	The performer's body is the material substance encountered by the perceiver	*The performer acts upon a material substance*	*The performer acts upon a virtual substance*
The performer's body is not technologically augmented.	Gesture Facial expression Dancing	Speaking Singing Drawing with finger in sand	
The performer's body is technologically augmented.		Writing with a pen on paper Drawing with pen and ink on paper Sculpting with mallet, chisel and stone Cutting a silhouette in paper with scissors	Writing in a word processor Drawing a trademark in a graphic application Motion capture in a digital environment

But the big issue remains unanswered. Could such an approach succeed where state of the art MSS theory fails cf. chapter 5? In other words, can a theory of graphetics analytically capture the differences between Nike's and Li-Ning's trademarks? I turn again to Kress and Van Leeuwen's (2001) suggestions for a concept of 'experiential meaning potential', which refers to:

> [...] the idea that material signifiers have a meaning potential that derives from what it is we *do* when we articulate them, and from our ability to extend our practical experience metaphorically and turn action into knowledge (Kress and Van Leeuwen 2001:22).

Kress and Van Leeuwen only explicitly give mention to the things we *do* as sources of experiential meaning potential, but the discussion in the previous sections should have made it clear that the things involved in the doing have a meaning potential of their own. Taking the necessary reservations for different bodily actions afforded by different tools, the same bodily motions yield different results if a steel-nibbed pen, a ballpoint, a felt marker or a paintbrush is used to leave traces of the movement on a surface. I have already substantiated my claim that we can also extend our practical experience with qualities of tools and materials "metaphorically" (cf. ibid.) and turn it into conventionalized

knowledge. I shall have lots more to say about this in chapter 7, which proposes a graphological descriptive scheme and applies it to the cases in my corpus.

So, what can insight into what we do, with what we do it and to what we do it yield in the case of *Nike, Inc. vs Li-Ning Company, Inc.?* If we begin by regarding the Nike and Li-Ning strokes as 'vectors', intuition informs us that both marks suggest a movement from the left to the right. This is interesting, because it follows that Nike's swoosh is thick at the beginning and thin at the end. Li-Ning's stroke, on the other hand, is thin at the beginning and thick at the end. The question is: How can both lines be perceived as suggestive of movement from left to right when the visual means by which direction is indicated, thickness and thinness, are distributed in opposite ways? The structural features of 'thickness' and 'thinness' alone cannot explain such an occurrence.

However, if we turn to the concept of 'experiential meaning potential', one plausible explanation can be hypothesized. As we have already seen, the specific kind of 'L-1' action on the part of the performer during the 'L' articulative event can leave 'L-2' traces, which add to the meaning of the signifier because, to a greater or lesser extent dependent on our degree of literacy, we can all relate those traces to our own experience.

Using a broad-edge brush and ink to replicate the strokes in the two marks is quite revealing. A shape similar to Nike's 'swoosh', which has only one curve, can be achieved with a single swift movement (the resulting mark is depicted as figure 6.21). In contrast, the wavy two-curve stroke in Li-Ning's mark takes more care and is best achieved with a slower, more controlled movement (figure 6.22).

6.21

6.22

Furthermore, the specific way in which the width of the Li-Ning stroke gradually increases to its widest point and then rapidly decreases into a tapered end can only be replicated in a single movement if the direction is from left to right. This

is of course due to the fact that I am right-handed and thus hold the brush so the hairs point to the left causing the paint to flow off the brush as I move it to the right. Only with great difficulty can a similar shape be reproduced with a movement from right to left. Because I hold the brush as I do, if I make no adjustments of the angle, such a movement will go against the grain of the brush causing the hairs to fan out in an uncontrollable manner and the ink to splatter. Adjusting the angle will result in an awkward grip on the brush and a subsequent loss of control.

In other words, I find it reasonable to argue that the intuitively perceived directionality of the vectors is inferred from conventionalized information about 'L-2' micro-events in the performance of the strokes that is either derived from our individual experience with similar acts or from a graphic convention of such micro-events. This could also explain why Nike describes their mark as suggestive of "movement" whereas Li-Ning describe theirs in terms of "flowing". The experiential meaning potential of the marks is different because the quality of the bodily actions of which the strokes are indicative are also different. It takes a slower, more controlled, movement, which could be described as 'flowing', to produce a stroke like the one in Li-Ning's mark, whereas it takes a fast movement to replicate the Nike 'swoosh'.

6.3.5 Lines and masses

The discussions in the past sub-sections could lead to the impression that graphetics is all about manual tracing of signs involving the body and tools of the hand. This, however, is only the point of departure for a fully-fledged theory of multimodal articulation. If we wish to fully understand multimodal articulation, we must factor in the affordances of tools for mass-production and –distribution of multimodally constituted texts. This entails theorizing such practices as "production", "recording" and "distribution" (Kress and Van Leeuwen 2001:22-23), which have an equally profound impact on multimodal articulation.

However, as I have argued in my discussion of how typography has been derived from penmanship, many of the implicit conventions that have been incorporated in tools for production, recording or distribution can indeed be traced to a manual craft.

Much of my discussion of graphetics so far has focused on ways in which we move our hands *across the various surfaces* of substances thus leaving 'L-1' and 'L-2' traces of micro-events in the signifier. But there is another kind of action, which I have not discussed much so far, although its impact on graphic convention is on a par with that of tracing movements. It is movement *onto surfaces*. The distinction is very useful in understanding how graphic convention can be hypothesized to have come about. It can be attributed to Andreas Stötzner, who in "Signography as a subject in its own right" (2003:288) describes the distinction between movements across surfaces and onto surfaces like this:[18]

> The bold graph is originally an *imprint*, the isolated trace of a physically pre-modelled form. The linear sign, however, represents a *process*, it depicts the movement of a point.[19] These two basic patterns of manually producing graphs can be differentiated, therefore, as a movement *onto* surface and *along* a surface. In practice, this corresponds to the difference between the relief-like impression or cast using a colouring substance and the scratching or drawing using a pen-like instrument.

Thus, with regard to my discussion of the way typography has been derived from calligraphy, I find it reasonable to suggest that affordances of 'the body' and 'tools of the hand' have had an impact on calligraphic convention. Typography, in turn, is derived from calligraphy and has thus inherited many of these conventions. However, the tools and substances involved in e.g. letterpress printing have affordances of their own, which have contributed in their own way to further conventionalization. Consider, for example, the simple example of

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[18] The term 'graph', which Stötzner uses in this quote is of pivotal importance in his work on the becoming field of study known as 'signography'. It refers to "[…] the linear skeleton form of a sign. This refers to the composition of strokes, which result from the movement of the graphic instrument. […] The graph is what all tokens of a given sign have in common on a very basic level. It represents the non-reducible form of writing, the graphic soul of the sign. The graph constitutes the essence of a sign's identity. Dealing with graphs forms the core of signographics" (2003:290).

[19] Stötzner uses the term 'process' in a different sense than the one referring to 'the process' as the fundamental unit of observation from a process-ontological perspective (cf. Lemke 2000:275 discussed in section 4.2.1.2). From that point of view 'imprinting' would also be a process involving agents responsible for the imprinting and substances involved in it.

carving a woodblock printing-block on a slab of wood. Cutting away the wood in order to leave a raised ridge, which will leave a linear imprint when painted and pressed against a surface, takes great skill. One slip of the hand and you will have cut away a precious piece of the carefully prepared ridge thus ruining the block. In addition, the many repetitions of imprinting in mass reproduction cause narrow ridges in blocks to wear. With regard to producing graphic lines, simply drawing the line with a pen is much easier – but then again, pen drawing does not afford mass reproduction.

In other words, tools and substances of graphic practices involving movements along a surface afford 'lines' and to a lesser degree large masses of colour. Producing large masses of coloured surfaces requires a penman or painter to make many repetitive movements (cf. my discussion of painting a circle as the one depicted as figure 6.15). Tools and substances of practices involving movements onto a surface afford 'masses'. That is not to say that painters do not paint masses or that printers do not print lines, only that these forms take more effort and are thus less economical within these respective (and related) practices.

To a certain extent, an act of articulation is fuelled by need. A system (such as an agent in a process-ontology) will, in all likelihood, seek to fulfil that need at the smallest possible expense. This is why vector graphics software by default computes the lowest number of data entries required to describe a given graphic form and why there are more lines than masses in a drawing.

Consider figures 6.23 and 6.24, both of which have been articulated with equal ease in Adobe Illustrator. Both are communicatively adequate renditions of 'circleness'. Imagine carving a printing block, which would produce similar results. Which would be more convenient? Carving the equivalent of figure 6.23 would require someone to put effort into both the outer and inner demarcation of 'the positive shape' (black) from the negative (white). It would mean removing all the material around the circle as well as within it. In figure 6.24 there is only one demarcation to worry about. Now imagine drawing their equivalents with a ballpoint pen. It seems quite likely that figure 6.23 would be more economical in that situation whereas figure 6.24 would require a lot of movement back and forth with the ballpoint until the whole surface had been hatched or filled in.

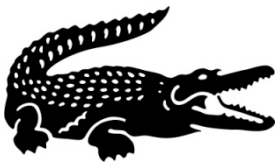
6.23

6.24

The distinction between 'movement across' and 'movement onto' surfaces as two different kinds of articulatory actions, which generally result in traces which we can describe as 'line' and 'mass' is useful in understanding the difference between some of the cases in the corpus. Note for example how the two apples

from case No. 8, *Apple Computers, Inc. vs. NYC & Company, Inc.* can be described by their graphic renditions as either 'mass' (1.17) or 'line' (1.18). In addition to those two, the other eight apples shown together with them at the beginning of the chapter also clearly fall into a line-category (figures 6.1, 6.2, 6.3, 6.4, 6.5, and 6.6) and a mass-category (figures 6.7, 6.8, 6.9, and 6.10). The same is true of the two encircled pelicans from case No. 9 (figures 1.19 and 1.20) and the two crocodiles in case No. 4, *Lacoste S.A vs. Føtex A/S* (next page).

6.25



6.26

6.27

Of course, I do not mean to imply that something like Lacoste's mark (or indeed those of Apple Computer, Inc. or Pelikan Vertriebsgesellschaft mbH & Co. KG.) could only have been articulated by cutting away a substance such as wood, linoleum or potato in order to produce a raised surface, which could in turn leave an impression when covered in pigment and pressed against another surface. A similar result could have been achieved using any number of different pencils, pens, paint- or airbrushes. I am, however, arguing that it would take a considerable amount of effort to produce such a result by moving such implements across a surface. Conversely, carving something, which would produce Føtex's crocodile (figure 6.26), would take a lot more effort than drawing it.

As a final, important note on the two crocodiles I should add that neither of them can be understood simply as either 'mass' or 'line' in terms of movement 'onto' or 'across' a surface. The detail from Lacoste's mark depicted as figure 6.27 illustrates this point. It shows how negative lines in the mass are used to accentuate various details in the motif such as limbs (shown), mouth and texture of the skin.

It is important to understand that, although an act of printing can be understood as a 'movement onto a surface', the act of articulating the shape on the printing block – i.e. the removal of wood or linoleum using a chisel or knife – is a conglomerate of actions some of which are in fact 'movements across a surface'. Hence the graphic conventions stemming from various printing practices cannot simply be understood as 'movements onto surfaces' resulting in a mass. One must also take into account the 'negative line', which results from a movement across a surface that causes the *removal of substance* (wood, linoleum, potato). This is in direct opposition to the 'positive line', which is the result of a movement that *adds substance* (paint, ink).

As I stated above, both figure 6.23 and 6.24 have been drawn with equal ease in a contemporary vector based graphic software application (and I would

not be surprised if the same was true of most of the ten apples and both of the pelicans). In fact, because they have the same shape, which is determined by the vector, switching between them in the software is a simple matter of changing their settings in 'stroke' (i.e. "line" as in figure 6.23) and 'fill' (i.e. "mass" as in figure 6.24). This observation; that the graphic practices derived from both movements *across* and *onto* surfaces are built into current graphic software, leads us to the final issue which we must discuss in this chapter. How do we move from *graphetic* theory of what it is that people *do* when they articulate graphic form to a *graphological* theory of graphic convention? In order to do so, we must turn to Lemke's use of 'multiple time scales' as well as his ideas about "emergent ecosocial organization", which I discussed in section 4.3.1.2. This is the topic of section 6.6.

Before doing so, however, I will discuss how acts of articulating graphic form are different from all other acts of articulation. That is the topic of section 6.5.

6.4 What is graphic form?

At this point, we have laid down the groundwork for a general multimodal theory of articulation. However, in order to theorize the delimited field of articulation of graphic form as opposed to all other kinds of articulation, we must proceed to establish what counts as graphic and what does not.

Graphic form is the expression side of 'graphics'. Graphics is a means of communication, which pervades much of what we humans do. It relies on *vision* in order to be perceived.

According to Gibson's *Ecological approach to visual perception*, what we visually perceive is "surfaces".[20] He describes surfaces in terms of nine "ecological laws" according to which any substance: (1) has a surface and every surface has a 'layout', (2) has 'a resistance to deformation' depending on the substance's viscosity, (3) has 'a resistance to disintegration' depending on the substance's cohesion, (4) has a characteristic 'texture' according to the substance's composition, (5) has a characteristic 'shape' or large-scale layout, (6) is strongly or weakly illuminated, (7) may absorb either much or little of the illumination falling on it, (8) has a characteristic reflectance depending on the substance, and, (9) has a characteristic distribution of the reflectance ratios of the different wavelengths of light depending on the substance (colour) (1986[1979]:23-24).

The nine ecological laws of surfaces give rise to Gibson's (1986[1979]) classification of surfaces, according to which a given surface can be described in terms of whether it is (1) 'luminous' (whether the substance is lit from within as a lamp) versus 'illuminated' (whether the substance is lit up by an outside source), (2) a 'sheet' (two-dimensional) versus a 'volume' (three-dimensional), (3) 'opaque' (does not allow light to pass, e.g. wood) versus 'translucent' (allows light to pass, e.g. water or a window), (4) 'rough' versus 'smooth', (5) 'homogenous' (having only one colour) versus 'conglomerated' (having many colours) and (6) 'hard' versus 'soft'.

Gibson himself makes no claim for exhaustiveness of these laws. They serve merely a heuristic end by focusing his discussion and outlining his object of inquiry. For our discussion here of the articulation of graphic form they also serve aptly as a heuristic device

If we assume that all semiotic artefacts relying on visual perception are somehow 'substantial', they can be analysed in terms of Gibson's nine ecological

[20] Surfaces are what delimit 'substances' from the 'medium' we live in. Humans are terrestrial animals, not aquatic ones. For us, 'the medium' is atmospheric rather than, say, aquatic. In other words, our medium is air. To a great extent, our perceptive systems have evolved to detect variations in our distant environments the effects of which are either carried in air or unimpeded by air. Light travels (relatively) unimpeded in air. Sound waves are changes in air pressure. Smells are chemicals dissipated in air. Aquatic animals sense their environments differently, because the aquatic medium has different affordances. To a large extent, they taste their environment and they rely on vision to a lesser extent than we do, because water impedes the travelling of light.

laws of surfaces.[21] Because we have defined articulation as we have (a bodily action which makes a difference (in the substantial world) which makes a communicative difference), an act of articulation - in a visually perceived substance - must make a difference in one or more of the above qualities of surfaces stipulated by Gibson. In other words, an act of visually dependent articulation must alter one or more of the following qualities of a substance:

(1) the colour
(2) the shape
(3) the viscosity
(4) the brittleness
(5) the texture
(6) the illumination
(7) the reflectance

We can now begin to discuss to which extent an act of graphic articulation is potentially an articulation of each of these qualities:[22]

Ad. 1: Intuitively, colour is crucial to graphic articulation. It is one of the primary means of demarcating one region of a graphic surface from another, thus supplying information to be perceived.

Ad. 2: Shape is also crucial. 'Graphics' is kin to other visually mediated means of communication, where *'shape' is articulated*. In extension, it is fundamentally different from visually mediated means of communication, *where shape is not articulated*. A graphic designer, or indeed a painter, a cartoonist or a sculptor can create any shape (he desires provided they do not challenge the laws of physics) as a direct result of his bodily action upon the substance of his choice in order to convey the meaning he intends – taking the affordances of the particular substance into account, of course. Some substances afford two-dimensional representations, whereas others afford three-dimensional ones.

A photographer, on the other hand, cannot in the same strict sense 'create shapes' in order to convey the meaning he intends. Rather, he has to choose from shapes that are already there and record them. How he frames those shapes, how he positions the camera in relation to them, how he exposes the photo and so on, are all aspects of photographic articulation, which the photographer manipulates directly. A photographer can, of course, move around an object and observe that it affords a 2-dimensional projection of a certain shape from a certain aspect, but this is a different sort of action from 'creating' shape where none was there before. In other words, by no means am I implying that 'shape' is not an

[21] This assumption is problematic c.f. my discussion of the distinction between 'the body' of the substance-ontology and 'the agent' of the process ontology. In the context here, clearly, what a perceiver perceives is 'light' which is either emitted or reflected from a material substance. However, as I discussed in section 6.5.2, in the case of synthesizing technology the substantial object of a perception event may be fundamentally different from the 'virtual' object of an articulation event. This is a loose end in the theory of graphetics, which I propose here. It must be worked out in the future.

[22] It is important to note that the articulatory act must alter the material quality of the perceived substance matter. Altering a represented quality (i.e. painting something to 'look' transparent or shiny) is a lexico-grammatical choice. It is realized graphologically and graphetically by articulating colour. Articulating 'shininess' in the strict sense of the term used here requires a surface to be polished to a point where it reflects light or the application of a glossy ink or paint.

important component of the meaning made in photography, only that it is not *articulated* in the strict sense of the term I have discussed throughout this chapter.

For example, a graphic designer can produce a humanoid figure with a square head quite easily. A photographer cannot. He would either have to find a person with the required traits or somehow sculpt a doll or use prosthetics and make up on a more average round-headed person. However, sculpting dolls or prosthetics or applying makeup – which are indeed instances of 'giving shape' - are distinctly different kinds of articulatory acts than photography. In other words, the shape here is articulated in other substances than a photographic one. At the heart of the difference between graphics and photography is the question of whether or not 'shape' is articulated. A graphic artist, an illustrator and a painter can concoct any two-dimensional shape he or she desires.

Ad. 3 and 4: Neither viscosity nor brittleness seem to fall within the graphic domain of articulation. These qualities seem to be more relevant to semiotic practices that rely on touch, although they undeniably endow surfaces with affordances that can be perceived visually. The domains of industrial design or cuisine could be one area of practice where viscosity is articulated, for example when a chef thickens a sauce to a specific viscosity.

Ad. 5: Texture falls within the domain of graphic articulation. Many graphic designers work with matte and glossy printing inks. Also, some graphic artists work deliberately with embossments. This is commonplace on book covers. Generally, however, graphic design is a practice of mass communication. A distribution technology for graphic texts generally does not afford texture to be relayed.

Ad. 6: Stage designers in theatres articulate illumination. Photographers record it. Generally, graphic designers can represent it, but do not articulate it. One possible exception to this rule is the sign writer, who has neon tubes in his arsenal. The practice of bending neon tubes and mixing the fluorescent gases in them has much in common with graphic design but is also at the same time an articulation of illumination.

Ad. 7: The reflectance of a substance is also potentially subject to articulation by a graphic designer much in the same way as texture. In the same way matte and glossy inks can be applied to a surface, so can inks that absorb light.

We can now begin to wonder what kinds of alterations of the qualities of material substances are *differences* that will make *communicative differences* (and not merely differences that make no difference or differences that make other kinds of differences than communicative ones, cf. the language stance of Tylén et. al. 2009). There may be promising lines of thought in the ground we have already covered: In section 3.4.2, I discussed the distinction between 'typological' and 'topological' strategies for meaning making as suggested by Lemke (e.g. 1998, 2000b). Lemke (2000b:194) states the following:

> The essential point is that our meaningful material interactivity in the world arises from two kinds of interdependence among specific interactional processes: a 'topological' interdependence, based on continuously variable phenomena, which is primary and

> characteristic of thermodynamic and biological systems without human culture, and a 'typological' interdependence introduced by those forms of human semiosis that operate in terms of discrete contrastive categories.

In my opinion, it is reasonable to at least consider the distinction between 'typological' vs. 'topological' difference as a point of departure for discussing which kinds of differences can make communicative differences. In a general multimodal theory of articulation this is of course a vastly more complex issue than it is in the theory of *graphetics* at hand here, and even here it is no straightforward matter. However, consider the two images below (figure 6.28 and 6.29):

6.28

6.29

Both images have been articulated using the 'gradient mesh-tool' in Adobe Illustrator, which uses vectors and anchor points to assign colour gradients to a two-dimensional surface. It is beyond question that both images are instances of graphic form. They are articulations of colour and to a certain extent of shape on a two-dimensional surface. However, it would be unlikely to see these two images used as trademarks. Are they distinct enough to be able to distinguish two different makes of cars? Furthermore, it would be unlikely to see them used as signs in, for example, a writing system or a number system. This raises the question of whether trademarks and things like trademarks such as letters, numbers, map legend ideographic signs and the like belong to a definable subset of graphic form? I believe it must be so.

6.5 Downward causation

In the article "Material Sign Processes and Emergent Ecosocial Organization" (2000b), Jay Lemke makes the following statement, which is pivotal to how I assume particular articulatory acts and the current state of graphic convention to be linked.

He argues: "[…] artifacts are the very material reality of 'downward causation' in social processes" (2000b:192). This is a quote, which warrants discussion at some length.

Lemke uses the term "downward causation", which stems from systems theory (see e.g. Andersen et. al (Eds.) 2000). The term was originally invented by social psychologist Donald T. Campbell (Campbell 1990), who asked the question: If many small-scale interactions between systems (e.g. individual articulation events) can cause large-scale patterns to emerge (e.g. a language, c.f. the discussion in section 4.3.1 of semiotic systems as 'dynamic open systems'), can large-scale patterns re-influence the individual interactions that create them?

In other words, 'downward causation' refers to the idea that in order to explain systemic change, one has to look for its cause in a top-down perspective as well as the more conventional bottom-up perspective.

For example, one has to look at the dynamics of the swarm (e.g. a school of fish, a flock of birds or a population of humans) in order to explain the behaviour of the individual. When, for example, a school of swimming fish numbering in the tens of thousands changes direction as if it were one organism, this should not only be regarded as thousands of individual direction-changing events but also as a collective event, which is downward-caused by the large-scale dynamics of the swarm.

For our purposes in this discussion, the concept of 'downward causation' might explain how, since the very beginning of graphics, countless individual acts of graphic articulation have caused large-scale patterns such as the fundamental conventional distinction between 'line' and 'mass', which I discussed above, to have emerged and how such conventions (or large-scale social patterns, to use Lemke's terminology) re-influence every act of graphic meaning making in the present.

If we tie this into the discussion of the term 'system' in section 4.3 of this thesis, this says that an ecologically determined semiotic system - an 'eco-social system' - has emerged out of the seemingly unrelated individual-scale actions of countless people through the course of human history. This is a phylogenetic process, which we can hypothesize when we regard 'the system' as a diachronic phenomenon. But, as I discussed in section 4.3, the system has a fundamentally different synchronic aspect to its state of being as well. When regarded from this perspective, the system can be described as a paradigm of paradigms, the sum total of possible meaningful choices (and their probabilities) that make up the system. To view the graphic system synchronically is to view its 'architecture' (cf.

section 4.4) in terms of an interrelated group of meaningful choice relations – or, in other words, to view it as a 'grammar'.

In the quote, Lemke also uses the term 'artefact', which is as important for the present discussion as 'downward causation'. His use of the term is inspired by the work of Bruno Latour, and like Latour he allows himself to generalize from 'artefact' to 'technology'. A technology should not be understood in a narrow sense as for example 'mechanical' or 'electronic' or 'digital technology' but rather as a "[…] practice[…] in which these artifacts[23] play a part (as tool, as product, as raw material)" (2000b:192).

Following that definition, 'graphics' - in the sense of a sort of human activity, in which graphic texts are produced, distributed, consumed, sampled, re-used and discussed in the course of day-to-day activity of countless human beings - is a technology of the human race. The tools and substances that play a part in that practice are 'artefacts'. Now, what does Lemke mean by writing that "*artefacts* are the very material reality of *downward causation* in social processes"? In the sense we are talking about it here, he must mean that an artefact is a materially manifest model of (a part of) the synchronic aspect of the system.

Taking as our example the move from calligraphy to typography, these causal relations[24] seem to be involved:

(1) Bodily affordances as well as affordances of substances involved in articulation restrict countless individual-scale instances of writing.

(2) From countless individual-scale interactions emerges a large-scale social order of writing. Different writing styles (such as gothic blackletter or humanist writing styles) are subsets or aspects of this large-scale social order.

(3) Writing styles are organizing principles for a specific set of 'movable type'(as was the case with Gutenberg or Jenson), thus 'modelling' (a subset of) the social order.

(4) The advent of movable type gives rise to a new practice of graphic articulation, in which the individual-scale articulations are restricted by the affordances of the tools and substances specific to that practice. Countless individual-scale articulations of typography turn into a large-scale social order of typography with typefaces that can be grouped into various styles (humanist, gothic, sans serif etc.). and specific standards for spacing of letters, lines and paragraphs emerge.

(5) The large-scale social order of typography is an organizing principle for computer software applications, such as Microsoft Word. This allows a performer with no typographical training to tap into a resource for expression, which is the amalgamation of thousands of years of individual-scale experience with articulating calligraphic and typographic texts.

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[23] It is, of course, a problem that the term 'artefact' is used in its own definition.

[24] Causal relation should not be understood in the sense of "effecient causality", where energy and matter are transferred from one entity to another, but rather as "formal causality", which refers to "the form of a given entity or process insofar as it is not reducible to effective or material causality. It is often described by concepts like "the structure of", "organizes", etc." (Emmeche et. al. 2000:17). In other words, the downward causation described here complies with Emmeche et. al.'s "weak downward causation"-theory.

Thus, developing a tool – or an artefact – is the material reality of the social process of 'modelling' large-scale social orders. The options in Microsoft Word for choosing font family (e.g. the humanist 'Times New Roman' or the sans serif 'Helvetica'), specific fonts (e.g. the italicized or bold versions of Times New Roman), font size, font colour, superscript, subscript, strikethrough etc. is all a part of the synchronic architecture of the graphic system. They are paradigmatic sub-systems to the greater graphic system.

Throughout the course of this chapter, I have given mention to many different graphic 'conventions'. I have discussed the diachronic emergence of conventions of writing, which stem in part from hand-movements that are ergonomically rational. Similarly, I have discussed how traces of 'L-2' micro-events specific to the use of felt markers and paintbrushes give rise to distinctive conventions in e.g. the type face 'Marker Felt' or the paintbrush strokes in the trademarks depicted as figure 6.16, 6.17 and 6.18. Furthermore, I have shown how the different qualities of 'technologies of the hand' and 'synthesizing technologies' afford heterogeneous and homogeneous expressions respectively. Finally, I have discussed, as a possibility, the affordances of 'movements across surfaces' and 'movements onto surfaces' as the sources of the conventional distinction between 'line' and 'mass' and the affordances of 'adding substance to a surface' and 'removing substance from a surface' as the sources of the distinction between 'positive' and 'negative'. There are, of course, countless other practices and resulting conventions and artefacts in the 'technology' of graphics. All of these conventions are accommodated in one way or the other in current software for graphic production, such as "Adobe Illustrator". Thus, the software is in a sense 'a synchronic model' which has been made of the current state of the large-scale social order of 'graphics'. It is in Lemke's words, a 'black box', which condenses "the histories and processes that give rise to [it] and determine[s its] functional potential" (2000b:192, my brackets), but at the same time a "[unit] of interaction at the human scale for which it is normally possible to ignore what is boxed up 'inside' [it]" (ibid., my brackets).

A downward causation perspective thus becomes extremely interesting in a discussion of how semiotic innovation comes about. Lemke writes:

> Latour (1987, 1990) notes, for example, that we produce artifacts such as data archives and maps as the tools by which we sum up over many sampling interactions with the environment at the human scale, and so build up more global models. At the same time, in using them, we become able to carry out different kinds of human practices (mid-ocean navigation, global trade) that in turn alter the world on larger-than-human scales (2000b:193).

If we apply this understanding to graphetics, we begin to see how something like an animated letter in a logo in a television advertisement, which was most likely to have been inconceivable at the time of Gutenberg and Jenson, could have emerged. It took the amalgamation of conventions of typography on the one hand and animation (by way of illustration, photography and cinematography) on the other to produce synchronic tools, which afford the paradigmatic choice of such a thing.

6.5.1 The link between graphetics and graphology

As I stated in the opening section of this chapter, this thesis is by no means the first to observe that semiotic convention originates somehow in the craft of shaping some material to suit one's communicative requirements. A similar observation is made by Kress and Van Leeuwen in "Colour as a semiotic mode: notes to a grammar of colour" (2002) in which they (implicitly) explore the more general principles of the relationship between 'media' and 'mode', which they discuss in *Multimodal Discourse* (2001). The discussion in the past sections of how practices of calligraphy give rise to typography, which is again pivotal in the development of current practices of graphic design, is a telling example of this connection. In fact, the following quote from Kress and Van Leeuwen seems to sum up the past discussion quite well:

> In fact, signification starts on the side of production, using semiotic principles which have not yet sedimented into conventions, traditions, grammars or laws of design. Only eventually, as the particular medium gains in social importance, will more abstract modes of regulation ('grammars') develop, and the medium will become a mode (2001:22).

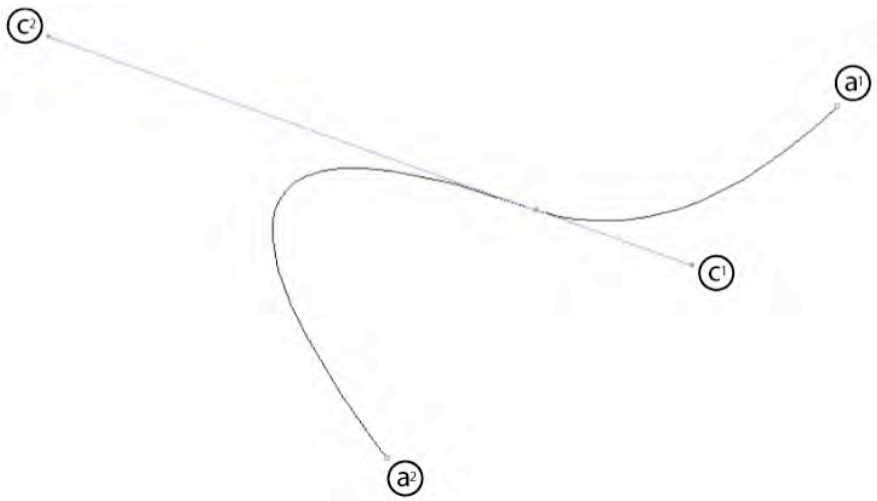
In the first section of this chapter, I suggested that the process by which an articulatory practice becomes conventionalized to the point of losing its ties to a specific form of material realisation (cf. Kress and Van Leeuwen 2001:22) can be understood in terms of an 'analytical abstraction'. One example of such a process is the development of colour as a semiotic system. The contributions of Newton and Goethe were indispensable as the analytical groundwork on which Runge, Munsell and Ostwald built their theories of colour as a semiotic system, a system which reverberates in the way we articulate colour as 'hue', 'saturation' and 'brightness' today.

I would argue that the pace of such processes has sped up significantly over the past three or four decades as a result of the introduction of digital "synthesizing technologies". Let us take a look at the articulation of 'shape' in synthesizing technologies such as 'Adobe Illustrator' as an example.

The potential of shape is infinite. Intuitively, a software application capable of producing any shape must therefore also be almost infinitely complex. However, this is far from the case. In Illustrator and similar software applications, an inventory of only a handful of different kinds of points of interaction with the represented shape allows remarkably simple and intuitive articulation of any two-dimensional shape.

Illustrator utilises a technology known as Adobe PostScript to describe a two-dimensional surface – a page. In the virtual two-dimensional space everything, any text element, shape, colour or shading is specified in terms of straight lines and cubic 'Bezier-curves' (cf. section 6.6.2). This allows arbitrary scaling, rotation and other transformations such as stretching of any given form. A straight line is simple. It requires two coordinates, or data-points. A Bezier-curve takes four data-points as arguments. Figure 6.30 shows a screen-print of a Bezier-curve in the Illustrator workspace.

6.30



The first and last points ('a^1' and 'a^2'), known as "anchor-points", mark the beginning and end of the curve. The remaining two points, one for each anchor point ('c^1' and 'c^2'), are known as "control points". A line extends between two anchor points. The control points determine to which extent the line deviates from a straight line, and how. The farther a control point is from its anchor point, the more the line will follow a straight line in the direction of the control point before turning in the direction of the anchor-point. In figure 6.30 the control point c^1 is closer to anchor-point a^1 than c^2 is to a^2 resulting in a less radical deviation. Although quite complicated to describe, the interface is very intuitive to use. Using a pointing implement such as a mouse or digitizer, the user can choose between a number of "tools" from a "tools-palette" and add or delete anchor-points, move anchor-points about or change their status from regular "hard-corner" dihedral angles to smooth Bezier-curve points.

Of course, from the point of view of a substance-ontology, the performer acts upon the mouse or digitizer causing flip-flops in the computer to change states and in turn causing the intensity of light in pixels on his screen to decrease or increase. But from the extended agent-world perspective of the process-ontology, the performer acts directly upon the interface points of the shape on the screen.

It follows that the articulatory actions can be understood as events of paradigmatic choice. When a data-point is manipulated (i.e. moved), it is basically done so in terms of choices of 'left' vs. 'right', 'up' vs. 'down'. Of course, the performer may not have a conscious experience of choosing to move the data-point relative to 'x' and 'y' axes when he uses a pointing device to manipulate it. But ever so often, a graphic designer will choose to 'nudge' a data-point using the arrow keys on his keyboard. Because the arrow keys only afford moving the data-point 'up', 'down', 'left' or 'right' in predetermined steps, the paradigmatic choice relation becomes quite transparent and the experience of choosing from an inventory of possibilities must be assumed to become more salient to the performer.

This says that, in order to achieve such an interface, the endlessly complex analogous phenomenon of 'shape' has been analytically broken down into a finite and, I might add, remarkably small number of digital structural variables: 'Up', 'down', 'left', right', 'regular two-dimensional coordinate' (which produces a dihedral), 'bezier-coordinate´ (which produces a curve), 'anchor-point', and 'control-point'. The mathematics that governs the relations between these variables in order to produce a given outcome is, of course, complex and beyond the grasp of the vast majority of graphic performers. However, they need not understand the underlying mathematics to articulate any shape they desire c.f. Lemke's 'black box' metaphor. There is sufficient correspondence between their motor actions and the visual information they receive about the consequences of those actions for the technology to become 'transparent equipment' in the sense of Clark (2008:33-34). The outcome of any given action is instantly observable and perfectly predictable.

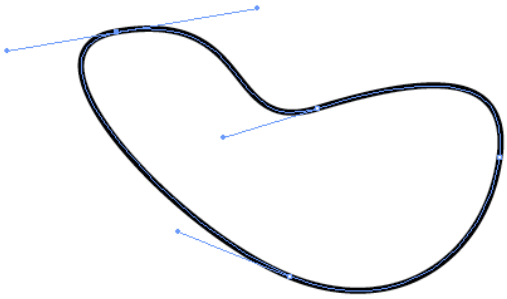
Of course, the number of data-points increases with the structural complexity of the shape. The heterogeneous "hand-drawn" circle (figure 6.19) takes hundreds of anchor-points with associated control-points. The homogenous "perfect" circle (figure 6.20) requires only four. But in either case the interaction with the shape is hand-eye coordinated and easy to grasp.

Once a shape has been determined, it can be rendered in a seemingly endless variety of ways. Figure 6.31 shows a bean-shape rendered as a homogenous outline by choosing a black 'stroke'. In contrast, figure 6.32 shows the same shape rendered as a heterogeneous outline using the 'calligraphy brush'-filter on the same black stroke. Figure 6.33 shows the shape rendered as a mass by choosing a black 'fill'.

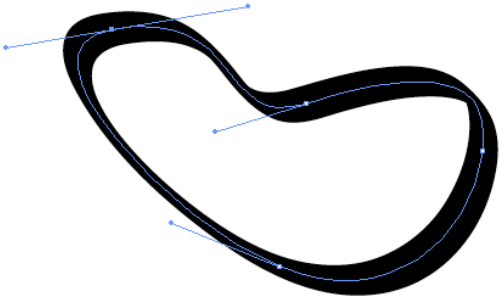
A similar kind of analytical abstraction has yielded interfaces to control qualities of lines drawn in Illustrator. The choice between homogenous and heterogeneous lines is a resulting paradigmatic choice relation, and the specific quality of the heterogeneous calligraphic line, e.g. the contrast between thin and thick bits, can be controlled by way of a number of paradigmatic systems. For example, a 'calligraphic brush' such as the one used in figure 6.32 is controlled by determining the 'angle' (measured in degrees), 'roundness' (measured in percent) and 'diameter' (measured in points)[25] of a brush-tip.

[25] A 'point' is a typographic unit of measurement. A point is 0.3527 mm.

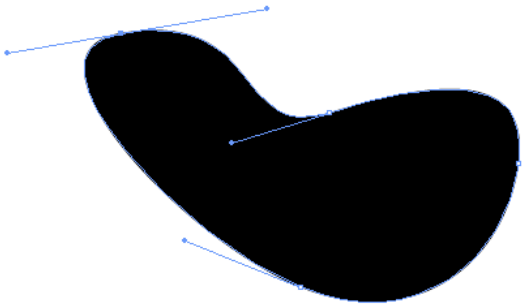
6.31



6.32



6.33



Note how figures 6.31, 6.32 and 6.33 display different qualities that are derived from tools of the hand (6.32), synthesizing technologies (6.31), movements across surfaces (6.31 and 6.32) and movements onto surfaces (6.33). All these qualities have amalgamated into convention to a point where we cease to be aware of the practices they represent.

Thus, in the words of Kress and Van Leeuwen in the quote with which I began this chapter, what was once the 'media' of hand writing and printing have now been "[…] conceived of in more abstract ways (as 'grammars' of some kind)"

(2001:22), which makes it possible to realise them in any number of media. It could be argued that the various control-interfaces and tool-palettes we use to engage with them are our representations of the large-scale grammar that has emerged through countless individual-scale interactions.

The next chapter will propose a tentative graphological descriptive scheme for graphic form. It should reflect the possibilities for graphic form yielded by both technologies of the hand and synthesizing technologies without being specific to either.

6.6 Summary

In this chapter, I have explored a diachronic approach to graphic form in response to Jay Lemke's (1984:31) recommendation that "an adequate structural description […] entails a dynamical analysis". Inspired by the linguistic discipline of articulatory phonetics, I have called this approach *graphetics*. Through the course of the chapter, I have discussed diachronic aspects of graphic form on a wide range of time scales. These range from micro- to macro-perspectives.

At one end of the scale (logogenetic) I discussed the articulatory event in terms of a levels analysis from which follows that an articulation event can be subdivided into 'L-1' sub-events (e.g. individual strokes) and 'L-2' micro-events (e.g. micro-movements of the hand, traces left by individual hairs of a paintbrush). At the other end of the scale (phylogenetic), I discussed how a large-scale convention of graphic form could be hypothesized to have emerged from countless individual-scale acts of articulation through processes of (weak) downward causation.

In section 6.3, I discussed the basis of this approach. Graphetics, as I suggest that we discuss it, revolves around the concept of (multimodal) *articulation*, which I have derived from the linguistic concept of "articulatory phonetics" (e.g. Hockett 1958). Articulatory phonetics is the study of speech sounds "[…] in terms of the bodily motions, called *articulation*, that produce them" (Hockett 1958:62). Unlike the articulatory phonetics of linguistics, which describe bodily action on the basis of a distinctly general, synchronic and substance-ontological model of the vocal tract, I am taking a process-ontological point of view on bodily action, in which the nature of the bodily act takes priority over the part of the body involved in it (section 6.3.1). A multimodal theory of articulation must necessarily be able to account for any instance of articulation using any means. Thus, the body is only one factor among many, which conditions the potential for bodily acts of articulation. We must factor in the substances on which our articulatory acts leave traces (section 6.3.2) and tools (section 6.3.3) as well. Thus, a process-ontological approach, in which body, substances, and tools are regarded as sources of affordances and restrictions on action, is preferable to a substance-ontological classification of body, tool and substances. Furthermore, a process-ontological approach allows us to rethink the dichotomy of body and environment. We must shift our focus of attention from the local *body* of substance-ontology to the non-local *agent* of process-ontology (cf. section 6.3.3.2). From a Gibsonian perspective of ecological psychology, the way I am discussing affordance may seem a bit un-orthodox. However, my point of departure has explicitly not been perception psychology but social semiotics. In other words, my object of study is not (i) the relation between the biological system (the body) and its environment, but rather (ii) the relation between the semiotic system and its eco-social environment of which the human biology is a part. From the point of view of the semiotic system, it is perfectly reasonable to argue that the body is a source of affordances.

In section 6.4 I have suggested a way of distinguishing acts of graphic articulation from all other kinds of acts of articulation. To that end, I have used James Gibson's "ecological laws of surfaces" (1986[1979]:23ff) in order to determine which surfaces in the environment are eligible for being manipulated in ways that count as 'graphic'.

In section 6.5 I have prepared the ground for the synchronic, structural description of the expression plane of the graphic semiotic system (graphology) in the next chapter by suggesting the concept of "downward causation" (Andersen et. al. 2000) as a framework for understanding how large-scale graphic conventions have emerged from individual-scale articulatory events through the course of the history of mankind. From such a perspective, the way choice relations are structured in, for example, software for graphic production can be seen as material models of a large-scale graphic social order – and can thus be used as validation of the categories of a descriptive scheme.

7

Graphology

7.1 Introduction

In chapter 6, I discussed how different practices of graphic articulation, such as writing and printing, can be hypothesized to have led to graphic conventions, such as 'the line' and 'the mass', in the course of phylogenetic processes of change in the eco-social system. I continued to show how such large-scale conventions of form have been subjects to analytical abstraction in order for them to be translated into a synchronic representation in the form of paradigmatic choice relations, which are manageable in contemporary digital software for graphic production.

In this chapter, I shall make tentative suggestions for a synchronic descriptive scheme, which can capture the differences and similarities in the graphic form of trademark cases, such as the ones in my corpus.

In other words, I assume, as do Kress and Van Leeuwen, that there exists a grammar of graphics. In (2006[1996]:47), they refer to the grammar as "visual structuring of meaning" and – although they do not subscribe to a hierarchical model of the architecture of grammar c.f. section 4.3.4.2 – they concentrate their effort at a level of analysis similar to the content strata of lexico-grammar in SFL.

Halliday and Matthiessen (2004:26) argue that two of the language's four strata (phonology and lexico-grammar) serve 'organizing' functions and another two (phonetics and semantics) serve 'interfacing' functions, cf. section 4.3.4.1. If we assume that Kress and Van Leeuwen understand 'structuring of meaning' in a sense similar to Halliday and Matthiessen's understanding of 'organizing', Kress and Van Leeuwen's focus of attention fits well with the 'organizing function' of the content plane (lexico-grammar) assumed by Halliday and Matthiessen (2004:26).

This means that – from a point of view of hierarchical stratification – an *organizing function* equivalent to phonology in the expression plane of language, and complementary to the organizing function of lexico-grammar in the content plane, must also be tried as a possibility in a model of visual semiotic systems. The first general steps in the development of a theory of 'graphology' have already been taken in Kress and Van Leeuwen's (2002) "Colour as a semiotic mode: notes on a grammar of colour", Stötzner's (2003) "Signography as a Subject in its own right" and Van Leeuwen's (2005b) "Typographic meaning". These three works all share a distinctive feature approach to describing their respective objects of inquiry.

In this chapter, I aim to describe – for graphics and graphics alone – that 'structure' or 'organization' of the expression plane. I have chosen to call this undertaking 'graphology' in spite of the fact that the term is otherwise spoken for. According to Crystal (2008[1980]:220), graphology refers to:

> [...] the writing SYSTEM of a LANGUAGE - on analogy with PHONOLOGY. A graphological analysis would be concerned to establish the minimal contrastive units of visual language – defined as GRAPHEMES, graphemic FEATURES, or without using EMIC terms – using similar techniques to those used in phonological analysis. Graphology in this sense has

> nothing to do with the analysis of handwriting to determine the psychological characteristics of the writer – an activity for which the same term is often popularly used.

In many respects Crystal's description of the field also applies to what I suggest. However, I propose to use the term for the study of contrastive features (not units) of graphics in a broader sense than 'graphic representations of linguistic meaning'.

The next section (section 7.2) will recapitulate my discussion of the relevance of entertaining notions of 'double articulation' before providing a schematic overview of the contrastive categories of the descriptive scheme in section 7.3. The following sections will explain and discuss each variable in the scheme as well as provide various examples of how they can be distinctive of meaning.

7.2 Duality of patterning revisited

Before beginning, allow me to recapitulate my reasons for even entertaining notions such as the existence of a 'graphological' level of organization in graphics. In section 4.3.5, I discussed the feasibility of discussing graphic form in terms of duality of patterning – the idea that the graphic system works in terms of meaningless, but meaning-differentiating, structures that combine into meaningful units. I concluded that, although such a position can be problematic for all the reasons outlined by Gunther Kress (2010) – if one keeps to mind the differences between graphics and language – it can yield an understanding of graphic expression otherwise unaccounted for. In that section I gave three reasons why notions of *duality* can be entertained here.

First, the social semiotic paradigm has opened the domain of semantics to other kinds of meaning than those acknowledged by other linguistic traditions through the introduction of the *metafunction principle.* I take this to mean that a distinctive feature can be distinctive of *interpersonal* and *textual* meanings as well as *ideational meanings.*

Second, the object of inquiry in this thesis is very narrowly defined. Where many other schools of visual semiotics attempt a general theory, which can account for means of graphic meaning making as diverse as photography, painting and graphics, this thesis acknowledges the fact that the conditions for articulation in these practices are so different that a general theory cannot account for the expression plane of trademarks at a level of analysis, which is adequate for forensic purposes.

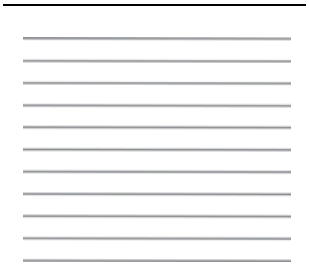
Third, the social semiotic tendency to favour the paradigmatic 'system' over syntactic 'structure' has become ever more pronounced with the advent of MSS theory. I would argue that - if one were to take the full consequence of this development - the concept of 'double articulation' would have to be renegotiated in order to accommodate the systemic nature of differences, such as the ones displayed in the ten apples depicted at the beginning of chapter 6.

The basis of 'double articulation' is the commutation test, which works by changing one *element* in the sequence to determine if the difference makes a difference in terms of meaning. But what if one changes the whole rendition of the text, its *aspect*, from, for example, 'line' to 'mass'? In the case of the apples such a change makes no difference to their reference to 'appleness', but the difference is not, cannot possibly be, meaningless. By functional necessity, if someone makes that distinction, it must have a purpose. And in the case of 'line' versus 'mass' enough people make the distinction for the difference to have been included in graphic software.

7.2.1 Metaphysical twists

Using commutation as a mode of inquiry for graphology raises some very thorny issues. Although true that a difference in meaning often follows from a difference in expression it is far from always clear what the nature or status of that meaning is. The many optical illusions developed by psychologists are evidence of this. In figure 7.3 below, I have reproduced the famous "café wall illusion" first described by Richard Gregory and Priscilla Heard (1979). The illusion famously evokes sloping and crooked horizontal bands of alternating black and white squares. Figures 7.1 and 7.2 depict the "tiles" and "mortar" of the café-wall, respectively. Evidently, the illusion of crooked horizontal bands requires both "mortar" (figure 7.1) and "tiles" (7.2) in order to produce the optic illusion. Figures 7.1, 7.2 and 7.3 can be regarded as an example of commutation, and the difference between them gives rise to a phenomenologically different experience. Does the crookedness of 7.3, however, count as a 'meaningful' difference? Is it in other words – even in the most lenient senses of the term – 'semantic'? In all likelihood it is not. However, the issue needs to be raised (if not explained) here because a simple commutation (and psychologists have devised many equally baffling examples of graphic forms that trick our perceptive systems into seeing things that are not really there) can produce such unexpected results.

7.1



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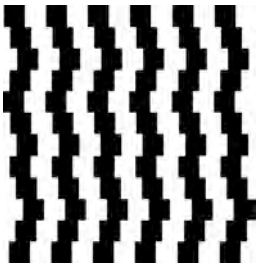

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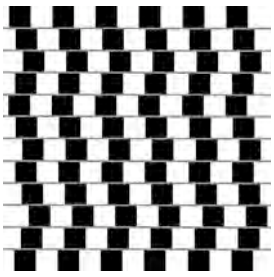
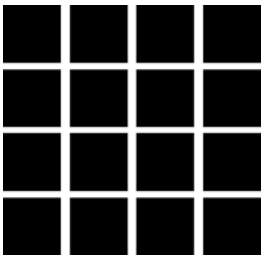


Various qualities of graphic form have very different effects on us. Some, like those shown by Hartline (1967) have a measurable somatic effect (known as lateral inhibition) in the so-called "horseshoe crab" in our optic receptors. This organ "[…] enhances the edges or contours within whatever pattern of input the eye is seeing" (Mook 2004:282) causing us to see for example dark spots in the intersections of the white lines in figure 7.4.

7.4



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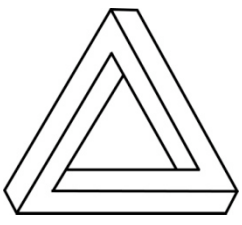


Others effects like those of Edgar Rubin's (1915) famous vase (figure 7.5) or Roger Penrose's ubiquitous "impossible triangle" (figure 7.6) are of a psychological nature. And, finally, many instances of graphic form make differences, which can only be explained sociologically. The vast majority of examples in this thesis belong in this latter category.

In section 2.3.2 I wrote that, at the end of the day, the 'event of confusion', which is the object of trademark practice and which this thesis seeks to inform is, of course, psychologically – and maybe even somatically real. A perfect theory of graphic form would be able to explain any phenomenological effect of any instance of graphic form. After all, it is the same biology with the same affordances for perception with which we perceive Nike's swoosh as well as Penrose's triangle, Rubin's vase and Gregory's café wall illusion.

In the words of Ramachandran and Hirstein (1999:15), "any theory of art (or indeed, any aspect of human nature) has to ideally have three components. (a) The logic of art: whether there are universal rules or principles; (b) the evolutionary rationale: why did these rules evolve and why do they have the form that they do; (c) what is the brain circuitry involved?"

What I suggest in this thesis is far from such a perfect theory of graphic form. Although the descriptive scheme presented in this chapter can be regarded as a shot at Ramachandran and Hirstein's first point and the theory of graphetics in the previous chapter can be regarded as an attempt at describing the 'system' from a point of view of sociological evolution and hence a stab at their second point, any commitment to psychological or biological frames of explanation must be made at a later point in time. The suggestions I make stem from a social semiotic theory, and can in their current form only illuminate sociological phenomena.

Thus, the only status I feel comfortable claiming for the categories of this descriptive scheme is that of 'conceptual artefact'. As chapter 6 should have made clear, I have made every attempt to motivate my categories in a hypothesis of the graphic system's diachronic emergence from individual-scale acts of articulation. Moreover, the discussions in this chapter should prove that the descriptive categories suggested here are vast improvements over state of the art MSS as well as branding semiotics, graphic design theory and trademark doctrine when it comes to forensic analysis of graphic form.

7.3 A schematic overview

The table below shows the proposed descriptive scheme. The scheme has been structured into three overall categories of contrastive features of graphic form: *Structure*, *space*, and *form*.

The next sections will go into depth with each variable in the system. However, because it is difficult to discuss structural variables without being able to make reference to their instantiations in actual structures, in section 7.4 I will propose a way of analysing structure in terms of *structural density* (7.4.1), *structural complexity* (7.4.2) and *structural contrast* (7.4.3). I will then proceed to discuss how the graphic surface is subdivided into regions. This is done in section 7.5, on graphic *space.* Finally, in section 7.6 on *form,* I will discuss how such regions can look. The variables of colour, which are a part of the resources of form, have been discussed at length during my discussion of modality in section 5.4.2. Because I have nothing to add to what has already been said on the topic, readers are referred to that section.

Structure	Density	Low /high		
	Complexity	Univariate/multivariate		
	Contrast	Low/high		
Space	Magnitude	One dimensional 'Distance'	Short/long	
		Two dimensional 'Extent'	Small/large	
	Region	Figure/ground		
		Framing	Framed/not framed	
		Clustering	Not clustered/clustered	
	Location	Up/down		
		Right/left		
	Orientation	Angle		
Form	Shape	Straight/not straight	Curve/angle	
		Open/closed	Convex/concave	
	Enshapening	Positive/negative		
		Conjoined/compounded		
		Mass/line	Weight	Thick/thin
			Contrast	Low/high
			Tension	Low/high
			Ending*	
	Colour	Hue		
		Saturation	Low/high	
		Brightness	Low/high	

*) The potential choices available for different kinds of endings of lines correspond with the overall choices for 'shape'.

7.4 Graphic structure

> Imagine now that a teacher used the method of this book superficially as a guide to approaching a work of art. "Now, children, let us see how many spots of red we can find in this painting by Matisse!" We proceed systematically, establishing an inventory of all the round shapes and all the angular ones. We hunt for parallel lines and for examples of superposition and of figure and ground. In the higher grades we seek out systems of gradients. When all the items are strung in order, we have done justice to the whole work. It can be done, and it has been done, but it is the last approach an adherent of gestalt psychology would want laid at his door. If one wishes to be admitted to the presence of a work of art, one must, first of all, face it as a whole. What is it that comes across? (Arnheim 1974:8)

By definition, any analysis breaks a phenomenon into constituent parts and attempts to generalize how they relate to each other. In other words, an analysis studies how the parts are 'organized' or 'structured' into a whole. The analytical scheme proposed here is no exception to that.

That said, in line with the greater social semiotic- and MSS paradigms, the point of departure for this analytical scheme is 'paradigmatic choice' rather than 'syntactic sequence'. This means that, for the purpose here, I am less interested in "what *goes together with what"* than I am in "*patterns in what could go instead of* what" (cf. Halliday and Matthiessen 2004:22). Furthermore, the overarching frame of understanding in the scheme is articulative choice rather than perceptive choice. Of course, these two perspectives are mutually dependent, because in every act of articulation there is evidently an act of perception (and moreover, it could be argued that in every act of perception there is a mimetic act of articulation cf. Kress 2010:76; Wulf 2005).

In other words, I am more interested in structural variables than I am in actual structure. I am interested in the formal choices people make in order to contrast (graphic) meanings. However, it is extremely difficult to discuss structural variables without reference to, or examples from, actual structures. Therefore, in this section I will outline a very general way of conceptualizing graphic structure in terms of 'structural density', 'structural complexity' and 'structural contrast', which will be helpful in analysing the ways in which a given paradigmatic relation of graphological choice is in fact instantiated in particular texts. However, in line with the quote from Arnheim above, I would not suggest that the descriptive scheme proposed here be used "superficially". When applied in forensic comparisons of trademarks, it should not be applied by exhaustively accounting for each and every structural feature of a graphic form. That would result in an analysis bordering on isomorphism, which would severely impair the descriptive and explanatory adequacy of the statement. No two cases are exactly alike, so two trademarks may be similar or dissimilar because of convergences or discrepancies on a single structural variable. Moreover, it seems futile to attempt to describe the formal structure of a trademark 'objectively'. At the end of the day, structure must be assumed to be in the eye of the beholder.

As our point of departure, let us contemplate very simple graphological structures in order to get a grasp of what we are talking about. In all of two-

dimensional graphic form, the simplest structure must be assumed to be a 'massive' circle, or disk, as the one reproduced below (figure 7.7). Any aspect of its structure can be determined with only two rules: (1) the distance (radius) from a point (centre) to any point on the demarcation (perimeter) between positive form (the circle) and negative form (that which is not the circle) and (2) a specification of which area of the surface thus divided is black (positive or 'figure') and which is white (negative or 'ground').

7.7

7.8

I will venture the statement that the 'outline' circle depicted as figure 7.8 is more complex than its 'massive' disk counterpart.

This statement may be confusing to some, but I shall explain at some length because the observation that one is more complex than the other follows logically from the way of analysing structure proposed here.

The confusion arises because, intuitively, we would say that the two are identical. They are both circles. But we must not confuse the structure of 'shape' with the structure of all the other formal variables in an exhaustive system of graphology. Shape is one, crucial, aspect of graphic form, but there are many others.

With regard to the two circles depicted above, it is true that the structure of the 'shape' conveyed by the two is the same. But the structure of the 'graphic rendition' of that shape is very different. People with little or no training in graphic articulation have only little meta-language for conceptualizing graphic form. Thus, we are liable to resort to what we know. Many of us have had a schooling, which includes basic principles of geometry. By that token, the term 'circle' may not discriminate between a 'massive circle' and a 'line circle'. A Euclidean line has no width. It is, in a sense, one-dimensional and has only a direction. But from a point of view of graphic form this is not, cannot, be true. Geometry and graphics are incommensurable. They have different ontological

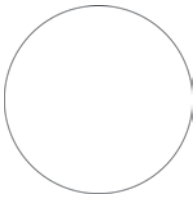
status. Confusion arises because we use graphics to represent geometrical concepts.

A graphic line, the manifest trace of an articulatory act on a substantial surface, must have a width, even if it is only a fraction of an inch, in order to be perceivable. In recognition of this fact, a student of geometry is instructed to use a freshly sharpened pencil when drawing geometric shapes. A drawing of a geometric shape is a graphic representation of a geometric ideal – and the representation is thus restricted by the affordances of the graphic substances used. The thicker the line, which represents a geometric shape, the less faithful to the geometric ideal the representation becomes. From the point of view of geometric practice, the thinner the line the better the representation.

However, from a point of view of graphic practice the thickness of a graphic line is a matter of expressive *choice.* A calligrapher chooses the width of the broad pen he is using and a contemporary graphic designer chooses the thickness of typographic lines by selecting 'regular', 'bold' or 'black' versions of a typeface.

Note, for example, that the outline of the circle in figure 7.8 is in fact rather thick. This is no coincidence. I could easily have *chosen* to make it thinner or thicker by specifying a different 'stroke width' (line width) in the software application, which I used to articulate the circle.

7.9



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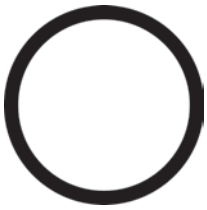


7.11

Figures 7.9 to 7.11 show three circles with different line widths. Central to the point I am making is that they all – even 7.9 – have a line width, which is a formal aspect of their formal structure.

From a geometrical point of view it follows that the 'inner' and 'outer' demarcations of the graphic line in an 'outline circle' lie at different distances from the centre. This says that, whereas the 'massive circle' or 'disk' subdivides a geometric plane into two regions with one structural demarcation (one positive and one negative), the outline circle divides it into three regions (one 'inner' negative region, one 'outer' negative region and one positive 'line' region wedged in between them) with two structural demarcations.

At a first glance this point may seem like much ado about nothing. However, understanding how graphic form subdivides a surface into a structure of differences is crucial for the descriptive scheme I propose here. The structure of positive and negative areas discussed here *is* 'a difference, which makes a communicative difference' – even if that difference is only a difference in the width of the graphic line. The difference does not necessarily contrast

ideationally semantic 'units' such as 'massive circle' from 'outline circle' or 'black circle' from 'white circle' or 'thin circle' from 'fat circle' – although in the right contexts it may. Rather, in the examples shown above, the difference, which distinguishes interpersonal inflections on 'circleness' (cf. the discussion of the two apples in section 5.2.4).

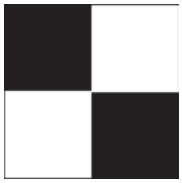
By now it should be clear that massive and outline circles are structurally different. I have shown how the outline circle can be said to be structurally more complex than its massive counterpart. But this is only half the truth. It could also be considered to be less structurally dense.

7.4.1 Structural density

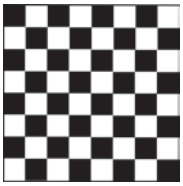
The difference between 'structural complexity' and 'structural density' is easily demonstrated with the example of check patterns such as those on a checkerboard. Such a pattern consists of a rectilinear and mono-spatial grid of horizontal rows and vertical columns of squares of alternating colour.

That definition makes both patterns depicted as figures 7.12 and 7.13 checkerboard check patterns.[1] From the point of view I am proposing here, the check patterns in figures 7.12 and 7.13 have the exact same degree of structural complexity but very different levels of structural density. Anticipating the discussion of specific distinctive features of graphic form in the following sections, the two patterns are exactly alike in their consistent use of right angles, equal distances and hence their distribution of structure along their horizontal and vertical axes, equal sizes of parts, use of mass and lines, their framing, clustering and so on and so forth. The only structural quality, which sets them apart, is their respective number of *structural occurrences* or their *structural density.*

7.12



7.13



Checkerboard patterns are an interesting case, because they are the simplest conceivable *repetitive structural patterns* in graphics.[2] They can be repeated infinitely using the smallest and simplest conceivable set of structural 'rules'.

[1] Albeit only figure 7.8, with its 8 rows and 8 columns resulting in 64 squares, qualifies as the pattern on an actual checkerboard

[2] Intuitively, a rectilinear grid of equidistant horizontal and vertical lines appears to be simpler yet. However, cf. the discussion of circles above, although this may indeed be the case in a geometrical description, in graphics, even the thinnest reproducible line will always have a width, even if only a fraction of an inch, and will thus divide a surface into three areas: Negative

A kind of difference equivalent to that between figures 7.12 and 7.13 can be observed in figures 7.14 and 7.15. Both are symmetrical, closed, massive objects, the outlines of which are characterized by equidistant, rounded, alternating curved intrusions and protrusions. The apexes of all intrusive curves have the same distance from the centre of the shape. The same is true of the protrusive curves. The only difference is the number of structural occurrences, the number of hills and valleys around their circumference.

7.14

7.15

It is by that token I stated that the massive circle and the outline circle discussed above have different structural density as well as complexity. In the outline circle, which divides the surface into three regions with two demarcations, there are more structural occurrences than in the massive circle, which only divides the surface into two regions with a single demarcation. One is denser than the other on the variable of 'subdivision of space'.

In analytical practice it quickly becomes very difficult indeed to give an absolute count of structural occurrences in a formal graphic structure. Moreover, attempting such a thing may very well be counter-productive. Exactly how many ridges and dips are there in figures 7.14 and 7.15? Evidently one is denser than the other. It is much more useful to think of the concept of structural density as a heuristic device for describing, "what comes across". I suggest doing so in terms of a systemic continuum ranging from *low structural density* to *high structural density*.

7.4.2 Structural complexity

Where *structural density* is a count of the 'structural occurrences', regardless of their nature, which make up a structure, *structural complexity* is a count of 'structural variants' in a structure. Here, the nature of structural occurrences is crucial. As was the case with structural density, the task of actually counting the absolute number of structural variants in a given formal graphic structure quickly becomes futile. Hence, I suggest that structural complexity is also treated as a heuristic device. This could be done in terms of a systemic continuum

space on one side of the line, negative space on the other side of the line and the space of the line itself 'wedged in' between them. An interesting study, which supports the hypothesis of checkerboard checkers as the simplest possible repetitive graphic pattern, is cited by Rudolph Arnheim (1974:56). The study called "Subsymmetries" was carried out by Christopher Alexander and Susan Carey and published in 1968 in *Perception and Psychophysics* vol. 4.

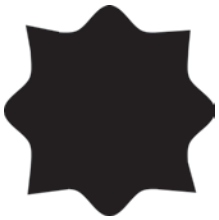
ranging from *univariate structure* to *multivariate structure*. This says that if a formal graphic structure contains several occurrences of a given structural variable, those occurrences can either be alike or different. The checkerboard patterns are structurally univariate in all respects but one. The alterations between colours are multivariate (bi-variate, to be specific). With regard to length, angle and so on, they are univariate.

Consider the shapes depicted as figures 7.16, 7.17, 7.18 and 7.19. 7.17, 7.18 and 7.19 are all structurally more complex than 7.16. However, their complexity rests in different structural variables relative to 7.16. For example, in 7.16, all the ridges and dips are curved. Only one variant of intrusion and protrusion is chosen. This is a univariate structure on those specific variables. In 7.17, however, the ridges are alternately curved and dihedral (angular). There are two variants, and hence this is a multivariate (or bi-variate to be specific) structure.

In 7.16, the surface is divided into 'figure' and 'ground'. This is a bi-variate structure. In 7.18, however, the surface is divided into 'figure', 'interior ground' and 'exterior ground'. This is a tri-variate structure. In 7.18, the line is of univariate thickness (which is really the *distance* between the two demarcations of the positive 'figure' from the negative 'ground'). However, the structural variable of 'line thickness' does not need to be univariate. In 7.19, it is multivariate resulting in a dynamic calligraphic line.

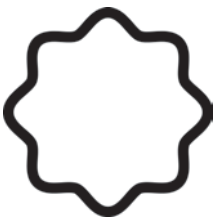
7.16

7.17



7.19

7.18

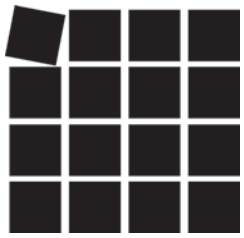


Although the concepts of *structural density* and *structural complexity* can be applied to the overall formal structure of a graphic sign, this is typically not very helpful. Except in rare cases such as checkerboard patterns, most formal graphic structures will be relatively complex if they are regarded as a whole. However, the concept can be a quite powerful analytical tool, if it is used to inquire into the choices made on specific structural variables.

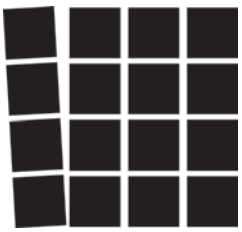
7.4.3 Structural contrast

The final aspect of graphic structure, I will discuss here, is *structural contrast* in recognition of the fact that *density* and *complexity* may vary in a given structure. All the examples, I have discussed so far, are quite homogenous as autonomous structures. The contrast lies in the value between the autonomous structures (e.g. between the two instances of checkers or between the various star-like shapes in the examples above). However, structural contrast can also occur within an individual structure. Contemplate, for example, the three commutations of Hartline's grid (figure 7.4) depicted below:

7.20



7.21



7.22

On a whole, Hartline's grid is structurally simple. However, in these three examples, I have changed different parts of the structure according to the 'orientation' variable, making the overall structure more complex (it is immediately apparent how figures 7.20 and 7.21 become more complex. The difference is a part of the explicit structure. 7.22, however, is a different matter. It becomes more complex as an effect of the difference in orientation of the entire figure-region in relation to the implicit, ideal ground). Note how the structural contrast pertains to different regions of the overall structure. In figure 7.20, the top left square is contrasted from the rest. In 7.21, the entire left column of squares is contrasted. In figure 7.22, the whole structure is contrasted to something other than the structure.

I would argue that structural contrast is an important formal component in the MSS concept of *salience*, which is typically ascribed textual meaning (Kress and Van Leeuwen 2006[1996]:177, Van Leeuwen 2005a:198; Baldry and Thibault 2006; Kress 2010:131). Any of the structural variables that I will discuss throughout the course of this chapter can be subject to structural contrast and hence be distinctive of textual meaning in terms of 'salience', no matter if it is a contrast in distances, extents (sizes), figure/ground structures, frames, clusters, locations, orientations, shapes, or colours.

In the next sections, I will turn from the issue of 'structure' to the issue of structural 'systems' or 'variables'. I suggest analysing formal qualities of graphics in terms of choices made with regard to the overall variables of *space* and *form.*

7.5 Graphic space

The first overall category of structural variables, we must consider is that governing the graphic organization of discrete regions of a surface.

In order for a difference in the world to constitute a graphic difference, it must entail that a surface or sheet has been treated through an act of articulation (cf. chapter 6) so that discrete regions reflect or emit light in different ways, thus constituting information that can be visually perceived. It is this information, which is 'structured' or 'organized' (again I must stress the position from which I discuss this. Structure is in the eye of the beholder) in certain ways that have to do with the relative *location* of *regions* of the surface.

I am thus implicitly arguing that a completely uniform surface, i.e. a blank sheet of paper, cannot be regarded as an instance of graphic communication in the sense used throughout this thesis. That would be like arguing that someone keeping silent constitutes an occurrence of speech. In some contexts, a blank sheet of paper may indeed constitute 'a text' or communicative act of some kind,[3] but it is not a graphic text.

7.5.1 Magnitude

My discussion of 'space' in this section revolves around the three key concepts of 'region', 'location' and 'orientation', all of which are aspects of the topological quality of the graphic surface. As it shall become clear throughout the chapter, it is difficult to conceptualize or discuss 'region', 'location' or 'orientation' without constantly resorting to the concept of metric *magnitude* or, in plainer words, various aspects of size (relative 'bigness', 'smallness', 'longness' or 'shortness') of things.

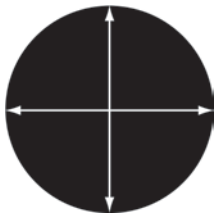
In graphic form, magnitude can be conceived of as either one-dimensional *distance* or two-dimensional *extent.* Thus, measurable variables such as absolute 'length' and 'width', as well as relative 'proximity', are all aspects of one-dimensional magnitude, or distance. Similarly, absolute 'area' and relative 'size' are aspects of two-dimensional magnitude.

The differences in a graphic surface must extend over some part of the surface or demarcate one part from another in order to be perceivable i.e. to constitute a difference, which can make a communicative difference in a graphic semiotic system. Thus, 'region' and 'location' are concepts for comprehending the topology of the graphic surface. The only way I can think of generalizing this topology is to gauge various aspects of its magnitude. Thus, in this discussion of graphic form, the relative size of a depicted element or the thickness of a line or stroke will ultimately rest on the distributions and proportions of parts of the graphic surface. In other words, we can begin this discussion of graphic space by

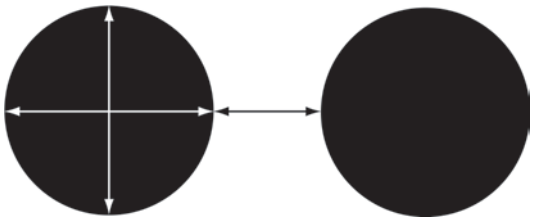
[3] For example if someone presents a blank sheet of paper to someone else to indicate that they "have nothing to say".

identifying *magnitude*, either as a one-dimensional *distance* or a two-dimensional *extent*, as a crucial means of comprehending and discussing it.
Anticipating the discussions to come in the next sections, one can say that a given region must extend over some minimum distance on both vertical and horizontal dimensions in order to be perceivable as a discrete part of the total surface. Even a simple graphic line, which we might be tempted to discuss mainly in terms of its one-dimensional magnitude (its length), must, crucially, also be discussed in terms of its two-dimensional magnitude (its extent - length and width combined into an area).

7.23



7.24



The figures above illustrate how we can begin to comprehend and discuss the variables of graphic topology in terms of different kinds of magnitude. Figure 7.23 shows how magnitude can help us conceptualize the makeup of an individual 'figure' region (as two-dimensional extent). Figure 7.24 shows how magnitude can be of help in comprehending the way in which regions are related to one another (as one-dimensional proximity).

In the next sections I shall discuss the very prerequisite for considering something 'graphic'; that a surface is divided into at least two discrete *regions*, a 'figure' and a 'ground' or 'a positive region' and 'a negative region'. This is the topic of section 7.5.2. Subsequently, I shall discuss structural variables that can organize a surface into a hierarchy of levels of regions through 'clustering' and 'framing'. This is the topic of section 7.5.3. I shall then move on to the concept of *location* and discuss structural variables that organize the relative locations of regions on a two-dimensional surface. This is the topic of section 7.5.4. The formal resources for giving a region a certain *orientation* in graphic space are the topic of section 7.5.5. The final aspect of 'space', I wish to address, is the kind if challenges to an account of graphic form posed by aspects of two-dimensional graphic form (such as contour rivalry and artificial perspective) that can lead us to perceive three-dimensional form. This is dealt with in section 7.5.6. The

section will argue that albeit contour rivalry may indeed be psychologically real, its perceptive effects such as 'overlapping planes' belong somewhere else in the system. Similarly, although artificial perspective may indeed rely on specific formal qualities (explicit or implicit lines, the relative direction of which cause them to converge in a vanishing point), the perceptive effect of depth also belongs somewhere else.

7.5.2 Figure versus ground

Regardless of any other structural variables, it may make sense to discuss with regard to a specific graphic structure; one specific aspect of structure must be present for something to fall within the definition of 'graphic text'. A graphic structure can never be *univariate* on the variable of subdivision into regions. It must always be (at least) bi-variate and constituted by (at least) one *figure* region and (at least) one *ground* region. The distinction, as well as the underlying assumption of 'positive-' and 'negative-' two-dimensional space and three-dimensional volume, is ubiquitous in writings about design, architecture, graphic form and typography, because it is so very useful for describing the phenomenological fact that we can have an experience of 'shape' from the part of the world that surrounds a shape. Figure 7.5 at the beginning of this chapter depicts Edgar Rubin's famous vase, the shape of which corresponds with the negative shape of its surroundings which are in the shape of two faces.

7.5.2.1 Gestalt terminology in an ecological framework

The terms 'figure' and 'ground' will also serve for our present purpose, in spite of the fact that their origins in a gestalt theory of visual perception would appear to make them clash with the ecological view of visual perception which permeates my discussion of graphetics in chapter 6. However, as I shall briefly explain below, the clash may not be too severe.

The terms *figure* and *ground* were coined in 1915 by the Danish psychologist Edgar Rubin in his seminal work *Synsoplevede figurer*. They have been very influential for the development of 'gestalt' theory of visual perception (e.g. Wertheimer 1923; Koffka 1935) and rest on the underlying assumption of 'the retinal image'. This means that, from a gestalt perspective, what we perceive visually is a series of 'fixations' of 'the visual field' akin with a picture projected onto the retina. This assumption is expressed quite clearly in the following quote from Rudolph Arnheim (1997[1969]:27):

> In the perception of shape lie the beginnings of concept formation. Whereas the optical image projected onto the retina is a mechanically complete recording of its physical counterpart, the corresponding visual percept is not. The perception of shape is the grasping of structural features found in, or imposed upon, the stimulus material.

According to James J. Gibson, who is the key proponent of an ecological theory of visual perception and thus an opponent to the gestalt model (see Gibson 1986[1979]:281), this underlying assumption has had profound impact on the

experimental methods used by many gestalt theorists. In gestalt experiments, the investigator will typically attempt to reproduce what is assumed to be the 'fixed' conditions for visual perception by making subjects view a visual stimulus (which is very often motionless) through a pinhole in order to restrict the field of vision while restinging their heads in a contraption, which restricts the movement of their heads.

Gibson argues that the perceptive events investigated by gestalt theorists have only very little to do with the way visual perception works most of the time, that is to say when we move about and look around at a world in constant change.

He suggests the term *ambient optic array* for the perceived object (the sum total of potential perceptions afforded by an environment for a subject in motion) in an ecological theory of perception. An image, he argues, is an *arrested optic array* because it affords no change in information, if the subject moves.

It can be argued that the arrested optic array and the, by way of pinholes and headrests, 'arrested subject' in the perceptive events investigated by gestalt theorists have an equivalent effect, if perception is assumed to be based on an image of the world on the retina. Thus, the gestalt theorists have been reassured in their assumptions that visual perception of the natural environment works largely in the same way as visual perception of images.

It follows, that Gibson's demonstration of the ambient optic array may indeed pose a problem for the 'figure' and 'ground' distinction in a theory of perception for manipulation and self-locomotion. Hence, it cannot be used in our theory of graphetics as the basis of perception in the articulatory event. But that is not our concern here. In this chapter, we are discussing the structure of the product of the articulative event, the structure of graphic texts, which are two-dimensional and motionless and hence have little to do with the ambient optic array of which the surface, on which they appear, happens to be a part.

This says that, because the gestalt theorists in fact investigated visual perception of arrested optic arrays, their categories will be perfectly serviceable in a formal description of graphics.

7.5.2.2 Figure and ground as structural variables

The perception of figure-ground relationships based on studies of ambiguous figure-ground constellations has been the subject of much writing (see e.g. Rubin 1915; Koffka 1935; Arnheim 1974). I do not have much to add to what has already been said. It seems clear that a given 'figure' has 'a shape' and that one can force oneself to also see 'the shape' of the ground (see it as figure). It also seems to be the case that one cannot simultaneously maintain the perception of 'the shape' of both figure and ground but rather has to switch focus between them. Moreover, it also seems clear that we can switch between various perceptual interpretations of a complex figure-ground constellation such as the one depicted as figure 7.25. It can be seen a as pyramid-arrangement, in which (a) a small white patch is placed on top of (b) a larger black one, which is in turn placed on (c) a white patch on (d) a black patch, which is placed on (e) an

uninterrupted white surface. Or, it can be seen as a two-plane arrangement in which two irregular black rings float on a white surface. Or it can be seen as a hole in a white surface, in which two white shapes float, one inside the other.

However, such observations are not what concern us here. In this section, I discuss 'figure' and 'ground' mainly in their capacity of structural variables. That is to say, I discuss them purely as a possibility, or potential, for subdividing a surface into (at least) two regions: One, which is 'enclosed' (the figure) and one, which 'encloses' (the ground). The fact that I resort to process-metaphors of 'enclosing' and being 'enclosed' is again testament to the phenomenological point that 'structure' is in the eye of the beholder. As I stated above, a formal graphic structure can never be strictly univariate on the figure-ground variable. It cannot be all figure or all ground. However, although a formal graphic figure ground structure must have two variants, it can have more, as I discussed in section 7.3.2. For example, a simple outline circle has three: 'figure', 'interior ground' and 'exterior ground'. Whether figure-ground structures with more than these three variants exist is unclear as I write this.

Contemplate figures 7.25 and 7.26 below. Evidently, both images include a number of identical shapes, one within the other. However, the two images employ very different strategies with regard to how the shapes are represented. In the structurally dense (several occurrences) 'outline'-version, figure 7.26, no other interpretation than one which includes each shape to be comprised of 'figure', 'interior ground' and 'exterior ground' is possible. Each of the shapes is constituted by a tri-variate structure.

Figure 7.25, on the other hand, is different. Depending on one's interpretation, the figure could be made up of four bi-variate figure-ground structures where the larger, encompassing shape serves as ground for a given figure, or two black tri-variate structures with 'figure', 'interior ground' and 'exterior ground'.

7.25

7.26

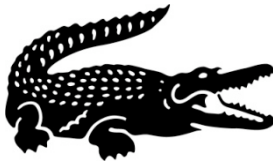
The structurally dense bi-variant structure seen in figure 7.25 is commonplace in trademark design, where it is typically used to create an ambiguous figure-ground structure. Many trademarks employ a strategy of making 'a figure' the ground on which another figure is seen, as in figures 7.27 (The Waterways Trust), 7.28 (Girl Scouts of the USA) and 7.29 (NBC).

7.27

7.28

7.29

7.30



7.31

The distinction between bi-variate and tri-variate structure on the figure-ground variable is an important one. As the discussion in this chapter progresses, it shall become increasingly clear that figure-ground structure sub-serves all other structural variables of graphic form. However, the very distinction between bi-variate and tri-variate structure can in fact inform forensic analysis of a few of the cases in the corpus. Contemplate the two crocodiles of case No. 4 illustrated as figures 7.30 and 7.31. I discussed the two marks in chapter 6. From a diachronic, process-oriented *graphetic* point of view, they can be analysed in terms of traces of movements 'onto a surface' and 'movements across a surface'. However, from a synchronic, choice-oriented *graphological* point of view they can be regarded as instances of bi-variant and tri-variant figure-ground structure. It follows that, regardless of the graphic practices that gave rise to these two different structures, at present they are a matter of choice. The difference must be assumed to have some communicative function. As I have already mentioned on several occasions, the most commonplace use of the difference is to contrast interpersonal meanings of modality as demonstrated with the different apples at the beginning of chapter 6.

However, in rare cases the difference is used to contrast ideational meanings as well. Figure 7.32 shows such a use (the mark of an American adoption agency, "Adoption from the Heart"). In this case, the tri-variant structure is used to denote one colour of skin whereas the bi-variant structure is used to denote another:

7.32

7.33

Before moving on, a final issue needs to be discussed. It pertains to the more specific structural nature of the 'ground' in bi-variate figure/ground structures and the 'exterior ground' in tri-variate structures. More plainly put, the space, which surrounds a given shape, gives rise to some challenges, because it is often difficult, if not impossible, to say where the outer boundaries of 'the ground' are (if indeed it even makes sense to speak of them).

In figure 7.33 I have inverted the image known as "Rubin's vase" (also shown as figure 7.5). I could have used any figure/ground structure as my example, but have chosen this particular one, because it is famously known to be ambiguous on the figure/ground variable. It should be immediately apparent from the image that the two opposing faces are still easily recognizable in the inverted version. The vase in the image is instantly perceivable. It is a strictly delimited region of this particular graphic surface, which is 'surrounded' by an adjacent space. Its shape is beyond discussion. However, it follows from the simple fact that we can discern two faces in the shape of the space surrounding the vase that the 'ground' is a different region of the same graphic space, which also has 'a shape'. The shapes of the faces demarcated by the black region are as much beyond discussion as the shape of the vase. But what of the rest? The shapes of the faces are unequivocal, but somewhere on the domes of the depicted persons' heads and on their necks, their shapes trail off.

In other words, where are the outer delimitations of the ground on which we perceive the figure? Is it the framing lines between which figure 7.33 appears on this particular page? Is it the format of the paper on which the page is printed?

It is not difficult to imagine an instance of graphics such as figure 7.33 used as a trademark. It could then appear on any number of actual surfaces, each of which would delimit the 'ground' region surrounding the 'figure' in a unique way. On the side of a van, on a shop sign, on a business card, on stationary or perhaps etched into the glass of a promotional gift.

In an ideal topology the ground on which the trademark appears extends infinitely in every direction away from the figure. However, for practical purposes – and because some graphic designers actually work with the shape of the delimitations of the manifest surface as a resource for meaning making (for example by punching out complementary shapes on the cardboard on which the graphic is articulated or reproduced) – I suggest the use of the material format as a heuristic for working around this problem.

Summing up, we can say that the structural distinction between 'figure' and 'ground' in graphics is the most basic way of subdividing a surface into delimited regions. It is the level of analysis at which the units cannot be broken further down into sub-units. In the next sections I shall discuss how individual figure-ground regions of graphic space are structured into larger-scale regions through the use of two different structural strategies called *framing* and *clustering.*

7.5.3 Framing and clustering

In chapter 6, I used a notation inspired by Jay Lemke's (2001) discussion of "the levels paradigm" to analyse a *graphetic process* in terms of a (focus)level 'L' articulation event, 'L-1' sub-events and 'L-2' micro-events. I find that a similar mode of analysis works well when attempting to understand *graphological structure*. If we apply the levels-analysis on subdivisions of a surface into regions we can typically distinguish (at least) three different hierarchical levels of regions.

Taking the Lacoste crocodile from above as an example, we can say that the overall structure of the mark is our focus level 'L'. At this level, the object of our forensic examination, the trademark, is demarcated from its surroundings.

At the bottom level in the hierarchy, we have the individual bi-variate or tri-variate demarcations of space into either figure/ground or figure/interior ground/exterior ground. The Lacoste mark is a dense figure/ground structure (cf. section 7.3.1) in which the overall black crocodile shape both functions as a figure opposed to the white ground and as a ground for smaller, white figures. Thus, both the black shape of the crocodile and the white 'scales' on the black 'skin' of Lacoste's crocodile are bottom-level regions. They are all bi-variate figure/ground-structures and they cannot be subdivided further in terms of demarcation of regions.

However, all the individual demarcations of regions in Lacoste's mark are organized in a way that allows us to interpret them as something more than a jumble of shapes. For example, there are no regions specified on the outside of the demarcation between the black 'crocodile' figure and the white 'ground. Everything in the image is in a sense 'contained' within it.

Moreover, the interior region of the demarcation is divided into distinct sub-regions above the figure-ground level of the individual white spots of the skin. There is a higher density of white regions along the crocodile's spine, allowing us to infer a knobbier skin texture in those parts. There are no explicit graphic devices, no dividing line, which inform us that one skin texture ends and

another begins. There is simply a jumble of white regions that are 'relatively' closer together than other regions in the image.

This says that we can discern a level 'L' at which we have the whole structure, a level 'L-2' at which we have individual figure/ground structures and an intermediate level 'L-1' at which the individual figure/ground structures are organized into larger structures that are still sub-structures to the whole.

In the Lacoste crocodile (and indeed in most instances of graphics), two variables organize individual 'L-2' figure-ground relations into larger regional 'L-1' structures.

One is a system of choice, which places an individual region 'inside' or 'outside' *a frame*. In the Lacoste example, the overall black 'figure' serves a framing function for all the parts, which represent different qualities of the crocodile (eyes, mouth, teeth, knobby skin). A frame is always an explicit feature of a given structure and thus it organizes sub-regions according to its interior and exterior in an absolute, objectively observable fashion.

The other system of choice specifies an individual region as 'member' or 'not member' of a *cluster* of regions. Compared with frames, *clusters* are an implicit feature of a given structure. There are no explicit graphic devices that represent *groupness* in the same way as a framing device represents *containedness.* Rather, structural clustering of regions is a result of the relative proximity of elements. It is every bit as real a feature of L-1 structuring of graphic space as framing, only relative and implicit as opposed to absolute and explicit.

7.5.3.1 Framing: Above or below the line?

Neither 'framing' nor 'clustering' has escaped the attention of MSS theory. However, in line with the overall focus of attention of MSS theory, these are typically discussed as *grammatical* features of multimodal texts (and hence from a viewpoint 'above the line in the content plane) that are used to "integrate multimodal resources" (c.f. Baldry and Thibault 2006:4-20). The concept of 'framing' mainly originates from Kress and Van Leeuwen (2006[1996]) whereas 'clustering' is an invention of Baldry and Thibault's (2006).

Both concepts are attempts of analysing the aspect of meaning in multimodal texts which has to do with some elements being marked off as separate in one way or the other while others are marked off as belonging together. The meanings of 'separateness' and 'togetherness' are dialectic, and the writings of both Kress & Van Leeuwen and Baldry & Thibault reflect the fact that from a point of view of meaning it does not make sense to discuss one without the other.

Kress and Van Leeuwen's 'framing' concept takes a 'separateness' stance on interrelative organisation of elements, whereas Baldry and Thibault take a 'togetherness'-stance. But none of the concepts can be explained without mention to the other. Kress and Van Leeuwen introduce and describe their notion of framing thus:

> In spatially integrated compositions it is no different. The elements or groups of elements are either disconnected, marked off from each other, or connected, joined together. And visual framing, too, is a matter of degree: elements of the composition may be strongly or weakly framed. (2006[1996]:203)

According to Kress and Van Leeuwen, framing can be achieved by such diverse means as the use of frame-lines, pictorial framing devices such as the edges of trees and buildings, empty space between elements, discontinuities of colour and so on and so forth. (2006[1996]:204) In a later work, Van Leeuwen reflects on their conclusions thus:

> The significance of this, its semiotic potential, we argued, is that disconnected elements will be read as in some sense separate and independent, perhaps even contrasting units of meaning, whereas connected elements will be read as belonging together in one way or the other, as continuous or complementary, for instance. (Van Leeuwen 2005a:7)

From these two quotes we can infer that 'framing' was indeed conceptualized as a sign with an expression plane of frame lines, discontinuities of colour etc. and a content plane of ´separateness' and 'togetherness'. Interestingly, Kress and Van Leeuwen also indicate "empty space between elements" as a formal resource for instantiating the potentials of 'togetherness' and 'separateness'. In so doing they seem to consider the explicit use of framing devices and the implicit use of empty space to be structurally equivalent, which cannot be true. If the presence and absence of something can cause the same effect, there must be two governing principles at play and hence there must be two systems.

Baldry and Thibault acknowledge this seeming fact in their clustering-concept, which is formally different from framing. As is the case with Kress and Van Leeuwen's framing, clustering comprises both an 'above the line' meaning and 'below the line' formal resources, which becomes apparent from the following quote:

> Our use of the term *cluster* refers to a local grouping of items, in particular, on a printed or web page (but also other texts such as manuscripts, paintings and films). The items in a particular cluster may be visual, verbal and so on and are spatially proximate thereby defining a specific region or subregion of the page as a whole. The items in a cluster are functionally related both to each other and to the whole to which they belong as parts. [...] A cluster is a *locus of inclusion* for a small-scale functional arrangement of items in some larger-scale arrangement [...] Thus, when we use the term *cluster* to define a local grouping of multimodal items which are a part of a larger unit in which they function, our use of the term presupposes that clusters are in some way functionally related to each other. (Baldry and Thibault 2006:31)

In other words, the meaning potential of a cluster is that it is a "locus of inclusion". This is another way of stressing the 'togetherness' of functional elements. The formal resource by which this inclusion is achieved is 'spatial proximity'.[4]

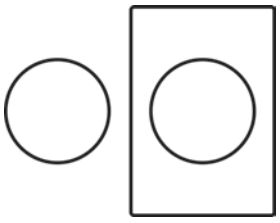
[4] In their book Baldry and Thibault (2006:24) refer to speech and thought bubbles as examples of functional clusters. This indicates that it is necessary to distinguish between functional and formal definitions of 'clusters': Although a speech bubble may indeed be a 'functional cluster', it is formally a 'frame'. In this section I discuss the formal properties of clustering.

Although I fully agree that framing and clustering serve 'above the line' purposes of resource integration in multimodally constituted texts, what I wish to discuss here is their 'below the line' formal aspects. Both the formal strategies behind 'framing' and 'clustering' serve to contrast meanings of 'separateness' and 'togetherness', but they are structurally different, as I noted above. One is absolute and explicit, the other is relative and implicit. The next two sub-sections will discuss the two strategies for the organization of sub-regions of graphic surfaces, respectively.

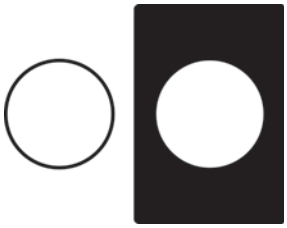
7.5.3.2 Framing

In order for something to be 'framed', there must be an explicit framing device. This device delimits two or more regions of a graphic surface from one another. In the least structurally dense and complex instances of framing, the device contrasts a region that is 'contained' by the frame from a region that is 'not contained', as illustrated in figure 7.34 below. The device itself is an instance of graphic form, and thus has structure on the figure/ground variable. It can either be a bi-variate figure/ground structure (figure 7.34) or a tri-variate figure/interior ground/exterior ground structure (figure 7.35). In the Lacoste-crocodile example, with which I began the discussion of L-1 structuring of sub-regions, the black figure of the crocodile shape is a bi-variate figure/ground structure like the one depicted in figure 7.35. In the other trademark from case No. 4 (the 'DILLE'-crocodile depicted as figure 7.31) a circle frames the crocodile. That particular circle is an example of a tri-variate type framing structure akin with the one depicted as figure 7.34.

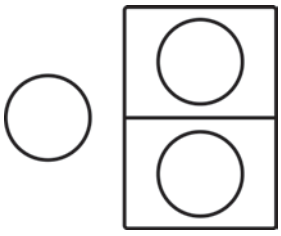
7.34



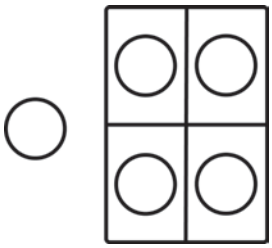
7.35



7.36



7.37



The structural complexity of the framing device is increased if the frame itself is subdivided into sub-regions as in figure 7.36. Depending on the univariate or multivariate two-dimensional magnitude (extent) of the compartments of the

frame, further subdivision increases the density of the framing structure (figure 7.37) but not necessarily the complexity.

The four examples given here (figures 7.34, 7.35, 7.36 and 7.37) are commutations of framing structures in which the formal graphic variables of 'shape' are kept constant. The shape of the level 'L' framing structure is a slightly rounded rectangle, and 'L-1' subdivisions are rectilinear. However, it is important to note that the structural variables of 'shape' apply. A framing device can have any conceivable two-dimensional shape.

The structural variable of framing can inform a forensic examination of several of the cases in the corpus. Contemplate, for example, the two trademarks from case No. 7, *Rolls Royce PLC and Rolls Royce Motorcars LtD. vs. PR Chokolade A/S* depicted as figures 7.38 and 7.39 below: Framing devices with (1) tri-variate figure-ground structures that are (2) subdivided into compartments with (3) multivariate sizes are salient level 'L' elements in both trademarks.

7.38

7.39

Moreover, the two trademarks in the hypothetical case No. 2, *LEGO A/S vs. MEGA Brands, Inc.* are different in their use of level 'L' framing structures. The LEGO mark is framed by a tri-variant figure/ground structure, whereas MEGA is framed by a tri-variant structure. Similarly, in case No. 9, the pelican in Pelikan Vertriebsgesellschaft mbH & Co. KG's mark is framed by a 'L-1' bi-variant figure/ground structure, whereas the pelican in Dainichiseika Colour & Chemicals Mfg. Co. Ltd's is framed by a level 'L' tri-variant figure/ground structure. And in cases Nos. 4 and 10 one mark is framed at level 'L' whereas the other is not.

7.5.3.3 Clustering

In order for two or more structural elements to be 'clustered', they must be close enough relative to their surroundings to be perceived as 'together'. In his article "Writing, Graphology and Visual Semiosis" (2007), Paul Thibault characterises 'nearness or relative distance' like this:

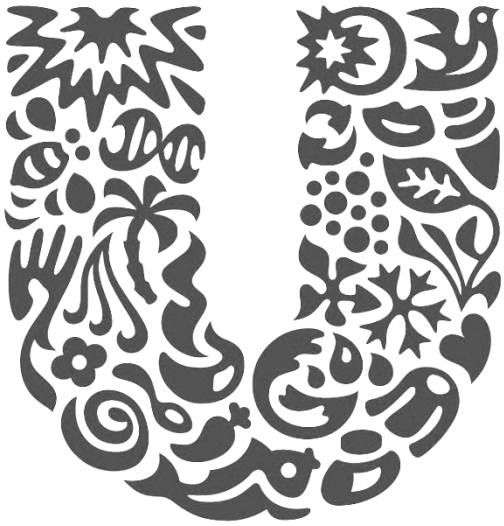
> Elements which are placed near to each other are, generally speaking, perceived as constituting a visual unity as distinct from elements which are placed far apart from each other. (2007:131)

This says that the difference, which makes a difference to whether or not elements are perceived as a cluster, is their relative *distance* (one-dimensional magnitude), or 'proximity'. As I discussed above, clustering is an implicit, relative strategy for delimiting regions of a graphic surface. It is difficult to say when elements are of a relative proximity, which will lead them to be perceived as a cluster. Gestalt theoreticians (e.g. Arnheim 1974:83) have had a lot to say about the conditions required for elements to be perceived as grouped or subdivided, to which I have nothing to add.

Graphic clustering is everywhere. In graphic layouts, hierarchical principles of nested clusters are the main resource for organizing the area of a page or a screen. Think, for example, of a body of typographic material. Individual letters are separated by a bit of space, but are clustered into words because they are closer together than the words themselves. A larger amount of empty space marks off one line from the other and yet more space marks off one paragraph from the next. A hierarchy of distances (or a principle for nesting clusters) is as important for typography as the shapes of the letterforms themselves.

A very illustrative example of nested clustering can be seen in the trademark for Unilever, depicted as figure 7.40.

7.40



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7.46

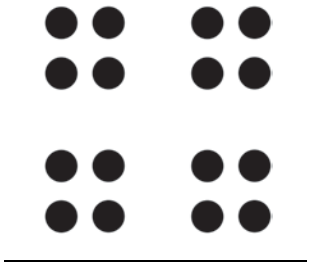
If we take this overall image as level 'L' in a levels analysis and the individual bi-variant figure/ground structures such as the ones depicted as figures 7.41 and 7.44 as our bottom level 'L-3', we can identify two intermediate levels of nested clusters. At 'L-1', the structure is broken down into two clusters. One is the device mark 'U', which I have separated and depicted as figure 7.43. The other is the word mark 'unilever'. At 'L-2' we have clusters within the overall 'L-1' clusters. Examples of 'L-2' clusters can be seen in figures 7.42 and 7.45.

Of course, our ability to distinguish 'L-2' clusters in the unilever-example is heavily dependent on meaning, on our ability to distinguish iconographical representations (figure 7.42) or word-images (figure 7.45). The space between individual 'L-3' figure/ground structures in e.g. the ice cream cone depicted as figure 7.42 is roughly the same as the space, which separates the ice cream cone from the bird, the lips and the orchid in its immediate vicinity. This may indicate that we cannot call an arrangement of shapes such as the ice cream cone an instance of 'below the line' formal clustering (in the particular context of the

overall trademark) but must classify it as 'above the line' functional clustering cf. Baldry and Thibault (2006).

Formal clustering can be subject to a more or less tight structural regimen. In some cases the proximity between bottom level 'elements' of clusters and between intermediate level clusters is univariate as in figure 7.47. In other cases it can be multivariate as in figure 7.48. The main issue in order for 'formal clustering' to be achieved is that a relative hierarchy of distances is established between the elements in the structure.

7.47



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7.50

An illustrative example from the corpus is case No. 6, *Aalborg Industries A/S vs. Intrade Finans A/S (Aalborg Engineering)* (figures 7.49 and 7.50). All other features of their graphic form aside; note the differences in the way the triangles have been rendered. In the trademark for Aalborg Industries, it is rendered as a cluster of circles. In Intrade Finans' trademark, the triangle is a tri-variant figure/ground framing device.

In the past sections I have discussed the first aspect of the structure of graphic space; the variables for subdividing a graphic surface into distinct regions.

The very prerequisite for calling something 'graphic' is that (at least) two regions are identifiable: A figure and a ground. However, as I have shown, there are (at least) two basic structural strategies for subdividing a surface into regions: A bi-variant figure/ground structure and a tri-variant figure/interior ground/exterior ground structure. I have also shown how a structure of regions can be analysed in (at least) three different hierarchical levels. A top level 'L', a bottom level 'L-2' and an intermediate level 'L-1'. At the intermediate level the basic figure/ground structures are organized using 'framing' and 'clustering' strategies.

In the next section I will discuss the other aspect of graphic space, the variables for assigning locations to regions.

7.5.4 Location

Similarly to the formal resources for structuring *regions* of the graphic surface into meanings of 'togetherness' and 'separateness', the formal resources for structuring *locations* into a relatively stable system of meanings have caught the attention of MSS theoreticians. One approach in particular has caught on. In (2006[1996]:177) Kress and Van Leeuwen introduce the concept of 'information value', which they generally describe thus:

> The placement of elements (participants and syntagms that relate them to each other and to the viewer) endows them with the specific informational values attached to the various 'zones' of the image: left and right, top and bottom, centre and margin.

Similar to the discussions of framing and clustering in the MSS paradigm, the conceptions of information value are primarily invested in the 'above the line' potential of what meanings follow from placing elements in a visual text to the 'left' or 'right', in the 'top' or 'bottom' or in the text's 'centre' or 'margin'.

Because of its widespread use in the MSS theory, Kress and Van Leeuwen's concept seems like a good point of departure for this discussion of the formal resources of location. However, it is important to note that in a *graphological theory of the socially contingent organization of graphic form*, the particulars of these 'above the line' meaning potentials need not concern us. They are the topic of other fields of study such as 'grammar' or 'semantics' (which may indeed be far more interesting topics than merely discussing where things can be positioned).

Our concern here is the formal resources of 'location' and their potential for contrasting meaning such as Kress and Van Leeuwen's proposed information values.

For clarity and in order to have a framework for the discussion, I shall briefly outline the meaning potentials of the spatial dimensions proposed by Kress and Van Leeuwen before moving on to discussing the underlying formal structures.

7.5.4.1 Meaning potential in the horizontal dimension

According to Kress and Van Leeuwen, when a picture or layout makes significant use of the horizontal axis as, for example, when the surface is conspicuously divided into left and right zones, these zones endow the information placed in them with meanings to which Kress and Van Leeuwen refer as 'Given' and 'New' (2006[1996]:181) inspired by Halliday's proposed given-new structure in language (e.g. Halliday and Matthiessen 2004:87ff).

> For something to be Given means that it is presented as something the viewer already knows, as a familiar and agreed upon point of departure for the message. For something to be New means that it is presented as something which is not yet known, or perhaps not yet agreed upon by the viewer, hence as something to which the viewer must pay special attention. Broadly speaking, the meaning of New is therefore 'problematic', 'contestable',

> 'the information "at issue"', while the Given is presented as commonsensical, self-evident. (Kress and Van Leeuwen 2006[1996]:181)

Contemplate the print advertisement for Nike's sub-brand for women, which I discussed in section 5.2.1. This is an example of the aforementioned conspicuous use of the horizontal dimension. The surface is divided into two regions by the demarcation of the greyscale athlete from the white background and coloured graphic bamboo-elements. According to Kress and Van Leeuwen's suggestions, the athlete and her particular photorealistic greyscale modality and close cropping is then presented as the 'Given' "familiar and agreed upon point of departure for the message", whereas the linguistically encoded thunder-thigh meaning and bamboo elements with their intense colour is presented as the 'New' information, which is "not yet agreed upon" or "problematic, contestable" or "at issue".

Whether the specific sense of the meanings proposed in Kress and Van Leeuwen's hypothesis is accurate would be an interesting topic of inquiry in the future. It seems intuitively true, however, that the horizontal sequence of elements is indeed meaningful in some way or other, even if it is only as a point of departure for the message in the text.

Kress and Van Leeuwen add that such coding orientations are culturally specific. They note that the sequence of given and new is reversed in, for example, Arabic cultures, in which the sequence of writing is from right to left and conclude that "there is a close similarity between *sequential* information structure in language and *horizontal* structure in visual composition" (ibid.) and that this "[…] attests to the existence of deeper, more abstract coding orientations, which find their expression differently in different semiotic modes" (ibid.).[5]

7.5.4.2 Meaning potential in the vertical dimension

The second spatial dimension, which is potentially meaningful, is the vertical one. Kress and Van Leeuwen suggest that the top and bottom of visual texts have distinctively different meanings. They point to magazine advertisements as a kind of text (2006[1996]:186), which makes especially prominent use of this

[5] Kress and Van Leeuwen seem to imply an explanation of horizontal information value in the sequential structure of language. This raises some issues, because it is unclear what kind of language they refer to: Verbal language or written language. Their original inspiration for 'Given' and 'New' comes from Halliday's work on supra-segmental structure in spoken language (e.g. 1985:274ff). Halliday shows a gradual, wave-like movement from 'before' to 'after' in two 'tone groups' in spoken English sentences. Now, the temporal integration of the structure of Arabic and English along an axis between 'before' and 'after' must be assumed to be the same. Arabs do not speak backwards. However, Kress and Van Leeuwen lend credence for their concept of Given and New in the fact that the sequence of Arabic writing is reverse to that of English, and the fact that comparable visual texts such as corporate websites also arrange the sequence of elements in reverse in their Arabic and English versions. But written language is a visual, spatially integrated kind of text, not an auditive, temporally integrated kind. It seems beyond doubt that Kress and Van Leeuwen are onto something important, but the question is whether or not spoken language and Halliday's concepts of Given and New should be left out of the discussion?

particular resource. In magazine advertisements, the upper part usually visualizes the promise of the product or "[…] the idealized or generalized essence of the information" (Kress and Van Leeuwen 2006[1996]:187), whereas the lower part visualizes the actual product and gives very down-to-earth information about its price and where it can be obtained. They also point to many examples in Western art (e.g. Bruges and Bosch cf. 2006[1996]:192) which parallel heavenly and earthly versions of themes. For this very reason, they have termed the meaning potentials of the upper part 'Ideal' and the lower part 'Real'. Again, the specific sense of the meaning potentials of these zones would make an interesting future study

7.5.4.3 Meaning potential in the radial dimension

The third meaningful spatial dimension is not an 'axis' in the strict sense, but rather a 'radial' as it extends between the centre of an image on the one hand and any point on its periphery or margin on the other. For this reason, Kress and Van Leeuwen have termed the meaningful zones in the radial dimension 'Centre' and 'Margin' (2006[1996]:194). They provide these suggestions for their meaning potentials:

> For something to be presented as Centre means that it is presented as the nucleus of the information to which all of the other elements are in some sense subservient. The margins are these ancillary, dependent elements. In many cases the Margins are identical or at least very similar to each other, so that there is no sense of a division between Given and New and /or Ideal and Real elements among them. (2006[1996]:196)

According to Kress and Van Leeuwen, radial or central composition is uncommon in Western culture. Most compositions polarize meaningful elements along horizontal or vertical axes (ibid.). However, they observe that central composition is important in Asian cultures. One can only guess at the explanation for this difference, but it seems reasonable to hypothesize some connection between these potentially meaningful 'zones' of visual semiotic space and for example culturally dependent directions of reading or other cultural systems, such as religion and philosophy (cf. 2006[1996]:192). Indeed, Kress and Van Leeuwen only give empirical evidence for their categorization of the surface into 'zones' of left, right, top, bottom, centre and margin, and I would have to concede that their interpretations of magazine advertisements, schoolbook illustrations, diagrams and medieval- and renaissance paintings are intuitively convincing.

However, they do not venture any explanation of how the meaning potentials of Given, New, Ideal, Real, Centre and Margin has come about beyond the following statement:

> As we have said in the introduction, we are largely concerned with the description of the visual semiotic of Western cultures. Cultures which have long-established reading directions of a different kind (right to left, or top to bottom) are likely to attach different values to these positions […] In other words, reading directions may be the material instantiations of deeply embedded cultural value systems. Directionality as such, however, is a semiotic resource in all cultures. (2006[1996]:192)

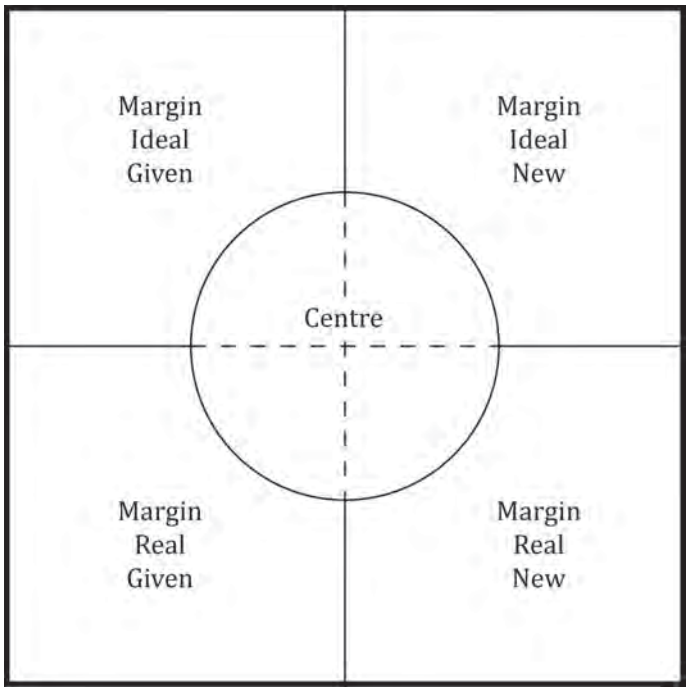
They proceed to observe that all cultures work with these zones in their respective visual communication, but that they assign different meanings and values to them that are homologically related to cultural systems such as religion and philosophy (ibid.).

7.5.4.4 The formal graphic structure of 'location'

From a point of view of formal structure, it is interesting that Kress and Van Leeuwen enumerate six categories in three dimensions: Horizontal (Given (left) vs. New (right)), vertical (Ideal (top) vs. Real (bottom)) and radial (Centre vs. Margin). Whether the meaning potential of these categories is similar enough to warrant equal status in the MSS grammar is a question, which I shall not pursue here. It seems clear, however, that the formal structures underlying these categories are sufficiently different to require some discussion.

If one's ambition is to account for the topological resources for 'location' in two-dimensional space, the three axes implied by Kress and Van Leeuwen seem redundant, because they describe all potential locations in two-dimensional space twice. In the first instance, they describe all possible locations according to their two-dimensional coordinates on horizontal and vertical dimensions. In the second, they describe all possible locations according to the centre and margin of the radial dimension. This results in a schematic representation of the subdivision of space, which is reproduced below as figure 7.51:

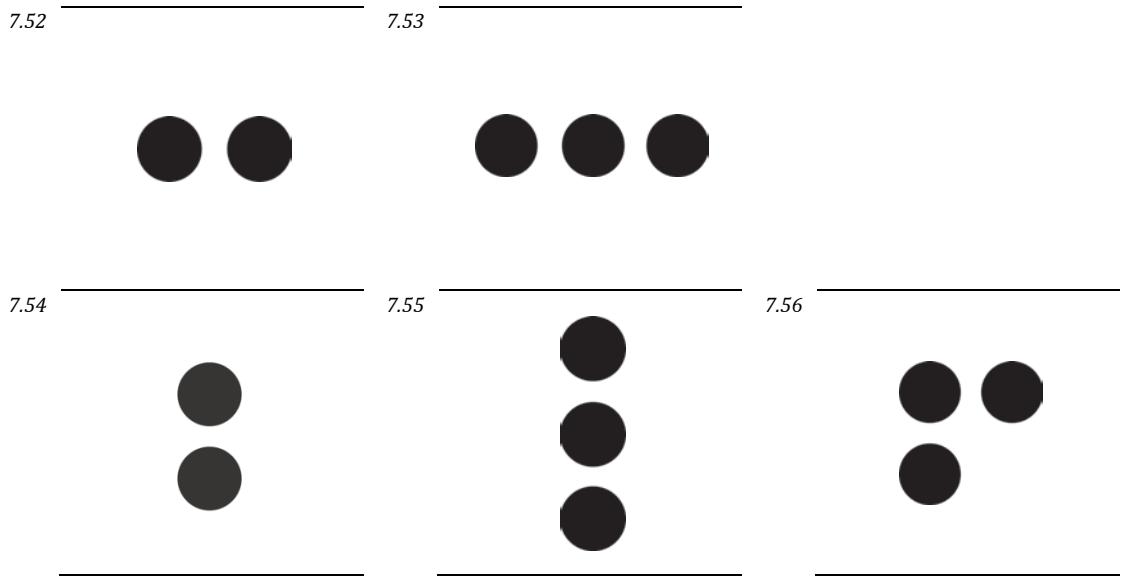
7.51



From a point of view of meaning, the six categories combining into five zones resulting from juxtaposing, axial and radial perspectives may indeed be of analytical relevance, but from a point of view of formal description only one scheme, the axial one with horizontal and vertical oppositions of 'left/right´ and 'up/down', is strictly necessary to specify any possible location of regions or clusters of regions. From that point of view, if we regard the horizontal and vertical axes as a continuum, the centre is simply halfway between 'left' and 'right', 'top' and 'bottom'.[6]

Kress and Van Leeuwen make use of the spatial dimensions of visual texts mainly to analyse the relative location of meaningful elements (e.g. 'participants') in a text. As such, they discuss 'location' as an inter-relative, textual resource. However, the spatial dimensions of location are of course part of the structural make up of regions at all levels, from the text as such over various intermediate levels of clusters to individual figure/ground structures.

As was the case with the structural variables specifying 'regions of graphic space' (figure/ground, framing and clustering), a given 'L+1' structure can be more or less complex and more or less dense on the 'location' variables. It follows from this that two elements (or regions) on opposite poles of either the horizontal (figure 7.52) or the vertical (figure 7.54) continuum constitute a less dense structural instance than three or more elements ordered along one of the axes (Figures 7.53 and 7.55). Furthermore, a structure with elements ordered on both horizontal and vertical dimensions (figure 7.56) is more complex than one, which orders elements along a single dimension.



The simple graphics used in the above examples can be slightly misleading. It is important to understand that the structural variables of top/bottom and left/right are variables that combine into a structural potential. This potential is

[6] Ease of articulation of both axial and radial locations is afforded by graphic software by way of features such as 'align object' and 'distribute object' in the Adobe Suite. These features enable the alignment of objects according to their relative centres or top, bottom, left and right margins.

independent of variables of magnitude such as 'distance' or 'extent'. However, the instantiation of the 'location' variables in a particular graphic structure will necessarily mean simultaneous instantiation of variables of 'magnitude' (as well as variables of 'region' and 'orientation'). In the above example, I have illustrated the organization of horizontal and vertical structures with spatially separate elements. This introduces an element of one-dimensional magnitude (proximity) into the particular structure of this particular example. However, regions organized on the 'location' variables need not be individual 'figures' separated by some measure of 'ground' as in the above examples. Two trademarks from the corpus, those of Boehringer Ingelheim Pharma KG of case No. 5 (figure 7.57) and NBA Properties, Inc. of case No. 12 (figure 7.58) can illustrate this point:

7.57

7.58

In both marks we can observe an 'L-1' inverted bi-variant figure/ground structure. (The structure is inverted because the 'L-1' ground in both marks, on which we recognise the 'L-1' figure, is the figure at level 'L'). In both cases, the 'L-1' ground is divided into two distinct regions contrasted by their difference in colour.[7] Overall, the surfaces of both marks are subdivided into three distinct regions. The point I am making is that the subdivision of Boehringer's mark is organized on the vertical dimension, whereas the horizontal dimension governs the subdivision of NBA's mark as indicated by the arrows in the figures above.

So, how can the variables of 'location' inform a forensic examination of the marks in the corpus? Although there are only 12 cases with a total of 24 marks in the core corpus of this thesis, there is an abundance of examples worthy of scrutiny for their formal use of location in the graphic space of 'left', 'right', 'top' and 'bottom':

The vertical dimension plays a crucial part in the marks of cases No. 1 (Danfoss A/S vs. Dazhou Heli Controls Co. Note the similar locations of word element and swoosh element), No. 3 (Nike, Inc. vs. Li-Ning Company, Inc. Note the difference in the location of swoosh element and word element), No. 5 (Boehringer Ingelheim Pharma KG vs. Decathlon S.A. Note the similarity in location of figure and ground regions), No. 6 (Intrade Finans A/S vs. Aalborg Industries A/S. Note the similar locations of triangle element and word element), No. 7 (Rolls Royce Motorcars Ltd. vs. PR Chokolade A/S. Note the similar location

[7] Strictly speaking, neither region has a colour (hue) but only a shade of grey (brightness).

of the subdivisions of the framing devices and thus the location of framed objects).

The horizontal dimension plays an equally crucial part in the comparison of the marks of cases No. 9 (Pelikan Vertriebsgesellschaft mbH & Co. KG vs. Dainichiseika Colour & Chemicals Mfg. Co. Ltd. Note the fact that Pelikan's mark has two distinct regions organized on the horizontal dimension, whereas Dainichiseika's mark has only one region at the same level), No. 11 (Dansk Supermarked A/S vs. Frederik Tuemand. Note the horizontal organization of word element and picture element), No. 12 (NBA Properties, Inc. vs. Football Sport Mercandise S.p.A. Note the similar locations of figure and ground regions).

7.5.5 Orientation

I have chosen to call the third overall aspect of graphic space 'orientation'. It has to do with the fact that (i) a given region (ii) in which all other formal graphic resources are kept invariant (iii) can have different orientations with regard to overall graphic space and (iv) that a difference in orientation will cause the shape of the (ideally) limitless surroundings (cf. section 7.5.2.2) to be different as well. More simply put, a given shape can be rotated.

This may seem trivial, but orientation is an important formal resource, which can contrast for example 'experiential meaning potentials' (cf. section 6.7). Moreover, differences in 'orientation' do have some interesting topological consequences, which warrant a bit of discussion.

Again, anticipating the discussion of 'shape' let us take a simple graphological structure as our point of departure. Figures 7.59 and 7.60 below depict two black squares. Structurally, they are similar in every respect save one: Their orientation. The internal structure of the region, which we know as 'figure', is identical in both instances. They both have a bi-variate figure/ground structure and all aspects of their magnitude, their extent and their internal distances, are identical.

7.59

7.60

These two squares illustrate the point with which I began this section. That 'orientation' is a variable, which affects two structural features of graphic form. Besides structuring (i) the orientation of a given region, it structures (ii) the shape of that region's surroundings. In the next two sub-sections, I will discuss these two formal aspects of the way 'orientation' structures graphic space (sections 7.5.1 and 7.5.2) as well as some of the ways, in which it can be distinctive of meanings (7.5.3).

7.5.5.1 The formal graphic structure of 'orientation'

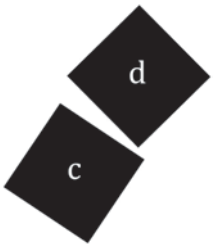
A thing in and of itself cannot have an orientation. The very fact that something is 'orientated' presupposes the fact that it is oriented to something other than itself. As such, like location, 'orientation' is a topological generalization of an aspect of something's place in the world. The two squares in the example above are oriented in relation to towards each other in a local system of values (as well as the systemic potential of any other orientation of that particular invariant structure) and in relation to their material surroundings.

Thus, a graphic structure of 'orientation' must always be constituted by 'that, which is oriented' and 'that, which orients'. In the two figures above, 'the oriented object' is a square. What 'orients' them is features of the surrounding graphic structure.[8] Those features can be explicit, part of the same overall graphic structure, or implicit, part of the (ideally) infinite surrounding 'ground' region.

Let us do away with the *explicit features* of surrounding graphic structure, which can orient an element, before turning to the immensely trickier *implicit features*. In figure 7.61 below I have juxtaposed the two squares from above[9] and labelled them 'a' and 'b' in order to illustrate the hypothesis that each is oriented by the other. We have already established that 'a' and 'b' are individual regions with identical internal structure. As individuals they only differ on the orientation variable. The fact that we perceive 'a' and 'b' as different on the orientation variable is due to a relational feature of the larger graphic structure, or cluster, of which they are both a part.

7.61

7.62



Testimonial to this fact is figure 7.62, which is a commutation of the same cluster. In this figure the orientation of the entire cluster has been changed. Crucially, however, the internal structure of the cluster in terms of the relative location, relative orientation, and relative magnitude as well as the

[8] Of course, as I have mentioned earlier, my general point of observation is that structure is in the eye of the beholder. Thus, that which orients the two squares is of course ultimately the perceiver. But the perception of orientation is afforded by the features in the structure, which surrounds the oriented structure.

[9] Note that I have chosen not to use the usual horizontal framing lines above and below the figures in this example. This is due to the fact that the relative distance between the framing lines and the figures makes them prone to be perceived as part of the overall graphic structure of the examples. Thus, they become part of the explicit structure which orients the squares. This causes the clarity of the commutation to decrease. Simply put, they cause the constellation of 'c' and 'd' to be perceived as "more tilted" than 'a' and 'b'.

figure/ground structure of the elements is kept invariate (the reader is required to graciously disregard the labelling of the figures as part of the structure). Thus, the relative orientations of 'c' and 'd' are not necessarily perceived as different from the relative orientations of 'a' and 'b', although objectively (or rather, in relation to the implicit, ideally infinite graphic space) the orientations and locations of 'a' and 'b' in figure 7.61 and 'c' and 'd' in figure 7.62 are all different.

This touches upon the much trickier question of 'implicit' features of surrounding graphic structure, which can orient a region. In order to fully appreciate this quality of formal graphic structure, I must invoke the discussion in section 7.4.2.2 of the ideal topology in which the ground, on which the trademark appears, extends infinitely in every direction away from the figure. Any trademark, or indeed any instance of graphics, will always appear as a distinct region of some kind of surface, whether a computer screen, a van, a business card, an aeroplane fuselage etc. However, at this point it is important to distinguish between the ideal, infinite 'ground' of the trademark 'type' and the delimited 'ground' of the material token of the trademark as it appears on various surfaces.

This discussion of implicit features, which orient a graphic structure, is due to one case in the corpus in particular. It is the hypothetical case No. 1, *Danfoss A/S vs. Dazhou Heli Controls Co. Ltd.,* the marks of which are depicted as figures 7.63 and 7.64 below.

7.63

7.63

7.65

Evidently the overall graphic structure of both marks has an orientation, which I would estimate at averagely 6° counter-clockwise to the horizontal axis. I have reached this estimate by assessing the angle between (i) the (implicit) horizontal axis of the graphic structure (the solid line in figure 7.65) and (ii) the (equally

implicit) base line and x-height of the typographical elements as well as an estimate direction of the swoosh-element (the dashed lines).

I do not necessarily believe such absolute measures to be strictly required in order to discuss the orientation variable, but in the specific case, where no features of the overall graphic structure explicitly orient the regions in question, I deemed it necessary to establish some tangible way of discussing it.

The point I am getting at is that the Danfoss and Dazhou trademarks are consistently used with these specific orientations. In fact, the corporate standard regulating the sanctioned use of the Danfoss A/S trademark[10] stipulates this specific orientation. In other words, the orientation - albeit implicitly - structured must be intentional and purposeful. What it means is a different question altogether. It has been suggested in corporate print material that the specific orientation of the Danfoss trademark symbolizes 'ascent'. Personally, I would prefer a graphetic interpretation of the orientation, which entails that, by way of convention, the orientation is a trace of a manual act of articulation restricted by the ergonomics of the body. Hence, the counter clockwise orientation (or upward slant) is economical in handwriting cf. chapter 6.

In many cases of graphics, where the orientation variable is used to make a communicative difference, the difference will be an explicit part of the overall graphic structure. This makes good sense from a functional point of view of design, because there are no guarantees that a particular token of a trademark will be mounted exactly in the way it was intended by the performer. By making the orientation of regions an explicit part of the overall graphic structure, an error in the orientation of the token (an improperly mounted sticker, an error during print and assembly of a brochure) has less of an impact on the meaning of the orientation. For example, the structure of the hypothetical trademark for 'Square' depicted as figure 7.66 has sufficient explicit features on the orientation variable to afford equivalent meaning regardless of how the mark as such is rotated (figures 7.67 and 7.68).

7.66

7.67

7.68

[10] This is "Danfoss A/S Corporate Standard No. 500B0535", which is available at www.designkit.danfoss.com.

7.5.5.2 Orientation affects the shape of the ground

Besides structuring the orientation of a given region, the 'orientation' variable structures the shape of the ground surrounding that region. Contemplate the commutations depicted below.

7.69

7.70

7.71

7.72

7.73

Once again, the example takes Rubin's famous vase (figure 7.69) as its point of departure . In the next example (figure 7.70), the magnitudes of both the white 'vase' region and the surrounding black 'box with faces' region are kept invariant, but the relative orientation of the regions is altered. Note, how the shape of the black regions in figures 7.69 and 7.70 are distinctly different. As a final emphasis of that point, in figure 7.71 I have changed the locations and orientations of the two distinct black shapes from 7.70 in order to disrupt the ambiguous figure/ground relation of Rubin's example and show the black shapes resulting from the first commutation "as they really are".

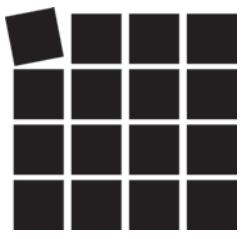
It follows that; (i) assuming an ideally limitless, topological ground for the graphic structure, (ii) if a change of orientation of one region in a dense figure/ground structure such as the one displayed above causes the shape of the surroundings to change, then (iii) a change in a less dense figure/ground structure will also cause a change in the shape of the surroundings. In other words, the orientation of a given graphic structure changes the shape of the ideally limitless ground of the trademark (figures 7.72 and 7.73).

7.5.5.3 The meaning potential of 'orientation'

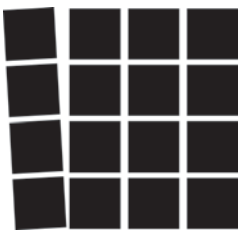
So how can orientations be distinctive of meaning? First, it must be assumed that if a difference in orientation is sufficiently significant to be perceived as purposeful, it is a communicative difference.[11] In all the examples above, the respective orientations ought to suffice to give an impression of communicative purpose. The same must be assumed to be true of the Danfoss A/S and Dazhou Heli Controls Co. Ltd. trademarks. The precise nature of that difference in meaning is unclear and likely to be highly context sensitive. In the case of the Danfoss and Dazhou marks, I have suggested that the slight counter-clockwise orientation is suggestive of an 'ideational meaning potential'. It is (a convention of) a trace of a manual act of articulation.

Moreover, as is the case with most of the structural variables discussed here, orientation must be assumed to be potentially distinctive of meaning in all three metafunctions: ideational, interpersonal and textual, perhaps even simultaneously. In some contexts, 'orientation' could probably be said to evoke interpersonal meanings of modality and in others, particularly if the orientation is contrasted to the orientation of other regions, the difference could have quite a "literal" meaning akin to 'tilted' (as opposed to 'level'). Contemplate the three examples below, which I also discussed in the section about 'structural contrast' (7.3.3). Here, I have subjected various parts of the overall structure (or indeed the entire structure in figure 7.76) to differences in orientation. In figures 7.74 and 7.75, the difference causes structural contrast, which is distinctive of the textual salience of those specific parts. I would also argue that in 7.74 and 7.75 the specific orientation is distinctive of ideational meaning, because the contrasted part of the structure could be interpreted as falling away from the rest. However, the structure is not sufficiently specified as to be unequivocal. In 7.76, the orientation is not an explicit feature of relations between regions but rather an implicit feature of the whole structure in relation to its surroundings. I would argue that the lack of contrast between elements lends the meaning of the orientation to the entire structure thus placing it in the realm of interpersonal modality.

7.74



7.75



7.76

[11] For example, from a micro-structural point of view, no matter how much care and effort is put into it, there are probably hardly two tiles on a bathroom wall with exactly the same orientation. Yet from a macro-structural point of view, the difference is not significant enough to be perceived as intentional. Thus, sloppy tile work can be a sign of many things, such as bad craftsmanship, but not necessarily a communicative sign.

7.5.5.4 The challenge of represented depth

The final aspect of graphic space, which I find cause to discuss here, does not really belong in this thesis. It pertains to *representations of space* rather than actual *graphetic surfaces* and *graphological space* as I have discussed it so far.

Graphetic *surfaces*, on which graphetic acts of articulation are performed, are flat. James Gibson refers to them in his ecological theory of perception as surfaces of either *objects* (e.g. a cup, a van, a building) or *sheets* (e.g. a sheet of paper or cardboard, a piece of woven material) (Gibson 1986[1979]:133). The ecological environment, which includes surfaces on which graphic traces are made, affords 'closeness' and 'distance'. Something beneficial or dangerous can be close or far away. This aspect of the environment has been analytically generalized as the third dimension, the ´depth-dimension', in plane geometry.
Graphological *space* is two-dimensional. It affords not only representation of spatial relations of left and right and up and down, but also the actual specification of regions on those variables. Graphological space, however, does not afford the actual specification of depth of closeness and farness (albeit three-dimensional graphics in "virtual reality" open up a can of worms as far as this point is concerned. This, however, is a discussion, which must be conducted elsewhere). In graphics, depth must be 'represented'.
Many accounts of visual perception find cause to discuss represented aspects of space alongside discussions of actual space, because there are artificial conditions under which some kind of perception of depth (or 'closeness' as opposed to 'far-away-ness') evidently occurs. Artificial perspective is one such condition (Koffka 1935:79ff, 280ff; Arnheim 1974:258ff, 283ff; Gibson 1986[1979]:283ff), representations of overlapping planes is a second (Koffka 1935:163, 274; Arnheim 1974:120ff, 223, 248), representations of transparency a third (Arnheim 1974:253ff). I have chosen to remark on it in spite of three facts:

- My focus of attention is on performance rather than interpretation, on articulation rather than perception.
- This thesis is a semiotic endeavour rather than a psychological one.
- My focus of attention is on the expression plane rather than on the content plane. I pursue this focus through a diachronic approach to *graphetics* and a synchronic approach to *graphology.*

However, this semiotic and articulation-oriented point of view is constantly challenged by the following circumstances:

The particular forensic context of application for this endeavour calls for explanatory adequacy rather than mere descriptive adequacy. In recognition of the fact, that explanatory adequacy is beyond the scope of the present project, it is my ambition to at least be able to qualify my descriptive categories beyond 'merely' validating them empirically. I have developed a theory of graphetics in order to support the validity of these categories. Pivotal to the theory of graphetics is the concept of 'the articulative event'. However, I assume every act of articulation to be a simultaneous act of perception (Moreover, it can be argued that every act of perception is also a mimetic act of articulation cf. Kress 2010:76; Wulf 2005). Moreover, I assume semiosis to be psychologically real.

Taking artificial perspective as exemplary illustration of all the resources for representation of depth, consider the example depicted as figure 7.77 below. Evidently, an impression of depth is achieved in this picture. We can graphologically describe what has caused us to have this impression: The relative orientations and locations of specific regions (the shadows cast by the trees), as well as their contrast in magnitude (that they get thinner), cause lines to converge in a vanishing point.

However, the very concept of 'the vanishing point', which structures artificial perspective, is not a graphological concept. I would argue, that to the extent that it is a communicative concept, it belongs 'above the line'. As such it touches upon issues of iconicity that go far beyond the topic of graphic style, which is our primary concern here.

7.77

7.6 Form

In the past section, I discussed the spatial variables, which structure the various regions of a graphic surface in terms of their relative 'magnitude', 'location' and 'orientation', as well as their affiliation to clusters or frames. In this section, I shall discuss the second overall category of structural variables, which are very different from those of 'space'. The topic of this section has to do with the fact that a spatially structured region always has a particular appearance. It looks in a certain way in terms of its particular 'shape', the way that shape is rendered, or 'enshapened', as well as the way it is coloured. I have chosen to discuss these variables under the heading of "form".

As soon as a discussion of form is attempted (not to mention a discussion of the meaning potential of form), the proverbial can of worms is opened. Testimony to this fact is the colossal body of literature, which seeks to explain how certain visual forms come to represent real world objects from as diverse theoretical paradigms as neurology (e.g. Ramachandran and Herstein 1999), psychology (e.g. Koffka 1935; Arnheim 1974; Gibson 1986[1979]), anthropology (e.g. Levi-Strauss 1983), semiotics (e.g. Eco 1971, 1978; Sonesson 1989; Le groupe μ 1992) and the history of art (e.g. Panofsky 1939; Gombrich 2002[1959]).

For our current purposes, I can only observe that there are certain invariant properties of objects in the world, the representation of which has given rise to such theoretical concepts as 'schemata' in some branches of psychology (as discussed in e.g. Gombrich 2000[1959]), 'structural skeletons' (e.g. Arnheim 1974) in others, and 'visual type' in pictorial semiotics (e.g. Le groupe μ 1992). I am of course speaking of the different modes of reference between a sign and its object and, crucially, the question of 'iconicity'.

The full extent of the complexities arising from probing such fields of inquiry seems abysmal. However, if we hold tightly onto the forensic objective of this thesis, we may dare a quick look into the depths. It seems to be possible to discuss for example 'shape' from various points of view. A distinction between two such aspects of 'shape' is expressed very clearly by Rudolf Arnheim, who writes:

> Although the visual shape of an object is largely determined by its outer boundaries, the boundaries cannot be said to *be* the shape [...] We conclude that in speaking of "shape" we refer to two different properties of visual objects: (1) the actual boundaries produced by the artist: the lines, masses, volumes, and (2) the *structural skeleton* created in perception by these material shapes but rarely coinciding with them. (Arnheim 1974:92ff, my italics)

This says that for our purposes of forensic investigation, we are primarily concerned with the 'below the line' "actual boundaries produced by the artist" over the 'above the line' "structural skeleton[s] created in perception by these material shapes".

Although we must brush upon the relationship between the different aspects of shape every once in a while in the following sections, it is not their

primary topic. For the purpose of forensic examination I am less interested in the fundamental question of how a shape can represent ideational meanings, such as 'dog', 'pelican', 'crocodile' or 'mountain range', and far more interested in different interpersonal ways of representing these ideational meanings, as well as the circumstances under which two similar shapes can be seen to be different and conversely, how two different shapes can be seen to be alike. I am fully aware that by dealing with such an important aspect of shape this way, I am doing a great injustice to an important field of study, the impact of which on this very inquiry I should like to examine in the future.

In the next sub-sections I shall discuss the formal resources of 'shape' as "the actual boundaries produced by the artist" (and subsequently also the actual boundaries encountered by the perceiver) and propose a very simple scheme for analysing graphic shape derived from James Gibson's "nomenclature for surface layout" (1986[1979]:33). This is the topic of section 7.6.1.

In section 7.6.2, I shall build on that analytical scheme and discuss the various ways in which a given region, thus shaped, can in turn be stylistically rendered. This may seem trivial compared with shape itself, but as I shall demonstrate, the rendition of a shape must be assumed to have significant impact on whether it is likely to be confused with others. Finally, in section 7.6.3, I shall build colour into the system as well.

7.6.1 Graphic shape

A given graphic structure must always have a shape. There can be no such thing as a shapeless region of graphic structure – even if the boundaries between the shape and its surroundings are a matter of topological degree rather than a matter of typological kind (c.f. my discussion of Lemke's distinction between topological and typological strategies for meaning making in section 3.3.2). But what is 'shape' anyway? Francis Ching, Professor Emeritus of architecture at the University of Washington, states one definition of shape, which seems representative of most people's conception of the phenomenon:

> Shape refers to the characteristic outline of a plane figure or the surface configuration of a volumetric form. It is the primary means by which we recognize, identify and categorize particular figures and forms (1996:36).

I will argue that – given that one's point of departure is 'the structural variables of shape' rather than 'the instantiated structure of shape' (or, to put it in more typical social semiotic terms, paradigmatic systems of choice rather than syntagmatic structures) – any instance of graphic shape can be analysed with a surprisingly small number of variables.

In this sub-section I shall propose such an analytical scheme, for which I have largely been inspired by James Gibson's "nomenclature for surface lay-out" (1986[1979]) and the choices built into the tools for articulating shape in graphic software applications such as Adobe Illustrator (cf. my discussion of the affordances of synthesizing technologies in section 6.6.2). I shall first briefly introduce Gibson's scheme and the choices made available in software

applications before describing the structural variables of 'shape' as I have come to understand them as well as discuss their potential for distinguishing meaning.

7.6.1.1 Gibson's surface layout and synthetic tools

In *The Ecological Approach to Visual Perception* James Gibson takes an explicitly ecological point of view on what he refers to as 'surface layout'. Surface layout, he argues, has to do with what an animal perceives in its environment and which affects its behaviour. It has a relatively close equivalent in the 'planes' and 'space' of geometry, but ecological surfaces and geometrical planes are fundamentally different:

> The world of physical reality does not consist of meaningful things. The world of ecological reality, as I have been trying to describe it, does. If what we perceived were the entities of physics and mathematics, meanings would have to be imposed on them. But if what we perceive are the entities of environmental science, their meanings can be discovered. (1986[1979]:33).

In section 6.3, I introduced Gibson's nine ecological laws, which, as you may recall, stipulate that all 'substances' have 'surfaces' that delimit them from the medium and that substances have various qualities such as softness or brittleness that afford specific ways of interaction with them. These laws give rise to Gibson's classification of surfaces as, for example, 'luminous' vs. 'illuminated', 'sheets' vs. 'volumes', or as 'opaque' vs. 'translucent' etc.

The 'nomenclature of surface layout' is "[…] a sort of applied geometry" of surfaces "that is appropriate for the study of perception and behaviour" (ibid.). According to Gibson's tentative analytical scheme, the surfaces of substances in our environment must be understood on the basis of the notion that – literally – the environment has a ground (the surface of the Earth). All other surface layouts relate somehow to that feature of the environment. Having said that, according to Gibson surface layouts can be analysed in terms of (see (1986[1979]:33ff):

Open environments and enclosures: To Gibson, the distinction between open environments and enclosures is the difference between whether the perceiving animal is out in the open, surrounded by the medium, or is surrounded by a surface layout such as the wall of a building or cave. Most enclosures will be *partial enclosures* with some kind of opening to the outside (a door or the mouth of a cave).

Places: To Gibson, a place is simply a location in the environment. It is contrasted to its nearest equivalent, which is a point in geometrical space. Where a point in space must be located with reference to a coordinate system, a place in an environment can be located by reference to its inclusion in a larger space. The habitat of an animal is made up of places; places for eating, sleeping, working, relaxing etc.

Attached- or detached objects: This is the difference between whether a feature of surface layout is entirely surrounded by the medium or can be moved

without rupturing a surface. A cup on a table is a detached object. A tree in the ground is an attached object.

Hollow objects: These are objects when perceived from the outside and enclosures from the inside. A car is a hollow object.

Sheets: A sheet is an object consisting of two parallel surfaces, close to each other relative to their other aspects of magnitude, that enclose a substance. A piece of paper or fabric is a sheet.

Fissures: A fissure consists of two parallel surfaces, close to each other relative to their other magnitudes, which enclose the medium.

Sticks: A stick is an elongated object.

Fibres: A fibre is an elongated object of particularly small diameter such as a piece of string or wire.

Convex- and concave dihedrals: In geometry, a dihedral is the intersection of two planes. However, in Gibson's nomenclature of surface layout, a dihedral is the junction of two surfaces in an environment. Convex dihedrals are protrusions and tend to enclose a substance and make an *edge*. Conversely, concave dihedrals are intrusions that enclose the medium and make a *corner.*

Curved convexities and curved concavities: A curved convexity is a protrusion, which tends to enclose a substance. Conversely, a curved concavity is an intrusion, which tends to enclose the medium.

Out of all the aspects of surface layouts suggested by Gibson only the latter are of direct interest for this undertaking; the distinctions between *convex*- and *concave dihedrals* on the one hand and *convex*- and *concave curves* on the other. Those particular aspects of surface are a likely starting point for developing a descriptive inventory of structural variables of 'shape'.

On close scrutiny we can discern two structural variables in those aspects of surface layout. On the one hand we have the structural distinction between 'round' and 'angular', or in Gibson's terms, between 'dihedral' and 'curve'. On the other hand we have the distinction between 'protrusion' and 'intrusion', or 'convex' and 'concave' in Gibson's terms.

The rest of the nomenclature may indeed be of relevance to a theory of articulatory graphetics, but it falls beyond the scope of a theory of graphology. As I discussed in chapter 6, in a theory of articulatory graphetics it is relevant to account for the particular surface layouts of 'detached objects in the environment of the performer' such as pens, pencils, crayons and pointing devices for computers. In a theory of graphology, however, only the layout of the graphic text is relevant. A graphological object is not the sum total of the visually perceived environment; rather, it is a very specific subset of it. Out of all the potential surface layouts in the visually perceived environment outlined by Gibson, we only need to account for the surfaces that – through an act of articulation – have been treated so that different qualities of light are reflected from discrete regions of the surface, thus constituting (graphic) information. Gibson himself comments on the particular nature of these particular surfaces, to which he refers as "pictures" (1986[1979]:270ff), in this way:

> A picture is both a surface in its own right and a display of information about something else. The viewer cannot help but see both, yet this is a paradox, for the two kinds of

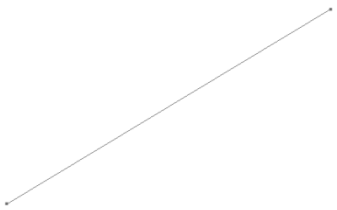
> awareness are discrepant. We distinguish between the surface *of* the picture and the surfaces *in* the picture (1986[1979]:282).

Structural distinctions, which are remarkably similar to the distinctions proposed by Gibson, can be found in contemporary digital tools for articulating graphic shape, such as Adobe's Illustrator application. As I discussed in section 6.8.1, an inventory of only a handful of structural variables (or kinds of 'points of interaction' depending on one's synchronic or diachronic point of view) makes it possible to articulate any graphic shape in spite of the seemingly infinite potential of 'shape'.

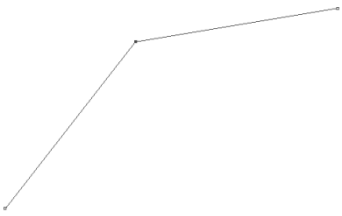
Figure 7.78 below depicts the control palette 'shape' in Adobe Illustrator CS4. The palette consists of four different tools: (From the left) (1) "Pen tool", which enables the performer to place anchor points anywhere on the surface, (2) "Add anchor point tool" which enables the performer to add an anchor point to an existing shape, (3) "Remove anchor point tool", which enables a performer to remove existing anchor points, and – crucially – (4) "Convert anchor point tool", which enables a performer to change the state of an anchor point from a conventional point at which two lines intersect resulting in an angle to a Bezier-curve and vice versa.

7.78

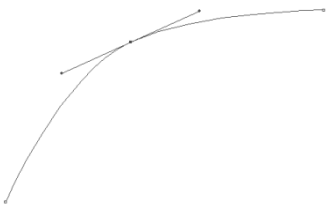
7.79



7.80



7.81



The three simple steps depicted as figures 7.79, 7.80 and 7.81 illustrate the versatility of the tools in the palette. In figure 7.79 I have simply placed two anchor points on a surface using the "Pen tool", which results in the depicted

straight line. In figure 7.80, I have added a single anchor point using the "Add anchor point tool" and moved it off the original line. Note that the result is two straight lines joined at an angle. In figure 7.81 I have used the "Convert anchor point tool" to change the state of the anchor point added in 7.80 from an angle to a Bezier-curve.

At any given time the performer can add or delete anchor points - thus altering the density (or number of structural occurrences) of the graphic structure, or change their state between angular point and Bezier-curve – thus altering the structural complexity (or number of structural variants). Furthermore, the performer can move the position of anchor points at any given time.

Taking cues from Gibson's nomenclature of surface layout and the choices potential built into digital tools for graphic articulation, I suggest that graphic shape can be analysed in terms of 'straight' versus 'not straight', 'round' versus 'angular', and 'intrusion' versus 'protrusion'. In the next subsections I shall briefly discuss each variable.

7.6.1.2 Straight versus un-straight

The first structural variable of 'shape', which I wish to discuss here, pertains to the property of *straightness* and its contradiction, *un-straightness*. From the most general level of delicacy, structural features of graphic shape can be analysed in those terms.

'Straightness' and 'un-straightness' are structurally different in terms of the number of spatial dimensions they extend over. As an autonomous structural feature (isolated from spatial variables of magnitude, location and orientation), 'straightness' can be conceived of as a spatially one-dimensional, structural phenomenon. It has only a one-dimensional extent (length). 'Un-straightness', on the other hand, always has a spatially two-dimensional extent.

It is important to emphasize that a particular instance of graphic structure will always be two-dimensional. Thus, a particular instance of 'straightness' in e.g. a line segment or a part of a shape will of course simultaneously be an instance of figure/ground structure as well as of location and orientation, all of which are two-dimensional structural properties. But straightness as an isolated structural choice is one-dimensional. Its opposition, un-straightness, is two-dimensional.

At this most general level of delicacy there can be no other kind of property of graphic shape. A feature of shape is either one-dimensionally straight or two-dimensionally un-straight. Granted, the vast majority of naturally occurring shape in the world is probably of the un-straight variety, but I am arguing that these two categories – at a very general level of descriptive delicacy – can exhaustively account for any instance of shape in the world.

7.6.1.3 Un-straight: Curve versus angle

The second structural variable of graphic 'shape' I wish to propose pertains to the property of *un-straightness*. If a feature of graphic shape is 'un-straight', the next level of delicacy yields only two possible contrary choices. It must be either 'curved' or 'angular'.

Curvature and angularity are also structurally very different. A 'curve' is in itself *a single feature* of graphic shape whereas an 'angle' is *a junction of two features*. A different way of putting it is that a curve is a variation whereas an angle is an alternation. Thus, two curves can be joined at an angle. Two angles, however, cannot be joined at angles, curves or otherwise.

Of course, should one choose to pursue the description of angles and curves in increasing degrees of delicacy, one would have to face an infinite formal potential of more or less acute angles and increasing or decreasing curves. However, for the purpose of forensic analysis I do not find such scrutiny to be particularly helpful. More often than not, an overall sense of 'curvatiousness' or 'angularity' seems to be a deciding factor.

7.6.1.4 Concave versus convex

The third structural variable of graphic 'shape' pertains to the contrary properties of 'concavity' and 'convexity'. This variable has a different status than straight/un-straight and curved/angular because, to a greater extent than the others, it exists on the eye of the beholder. As we shall see in the next sub-section, both 'straightness', 'curvatiousness' and 'angularity' are relative properties. However, this seems to be especially true of 'concavity' and 'convexity'.

In his nomenclature for surface layout, Gibson describes 'convexity' as a surface, which "[…] tends to enclose a substance […]" (1986[1979]:35), and a 'concavity as a surface, "[…] which tends to enclose the medium […]" (ibid.). This definition is problematic when we try to apply it to graphic form. In Gibson's theory, the definitions are dependent on the distinction between 'substance' and 'medium', which are unequivocal, absolute terms. There is no ambiguity there. However, the closest equivalents we have to 'substance' and 'medium' in graphic form is 'figure' and 'ground'. But, as we have already discussed in section 7.4.2.2, graphic figure/ground structures can be ambivalent and they can have different structural complexity (cf. bi-variate and tri-variate figure/ground structure). Therefore, a mere substitution of 'substance' with 'figure', and 'medium' with 'ground' in the definitions of graphic 'concave' and 'convex' does not work: The resulting definition may indeed meet necessary conditions, but will fail to meet adequate conditions.

In other words, in graphic form, *concavity* can indeed be a feature of shape, which tends to enclose 'the ground'. And convexity can indeed be a feature, which tends to enclose 'the figure'. But as figures 7.82 and 7.83 (next page) demonstrate, these definitions fail in the case of tri-variant figure/exterior ground/interior ground-structure. In figure 7.82 I have produced a concavity,

which affects both exterior ground and interior ground. The concavity in figure 7.83 has identical impact on the exterior ground but no impact on the interior ground.

Moreover, figures 7.84 and 7.85 are testament to the fact that shapes can be 'open' as well as 'closed'. Both have the similar curvatious features of shape, but in figure 7.84 it seems likely to be a 'concavity' whereas in figure 7.85 it seems merely to be a curve. This means that, in order for an un-straight feature of graphic shape to be perceived as a concavity or convexity rather than merely an un-straight feature, it must evoke the notion that somehow it intrudes or protrudes a delimited region, whether open or closed.

7.82

7.83

7.84

7.85

7.6.1.5 The analysis of 'shape'

We now have a very simple analytical scheme for graphic shape. At the level of delicacy, which I am suggesting to be adequate for forensic analysis, we can break any instance of graphic shape down to these choices: 'Straight' vs. 'un-straight', 'curved' versus 'angular' and 'concave' versus 'convex'.

For figure 7.86 (next page), I have produced an instance of graphic shape and labelled the features of this shape according to the suggested analytical scheme. The shape is ideationally open to interpretation by intent. Should it establish any relation to a particular referent either by way of iconicity or symbolism, this is purely coincidental. My focus of attention here is on systemic choice at a very general level of delicacy. If a performer wishes to produce a straight feature of graphic form, he will do so. If he wishes to produce an un-straight feature of shape, he can achieve this with either a curve or an angle.

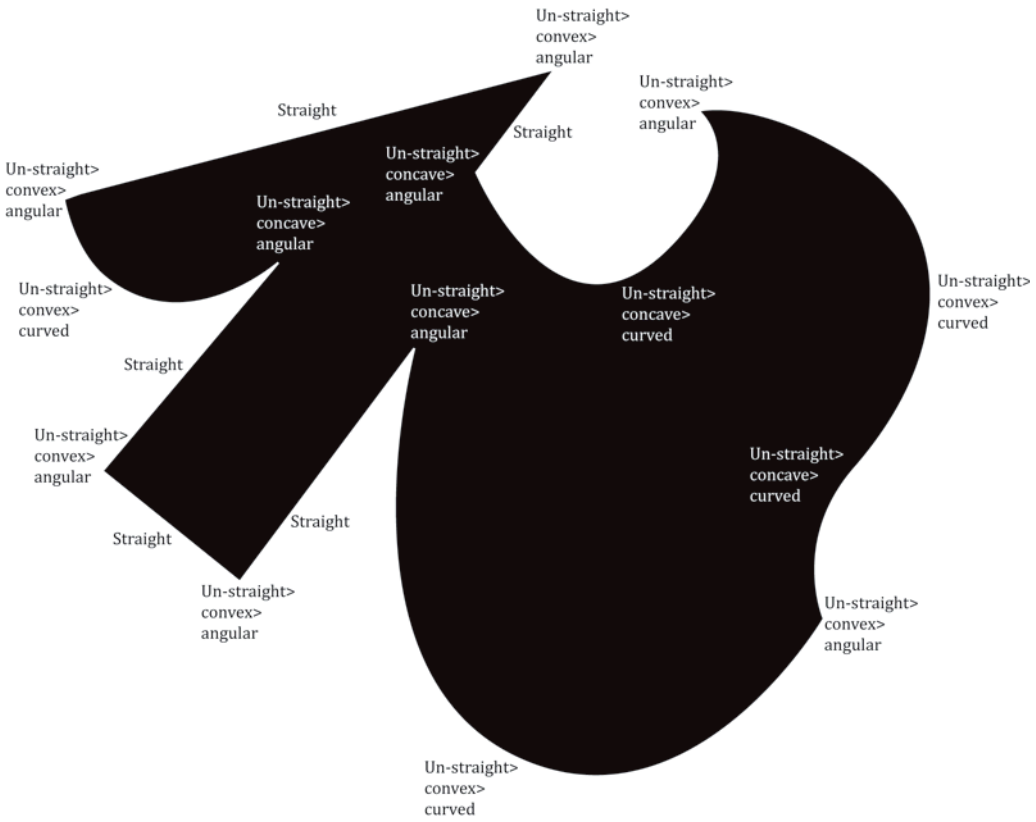
This ties in to my discussion of double articulation in section 4.3.5. The social semiotic tendency to favour systemic choice over structural sequence has become ever more pronounced in MSS theory, probably due to the fact that the typical MSS object of study is not characterized by sequential, typological constituency but rather by simultaneous, topological composition. As I stated in

that section, I find it reasonable to argue that the typical MSS object of study is inherently paradigmatic and that notions of sequential syntax are difficult to justify.

In other words, my aim is not to analyse how certain features of shape combine into something we recognize as, for example, an apple or a specific letterform (albeit shape has that capability), nor to determine and delimit the exact structural constituents of the shape. This also says that I am not attempting to determine exactly where one curve ends and a new one begins. Nor am I interested in determining the radius of a curve or the factor by which it increases or decreases, or the exact degree of acuteness of an angle, for that matter.

Of course, the shape I have chosen for figure 7.86 is quite simple compared to most trademarks (subjecting the 'Unilever' trademark depicted as figure 7.40 to this kind of analysis would seem a daunting task). A full analysis of the shape of many of the trademarks in the corpus would be impractical and would probably not yield sufficient understanding to warrant the effort. However, as we shall see in the next section, this way of analytically discussing shape can be very helpful in understanding graphic style.

7.86



7.6.1.5 The meaning potential of 'shape'

As I have already mentioned, a discussion of the meaning potential of 'shape' brings us perilously close to questions, which have preoccupied pictorial semioticians for the better part of a century. These are questions of e.g. arbitrary and motivated relationships between a particular visual shape and the object it represents.

Furthermore, such discussions inevitably lead to concepts such as 'schemata', 'visual type' or 'structural' skeleton' (cf. the introduction to section 7.5). I am not going to proceed further along such lines of inquiry beyond observing that in MSS theory these questions generally pertain to the ideational metafunction. I am fully aware that I am doing an important field, rich in interest for forensic analysis, a grave injustice in neglecting it. However, should I wish to fully explore the ideational meaning potential of shape, it would require a completely different undertaking than this one. I can only hope to have the opportunity to do so in the future.

What I am going to discuss here is the interpersonal meaning potential of shape. I will discuss how variables of shape can be distinctive of interpersonal meanings of modality by coupling them with the concepts of structural density, structural complexity and structural contrast (cf. section 7.3).

Again, let us contemplate a couple of very simple and light (as opposed to dense) examples as our point of departure for the discussion. Figure 7.87 depicts an ellipsoid. As it happens, it is a circular ellipsoid. However, this is unimportant here because the analysis does not distinguish between circular ellipsoids and eccentric ones at this level of delicacy. The ellipsoid is the structurally simplest and lightest possible shape. It has only a single structural variant on the 'shape' variable; un-straight>convex>curve, and there is only a single occurrence of that variant. Recall that we are not interested in the sequential beginnings and endings of these occurrences.

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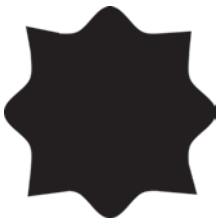

Figure 7.88 depicts a shape, which is ever so slightly more complex and dense. It has two variants, 'un-straight>convex>curve' and 'un-straight>concave>curve'. There are two structural occurrences, one of each variant. The shape in figure 7.89 is similar to figure 7.88 in structural complexity in that it has the same two variants. However, it is denser because there are four structural occurrences; two of each variant. Figure 7.90 is similar to 7.88 and 7.89 in structural complexity because is has the same two variants; 'un-straight>convex>curve' and 'un-straight>concave>curve'. But there it is considerably denser: 16 occurrences in all, 8 of each variant. Figure 7.91 is more complex because it introduces the 'un-straight>convex>angle'-variant. This should suffice to give a general idea of what I am proposing.

Now consider the images depicted as figures 7.92, 7.93 and 7.94. Recall that our concern here is not the particulars of how shape is distinctive of ideational meaning but rather how it is distinctive of interpersonal meaning. This says that we are not interested here in the particular mix of iconicity and symbolism that allows us to recognize the three figures as stylized representations of humanoids.

7.92

7.93

7.94

7.95

Figure 7.92 shows an instance of one of Danish Standard's pictograms (DS 2301-1) for men's toilets. Figure 7.93 shows a transmutation of it, in which occurrences of curves have been replaced with angles. I would argue that figures 7.92 and 7.93 are functionally equivalent as signage in public restrooms. Either figure would suffice in guiding the gentlemen to the gents' while deterring the ladies. In other words, they have the same visually ideational meaning. Yet they are different. But it is not a difference, which is distinctive of something akin to 'rounded humanoid' as opposed to 'angular humanoid' (or 'human' versus 'robot' or something like that). This is an important point, because both kinds of shapes

are used for public signage (for example, an image as the one depicted as figure 7.94 is used as part of the public signage at The Danish Film Institute in Copenhagen). And if they are ideationally equivalent, what kind of difference does the difference make?

I would suggest that the difference between the curvatiousness of figure 7.92 and the angularity of 7.93 is distinctive of two different inter-subjective inflections on the same ideational meaning. In other words, they are distinctive of different modalities.

However, adding figure 7.95 to the discussion suggests that structural variants of 'shape' are multifunctional. In that figure, I have juxtaposed structural elements from the curvatious humanoid and the angular humanoid (which are in themselves not distinctive of ideational meaning) to a rather surprising effect. It seems that, when curvatiousness and angularity respectively are the only variants of shape in a structure (low structural complexity), they tend to be distinctive of interpersonal inflections. However, when they occur in structures of higher complexity – especially if there is a high degree of structural contrast as in figure 7.95, in which most of the humanoid is curvatious except from the ending of one arm – they are more likely to be distinctive of ideational meaning (cf. the missing hand in figure 7.95).

This ties in to the point I made in section 7.5.1.4, that the structural variables of graphic 'shape' are relative terms. A given variable of 'shape' must always be understood in the context of the explicit graphic structure in which it occurs. In figure 7.96, all four sides of the square are relatively straight from a macro-structural point of view, although they are of course all made up of a plethora of dips and bumps at a micro-structural level. Because all four sides have similar structural complexity, density and contrast, the particularities of their irregularity comes across as inter-subjective inflection on 'rectangularness'. In figure 7.96, however, three sides are structurally far simpler and lighter than the fourth one, resulting in a high degree of contrast. In figure 7.97, the dips and bumps of the fourth side make a different, ideationally inclined kind of difference.

7.96

7.97

The variables of shape can inform forensic investigations of trademarks like the ones in the corpus beyond analysing their ideational meaning. For example, in section 5.2.3 I concluded that we need a more delicate theory of the formal properties of 'shape' in order to capture the differences between Nike's 'swoosh' and Li-Ning's 'stroke' (Case No. 3 in the corpus). I would argue that the

analytical scheme for 'shape' presented here is adequate for that purpose. Not only does it allow us to determine the specific qualities of shape of the marks, we can also use it to determine that Li-Ning's mark is both structurally more dense and complex than Nike's mark. Nike's mark has only four structural occurrences on the 'shape'-dimension: Two instances of 'un-straight>angle>convex', one of 'un-straight>curve>concave' and one of 'unstraight>curve>convex'. Li-Ning's mark has considerably more occurrences and variants.

Furthermore, in case No. 12, *NBA Properties, Inc. vs. Football Sport Merchandise S.p.A.*, I would argue that the approach to shape presented here could be very helpful indeed.

7.98

7.99

First of all, note the shape of the framing devices of both marks, which are structurally identical in terms of complexity, density and contrast. They use the same variants in the same proportions.

More interestingly however, I would argue that the depicted athletes are also very close in both complexity, density and contrast on the 'shape' variables. It would not be hard to imagine the basketball player and football player to be far lighter, structurally speaking, with fewer occurrences of concavities and convexities. Note for example the angular concavity in figure 7.98, which marks the place where the athlete's shorts meet his thighs and the similar concavity in figure 7.99, which marks the end of the sleeve of the football player's jersey. They could have been left out without rendering the image unintelligible. Conversely, both figures could have been rendered in greater detail with more details of folds in fabric, hair etc.

Finally, because the relative structural complexity, density and contrast of both athletes on the one hand and the framing devices on the other are similar, so is the structural contrast between the simple frames and the more complex athletes.

7.6.2 "Enshapening": The rendition of graphic shape

Any one of the particular graphic shapes, I have used to exemplify the above discussion – or any other conceivable two-dimensional graphic shape for that matter – can be rendered in a multitude of different ways, all of which draw in some way or another upon the structural variables of graphic form that we have already discussed.

In this sub-section I will propose an analytical scheme for the particular appearance of shape. When graphic shape (or shape in any other semiotic substrate for that matter) is articulated, we tend to refer to the process as 'a process of shaping something'. By this, we typically understand a process of giving some substance a characteristic outline in terms of 'straightness', 'curvatiousness', 'angularity', 'convexity', and 'concavity' through an articulative act of choice, cf. my discussion in the last section. However, we have no term for the act of choosing how that shape will appear. I have chosen to term this an act of 'enshapening', however ungainly the term may be.

I propose to analyse the appearance of shape in terms of the following structural oppositions: 'Positive' versus 'negative', 'line' versus 'mass', 'conjoined' versus 'compounded'. These oppositions must be understood in the light of the variables of particular structure; 'complexity', 'density', and 'contrast' as well as variables of graphic space, most notably 'magnitude'.

7.6.2.1 Positive- versus negative shape

Any graphic shape, or in Ching's definition any "characteristic outline of a plane figure" – whether Lacoste's crocodile, a pictogram for public restrooms, or any other conceivable two-dimensional shape – can be realized in a number of ways.

The first structural opposition of 'enshapening', which I wish to discuss here, is the contrary opposition of 'positive shape' and 'negative shape'. This opposition is of course merely an observation of the same structural phenomenon that gives rise to the distinction between 'figure' and 'ground' in my discussion of graphic space (section 7.4.2.2 and section 7.4.5.2). In those sections I argued that both the 'figure' and the 'ground' can be said to have a shape and that the shape of the ground is altered if the orientation of an otherwise invariant figure is changed.

Both of the first two figures below show circular shapes, the characteristic outline of which (i.e. their specific makeup of 'straightness', 'curvature', 'angularity', 'concavity' and 'convexity') is identical. However, in figure 7.100 this particular shape pertains to the 'figure' whereas in figure 7.101 it pertains to the 'ground'.

7.100

7.101

7.102

7.103

7.104

The exact same analysis applies to the two versions of Danish Standard's pictogram for men's restrooms shown as figures 7.102 and 7.103. For the sake of the argument, I have deliberately made the negative shapes in figures 7.101 and 7.103 very conspicuous compared to their positive counterparts. It is important to note, however, that this is far from typically the case. Contemplate for example any instance of the typography on these pages. Every single letter is the result of interplay between positive and negative shape. The 'counters' (the enclosure in the bowl of miniscule 'b', in miniscule 'a', in 'e' in majuscule 'B' and so on and so forth) all have a very particular shape that is part of the overall appearance of the typeface. Moreover, the negative space between individual letters, words and lines also have 'shape'.

Contemplate the image depicted as figure 7.104. It is a part of the trademark for 'Unilever', which I have isolated from the whole. Evidently, all the black 'figure' regions have characteristic shapes. However, the more inconspicuous negative 'ground' regions that are enclosed by the figure (such as the negative counterpart to the wavelike shape with the heart-shaped ending) have shape that is every bit as much part of the overall graphic structure as the 'figure' regions.

7.6.2.2 Conjoined- versus compounded shape

The second structural feature of 'enshapening' is the contrary opposition of 'conjoinedness' versus 'compoundedness'. The terminology is inspired by Kress and Van Leeuwen's 'above the line' grammatical distinction between "conjoined

and compounded exhaustive structures" in their discussion of 'analytical conceptual representations' (2006[1996]:97). Any graphic shape, which can be realized as a compounded, single region of graphic space can also be realized as a conjoined cluster of regions. Figures 7.105 and 7.106 illustrate the difference. In one, a single conjoined region has a characteristic circular outline. In the other, a level 'L' cluster of regions has a similar circular shape. Note that each individual 'L-1' region in the cluster is itself a conjoined circular shape equivalent to the one in figure 7.105.

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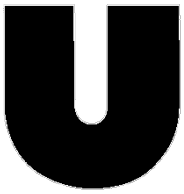
7.106

7.107



7.108

One could easily imagine a conjoined level 'L' circular shape with a different structural density, that is to say one consisting of fewer or more 'L-1' shapes. This says that 'shape' is a factor at many different levels in graphic structure. Contemplate for example the two images below. Figure 7.108 is of course the device mark of 'Unilever', which we discussed in section 7.4.3.3. The point I am making is that Unilever's 'U' has a certain level 'L' shape (which I have traced and reproduced as a conjoined shape in figure 7.107) with a particular structural complexity, density and contrast in its makeup of 'straightness', 'curvature' etc. Each of the individual 'L-1' regions also has particular structures that are all different.

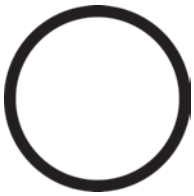
In other words, albeit the cluster-circle in figure 7.106 and the cluster-'U' in figure 7.108 are both compounded shapes they are vastly different in their structural complexity. Figure 7.106 is univariate on the variable of 'L-1' shape whereas figure 7.108 is multivariate.

7.6.2.3 Line versus mass

The third structural feature of 'enshapening' is also one, which we have touched upon before. It is the contrary opposition between 'line' and 'mass', which I discussed in section 6.7.1. In that section, I discussed graphetic aspects of the line and mass and suggested the hypothesis that, as types, they are derived from acts of movement across a surface and movement onto a surface, respectively.

However, I am interested here in lines and masses as structural opposites rather than as traces of different kinds of action.

7.109



7.110

7.111

7.112

Figures 7.109 and 7.110 show how any two-dimensional graphic shape can be realized by either an '(out)line' or a 'mass'. As demonstrated by figures 7.111 and 7.112, this is true of any conceivable two-dimensional graphic shape.

The distinction between a shape realized with a line and one that is realized as a mass is of course also the distinction between tri-variate 'figure/interior ground/exterior ground' structure and bi-variate 'figure/ground' structure, as I discussed in section 7.5.2.2.

This exhausts my discussion of the distinction between the contrary oppositions of 'line' and 'mass'. It does not, however, say all there is to be said about the graphic line as such.

As a graphic resource, the line is of such crucial importance that it warrants discussion at some length. This will be the topic of sub-section 7.6.2.5. First, however, I will summarize my suggestions for an analytical scheme for 'enshapening' and show how the oppositions can be combined into an array of different ways of realizing 'shape'. This is the topic of the next section.

7.6.2.4 A tentative permutation chart for 'enshapening'

The three structural oppositions of 'enshapening', 'positive/negative', 'conjoined/compounded' and 'line/mass' are combined to produce a number of typical realizations of 'shape'. In the permutation chart below I have shown how a single shape can be realized by combining different states in the 'enshapening' dimension. For the sake of the example's clarity I have chosen a simple circular ellipsoid, which is characterized by a single variant on the 'shape' dimension; 'un-straight>convex>curve', as the principal instance of 'shape' in the examples. Both level 'L' and 'L-1' shapes are circles. Of course, in the examples of realizations of the circle as 'negative' shape, there are also a variety of positive shapes.

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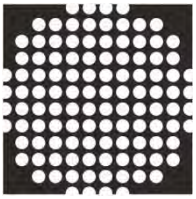
7.120



7.121

7.122

7.123

7.124

The first six figures (figures 7.113-7.118) show 'positive' realizations of a circular shape, and the latter six show similar combinations of oppositions, except they are all realized as 'negative' shape. Figure 7.113 shows a circle realized as 'positive>line>conjoined' and figure 7.114 shows it as 'positive>line>compounded'. Figure 7.115 is also 'positive>line>compounded', but here I have introduced a number of variants of magnitude in the 'extent' and 'proximity' variables. Figure 7.114 is univariate in both these variables. A similar set of permutations is shown for the circle realized as 'positive>mass>conjoined' (figure 7.116) and 'positive>mass>compounded' (figures 7.117 and 7.118).

7.6.2.5 Further notes on 'the line'.

The examples shown here of the conjoined line (figures 7.113 and 7.122) are characterized by being structurally very simple on spatial variables of magnitude. This is another way of saying that the line is of uniform thickness. However, as I discussed in section 6.6.1 on graphetic implications of "tools of the hand", lines come in a great variety, either because they are shaped by the actual act of articulation or because they represent a more or less stylized convention of a specific kind of action. This is what I have referred to as 'experiential meaning potential' (Kress and Van Leeuwen 2001:22).

I find it reasonable to argue that the structural makeup of a line can also be analysed in terms of a set of formal structural variables. I have been inspired to do so by Andreas Stötzner's insightful article "Signography as a subject in its own right" (2003). Here, Stötzner consistently refers to what I call a 'line' as a 'graph'. According to him, a 'graph' "determines the linear skeleton form of a sign" (2003:290), and he goes on to take very useful steps towards describing the formal semiotic resources it employs. Stötzner proposes that a line, or 'graph' can be analysed in terms of its 'weight', 'contrast', 'tension', and 'ending'.

Weight: To Stötzner, a line's weight refers to its relative thickness in relation to the overall size of the sign. "In typography, different weighted types are termed thin, light, regular, strong, semi-bold, bold, extra-bold" (2003:291). I find it reasonable to argue that Stötzner's 'weight' variable is an aspect of the spatial magnitude of a graphic structure, which I discussed in section 7.4.1. I would suggest that 'weight' be analysed in terms of the contrary opposition of 'thin' versus 'thick'

Contrast: Contrast "refers to a more or less pronounced gradation between thin and thick strokes, which may occur in the use of a pen point or brush" (ibid.). In other words, if a level 'L' graphic structure is made up of several 'L-1' lines, contrast is an expression of the difference in weight between individual strokes. Stötzner's 'contrast' variable is an aspect of structural contrast, which I discussed in section 7.3.3. I would suggest that 'contrast' be analysed in terms of the contrary opposition of 'high contrast' versus 'low contrast'.

Tension: Refers to "[…] the dynamics caused by increase and decrease of a drawn stroke, which in writing occurs rather spontaneously and contributes considerably to a sign's lively shape". In other words, where Stötzner's 'contrast'

refers to a difference in weight *between* individual lines, 'tension' refers to a difference in weight *within* a given line. I would suggest that 'tension' be analysed in terms of the contrary opposition of 'high tension' versus 'low tension'.

Ending: Finally, as Stötzner states, "[…] certain forms of ending noticeably shape the sign. In addition to the serifs in lettering, there is a great wealth of design options – particularly for stylized signs – which may in more elaborate instances cross the borderline between the simple and the ornamental" (ibid.). Crucially, Stötzner says that endings "shape" the sign. I would find it very reasonable that the endings of a line (if it indeed has any) can be analysed following the descriptive scheme for 'shape' proposed above. Hence, a given line can end in a curvatious or an angular shape and it can be convex or concave relative to the figure-region of the line – or it can employ a number of combinations of these oppositions. Contemplate, for example the rather elaborate endings of the brush strokes in the trademarks for Oure Folk School, Plan International and Medecins Sans Frontieres depicted as figures 6.16, 6.17 and 6.19.

The way in which the structural variables of 'weight' (spatial magnitude) and 'tension' (structural contrast on the magnitude variable) impacts on the formal potential for 'enshapening' is illustrated by the figures below:

7.125

7.126

7.127

7.128

All the above figures would suffice to denote 'circleness' by way of their un-straight> curve>concave shape. Furthermore, they are all examples of an enshapening characterized by the choice of positive>line>conjoined. Yet they are distinctly different. The two circles depicted as figures 7.125 and 7.126 are realized as lines that are relatively thinner than those of figures 7.127 and 7.128. Conversely, the lines in figures 7.125 and 7.127 have no tension compared to those of 7.126 and 7.128. I should say that this is a difference that makes a communicative difference.

In section 6.6 of my discussion of graphetics, I argued that the material traces left by tools of the hand and synthesizing technologies are different in a way that is relevant for a theory of graphetics, because they make a communicative difference. As a result of the affordances of the various substances involved in manual acts of tracing graphic signs, tools of the hand tend to produce irregular results, whereas synthesizing technologies tend to produce more regular results.

In other words, I would argue that the choice of the graphological resource of high line tension (such as that of figures 7.126 and 7.128) conventionally indicates a graphetic act of articulation in which tools of the hand have been used. Low line tension, on the other hand, is characteristic of synthesizing technologies.

7.6.2.6 Forensic application of 'enshapening'

The structural oppositions of 'enshapening' could be very useful for informing a forensic examination of graphic trademarks.

Recall the ten apples from OHIM's trademark database, which I discussed in the introduction to chapter 6. At that time I used the examples to show the variety of ways in which the same overall ideational 'appleness' can be realized with only black on a white background. We can now begin to analyse and compare these instances within the framework of suggested, descriptive schemes of 'shape' and 'enshapening'. For example, we can observe that in five of the trademarks, the 'leaf' element is realized using four opposing instances (two of each) of 'un-straight>angle>convex' and 'unstraight>curve>convex'. This seems to be rather a typical way of representing 'leafness' in trademarks containing apples. Similarly, we can observe that four opposing instances (two of each) of 'un-straight>curve>convex' and 'un-straight>curve>concave' seem to be a typical realization of the fruit bulb of an apple.

More interestingly, however, we can observe that the ten apple-marks, which are relatively similar in shape, are very different and easily categorized in terms of their enshapening:

- We have one instance of apple as negative shape and nine of positive.
- There are six instances of apple realized as (out)line and four of mass.
- Of the six apples that are realized using line, one has a univariate line with low tension. The remaining five have multivariate lines with varying degrees of tension.
- In two cases the leaf and the bulb are realized as conjoined shapes and in eight they are realized as clustered, compounded shapes.

7.7 Summary

In this chapter, I have explored a synchronic approach to graphic form in response to the requirements stated in my research question(s) in section 2.2. Inspired by the linguistic discipline of phonology, I have called this synchronic descriptive approach *graphology*.

The focus for the undertaking in this chapter – in line with the greater social semiotic paradigm, cf. section 4.2.2 – is the concept of paradigmatic choice. In other words, the chapter asks which formal choices, or structural variables, are available to us when we make graphic meaning. However, because it is almost impossible to discuss what people can do without reference to things that have in fact been done, I have outlined a general way of discussing graphic structure. Thus, the account I have given of graphology falls in three parts.

In the first part (section 7.4) I discussed how graphic structure can be analyzed in terms of *structural density* (a count of the structural occurrences in a graphic structure), *structural complexity* (a count of the structural variants in a graphic structure). These two concepts have themselves been described as variables; continuums ranging e.g. from low density to high density. Finally, structure can be analysed in terms of *structural contrast* (the relative distribution of density and complexity in a graphic structure). Depending on one's chosen level of delicacy it should be technically possible to make an exact count of the number of structural occurrences and variants in a structure. However, although trademarks are generally a structurally simple kind of texts, they can quickly become too complex for an exact measurement to be made. In such cases, using these variables as a heuristic device rather than a means of objective measurement may become necessary.

In the following sections I explored two crucial aspects of the formal properties of graphics: *Space* (section 7.5) and *Form* (section 7.6). In the discussion of formal variables of graphic space (section 7.5) I proposed to analyse a graphic surface in terms of the various *regions* and clusters of regions into which it has been subdivided. These can then be analysed in terms of their relative *magnitudes*, *locations*, and *orientations.* In the discussion of graphic form, I mainly argued that we need concepts for describing *enshapening* as much as for describing *shape*. A shape (a configuration of instantiated choices between straight/un-straight, round/angular, and convex/concave) is a graphic representation of a surface layout (in Gibson's (1986[1979]) terms). I argue that it can appear to us in many guises, or enshapenings. For example, it can appear as positive shape or negative shape. It can appear as an outline (tri-variate figure/interior ground/exterior ground structure) or a massive surface (bi-variate figure/ground structure). Moreover, it can appear as a single region or a cluster of regions. Such oppositions can be combined and juxtaposed in a plethora of ways, as illustrated in the permutation chart of enshapenings of circleness in section 7.6.2.4. As a final point, I discussed the formal potential of the line, which (from a graphetic point of view) can indicate different kinds of articulatory processes.

The suggestions I have made here are not exhaustive. There are, in all likelihood, several aspects of graphic form which I have not taken into consideration.

However, it is my hope that in developing a theory of graphic form that caters for both description (graphology) and explanation (graphetics), I have shown a way of understanding graphic means of interaction on a par with how we have come to understand language – all the while hopefully avoiding the pitfalls of regarding graphics as merely a different kind of language, which I do not find it to be.

Furthermore, although the proposed descriptive scheme is only a first, incomplete step towards a full description of the formal resources of graphics, even in its current form it is quite serviceable as a forensic tool for comparative analysis of trademarks. In the next chapter, I will demonstrate why. I will discuss the application of this approach in legal practice and provide an example of how it can be used.

8
Application

8.1 Introduction

This thesis set out to determine whether a multimodal social semiotic methodology could offer an improvement of the current practice in forensic assessments of likelihood of confusion in trademark infringement cases. In section 2.2.4, I discussed the particular requirements of such an undertaking and concluded that, in order to offer an alternative to the state of the art, any proposed scheme would have to be (1) systematic, (2) precise, (3) measurable, and (4) comparable.

In the last two chapters, I have presented an integrated theory of diachronic *graphetics* and synchronic *graphology*, which I believe to have better descriptive and explanatory power in forensic examination of graphic trademarks.

In this chapter, I will discuss whether the proposed analytical scheme meets those requirements. First, however, I find it necessary to discuss particular issues pertaining to the application of my proposal in the assessment of likelihood of confusion. To that end, in section 8.2 I will give a short introduction to the Intellectual Property Rights discipline and discuss the particularly important legal concept of *the global appreciation*, which I introduced briefly in section 2.2.1. I am taking this discussion to avoid objections from some parts of the legal profession on grounds that the analytical scheme I am proposing could be in violation of the globality principle.

In section 8.3, I will carry out an exemplary analysis of case No. 1, *Danfoss A/S versus Dazhou Heli Controls Co., Ltd* in order to demonstrate graphetics and graphology in use.

In section 8.4, I will discuss whether the proposed scheme indeed fulfills the requirements set forth in the research question.

8.2 Intellectual Property Rights

Trademark law is a subset of the legal discipline of Intellectual Property Rights (IPR). As a legal discipline, IPR is distinctly different from other branches of the law. In his doctoral thesis from 1965,[1] Professor Mogens Koktvedgaard - one of the most influential individuals in Danish intellectual property law - argues that the difference is due to the specific structure and methodology of IPR law rather than its 'purpose' or 'object' (1965:184). He states the following:

> *The intellectual property issue always takes as its point of departure a certain excerpt of the outer physical world*, which is created, shaped or at least isolated by a human. This excerpt – which is not necessarily a palpable thing – can be experienced, that is to say observed and according to circumstance used for some purpose or other (1965:185, original italics, my translation).

A particular intellectual property right (a proprietary right to some excerpt of the world) does not rest passively on this point. Rather, according to Koktvedgaard, it is "on a constant passage through the universe, clamping down upon any other excerpt of the outer world, which can be experienced in a similar way" (1965:185 my translation).

It follows from this that the *comparison*, which determines whether two such phenomena give rise to similar experiences, is crucial to the method of the IPR-discipline. This is true whether two industrial products are compared to determine if one is in violation of a patented technology in the other, or when two pieces of music or two images are compared to determine whether one constitutes a copyright infringement of the rights to the other. On the subject of the *comparison*, Koktvedgaard comments:

> The comparison [...] is prescribed and constrained by the individual intellectual property laws in such a way that some phenomena steer clear of the proprietor's control while others are intercepted (1965:185, my translation).

This says that the IPR-discipline regulates the proprietary rights to phenomena, which are man-made, -shaped or -isolated, through a process of comparison by which other phenomena are found to be either similar, and thus in violation of the right, or dissimilar. The individual sub-disciplines of IPR law deal with very different aspects of reality: Patent law deals with proprietary rights to purely technological aspects of phenomena, whereas the objects of design, domain name, copyright and trademark law are all semiotic vehicles. Consequently, the methods by which the comparisons are achieved are different. This thesis focuses on one IPR-discipline, the object of which is a semiotic vehicle: Trademark law. Moreover, it concentrates on comparing one aspect of such semiotic vehicles: Their graphic form.

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[1] Koktvedgaard, Mogens (1965) *Immaterialretspositioner – Bidrag til læren om de lovbestemte enerettigheder og deres forhold til den almene konkurrenceret*, København: Jurist- og Økonomforbundets forlag

8.2.1 The principle of 'global appreciation'

The legal term for comparing two trademarks is *assessment of likelihood of confusion*. In the preamble to the European Union's directive on trademarks, the assessment of likelihood of confusion is described thus:

> [It] depends on numerous elements and, in particular, on the recognition of the trademark on the market, the association which can be made with the used or registered sign, the degree of similarity between the trade mark and the sign and between the goods and services identified.[2]

In other words, the comparison must include an assessment of two main elements, (i) the similarity of the marks, and (ii) the similarity of the goods or services. Furthermore, a number of ancillary contextual factors must be assessed as well, as stated in section 22 of the verdict in case C251/95, *Sabel* versus *Puma*, from the European Court of Justice:

> The likelihood of confusion must therefore be *appreciated globally*, taking into account all factors relevant to the circumstances of the case.

The same judgment continues to specify, that:

> [...] the perception of marks in the mind of the average consumer of the type of goods or services in question plays a decisive role in the global appreciation of the likelihood of confusion. The average consumer normally perceives a mark as a whole and does not proceed to analyse its various details (section 23).

As we can see, in European judicial practice this kind of comparison rests upon the so-called principle of 'globality'. At first glance, all the principle seems to say is that every relevant aspect of a trademark case must be factored into the assessment of likelihood of confusion. So far there is no problem.

However, as the wording of the Sabel versus Puma case indicates, the 'global appreciation' consists of comparisons at two distinct levels.

(1) Paragraph 22 of the Sabel versus Puma judgment appears to take a contingency point of view on the assessment, which includes "all factors relevant to the circumstances of the case". In other words, this level of the assessment regards the trademark case much in the same sense as a communications theoretician would: It conceptualizes the case as something akin with a 'communicative situation' in which we have 'a sender' (or addresser, or performer), 'a receiver' (or addressee, or perceiver) and 'a message' (or text) as well as a number of contextual factors.

(2) Paragraph 23, however, distinctly addresses the 'mark' as opposed to the "goods" and "consumers" and assigns an important role to this particular aspect of the assessment. In other words, the signifier itself must also be appreciated as a whole.

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[2] The 11th recital of the preamble to Directive 2008/95/EC of The European Parliament and of The Council of 22 October 2008 to approximate the laws of the Member States relating to trade marks.

To that end, trademark practice has developed what is essentially a multimodal understanding of the trademark signifier. In Danish practice, for example, this understanding is expressed in a sub-discipline called "forvekslingslæren" (cf. Andreasen 1948:282ff; Wallberg 2005:27ff).[3]

In his doctoral thesis from 1948, Danish intellectual property solicitor Hardy Andreasen states, that: "the distinctive ability" (1948:285, my translation) of a trademark rests on three "primary modes of effect" (ibid.): "Visual image, auditive image and mental image" (ibid.).

On the visual image he comments that:

> Most trademarks affect the eye of the buyer first. Therefore, the visual image is a frequently occurring mode of effect. It is characteristic for figurative marks, but also occurs in word-, number- and lettermarks (ibid.).

I find it reasonable to argue that the visual image is equivalent to the proposed graphological qualities of a trademark. The "auditive image" of a trademark is, of course, equivalent to the phonetic and phonological qualities of the linguistically-semiotic part of the mark. The mental image, says Andreasen, should be understood as:

> […] the mental associations evoked in the buyer by the form and content of a trademark. These mental associations can be summarized into three groups characterized by: (1) the conceptual, or primary, components, (2) the symbolic, or secondary components, (3) the emotional or mood accentuating components (Andreasen 1948:290ff).

When discussing the applicability of the proposed graphetic and graphological approach in the "assessment of likelihood of confusion", it is important to understand that it can only shed a light on one specific aspect of the global appreciation: The visual image. Graphetics and graphology have no explanatory power when it comes to contextual factors such as the nature of the goods or the buyer. Moreover, it has no explanatory power when it comes to the auditive factor of the signifier. It can only describe the visual image and thus help explain visual aspects of the mental image (which are the domain of visual grammar and -semantics). However, the fact that graphetics and graphology have been conceptualized within a framework of multimodal social semiotic theory makes it compatible with analytical approaches that could, in fact, capture these aspects of the assessment.

8.2.2 The 'event of confusion' revisited

The second, signifier-specific level of analytical comparison is precisely where the application of the proposed graphetic and graphological scheme of analysis can be argued to be problematic (from the point of view of legal practice).

Naturally, any comparison must be based on information of some sort. Yet the legal discourse mostly avoids specifying the processes of information retrieval, which are condoned in legal practice. A few scattered mentions can be

[3] "Forvekslingslære" is roughly translatable to "confusability theory".

found: For example, Andreasen is quite explicit on what he considers the most appropriate mode of enquiry in the assessment of likelihood of confusion:

> As the distinctive ability of a trademark usually rests upon the co-operation of several elements, a *synthetic* judgement of the elements of the mark is the more correct way of assessing it. The distinctive ability of a mark should be sought in the global appreciation rather than in the pregnancy of the individual elements (1948:284, my translation, my italics).

In the 4th edition of *Varemærkeret – Varemærkeloven og Fællesmærkeloven med kommentarer*, Knud Wallberg states, that: "The global assessment of the likelihood of confusion in a situation of conflict necessarily has a certain approximate and thus subjective quality" (2008:30, my translation). In other words, I find it safe to assume that the legal profession operates with a concept of comparison characterised by synthesis rather than analysis and subjectivity rather than objectivity. I will argue here that a tendency in legal practice to interpret the globality principle in the assessment of likelihood of confusion in terms of 'synthesis' rather than 'analysis' is due to a particular way of conceptualizing *the event of confusion* – and that, if one allows a different perspective on that event – an analytical approach to the assessment could become perfectly acceptable.

First, let us establish a hold on 'the event of confusion' before discussing the nature of the event. Trademark law must be assumed to have as its object an occurrence during which a consumer is exposed to a trademark and either (i) makes the correct reference between an article and its origin or (ii) fails to make that reference. In the latter case, the consumer is said to be confused about the origin of the article and it is this kind of instance trademark law is concerned with.

Traditionally, the 'event of confusion' is conceptualized by trademark practice as a psychological event, which takes place in people's minds. There is an abundance of evidence of this point of view in trademark literature (see generally Zaichowsky 2006). One example is the wording in the aforementioned verdict from the European Court of Justice in the case Sabel vs. Puma: "[…] the *perception* of marks *in the mind* of the average consumer of the type of goods or services in question plays a decisive role in the global appreciation […]" (my italics).

Moreover, the psychological processes underlying the perception are assumed to be of a certain nature. Of this, there is an abundance of examples from Danish trademark practice. For example, in Koktvedgaard's *Lærebog i Immaterialret* (2005[1988]), the nature of the event of confusion is interpreted thus:

> [...] Whether one stresses one aspect or the other, the judgement should in principle be based upon the likely use - and experience thereof - of the marks in the day-to-day trade of commodities: How will the consumers *perceive* the marks? [...] The principle of the *global appreciation* is due to the fact that in general the market does not scrutinize the individual marks' specific details. *They are perceived as entireties*, and so should the judges. (2005[1988]: 394, my translation, my italics).

Similarly, in the latest version of *Varemærkeloven og Fællesmærkeloven med kommentarer* by Knud Wallberg, the view is expressed like this:

> Trademarks *are perceived as totalities*, *not as a combination of parts*. Consequently, in the assessment of the likelihood of confusion, one should not indulge in pedantic scrutiny of differences in detail, but rather attempt to maintain a focus on the whole (Wallberg 2008: 105, my translation, my italics).

In canonical Danish trademark literature, the origin of the particular conception of 'mind' and 'perception' expressed in these quotes can be traced to the gestalt theory of the 1930'ies (e.g. Koffka 1935): In his seminal doctoral dissertation from 1965, Professor Mogens Koktvedgaard wrote:

> Within psychology, the processes of comparison are sometimes understood as a subordinate feature of the main problem known as 'structuring'. The problem of structuring deals with *the experience of entireties* (1965:20).

Koktvedgaard refrains from elaborating further on what he calls the "common aspects" (ibid.) of the structuring problem, but instead refers to Jørgen Jørgensen's *Psykologi paa et Biologisk Grundlag* (1941). In turn, Jørgensen only touches upon the connection between 'structuring' and 'perception':

> […] the gestalt psychologists have drawn attention to a number of facts that show that there is no unequivocal correspondence between certain isolated stimuli and the resulting "phenomena of the consciousness", but rather that the characteristics of the latter depend on the entire constellation of stimuli to which the organism is exposed – a fact which suggests that the brain is not a mere relay for the neurological impulses originating from the receptors, but rather that they somehow undergo so-called processing in the higher faculties […] One can present several more or less qualified assumptions about their characteristics and sequence, but nothing certain is so far known about the particulars of these processes. Hence, for the time being, there seems nothing wrong with understanding the 'structuring' of the neurological processes presumed by *Köhler* and *Koffka* as identical with the 'channeling' of them presumed by *Holt* (1941:136, my translation, my italics).

In summary, in Danish trademark law at least, it seems that the concept of 'the global appreciation' follows the tradition of gestalt theory. Furthermore, it seems to assume the event of confusion to be purely psychological and hence to require a psychological methodology in order to be explained.

8.2.3 Is the proposed scheme in violation of globality?

In other words, what I am proposing here could be construed as counterintuitive to trademark practice: By analysing the relative width of lines or the particular shape of regions etc. I could be said to "indulge in pedantic scrutiny in differences of detail" cf. the quote from Wallberg above and thus to treat the appreciation of trademarks differently from the assumed 'gestalt perception' of the consuming public.

However, there are a number of reasons why I do not believe the proposed scheme for forensic analysis to be in violation of the globality principle:

First, if one concurs with the assumptions of philosophical hermeneutics, the strict interpretation of globality (cf. Andreasen 1948) would appear to be an epistemological fallacy. To the extent that we are appreciating 'the whole' trademark for the purpose of an 'assessment of likelihood of confusion', our understanding of 'the whole' can only be validated by examining 'the parts'. Conversely, the only way of properly understanding 'the parts' is by relating them to 'the whole'. This says that the "synthetic judgement" (cf. Andreasen 1948) hypostasizes the very gestalt to which the globality principle attaches such value. In this process, the gestalt ceases to exist because the hypostasation must somehow be based on subjectively and analytically selected features of the gestalt.

Second, the key proponents of gestalt theory were themselves fully aware that their object of study can never be fully explained without the insight from other, non-psychological fields of study:

> […] And an ultimate explanation of the problems of thought and imagination will not be possible without a theory of language and the other symbolic functions. But we shall exclude the study of language from our treatise. This restriction is necessary, because it would be impossible to give more than an utterly superficial treatment to this problem, so rich in psychological interest (Koffka 1935:422).

This says that – assuming that the globality principle can indeed be traced to gestalt theory – the very psychological paradigm from whence trademark practice's methodology originally came is fully aware that something like an 'event of confusion' may indeed be a psychological event but that it is also, simultaneously, an event at a sociological level. What I am suggesting is exactly a sociological, analytical approach. I am proposing to analyse graphic form as a socially ordered resource for meaning making. I am suggesting that the performer and the perceiver alike have some access to that resource (and, depending on their level of visual literacy, conscious awareness and control of it). In other words, although I fully recognize that at the end of the day the event of confusion is psychologically real, it makes sense to regard it as a communicative event as well.

Finally, the descriptive scheme for graphic form I have proposed can be used in a number of ways, and they do not all qualify as 'pedantic scrutiny in differences of detail'. For example, if one was to argue that there is an instance of 'un-straight>convex>curve' in one mark and an instance of 'un-straight>convex>angle' in the other, this would indeed seem futile. However, if a given formal resource is regarded in the light of an overall graphic structure in terms of structural density, complexity and contrast, what you are analysing is really 'the whole' rather than the parts, just different formal aspects of it.

In the next section I shall demonstrate how graphetics and graphology can be used to compare formal qualities of trademarks in a way that caters for global appreciation.

8.3 Danfoss A/S vs. Dazhou Co. Ltd.

In order to demonstrate the aptness of the proposed theory of graphetics and graphology for forensic purposes, I have subjected the two trademarks from case No. 1, *Danfoss A/S versus Dazhou Heli Controls Co., Ltd.*, to analysis. The case is one of several, which have motivated Danfoss A/S to sponsor this research project.

Danfoss A/S is one of the crown jewels of Danish industry. It was founded in 1933 under the name of "Dansk Køleautomatik- og Apparatfabrik".[4] By 2010, Danfoss A/S has grown into a multinational manufacturer of a range of mechatronic (mechanical and electronic) components for industrial and consumer heating and cooling as well as components for industrial automation. Many of the Danfoss A/S products, such as mechanical thermostats and various valves and solenoids, are characterized by being relatively low-tech and mass produced. Furthermore, they are largely invisible to end-users because they are implemented in various household appliances such as refrigerators. Still, Danfoss A/S has a strong brand in the markets, in which the company operates, and the company is especially well known in its home country of Denmark. The Danfoss A/S trademark is depicted as figure 8.1 below.

8.1

Along with many other companies, who have introduced themselves on the newly industrialized Chinese market over the last decade – especially those dealing in easily reproducible low-technology – Danfoss A/S has experienced extensive counterfeiting of their products in all Intellectual Property areas: Both patents, trademarks, domain names, designs registrations and copyrights are under pressure. The present case is no exception.

Dazhou Heli Controls Co., Ltd. was the name of a Chinese mechatronics manufacturer in Ningbo City until a word-mark lawsuit by Danfoss A/S in 2007[??] forced the company to change its name to Fenghua Heli Controls Co., Ltd. The name "Dazhou" is also the name of a nearby Chinese town. Dazhou Heli Controls Co. Ltd.'s graphic mark, depicted as figure 8.3 below, has been lifted off of a packaging seized in a customs raid on a Spanish importer of counterfeits in

[4] The name translates roughly to "Danish Cooling Automation and Appliances"

March 2007. The packaging (one of several hundred confiscated in the raid), depicted as figure 8.2, contained a pressure differential control unit for industrial cooling systems, which was in itself identical in every respect to pressure differential controls patented by Danfoss A/S**.** Because Danfoss A/S deemed the Dazhou product to be a counterfeit, it seems reasonable to assume that the choice of the "Dazhou"-name, which has some sonic similarity with "Danfoss", and especially the choice of styling of the letters in the word mark, are intended to confuse consumers about the true origin of the product. Albeit Danfoss is a very well known name in Denmark and only few Danes would fall for the deception, the name is less well known in the rest of the world. It seems likely that someone seeking a Danfoss product would mistake it for Dazhou's. However, Danfoss A/S has never pressed the issue of the graphic similarities between the marks, because they considered their arguments to be too vague to convince a judge.

8.2

8.3

In this section I will present an example of how a multimodal social semiotic theory of graphetics and graphology can be applied in forensic comparison of trademarks using the Danfoss and the Dazhou marks. My aim is to show that such an approach can meet the requirements I set forth in the problem of the thesis and section 2.1.5, which is to make the comparison systematic, precise, measurable and comparable.

8.3.1 A multimodal social semiotic approach

First of all, it is important to emphasize the specific multimodal social semiotic perspective we are taking on the two marks. Both are considered acts of communication that have found apt expressions with regard to the requirements of the communicative situation.

But what is 'apt' for their communicative purposes? From the point of view of a theory of communication, such as MSS, which has a particularly keen interest in paradigmatic choice as the basis of meaning making, the potential that *is not* realized is every bit as interesting as the potential that *is*. The respective makers of the two trademarks in this case have had access to the same formal resource and hence it is striking that they have been realized in such apparently similar ways. The communicative purpose behind the Danfoss trademark aside,

Dazhou could have chosen to realize the letters in their graphic mark in countless ways that would be very different from that of Danfoss, as I have illustrated with the examples below.

All three marks are examples of very common usage of the formal graphic system and can be described with the graphological variables presented in chapter 7 with the same accuracy as we can describe both the Danfoss and the Dazhou trademarks using e.g. structural variables as figure/ground, framing or the distinctions between mass and line.

However, as mentioned above, the three marks are also very different from both the Danfoss and the Dazhou marks, especially when regarded from a graphetic perspective.

8.4

8.5

8.6

8.3.2 A graphetic approach to the case

In chapter 5, I discussed the possible ideational meaning of Nike's 'swoosh' and Li-Ning's 'stroke' in terms of Kress and Van Leeuwen's concept of ideational meaning potential. As you may recall, this is the notion that "[…] material signifiers have a meaning potential that derives from what it is we *do* when we articulate them […]" (2001:22). I discussed the possibility that the 'directionality' and sense of movement conveyed by both Nike's and Li-Ning's marks is due to a convention of the material traces left by moving graphic instruments (in that case a sabre brush) across a surface.

Similarly, I find it reasonable to argue that both the Danfoss and the Dazhou trademarks tap into a particular convention of 'movement across surfaces', namely that of handwriting or 'script'. Testament to the existence of such a convention is for example Per Mollerup's motif-category "handwriting" (1996:159) and the 8th group in the European typographical categorization system (DIN 16518), which categorizes typefaces that "[…] imitate flowing and connected script" (Reimer and Birkvig 2003[2001]).

It is important to emphasize that the Danfoss and Dazhou marks draw upon *a convention of what script looks like* rather than being actual instances of script. In section 6.5 I suggested one possible hypothesis of how such conventions have emerged through countless particular instances of writing out, of which a social order of writing emerges. This social order can be hypothesized to materialize in for example typography. Here, the characteristic contrast between the weight of some strokes and the tension in others can be traced to

the specific kind of line produced by a calligrapher using a broad pen. However, although some typefaces may retain characteristics derived from the traces of penmanship, from a graphetic point of view typographic practice is very different from calligraphy.

Evidently, both the Danfoss and the Dazhou marks display high degrees of stroke tension. In other words, the weight of the lines changes through the course of each stroke. High line tension is characteristic of penmanship using calligraphic broad pens. However, because a broad pen only affords being held at one specific angle to the surface, the distribution of weight is tightly coupled to the direction of the stroke. Generally, a calligrapher does not change the angle at which he holds his pen during the process of writing, because this would upset the overall impression of a homogenous script.

In order to demonstrate just how different the convention of penmanship used in the Danfoss and the Dazhou trademarks is from actual traces of handwriting, I have produced the image depicted as figure 8.7 below. For this image, I have used the old trick of strapping two pointed pens together with a rubber band in order to convey the dynamics of a broad pen.

8.7

8.8

Now, assuming that a calligrapher does not change the angle of his broad pen during scripting, the insertion point on the very first stroke in a scripted text ought to be representative of the angle of the pen in the scripted text as a whole. Note that in figure 8.7 I have taken deliberate care to place my simulated broad pen at the same angle as in the first stroke of the first letter (majuscule 'D') of figure 8.8. Note the difference in the distribution of weight, which is at its most obvious in strokes running at right angles to the angle of the pen point (all strokes going North/North East by South/South West or vice versa such as the straight stems of 'D' as well as 'a', 'n' and 'f'). In figure 8.7 they are at their thinnest whereas in figure 8.8 they are at their thickest. Note that in 'a', 'n' and 'o' the distribution of weight between vertical and horizontal strokes[5] is exactly opposite. Note also the weight of the cross-bar on 'f', which is considerably thinner in the 'convention of handwriting' in figure 8.8 than in the simulated broad pen script of figure 8.7. A similar difference can be observed in the strokes connecting the letters.

What we can conclude so far from a graphetic point of view is that albeit the Danfoss A/S mark clearly draws on a convention of what handwriting looks like, it is in fact quite far from an actual trace of a manual act of writing. The same is true of many other trademarks, which we would intuitively say were script-style. For example, figure 8.9 below shows the well-known logotype of American manufacturer of breakfast cereals Kellogg Co., figure 8.10 shows Swiss tobacco company Davidoff & Cie's logotype and figure 8.11 that of an American manufacturer of guitar amplifiers, Marshall Amplification Plc. On a general level, they display the same characteristics as the Danfoss and Dazhou marks.

8.9

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8.13

Although all three depicted trademarks can be said to conform to a convention of handwriting, they do so very differently – and neither of the three can be said to be actual traces of acts of scripting. Judging from these three examples as well as the Danfoss and Dazhou trademarks, we can generally say that the convention of handwriting largely relies on (i) the slant of all vertical lines, which are, in acts of handwriting, due to ergonomic efficiency, as well as (ii) the connectedness of

[5] Technically, because we are dealing with cursive script, all lines are in fact diagonal.

individual letters, and (iii) the fact that 'ascenders' and 'descenders'[6] in script are typically executed as loops in order not to break contact with the surface.

Assuming that - if only it meets the conditions of slant, connectedness and looped ascenders and descenders - we do in fact recognize very different instances of graphic lettering as representative of a convention of 'script' or 'handwriting', it is conspicuous that the Dazhou mark has been executed in a way that draws upon the convention in a way that is so similar to that of the Danfoss mark. Note the distribution of weight in 'a' and 'u', which closely resembles that of Danfoss' 'a' and 'n'. Note also the particular orientation of the script in both marks, approximately 6° counter clockwise to the horizontal axis, which would, in actual handwriting, be ergonomically more efficient than horizontal script. Finally, note the flourishes, which embellish the capital 'D' in both marks. Although executed differently, they could be argued to add to an overall impression of likeness. Recall that everything *not chosen* is potentially as meaningful as everything that is. And the world – even the world of handwriting – is, after all, full of unadorned instances of 'D'.

8.3.3 A graphological approach to the case

In the previous section I concluded, a bit vaguely, that the Dazhou trademark draws upon a convention of movement across a surface – handwriting – in a way that is suspiciously similar to that of the Danfoss trademark. Yet, however vague, a graphetic point of departure is necessary in order for us to be able to discuss the two marks in terms that seem intuitive to us (traces, strokes, lines etc.) in a way that is theoretically consistent with more accurate measures. The very fact that we are able to appreciate the distribution of black and white in the Danfoss and Dazhou marks as something like pen strokes is due to either our own first hand experience with articulatory action or our experience with conventions that have emerged from countless articulatory actions.

Should we wish to gain an even better foothold in our comparison of the Danfoss and Dazhou trademarks, a graphological approach can be useful. If one casually compares the five instances of 'script-type' trademarks depicted as figures 8.9 to 8.13 above, I would venture the claim that they come across differently – and that Danfoss and Dazhou come across less differently than, say, Danfoss and Davidoff or Danfoss and Kellogg's. This is interesting, because all the marks are representative of cursive script with connected letters and looped ascenders and descenders. Something in the way the individual lines are executed must influence the way we perceive the marks as a whole.

[6] According to typographic terminology (e.g. Lupton 2004:43), all letters stand on a 'baseline'. A given typeface can be described in terms of its 'x-height', which is a measure of the space occupied by the typeface's version of minuscule 'x'. 'Ascender' and 'descender' refer to the vertical lines in minuscule roman letters 'b', 'd', 'f', 'g', 'h', 'j', 'k', 'l', 'p', 't', and 'y', which ascend or descend beyond a given letter's 'x-height'.

8.3.3.1 The challenge of operationalization

In the descriptive scheme for graphology, which I presented in chapter 7, I was inspired by Stötzner (2003) to suggest that lines could be analysed in terms of their relative 'weight', 'contrast', 'tension' and 'ending'. However, although these categories may be fine in a general discussion of the formal potential of lines, they are not accurate enough for purposes of forensic analysis. When comparing Danfoss and Dazhou, or Danfoss and Kellogg's for that matter, it would be very useful to have some kind of indisputable measure of weight, contrast, and tension. Unfortunately, establishing the criteria for such measures poses something of a challenge. This is because "weight" is a measure of one aspect of magnitude (cf. section 7.5.1). And how does one go about measuring it? The object of protection of trademark practice is the semiotic type, but we only ever have access to tokens of the type for analytical purposes. And because a given trademark token can occur in many different extension scales, we may find ourselves comparing a mark on a cardboard box with a mark on an aeroplane fuselage. In other words, relating a measure of magnitude to a constant "outside" the graphic structure (such as SI, the International System of Units) will not work. We must, somehow, relate the measurement to something "inside" the structure.

I have discussed these challenges elsewhere (Johannessen 2008). Here, I pointed out that Stötzner's aim was probably to bring the need for a "signographic" field of study to general attention rather than to provide detailed guidelines for the analysis of the variables he proposed. He does, however, point to the fact that typographers term the weight of a given type 'thin', 'light', 'regular', 'strong', 'semi-bold', 'bold', 'extra bold' (Stötzner 2003:291). Such terms could quite possibly serve as increments on a scale for measuring weight, had it not been for these two circumstances: First, such a scale provides a very limited number of increments. Second, the scale is always arbitrarily defined relative to the values of a given type family[7] rather than an overall typographic scale of magnitude, such as for example the 'pica' or 'cicero'.[8] This means that the 'light' version of a generally bold typeface could very well have heavier strokes overall than the 'regular' of a generally spindlier typeface (Johannessen 2008:467).

A different and more promising approach can be found in Swiss typeface designer Adrian Frutiger's *Der Mensch und seine Zeichen* (1978). Frutiger uses the relation between figure and ground (which are both internal to the structure) in determining the class to which a stroke belongs in five steps:

[7] For example, Times New Roman is the name of a type family. The family consists of several individual typefaces; regular, bold, italic etc., each of which is actually unique in terms of the shapes of the letterforms. An italic typeface is *not* simply a slanted version of a regular typeface. Consider 'f' and '*f*' of the type family used here (Microsoft's "Cambria") and note how the regular letterform ends in a serif, which stands on the baseline, whereas the italic letterform ends in a tapered point, which descends below the baseline.

[8] In typography there are two parallel standards of measurement: The continental European tradition measures all typographic distances in 'ciceros' and 'points'. One cicero equals 12 points. One point is 0.375 mm. The American tradition measures typographic distances in 'picas' and 'points'. Again, one pica equals 12 points, but in the American system a point is 0.351 mm.

'Faden' (thread), 'Stange' (rod), 'Balken' (beam), 'Stamm' (trunk), and 'Masse' (mass). For example, the fourth class, 'Stamm', is defined by the equal space occupied by figure and (interior) ground: "[…] In die begleitenden Illustrationen treten die Innenräume ungefähr gleichwertig mit dem umgrenzenden Schwarzräumen zum Vorschein" (1978:76).

However, although Frutiger's scheme does relate to structure-internal qualities, it will also not accomplish what we need: Far from all instances of graphics are characteristic of tri-variate figure/interior ground/exterior ground structure. And although both the Danfoss and the Dazhou trademarks indeed have interior ground in the 'a', 'o' and the loops on the ascenders, most of the marks' structure is characterized by bi-variate figure/ground structure.

8.3.3.2 Weight Scale Rating

In (2008), I suggested the use of what I have chosen to call 'Weight Scale Rating' (WSR) as a more apt measure of a line's weight and consequently also of the differences in weight between lines (contrast) and in individual lines (tension).

WSR is a coefficient (x) of the *width* (w) of a given part of a line in relation to some expression of the overall, absolute extent of the sign (for example its *height* (h)). This is necessary, because the width of a line will always be a relative measure. A trademark can be scaled from silkscreen print on a fountain pen to a mural painting. Thus, the absolute width of a given line can vary from fractions of millimetres to several metres. Which constant is used as an expression of the overall extent of the sign is of less consequence, provided a clear definition of the extent of the sign and the same measure are used consistently. I have chosen to use the overall height of the sign. Intuitively, a signifier's height seems like a more stable expression of the area in trademarks in which positive and negative regions are distributed because trademarks tend to be wider than they are long. Most upright surfaces in the environment suitable for adornment with trademarks afford this quality: Lorry trailers, buildings, air plane fuselages etc. tend to extend further parallel to the ground than into the air.

The WSR-scale resulting from relating the line's width (w) to the signifier's overall height (h) runs from '0' to '100'. The extremes of the scale are limiting cases: '0' is a line with no width in relation to the signifier's height. This is, of course, not a graphological possibility because a graphic line must have some width in order to be perceivable.In other words, '0' is an expression of the theoretical line in Euclidian geometry. '100' is a line that is as wide as it is long. In other words, '100' is a measure of a square rather than a line. If we were to have a WSR in which x>100, we would have a line that is wider than it is long – and hence one that is more likely to be perceived as a line running in a different direction. WSR can be expressed thus:

$$x=100w/h$$

It follows that a 'contrast ratio' can be derived from the WSR of two individual strokes and that a tentative 'tension ratio' can be derived from the WSR of the thinnest and thickets points in the course of any one stroke.

8.3.3.3 Application of Weight Scale Rating

In my comparison of the Danfoss and Dazhou trademarks, I have attempted to meet trademark practice's globality principle by providing an expression of the average WSR and 'tension ratio' of the individual marks. This is under the assumption that the similarity in the way the two marks come across to us as instances of the convention of script is somehow due to their distribution of black and white, figure and ground along the lines of their strokes.

Now, as I stated above, there is no place for a concept such as a 'stroke' in a theory of graphology. The very term indicates the process of sign making, a notion that belongs in articulatory graphetics. Graphology is preoccupied with the distribution of information on a graphic surface, not with the way that information can be assumed to have come about. But we can use the insight we have gained from graphetics in order to break the two trademarks into manageable segments.

I have broken each trademark down into a sequence of stroke segments. Of course, this raises the very issue of delimitation of syntactical constituents, which I discussed in section 4.3.5. However, I feel that it is safe to treat these instances as a sequence because they are also linguistic in nature. We can safely assume that 'D' was written before 'a' and that the curved stroke in the 'D' was performed first, simply because this is how most people in fact write. This is especially relevant in cases as these because they represent a certain style of manual penmanship. Both marks have joined letters, and - in as much as the lettering represents manual penmanship - much of the sign could be produced in a single unbroken sequence of movements. I have chosen to segment the strokes based on how the calligrapher would set his pen to the paper, move it across the surface and then break contact with the paper. Thus, as a whole, each mark is (a convention of) the material trace of a level 'L' event of articulation. This event can be analysed in terms of 'L-1' sub-events, or strokes. Figure 8.14 below illustrates the principle of segmentation on the Danfoss trademark, resulting in 12 individual stroke segments.

8.14

There are a few reservations, which one has to make with regard to this specific comparative analysis: First, the number of data points has been limited to two for each 'L-1' segment for practical purposes: One for the thickest (w_w) and one for the thinnest (w_t) part of each stroke as illustrated in figure 8.15 below.

8.15

Although this provides an indication of the overall 'tension' of the individual stroke, as a measurement of the average 'weight', it may be misleading due to insufficient resolution. Theoretically speaking, in order to provide an accurate average WSR of a stroke with high tension, an infinite number of data points would have to be measured. Second, the measurement of the sign's 'height' as a constant for the calculation of the WSR may not be adequate as a constant. Because of the slight upward slant of specimens, the height may score too much in relation to stroke width, since height is measured at a right angle to the horizontal of the ideal topological ground. Finally, the measurement of width – especially of curved strokes – has rather a large margin of error. This is due to the fact that the width of a curved line must be measured on the radial dimension relative to the curve's centre of rotation. This is difficult; especially if the radius is not constant (i.e. the curve is eccentric). However, imperfect as it may be, the WSR is in my best judgement a better and operationally more practical expression of weight than any alternative I know of.

In the tables below, I have represented my measurements of WSR of the thinnest and thickest portions of each of the twelve strokes in the Danfoss trademark. I have also listed the 'tension ratio' of each stroke as well as the average 'tension ratio' (far right column) for all the strokes. In the bottom rows, I have listed the average WSR on the thickest and thinnest points of all the lines as well as a sum total average.

Stroke	Thickest point (WSR)	Thinnest point (WSR)	Tension Ratio
#1	15.15	4.24	1:3.57
#2	12.12	3.78	1:3.2
#3	9.09	3.03	1:3
#4	7.57	3.03	1:2.5
#5	6.81	6.81	1:1
#6	7.58	3.03	1:2.5
#7	7.58	3.03	1:2.5
#8	4.54	3.33	1:1.36
#9	8.33	2.72	1:3.06
#10	6.06	2.27	1:2.67
#11	6.06	3.03	1:2
#12	9.09	1.52	1:5.98
Average WSR, thickest point of stroke	**8.33**		
Average WSR, thinnest point of stroke		**3.32**	
Average WSR, total		**5.58**	
Average Tension Ratio			**1:2.78**

From a *graphological* point of view, these data give a statistical image of the distribution of 'figure' and 'ground' in the Danfoss trademark. They can also be seen as a statistical image of the way the structural variables of 'line' have been instantiated. From a *graphetic* point of view we can regard the data as a profile of the represented act of articulation, which is the result of a process involving certain substances (an acting body, a tool and a surface with all their individual affordances and restrictions).

In the next table, I have represented my measurements of WSR in the 11 strokes that make up the Dazhou trademark.

Stroke	Thickest point (WSR)	Thinnest point (WSR)	Tension Ratio
#1	8.05	6.32	1:1.27
#2	9.77	3.74	1:2.61
#3	6.90	2.59	1:2.66
#4	6.90	2.87	1:2.4
#5	5.17	2.87	1:1.8
#6	7.47	2.30	1:3.24
#7	7.47	2.30	1:3.24
#8	7.47	2.87	1:2.6
#9	6.90	2.87	1:2.4
#10	7.47	2.58	1:2.89
#11	17.24	2.58	1:6.68
Average WSR, thickest point of stroke	**8.09**		
Average WSR, thinnest point of stroke		**3.23**	
Average WSR, total		**5.67**	
Average Tension Ratio			**1:2.89**

Note the similarity in the average WSR measurements between the two marks. Recall that all WSR measures run on a scale from 0 to 100, where 0 is a line with no width and 100 is the thickest conceivable line. Note the mere fractions in difference between the overall weight and tension between the Danfoss and the Dazhou marks. I find it very reasonable to argue that this is an important reason why the two marks – even compared with other 'script' type logotypes – come across so similarly. Again, we must bear in mind that from a paradigmatically inclined social semiotic point of view the potential not instantiated is as important as the potential that is. Every 100 points on the WSR scale count equally (although I am convinced that if one was to accumulate data on many instances of calligraphy and typography a delimited range of values would come out as more frequent, because it better conveys the shape of letterforms).

In the final table below, I have listed WSR measurement for the 11 strokes that make up Kellogg's logotype to illustrate my point that in a general field of 'script' style trademarks, the values of Danfoss' and Dazhou's marks are indeed very close.

Stroke	Thickest point (WSR)	Thinnest point (WSR)	Tension Ratio
#1	15,75	7,96	1:1,97
#2	14,67	7,66	1:1,91
#3	12,13	6,02	1:2,01
#4	15,14	7,29	1:2,07
#5	17,68	6,92	1:2,55
#6	15,16	7,65	1:1,98
#7	14,60	6,00	1:2,43
#8	11,91	7,19	1:1,65
#9	16,02	6,85	1:2,33
#10	11,47	6,86	1:1,67
#11	14,29	6,95	1:2,05
Average WSR, thickest point of stroke	**14,43**		
Average WSR, thinnest point of stroke		**7,03**	
Average WSR, total		**10,74**	
Average Tension Ratio			**1:2,06**

If we list the average WSR measurements of all three trademarks we get a very clear picture: On average, the strokes in Kellogg's marks are almost twice the thickness of the strokes in the Danfoss and the Dazhou marks and the tension is considerably lower.

	Danfoss	**Dazhou**	**Kellogg's**
Average WSR, thickest point of stroke	8.33	8.09	14.43
Average WSR, thinnest point of stroke	3.32	3.23	7.03
Average WSR, total	5.58	5.67	10.74
Average Tension Ratio	1:2.78	1:2.89	1:2.06

8.3.3.4 Shape and enshapening

Going into a full analysis of every possible choice on the space and form dimensions of graphic form in order to validate my claim that the makers of Dazhou's trademark have made a conspicuous amount of choices that are similar to those of Danfoss is probably a bit excessive. I should say that the three alternative renditions of 'Dazhou' marks illustrated as figures 8.4, 8.5 and 8.6 go a long way to showing what it would look like if, for example, the lines had less tension or were structured as tri-variate figure/interior ground/exterior ground structures, or if frames were used, or if the lines were realized as negative shape rather than positive shape. There are, however, a couple of points that I would like to dwell on. They all pertain to shape, or to be more specific, to the shape of the endings of strokes. Note the way many of the strokes in Kellogg's logotype end in 'un-straight>convex>curve' shapes. In both the Danfoss and the Dazhou marks, many of the endings are 'straight' in combination with instances of 'un-straight>convex> angle'. Again, this goes to show that even in a delimited field of 'script' type trademarks, many similar choices of formal graphic structure have been made. And, as a final observation, the salient 'swooshes' underlining the words in both marks have endings that are distinctly 'unstraight>concave> angle'.

8.4 Does the scheme do the job?

The research question for this thesis states that the proposed descriptive scheme has to make the assessment of likelihood of confusion more (i) systematic, (ii) precise, (iii) measurable and (iv) comparable. The question is whether the exemplary analysis I have demonstrated here meets those requirements?

First of all, the proposed scheme can only shed a light on a single aspect – albeit a very important one – of the assessment of likelihood of confusion. In section 8.2.1, I discussed the principle of global appreciation in trademark practice and concluded that the scope of graphetics and graphology in relation to global appreciation is to describe the so-called visual image of trademarks and help hypothesize the so-called mental image. Second, I will argue that what I have proposed is indeed an improvement of the current state of the art in forensic comparative analysis of trademarks in terms of it being (i) systematic, (ii) precise, (iii) measurable and (iv) comparable.

Comparable: The exemplary analysis demonstrates beyond question that the proposed scheme has great potential for comparative analysis.

Systematic: It has been an ambition in this thesis to develop a simple, yet finite and exhaustive, descriptive scheme for graphic form to counteract the tendency for ad-hoc arguments in the comparison of trademarks. What I have proposed allows us to see, for example, the Danfoss and Dazhou trademarks as parts of a consistent paradigmatic systemic picture. Not only do we now have concepts for what the marks *are* (at least as far as graphic form is concerned) but also for what they are *not*. This is a crucial point, because from this point of view the potential *not* chosen is as important as the choices that are, in fact, made. Accordingly, both marks could have been executed instantiating, for example, frames or negative shape or any other part of the paradigmatic choice relations, cf. section 8.3.1.

Precise: Another ambition has been to develop analytical categories that balance the requirements of delicacy and discreteness. As I have demonstrated in the exemplary analysis, the scheme allows us to make a profile of the trademark as a whole, based on a detailed close analysis of discrete, unequivocal qualities of graphic form. In other words, it avoids the pitfall of "pedantic scrutiny" (cf. Wallberg 2005). Balancing the requirements of delicacy and discreteness is nowhere as challenging as in the analysis of shape. In section 7.6.1 I proposed to analyse shape in terms of the structural oppositions straight/un-straight, curve/angle and concave/convex. These simple categories ought to be sufficiently delicate for most purposes of forensic analysis. One could pursue the description of angles and curves, but I have not deemed it necessary.

Measurable: Objective measurement remains by far the greatest challenge for forensic analysis of graphic form, because the scalability of trademarks requires any measurement to be relative to the graphic structure rather than its surroundings. Using a concept as WSR for statistical profiles is promising and may show the way in future work on operationalization of formal structural variables of graphics.

8.5 Summary

In this chapter, I have discussed the application of a combined graphetic and graphological approach in a forensic context.

In section 8.2, I gave an introduction to the legal practice of Intellectual Property Rights. More specifically, in section 8.2.1, I discussed the legal concept of "global appreciation", which requires anyone engaged in forensic comparison of two trademarks to put him- or herself in the place of the average consumer and make the comparison according to what is assumed to be the way a consumer would perceive the marks. Based on canonical Danish and European texts on how trademarks should be compared, in section 8.2.2, I concluded that trademark practice regards the event, during which a consumer perceives a trademark and subsequently becomes confused (or does not become confused) about the origin of the product adorned with the mark, as singularly psychological. Moreover, practice has adopted a gestalt theoretical view on perception, which favours the whole at the expense of the parts. Thus, trademark practice generally regards detailed close analysis of trademarks with scepticism ("pedantic scrutiny", in the words of Wallberg (2008:105)) because insights thus gained are regarded as a violation of the gestalt principles underlying the principle of global appreciation. This could be construed as a problem for the combined graphetic and graphological approach to forensic comparison of graphic form, I have proposed in this thesis. For example, levels analysis of 'L-2' microevents during articulation could be regarded as a too detailed approach. However, in section 8.2.3 I argued that the scheme is in fact not in violation with trademark practice for these reasons: First, if one concurs to any degree with the assumptions of philosophical hermeneutics (cf. Gadamer 1960), the strict interpretation of the globality principle seems to constitute an epistemological fallacy. Second, the key proponents of gestalt theory were themselves very much aware that factors other than psychological ones have impact on perception and cognition. For example, Kurt Koffka mentions the necessity of incorporating theories of language "and the other symbolic functions" (Koffka 1935:422), if one ever wishes to truly understand these problems. In response to this, the whole thesis regards the event of confusion as a social, communicative event (which is of course ultimately also psychologically real) rather than singularly psychological. Finally, the proposed descriptive scheme does not qualify as "pedantic scrutiny of differences in detail" (cf. Wallberg 2008:105). To be sure, it is pedantic, but it analyses the overall qualities of graphic structures by describing the structural variants that instantiated in them and their measures and proportions. The resulting output can be presented as a statistical profile such as the WSR-profiles presented in section 8.3.3.3.

In section 8.3, I proceeded to demonstrate a combined graphetic and graphological approach to forensic comparative analysis of the two trademarks in case No. 1 in the corpus, *Danfoss A/S vs. Dazhou Heli Controls Co., Ltd.* After a brief introduction of the case in section 8.3.1, I proceeded to analyse the two

trademarks from diachronic and synchronic perspectives, respectively. The diachronic, graphetic analysis in section 8.3.2 yielded the following insights:

- Both marks draw upon a graphic convention of handwriting. This is evident in (i) the North-Northeast by South-Southwest slant of all vertical strokes, (ii) the connectedness of the letters, (iii) the execution of ascenders and descenders as loops.
- The marks draw upon the convention in very similar ways. In all likelihood, none of the marks is a material trace of actual acts of penmanship, but rather instances of a particular stylized convention of how traces of penmanship look. From the point of view of penmanship, the distribution of weight along the strokes of the marks is inconsistent with the strict correlation between angle of pen and direction of stroke in penmanship. Furthermore, as can be observed in the (slanted) vertical strokes in both marks, the inconsistency is very similar.

Moreover, the graphetic analysis provided a means of segmenting the two trademarks into a series of (conventionalized) 'L-1' sub-events, which serve as the basis of a part of the graphological analysis in section 8.3.3.

I began the graphological analysis with a discussion of the challenges facing anyone who wishes to operationalise graphological variables for something approaching an objective and absolute measurement. The crux of the matter is that, because we only ever have access to tokens of a trademark, and because those tokens can vary in size, we must relate measurements to a structure-internal constant rather than one that is external to the structure (such as SI-units). Using, as an example, the structural variable of stroke weight - and the derived contrast- and tension variables - I demonstrated how weight can be expressed in terms of the WSR-coefficient $x=100w/h$, which relates a measure of stroke weight to the overall height of the token trademark. Systematic measurements of WSR of the thinnest and thickest parts of all 'L-1' strokes in the Danfoss and Dazhou trademarks were used to compile simple statistical profiles of stroke tension in the (convention of) penmanship in the execution of the marks. These profiles yielded these insights:

- On a WSR scale from 0-100, the marks are suspiciously similar, both in terms of overall average stroke weight, thickest average, thinnest average and average stroke tension. The differences between the marks on all four variables are in the tenths of WSR-units.
- The endings of the individual 'L-1' strokes are very similar: They are 'straight' in combination with 'un-straight>convex>angle'
- Finally, both marks have a salient 'swoosh' with distinct 'un-straight>concave>angle'-endings.

In section 8.4, I argued that the proposed theory of graphetics and graphology does indeed meet the requirements of a scheme for comparative forensic analysis set forth in the research question.

9
Conclusion

9.1 Introduction

In this final chapter of the thesis I will sum up the gained insights and give my answer to the research questions of the thesis.

In section 9.2, I will summarize the various steps taken in the thesis in order to reach the conclusion and provide an overview of the primary insights gained in each step.

In section 9.3, I will present my conclusion. In section 9.4, I will discuss how the thesis can give rise to future research projects.

9.2 Inquiry: What did we do?

The thesis set out to answer the question: "How can a Multimodal Social Semiotic approach to graphic form be made applicable in a forensic comparative analysis of two-dimensional graphic trademarks in order to make the assessment of likelihood of confusion more (i) systematic, (ii) precise, (iii) measurable and (iv) comparable"? In order to answer this question, the thesis has gone through a number of steps, each of which is the topic of one of the following subsections.

9.2.1 Design of the inquiry

In chapter 2, I discussed certain aspects of the knowledge production of the thesis. This is an Industrial Ph.D.-thesis, which falls within the scope of forensic science. More specifically, it seeks to answer questions of relevance to the legal discipline of trademark law by applying insights from multimodal social semiotics and graphic design practice. In other words, the thesis straddles three very different fields of knowledge. This has posed a challenge, because each field has its own version of what trademarks are and how their function should be understood. The discussion revolved around two topics:

The event of confusion
In order to mark out a common ground, which can accommodate all three professional practices, I propose the concept of "the event of confusion". This is the event during which someone is exposed to a trademark and subsequently reacts with varying degrees of certainty or confusion with regard to the origin of the trademark. Traditionally, trademark practice has regarded what happens in the event of confusion as a psychological perception-event, which takes place in the minds of consumers. However, I suggest regarding the event of confusion as a social, communicative event that arises between people based on their use of semiotic resources. This entails regarding the event of confusion as an event during which these resources are instantiated in an *event of articulation* as well an *event of perception*. Hence, the concept of "the event of confusion" is compatible with all three fields of knowledge: Needless to say, such a perspective is compatible with MSS. It is also compatible with trademark practice because – although I choose to regard the event as a social, communicative event – at the end of the day it is still psychologically real. Finally, by factoring in articulation as well as perception, the concept is compatible with knowledge stemming from the practice of graphic design as well.

Point of observation
The next question raised by the cross-disciplinary approach in the thesis is how such an event can be observed and how the semiotic resources in play in it can be hypothesized. Traditionally, trademark practice favours 3rd person observation, such as consumer surveys. This is probably because trademark practice seeks to protect the interests of consumers, whose perspective then becomes determinative for the observation of the event of confusion.

However, there are three factors, which have caused me to opt for 1st person, introspective observation: First, this is an exploratory investigation which seeks to establish a descriptive scheme for something for which there was none before. Second, because we have insufficient descriptive readiness for graphic form, we cannot present consumers with precise and unprejudiced questions. Third, the thesis is based on the hypothesis that experience with the craft of graphic design makes people conceptually aware of minute differences in graphic form of which lay-people (average consumers) are not consciously and conceptually aware. Therefore, we cannot expect to get satisfying answers either.

As a result, I see no viable alternative to establishing a descriptive hypothesis based on introspection into my own experience with the graphic craft and only at a later stage (beyond the present investigation) proceeding to validate the hypothesis through 3rd person observation. Thus, the mode of inquiry in this thesis has many similarities with Christopher Frayling's concept of "research through art and design" where *acts of designing*, or *acts of graphic articulation*, are important modes of inquiry.

The hypothesis, that lay-people are not aware of graphic form at the same level as graphic designers, means that the concept of visual literacy and the subsequent question of "emic" and "etic" categories are of great importance to this thesis. Although - from the point of view of trademark practice - the emics of the average consumer would be the preferable point of departure, the descriptive hypothesis I am aiming for will be based on etic expert-categories. Hopefully these etic categories will help us identify emic patterns we could not previously recognize.

9.2.2 State of the art

In chapter 3, I gave a survey of semiotic approaches to trademarks based on selected literature. The aim was to determine whether previous descriptions of trademarks could provide a starting point for an analytical scheme, which is adequate for forensic purposes.

Concentrating on literature from (i) trademark practice, (ii) marketing and branding theory and (iii) graphic design practice, I concluded that these professional fields have developed slightly different models of the sign function of trademarks, because they have different interests. Trademark practice favours the intersign relation of "value" (because the aim of trademark law is to promote the interests of society at large), whereas marketing and branding theory and graphic design favour the intrasign "signification" (because their aim is to promote the interests of the individual company). In spite of their differences, all three practices have accommodated the fundamentally multimodal nature of graphic trademarks. However, the typological nature of their models makes them unable to analytically capture the kind of differences and similarities in cases like the ones in the corpus of the thesis. I suggest taking more of a topological approach, in which an inventory of scales of differences is specified.

9.2.3 What is MSS?

In chapter 4, I gave a general introduction to the social semiotic paradigm and discussed the origin of MSS in Michaels Halliday's SFL. The discussion revolves around three theoretical issues:

Synchronic and diachronic points of view on the system
The concept of "the system" is ubiquitous in social semiotic theory. The system is the sum total of the resources we humans use to interact with each other and exchange meaning. There are two fundamentally different ways of regarding the system, one diachronic and one synchronic. From the diachronic perspective, the system exists over time. At one point it came into being and at some point it will cease to be. From the diachronic perspective, we can appreciate the fact that the system is dynamic and ever changing. We can appreciate its history over a range of time scales from the logogenetic micro-scale of biological, neurological, or psychological processes in a particular event of articulation or perception over the ontogenetic development of semiotic competences in an individual on the scale of the span of a life to the macro-scale of the emergence of semiotic modalities. From a synchronic perspective we attempt to map the system as a paradigm of paradigms, as the sum total of potential choices for making meaning at a given moment in time.

The aim of this thesis, to develop a descriptive scheme for graphic form that is systematic, precise, measurable and comparable, is ultimately a synchronic venture. However, as stated by Jay Lemke, any synchronic, structural description entails a diachronic, dynamic analysis. This thesis is no exception. We need to adopt both stances towards the system in order to render probable the diachronic relevance of the synchronic descriptive categories. This is why I choose to develop a theory of both diachronic graphetics and synchronic graphology.

The system's ecosocial environment
A relatively new development in social semiotic theory is that an increasing sensitivity to diachronically oriented explanations of the system's architecture has led to an ecosocial understanding of the system's relation to its environment. This is especially apparent in the latest edition of IFG, in which Halliday and Matthiessen classify the four strata of language in terms of "organizing" and "interfacing" functions. The strata of phonology and lexicogrammar, they claim, serve the internal organization of language, whereas phonetics and semantics serve as interfaces with the system's environment; the (ecological) biology of the body and the (social) context.

I propose to take the consequence of this development and propose a revised model of stratification, which assigns an explicit place in the ecosocial environment of the semiotic system to "the body".

The nature of MSS objects of study
Most MSS objects of study may indeed include instances of language, but frequently they do not. As a result, MSS objects of study tend to be fundamentally different from the linguistic objects studied in SFL. One fundamental difference is

that MSS objects of study are typically (although not exclusively) simultaneously rather than sequentially constituted. One consequence of this is that – although MSS is derived from SFL – it has shifted its focus and has become, in a sense, inherently paradigmatic in the way it models the system. Because of this, many MSS theoreticians favour a descriptive architecture, which does not accommodate the concept of "duality of patterning" in the same way as SFL does. For example, most MSS theoreticians "stratify" the system into a number of poly-synchronic "practices" rather than, like SFL, a hierarchy of redundancies.

However, I propose to renegotiate the concept of duality of patterning, taking paradigmatic choice rather than syntagmatic sequence as the point of departure for the second articulation of meaningless but meaning-differentiating differences.

9.2.4 Shortcomings of MSS

In chapter 5, I carried out an analysis of one case from the corpus of the thesis (Nike, Inc. vs. Li-Ning Company, Inc.) in order to discuss the strengths and weaknesses of state-of-the-art MSS with regard to the specific purpose for which I intend to use it. Two important insights were gained from this exercise.

Current MSS focuses on organization on the content plane
First, it became clear that current MSS has a focus of attention on levels of semiotic organization similar to the lexico-grammatical and semantic strata in language. This is because MSS is primarily interested in the grammatical structuring of meanings into texts rather than the basic principles of signification in the individual elements of the text. Thus, MSS theory has hitherto not developed a consistent descriptive architecture for the expression plane of multimodally constituted texts. However, as the analysis of Nike Inc. vs. Li-Ning Company, Inc. revealed, this is precisely what is required in order to develop a tool for forensic comparative analysis of graphic trademarks.

Tentative steps for an MSS model of the expression plane have been initiated
The second, important insight is that, although no consistent multimodal theory of expression exists, the first steps have already been taken in that direction. For example, Kress and Van Leeuwen's (2003) work on colour and Van Leeuwen's (2005b) work on typography use a distinctive feature approach inspired by Jakobson and Halle (1956), thus invoking the linguistic concept of phonology. In their work on colour, Kress and Van Leeuwen explicitly outline synchronic, systemic (phonology-equivalent) resources for colour. This is what Halliday and Matthiessen (2004) refer to as an organizing function of the system. However, just as importantly, Kress and Van Leeuwen implicitly suggest the diachronic (phonetic-equivalent) origins of their systemic categories in the various practices of articulating colour. Thus, they begin to theorize the interfacing functions of the system.

This is precisely the direction I choose to take in the analytical scheme for graphic form: On the one hand, I will propose a theory of the interface between our biological bodies and the graphic semiotic system, which I choose to call *graphetics*. On the other hand, I will propose a theory of the internal organization

of the expression plane of graphics, which I choose to call *graphology*. In this way, the categories of the descriptive scheme are not picked at random, but are rather motivated by a dynamic understanding of the causes of stability and change in the system.

9.2.5 Graphetics

In chapter 6, I explored a diachronic approach to graphic expression. The theory of graphetics, which I propose in chapter 6, pivots around the concept of "the event of articulation". The notion that a trademark, which is perceived in the event of confusion, is the material trace of a prior event of articulation is crucial to how I propose to improve the assessment of likelihood of confusion. This is because, in line with MSS theory, I assume both the events of perception and articulation to draw on the same semiotic resource although different levels of literacy probably condition them.

Articulation
Pivotal to "the event of articulation" is, of course, the concept of graphic (or indeed multimodal) "articulation". Here, "articulation" should be understood in a very literal sense inspired by the linguistic study of articulatory phonetics. However, because the object of study of this thesis is not speech sounds but rather the material signifiers of graphics, and because such graphic signifiers can be produced in any number of ways, a new definition of articulation is needed. Ideally, because the theoretical frame is MSS, such a definition should be able to capture any articulation of any signifier in any semiotic modality. Therefore, I have defined articulation in terms of an event, which occurs *when, as an effect of his communicative intent, a performer acts bodily to manipulate the material substance of a semiotic mode.*

A dynamical, process-ontological perspective on the body
This concept of articulation is different from the linguistic concept. The linguistic study of articulatory phonetics is based on a localized, substance-ontological, synchronic and general description of the human vocal tract. This makes sense in linguistics, because the various organs of the vocal tract can produce distinct sounds that distinguish linguistic meanings. However, a given graphic form can be produced in countless different ways using many different parts of the body. Therefore, I have been inspired by Gibsonian ecological perception psychology to propose a non-localized, process-ontological, diachronic and individual view of the body as the point of departure for the concept of multimodal articulation. Accordingly, what the body *is* is secondary to what it *does*.

Affordances
An ecologically inspired theory of multimodal articulation must factor in the affordances and restrictions for action presented by both the body and the various substances manipulated in an act of articulation, as well as the way the body interfaces with them. In chapter 6, I discuss the body, tools and substances as sources of affordance for articulation. The way I do this may seem unorthodox from the point of view of Gibsonian perception psychology. To a Gibsonian, an

affordance is a quality of an organism's environment, not of the organism itself. However, because this is a social semiotic undertaking and, accordingly, my focus of interest is the semiotic system for which the body is part of the ecosocial environment (cf. chapter 4), I see no hindrance to regarding the body as a source of affordances for the semiotic system, which are instantiated in acts of multimodal articulation.

Levels analysis
A crucial part of the graphetic analysis of graphic signifiers is the "levels analysis". This assumes that the material traces of an event of graphic articulation (e.g. a drawing) can be regarded as a whole at the focus level 'L' in a levels analysis. Thus, the event of articulation, of which the graphic signifier is the result, unfolds at one time scale. Subsequently, the whole can be analytically broken down into 'L-1' sub-events (e.g. the individual pen strokes of the drawing) at their own, smaller time scale. Furthermore, the sub-events may show traces of 'L-2' micro-events (e.g. slight changes of pressure on the pen or adjustments of direction). Levels analysis is crucial for graphetic analysis, but it is also an important part of how I propose to analyse graphological structure in chapter 7.

9.2.6 Graphology

In chapter 7, I explored a synchronic approach to graphic expression. This is my primary response to the requirements for the analytical scheme, which the research question outlines. The proposed theory of graphology pivots around the concept of paradigmatic choice relations. The chapter asks which formal choices, or structural variables, are available to us when we make graphic meaning. The chapter has three sections. The first one proposes a rudimentary method of analysing the simultaneously constituted graphic *structure*. This is necessary because it is virtually impossible to discuss structural choice potential without reference to instantiated structure. The second and third sections focus on two crucial aspects of formal properties of graphics; *space* and *form.*

Structure
At an overall level, I propose to analyse graphic structure in terms of *structural density* (an overall count of the structural 'L-1' *occurrences* in a graphic structure) and *structural complexity* (a count of the structural 'L-1' *variants* in a graphic structure). Both these analytical concepts have themselves been described as choice relations; continuums ranging from e.g. high to low complexity. Moreover, I propose to analyse graphic structure in terms of structural *contrast* (the relative *distribution* of density and complexity in a graphic structure).

Space
I propose to analyse a graphic *surface* in terms of the *regions* and *clusters* of regions into which it has been subdivided. When regions are identified, they can be described in terms of their relative *magnitudes*, *locations*, and *orientations.*

Form
The structural variables of form are the key to understanding the expression plane of graphic style. In my discussion of form, I argued that we need concepts for *enshapening* (the way a shape is made to appear to us) as well as for *shape* (the characteristic outline of a two-dimensional region). I propose to regard a shape as a configuration of instantiated choice relations between straight/un-straight, round/angular, and convex/concave. A given shape can appear to us in many guises that are configurations of instantiated choice relations between positive/negative, line/mass, and compounded/conjoined. Both the variables of *shape* and *enshapening* correlate with the variables of space and structure to a limitless number of combinations.

9.2.7 Application

In chapter 8, I discussed the application of a combined graphetic and graphological approach to forensic comparative analysis of graphic trademarks. First, I gave an introduction to the legal discipline of IPR (Intellectual Property Rights), of which trademark practice is a sub-discipline. Second, I carried out an exemplary comparative analysis of the Danfoss and Dazhou trademarks to demonstrate the aptness of the proposed approach.

Intellectual Property Rights
Besides introducing the context, in which the proposed analytical scheme would be applied, this section of chapter 8 discussed theoretical issues of compatibility between MSS theory and trademark practice. The discussion revolves around the seeming fact that synthetic and analytical approaches to comparing trademarks are at odds. Close reading of seminal works in Danish trademark literature reveals that the way trademark practice has conceptualized the event of confusion is in many ways due to Gestaltist perception psychology. This causes trademark practice to favour a synthetic approach to comparison known as "the principle of global appreciation". However, the descriptive and explanatory power of MSS, is precisely due to its apparatus for detailed close analysis. In other words, these two approaches would seem to be incompatible, but I argued that this is not so. First, if one concurs with the assumptions of philosophical hermeneutics, the strict interpretation of "the principle of global appreciation" seems to constitute an epistemological fallacy. Second, Gestalt theorists (e.g. Kurt Koffka) were themselves fully aware that a purely psychological approach cannot explain the kinds of problems we are faced with. For that, they say, we need to incorporate theories of language and other "symbolic functions" (Koffka 1935:422). Third, the proposed analytical scheme does not qualify as the "pedantic scrutiny of differences in detail" (Wallberg 2008:105), which trademark literature warns of. Rather, it analyses overall qualities of graphic structures by describing what variants are instantiated in them and in what measure and to which proportions. The result can be presented as a statistical profile.

Danfoss versus Dazhou

The exemplary comparative analysis of the Danfoss and Dazhou trademarks shows that a combined graphetic and graphological approach in an overall MSS framework is indeed a systematic, precise, measurable and comparable alternative to the current standard in the assessment of likelihood of confusion.

Measurability and WSR

One aspect, however, presents more of a challenge that the others. The objective measurability of structural variables is made very difficult by the fact that we only ever have access to the tokens of a trademark type. Because such tokens can vary in size, we must relate measurements to a structure-internal constant rather than, for example, structure-external units of measurement (such as SI). This makes any measurement relative rather than absolute. In response to this, as an example, I propose the concept of weight scale rating (WSR) as an expression of stroke dynamics, which makes measurements of stroke dynamics in two trademarks comparable, regardless of the size of the tokens.

9.3 Conclusion

Based on the assumption, that MSS theory can indeed improve the assessment of likelihood of confusion, I asked how such an approach to graphic form could be made applicable in a forensic comparative analysis of two-dimensional graphic trademarks in a way that is more (i) systematic, (ii) precise, (iii) measurable and (iv) comparable than the current practice. My conclusions are as follows:

What did we learn?
First and foremost, I do indeed find the MSS framework to be very apt for forensic comparisons of graphic trademarks. However, I also find my initial hypothesis that current MSS theory will fall short of capturing the similarities and differences of the trademarks in the corpus because it has no descriptive readiness for the expression plane of graphetics, to have been substantiated.

Second, my response to how an MSS approach can be made usable for forensic purposes has been to develop a theory of the expression plane of graphics within the Hallidayian architecture of stratification. This has entailed the description of graphic expression at a *graphetic* and a *graphological* stratum.

In order to cater for the fact that trademarks are not language and that the conditions of their articulation and perception are very different, I have developed these descriptions within an overarching ecosocial framework with the act of articulation at the core. Acts of articulation (along with their counterparts in perception) are regarded as pivotal in both the logogenetic event, the ontogenetic growth of the individual and the phylogenetic emergence of semiotic systems.

Moreover, it is precisely the setting of my suggestions within an ecosocial framework, which makes them theoretically compatible with the concept of "the event of confusion" in trademark practice, which correlates with the logogenetic event in MSS.

What didn't we learn?
This thesis has been an exploratory venture, which built on an number of assumptions in order to establish a robust descriptive scheme for aspects of graphic form that are relevant in a forensic comparative analysis. The first key assumption was that MSS theory would indeed be apt for such purposes if it was strengthened in its description of the expression plane of graphics. This assumption has been substantiated by the thesis.

The second key assumption was that people who have only little first-hand experience with acts of articulating graphic form have no concepts and thus only little language and maybe only little awareness of some of the structural differences in formal graphic structures. Pivotal to that assumption is that these differences, albeit sub-phenomenologically, still make a phenomenological difference to laypeople. This assumption remains uncontested by this thesis, which has not addressed the actual experience of empirical subjects from a 3rd person observer perspective (cf. section 2.3.4).

9.4 Further perspectives

Although the thesis has not directly addressed the assumption that sub-phenomenological differences in graphic form can make a phenomenological difference, I find it reasonable to argue that the thesis strikes a path to the validation or falsification of the assumption by providing a much-needed conceptual framework, which allows us to ask very specific and precise questions in the future.

For example, a very interesting future study would inquire into the mimesis hypothesis (Wulff 2005; Zlatev 2008) and inquire into the link between articulation and perception in order to substantiate the assumption that an act of articulation entails a simultaneous act of perception and the more radical assumption that an act of perception entails an (implicit) act of articulation. Such a study might even go as far as to use fMRI[1] to inquire into the explicatory potential of the "mirror neuron hypothesis" (e.g. Rizolatti and Craighero 2004) on the phenomenological experience of graphic form. It would be very interesting to see if something like the difference between the two circles depicted as figures 6.13 (articulated with tools of the hand) and 6.14 (synthesizing tools) somehow registers in the sensory-motor system of human subjects exposed to them. This could indicate that experience with acts of graphic articulation has consequences at more fundamental levels than those of semiotic conception.

Another interesting study was mentioned in section 4.3.2. Here, I suggested that the advent of graphic software applications provide a unique opportunity for studying the conditions of systemic stability and change. I find it very reasonable to assume that the introduction of digital production and distribution technology has accelerated phylogenetic change in the graphic system to a point where we could map changes in the way the first 12 to 15 generations of computer software have modelled the system with relative ease. Furthermore, we could inquire into the causes of those changes, because many of the designers and users of the first versions of that software are still alive. However, this window of opportunity for observing systemic change is closing, because the level of complexity in relations between software versions is rapidly increasing and will soon exceed a level that can be managed with a reasonable amount of effort.

Finally, if the theory of graphetics and graphology proposed here is to reach its full potential for forensic analysis, a lot of work remains in the challenging development of methods for measurement of graphic structure akin to Weight Scale Rating.

[1] fMRI is an abbreviation of "Functional Magnetic Resonance Imaging", which is a method used to measure the fluctuations of activity in different parts of the brain by measuring the flow of blood through them.

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Appendix 1
Case presentations

Case No. 1
Hypothetical case involving Danfoss A/S vs. Dazhou Heli Controls Co., Ltd.

1.3

1.4

The first case in the core corpus is one of several, which have motivated Danfoss A/S to sponsor this research project. The case, which stands between Danish 'Danfoss A/S' as possible plaintiff and Chinese 'Dazhou Heli Controls Co., Ltd.' as defendant, holds a status of hypothetical case in relation to the research question in the thesis. This is due to the fact that Danfoss A/S as of yet has not decided to take legal action against Dazhou on grounds of likelihood of confusion of their registration of the Danfoss figurative mark. However, the mark illustrated in figure 2.4 adorns the casings and packaging of large quantities of pressure differential controls for which Danfoss A/S held the patent until its expiration. The likeness of the products and other coinciding contextual factors could be considered to indicate disloyal intent on the part of Dazhou Heli Controls Co., Ltd.

Case No. 2
Hypothetical case involving LEGO A/S vs. MEGA Brands, Inc.

1.5

1.6

The second case is between the famous Danish manufacturer of the ubiquitous plastic bricks, 'LEGO A/S', as possible plaintiff and Canadian toy manufacturer 'MEGA Brands, Inc.' It also has the status of a hypothetical case. It differs from case No. 1 in that, to my knowledge, LEGO has never even contemplated filing a complaint against MEGA's figurative mark. They have, on the other hand, been involved in several lawsuits on grounds of infringement of LEGO's bricks and packagings. Although casual observation may not support a claim that MEGA's figurative mark is likely to be confused with LEGO's ditto, the two marks still constitute an interesting case study because they seem to share so many structural traits. From that perspective, one has to wonder why LEGO A/S has not found MEGA's mark to warrant legal action.

Case No. 3
Hypothetical case involving Nike, Inc. vs.
Li-Ning Company Ltd.

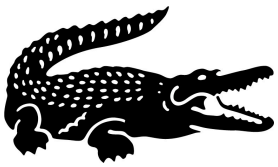
1.7

1.8

Much like the two marks of case No. 2, the marks in the third case form a hypothetical case. The case is between American sports equipment retailer Nike, Inc. and its up and coming Chinese competitor Li-Ning Company, Inc. Like the two marks in case No. 2, the Nike swoosh (2.7) and Li-Ning's stroke (2.8) may not be obviously alike. However, the two companies have quickly become head-to-head competitors in the large Chinese market for sports wear since Li-Ning's founding in 1990. Many observers in the marketing community have noted the Li-Ning stroke's suspicious similarity with Nike's swoosh, and case No. 3 forces us to wonder how far you can go in being inspired by market leaders.

Case No. 4
Danish Patent and Trademark Office, VR 2000 03355: Lacoste S.A. vs. Føtex A/S

1.9



1.10

The fourth case is from 2001. It stems from Danish administrative practice: The case comprises the two figurative marks from case No. VR 2000 03355 of the Danish Patent and Trademark Office (DKPTO). The case is between French 'Lacoste S.A.' as opposer and Danish supermarket chain 'Føtex A/S' as applicant. In 2000, Lacoste S.A. filed a notice of opposition against Føtex's application for registration of the mark depicted in figure 2.10 on grounds of likelihood of confusion based on the crocodile motif as a reference to clothing. The DKPTO has since dismissed the opposition because they found Føtex's mark to depict a juvenile crocodile whereas Lacoste's depicts an adult crocodile. Also, DKPTO finds the two marks to differ in composition as well as content.

Case No. 5
Danish Maritime and Commercial Court, V109/02:
Boehringer Ingelheim Pharma KG (2.9) vs. Danish Patent and Trademark Trial and Appeal Board (under the DKPTO)

1.11

1.12

The fifth case is from 2004. It stems from Danish judicial practice, more specifically from the Danish Maritime and Commercial Court (DMCC). It is case No. V109/02, which stood between German pharmaceutical manufacturer 'Boehringer Ingelheim Pharma KG' as opposer and the 'Danish Patent and Trademark Trial and Appeal Board' as defendant. This case is the result of a number of appeals beginning with an administrative dismissal by DKPTO of Boehringer's opposition against Decathlon's registration of the mark depicted in figure 2.12. Boehringer lodged an appeal with the Danish Patent and Trademark Trial and Appeal Board, which upheld DKPTO's decision. This appeal by Boehringer to the DMCC was a final attempt to have Decathlon's registration revoked. It was denied by the DMCC, which did not find the two marks likely to cause confusion.

Case No. 6
Danish Supreme Court, 109/2005
Intrade Finans A/S vs. Aalborg Industries A/S

1.13

1.14

The sixth case is from 2006. It stems from Danish judicial practice, more specifically from the Danish Hight Court, where it has journal No. 109/2005. In the case, Intrade Finans A/S (formerly Aalborg Engineering A/S), the owner of the mark depicted as 2.14, lodged an appeal against a sentence by the DMCC from 2005 that upheld a Bailiff's injunction against their mark on the part of Aalborg Industries A/S, the owner of the mark depicted as 2.13. The High Court judged that Alborg Engineering's mark was indeed likely to cause confusion with Aalborg Industries' mark and ordered its registration with DKPTO annulled.

Case No. 7
Danish Maritime and Commercial Court, V94/04: Rolls Royce PLC and Rolls Royce Motor Cars LtD. vs. PR Chokolade A/S

1.15

1.16

The seventh case is from 2007. It also stems from the DMCC, where it has journal No. V94/04. It stands between British automotive and legend 'Rolls Royce Motor Cars LtD.' and only slightly less legendary manufacturer of aeroplane engines 'Rolls Royce PLC.' as plaintiff and Danish manufacturer of gourmet chocolate 'PR Chokolade A/S' as defendant. Although Rolls Royce and PR Chokolade are not in any way competitors to the same resources, Rolls Royce claimed that PR have made unjustifiable use of the acquired distinctiveness of Rolls Royce's figurative mark depicted as 2.15 in their mark (2.16) since 1999 and claim damages.

Case No. 8
United States Patent and Trademark Office
In the matter of application nos. 77/179,942 and 77/179,968: Apple Computers Inc. vs. NYC & Company, Inc

1.17

1.18

The eighth case is from 2008, and stems from administrative practice. It is an American case, which stood between renowned manufacturer of computers and software Apple Inc. as opposer and the office of the Mayor of New York City (NYC & Company, Inc.) as applicant. In May 2007, NYC & Company, Inc. filed a trademark registration application with the United States Patent and Trademark Office (USPTO) of the mark depicted as 2.18. In January 2008, Apple Inc. filed a notice of opposition, requesting that the registration be denied on grounds of likelihood of confusion. After NYC & Company filed an amended application, to which Apple agreed, where the leaf-element on the apple had been removed, the USPTO granted the registration of the amended mark.

Case No. 9
European Court of First Instance, T-389/03:
Dainichiseika Colour and Chemicals Mfg. Co. Ltd. vs. Office for Hamonisation in the Internal Market (OHIM)

1.19

1.20

The ninth case is also from 2008. It stems from European judicial practice, more specifically from the European Court of First Instance, where it has journal No. T-389/03. The case stood between Japanese manufacturer of pigments and dyes 'Dainichiseika Colour & Chemicals Mfg. Co. Ltd.' as applicant and 'the European Office for Harmonisation in the Internal Market (OHIM)' as defendant. This was also the result of a string of appeals: Dainichiseika filed an application with OHIM in 1998 for the mark depicted as 2.20. In 1999, 'Pelikan Vertriebsgesellschaft mbH & Co. KG', the owner of the mark depicted as 2.19, filed a notice of opposition against the registration on grounds of likelihood of confusion. In 2001 OHIM decided to uphold the opposition and refuse to register Dainichiseika's mark. This final case is the result of an appeal against this decision filed to the Court of First Instance. The court decided to uphold OHIM's decision.

Case No. 10
Danish Supreme Court, 309/2005
Montex Holding Ltd. vs. Diesel S.p.A. and Diesel Denmark ApS

1.21

1.22

The tenth case is also from 2008. It stems from Danish judicial practice, more specifically the Danish High Court. Here it has journal No. 309/2005. The case is an appeal of a decision made by the DMCC in 2005 that a German customs seizure on the part of Diesel of a number of jeans produced by Montex with the figurative mark depicted as 2.22 embossed on the buttons in transit through Germany was lawful. Diesel's grounds for the customs seizure was that the mark on the buttons was an infringement of their figurative mark depicted as 2.21. The High Court reversed the EMCC's sentence.

Case No. 11
Danish Maritime and Commercial Court,
V87/08:
Dansk Supermarked A/S vs. Frederik Tuemand

1.23

1.24

The eleventh case is ongoing. It also stems from the DMCC, where it has journal No. V87/08. It stands between a master painter from the Danish town of Esbjerg, Frederik Tuemand as plaintiff and the Bailiff's Court of Esbjerg as defendant. Tuemand has lodged an appeal to the DMCC of a decision made by the Bailiff's Court in Esbjerg that he ceases using the mark depicted in 2.24. His use of the mark had been brought before the Bailiff by Dansk Supermarked on the grounds that it was confusingly similar to the mark of one of their supermarket chains known as 'Netto' (2.23).

Case No. 12
Danish patent appeal board,
V45/93:
NBA Properties, Inc. vs. Danish Patent and Trademark Office

1.25

1.26

The final case is from 1995 and stems from the Danish Patent and Trademark appeal board where it has journal No. V45/93. The case is an appeal of a decision from 1993 on the part of the Danish Patent and Trademark Office (then Patent directorate) to uphold a registration of Football Sport Merchandise S.p.A.'s figurative mark (2.26), which they find confusingly similar with their own mark (2.25). The appeal board did not find the two marks confusingly similar and upheld the directorate's decision.

Appendix 2
English abstract

Abstract

The thesis *Forensic analysis of graphic trademarks* aims at using insights from Multimodal Social Semiotics (MSS) in the pursuit of trademark counterfeiters. It proposes a method of comparative analysis of graphic trademarks, which is an improvement over the current state of the art in trademark practice, the so-called "assessment of likelihood of confusion". In other words, the undertaking in the thesis falls within the overall scope of forensic science.

More specifically, the thesis sets out to answer the question: "How can a Multimodal Social Semiotic approach to graphic form be made applicable in a forensic comparative analysis of two-dimensional graphic trademarks in order to make the assessment of likelihood of confusion more (i) systematic, (ii) precise, (iii) measurable and (iv) comparable"?

The thesis concludes that, overall, MSS is very apt as a theoretical framework for such analysis. However, because of the stylistic nature of the similarities between the trademarks in many trademark infringement cases, and because MSS does not have the descriptive readiness for the expression plane of graphics, the thesis also concludes that MSS in its current state of development falls short of capturing the similarities and differences of the trademarks in the 12 cases of the corpus in a systematic, precise, measurable and comparable way.

The thesis responds to this lack by developing a theory of the expression plane of graphics within the Hallidayian architecture of stratification. This entails the description of graphic expression at a diachronic, *graphetic*- and a synchronic, *graphological* stratum.

Hallidayian "Systemic Functional Linguistics", from which MSS and thus also this thesis has inherited its key heuristics, has been developed as a theory of language. In order to cater for the fact that trademarks are not language and have very different conditions for articulation and perception than language, the proposed *graphetic* and *graphological* approach to analysis of trademarks have been developed within an overarching ecosocial framework with the act of graphic articulation at the core.

In the thesis, acts of graphic articulation are regarded as pivotal in graphic events at many timescales: The logogenetic "event of confusion", in which a trademark is (potentially) mistaken for another trademark, the ontogenetic growth of graphic literacy in the individual and the phylogenetic emergence of graphic conventions.

The setting of the suggestions for forensic comparative analysis within an ecosocial framework is precisely what makes them compatible with "the event of confusion" in trademark practice. The compatibility rests on the correlation of the event of confusion in trademark practice and the logogenetic event of social semiotics.

In order to answer the research question, the thesis goes through a series of steps:

Chapter 2, "Design of the Inquiry", discusses certain aspects of the knowledge production of the thesis. The fact that the thesis straddles three very different fields of knowledge, (i) trademark practice, (ii) graphic design and (iii) MSS, poses a challenge, because each field has its own version of what trademarks are and how their function should be understood. Crucially, the discussion revolves around *the event of confusion.* The event of confusion is a concept proposed in the thesis in order to mark out a common ground, which can accommodate all three professional practices. It is the event during which someone is exposed to a trademark and either recognizes it or mistakes it. Traditionally, trademark practice has regarded what happens in the event of confusion as a psychological perception-event, which takes place in the minds of consumers. However, the thesis suggests regarding the event of confusion as a social, communicative event. This entails regarding the event of confusion as an event during which semiotic resources, which are shared by the communicating parties, are instantiated in an *event of articulation* as well an *event of perception*.

Chapter 3, "State of the art", gives a survey of semiotic approaches to trademarks based on selected literature. The aim is to determine whether previous descriptions of trademarks can provide a starting point for an analytical scheme, which is adequate for forensic purposes. Concentrating on literature from (i) trademark practice, (ii) marketing and branding theory and (iii) graphic design practice, it concludes that the typological nature of their models makes them unable to analytically capture the kind of differences and similarities in cases like the ones in the corpus of the thesis.

Chapter 4, "Multimodal Social Semiotics", gives a general introduction to the social semiotic paradigm and discusses the origin of MSS in Michaels Halliday's SFL. The discussion revolves around the status of *the communicative system* in social semiotic theory. There are two fundamentally different ways of regarding the system, one diachronic and one synchronic. The aim of this thesis, to develop a descriptive scheme for graphic form that is systematic, precise, measurable and comparable, is ultimately a synchronic venture. However, any synchronic, structural description entails a diachronic, dynamic analysis (cf. Lemke). As a result, the thesis proposes a theory of both diachronic *graphetics* and synchronic *graphology*.

Another important aspect of the system, which is discussed in the chapter, is the nature of the system's environment. An increasing sensitivity to diachronically oriented explanations of the system's architecture, which has led to an ecosocial understanding of the system's relation to its environment, is a relatively new development in social semiotics. The thesis proposes to take the consequence of this development and suggests a revised model of stratification, which assigns an explicit place to "the body" in the system's ecosocial environment.

Finally, the chapter discusses the nature of the typical objects of MSS study. Although they may include instances of language, frequently they do not.

As a result, MSS objects of study tend to be fundamentally different from the linguistic objects studied in SFL. They are typically (although not exclusively) simultaneously rather than sequentially constituted. One consequence of this difference is that – although MSS is derived from SFL – its focus has shifted and has become, in a sense, inherently paradigmatic in the way it models the system. Because of this, many MSS theoreticians favour a descriptive architecture, which does not accommodate the concept of "duality of patterning" in the same way as SFL does. However, the thesis proposes to renegotiate the concept of duality of patterning, taking paradigmatic choice rather than syntagmatic sequence as the point of departure for the second articulation of meaningless but meaning-differentiating differences.

Chapter 5, "Shortcomings of MSS", carries out an analysis of one case from the corpus of the thesis (Nike, Inc. vs. Li-Ning Company, Inc.) in order to substantiate the hypothesis that state of the art MSS has no descriptive readiness for graphic form and, as a result, will fall short of explaining the differences and similarities of the cases in the corpus.

Chapter 6, "Graphetics", explores a diachronic approach to graphic expression. The resulting theory of graphetics pivots around the concept of "the event of articulation". The notion that a trademark, which is perceived in the event of confusion, is the material trace of a prior event of articulation is crucial to the way the thesis proposes to improve the assessment of likelihood of confusion.

At the core of "the event of articulation" is, of course, the concept of graphic (or indeed multimodal) "articulation" inspired by the linguistic study of articulatory phonetics. However, a new definition of articulation is needed because the object of study is not language. Ideally, because the theoretical frame is MSS, such a definition should be able to capture any articulation of any signifier in any semiotic modality. Therefore, the thesis defines articulation as an event, which occurs *when a performer acts bodily to manipulate the material substance of a semiotic mode as an effect of his communicative intent.* This concept is different from the linguistic one. The linguistic study of articulatory phonetics is based on a localized, substance-ontological, synchronic and general description of the human vocal tract, which makes sense because the various organs of the vocal tract can produce distinct sounds that distinguish linguistic meanings. However, a given graphic form can be produced in countless different ways using many different parts of the body. Therefore, the thesis proposes a non-localized, process-ontological, diachronic and individual view of the body as the point of departure for the concept of multimodal articulation. Such a concept of articulation must factor in the affordances and restrictions for action presented by both the body and the various substances manipulated in an act of articulation, as well as the way the body interfaces with them. Chapter 6, discusses "the body", "tools" and "substances" as sources of affordance for articulation.

Chapter 7, "Graphology", explores a synchronic approach to graphic expression. It is the thesis' primary response to the requirements set forth by the research question. The proposed theory of graphology pivots around the concept of

paradigmatic choice relations. The chapter asks which formal choices, or structural variables, are available to us when we make graphic meaning. The chapter has three sections. The first one proposes a rudimentary method of analysing the simultaneously constituted graphic *structure*. This is necessary because it is virtually impossible to discuss structural choice potential without reference to instantiated structure. The second and third sections focus on two crucial aspects of formal properties of graphics; *space* and *form.*

Structure
At an overall level, the thesis proposes to analyse graphic structure in terms of *structural density* (an overall count of the structural 'L-1' *occurrences* in a graphic structure) and *structural complexity* (a count of the structural 'L-1' *variants* in a graphic structure). Both these analytical concepts are described as choice relations; continuums ranging from e.g. high to low complexity. Furthermore, analysing graphic structure in terms of structural *contrast* (the relative *distribution* of density and complexity in a graphic structure) is suggested.

Space
The thesis proposes to analyse a graphic *surface* in terms of the *regions* and *clusters* of regions into which it has been subdivided. When regions are identified, they can be described in terms of their relative *magnitudes*, *locations*, and *orientations.*

Form
The structural variables of form are the key to understanding the expression plane of graphic style. The thesis proposes to regard a shape as a configuration of instantiated choice relations between straight/un-straight, round/angular, and convex/concave. A given shape can appear to us in many guises that are configurations of instantiated choice relations between positive/negative, line/mass, and compounded/conjoined. Both the variables of *shape* and *enshapening* correlate with the variables of space and structure to a limitless number of combinations.

Chapter 8, "Application", discusses the application of a combined graphetic and graphological approach to forensic comparative analysis of graphic trademarks. First, the legal discipline of IPR (Intellectual Property Rights), of which trademark practice is a sub-discipline, is introduced. Second, the thesis carries out an exemplary comparative analysis of the Danfoss and Dazhou trademarks to demonstrate the aptness of the proposed approach. The introduction to IPR discusses theoretical issues of compatibility between MSS theory and trademark practice. The discussion addresses the seeming fact that the synthetic approach to comparison in trademark practice and the analytical MSS approach are at odds. However, the thesis argues that this is not so. The proposed analytical scheme does not qualify as the "pedantic scrutiny of differences in detail" (Wallberg 2004:95), which trademark literature warns of. Rather, it analyses overall qualities of graphic structures by describing what variants are instantiated in them and in what measure and to which proportions. The result can be presented as a statistical profile.

The exemplary comparative analysis of the Danfoss and Dazhou trademarks shows that a combined graphetic and graphological approach in an overall MSS framework is indeed a systematic, precise, measurable and comparable alternative to the current standard in the assessment of likelihood of confusion.

One aspect, however, presents more of a challenge that the others. The objective measurability of structural variables is made very difficult by the fact that we only ever have access to the tokens of a trademark type. Because such tokens can vary in size, we must relate measurements to a structure-internal constant rather than, for example, structure-external units of measurement (such as SI). This makes any measurement relative rather than absolute. In response to this, as an example, the thesis proposes the concept of "weight scale rating" (WSR) as an expression of stroke dynamics, which makes measurements of stroke dynamics in two trademarks comparable regardless of the size of the tokens.

The thesis can be regarded as a step towards a more systematic, precise, measurable and comparable assessment of likelihood of confusion. However, a lot of future research is required in order to operationalise all the proposed descriptive variables in a way that is similar to WSR.

Appendix 3
Dansk resumé

Resumé

Ph.d.-afhandlingen *Forensic analysis of graphic trademarks. A multimodal social semiotic approach* sigter på at benytte indsigter fra multimodal socialsemiotik (MSS) i indsatsen mod varemærkepirater. Den foreslår en metode til sammenlignende retstekniske analyser af grafiske varemærker, som er en forbedring af den aktuelle praksis i varemærkeretten, den såkaldte "forvekslelighedsvurdering". Med andre ord falder afhandlingens forehavende indenfor det område, der med et engelsk ord kaldes "forensic science".

Mere specifikt sætter afhandlingen sig for at besvare spørgsmålet: "Hvordan kan en multimodal socialsemiotisk tilgang til grafisk form gøres anvendelig i en sammenlignende retsteknisk analyse af todimensionelle grafiske varemærker så forvekslelighedsvurderingen gøres mere (i) systematisk, (ii) præcis, (ii) målbar og (iv) sammenlignelig"?

Afhandlingen konkluderer, at MSS generelt er særdeles velegnet som teoretisk ramme for sådanne analyser. Imidlertid konkluderer afhandlingen også at MSS i dens aktuelle udviklingsstadie ikke vil kunne indfange ligheder og forskelle mellem mærkerne i de 12 sager i afhandlingens korpus deskriptivt, fordi disse ligheder og forskelle er stilistiske og fordi teorien ikke er deskriptivt parat til grafisk form.

Afhandlingen søger at udbedre denne mangel ved teorien ved at udvikle en teoretisk beskrivelse af grafikkens udtryksplan indenfor den stratifikationsarkitektur, der foreslås af Michael Halliday. Dette arbejde indebærer beskrivelsen af det grafiske udtryk på et diakront *grafetik*-stratum og et synkront *grafologi*-stratum.

Halliday's systemisk funktionelle lingvistik, som MSS og dermed også afhandlingen har arvet sine grundlæggende heuristikker fra, er udviklet i iagttagelsen af sproget. For at imødekomme den kendsgerning, at varemærker ikke er sprog og at deres artikulations- og perceptionsbetingelser er vidt forskellige, er den foreslåede *grafetiske*- og *grafologiske* tilgang til analyse af varemærker udviklet indenfor en økosocial ramme med den artikulatoriske handling i centrum.

Afhandlingen betragter grafiske artikulationshandlinger som omdrejningspunktet i grafiske begivenheder på mange tidsskalaer, f.eks.: (i) Den logogenetiske "forvekslingsbegivenhed", som er den begivenhed hvor et varemærke (potentielt) forveksles med et andet, (ii) den ontogenetiske udvikling af en persons grafiske kompetencer og (iii) den grafiske konventioners fylogenetiske emergens.

Det er præcis fordi afhandlingens forslag udspiller sig inden for økosociale teoretiske rammer, at de bliver kompatible med varemærkepraksissens forvekslingsbegivenhed. Kompatibiliteten hviler netop på sammenfaldet mellem varemærkepraksissens forvekslingsbegivenhed og socialsemiotikkens logogenetiske begivenhed.

For at besvare forskningsspørgsmålet tager afhandlingen en række skridt:

Kapitel 2, "Design of the Inquiry", diskuterer specifikke aspekter ved afhandlingens vidensproduktion. Den kendsgerning, at afhandlingen strækker sig over tre meget forskellige fagområder; (i) varemærkepraksis, (ii) grafisk formgivning og (iii) MSS, giver anledning til en række udfordringer, fordi hvert fagområder har sin egen opfattelse af, hvad varemærker er, og hvordan deres funktion skal forstås. Diskussionen har *forvekslingsbegivenheden* som sit helt afgørende omdrejningspunkt. Begrebet "forvekslingsbegivenhed" bliver foreslået i afhandlingen for at udstikke et konceptuelt rum, der kan imødekomme alle de tre fagområder, afhandlingen trækker på. Traditionelt betragter varemærkepraksis forvekslingsbegivenheden som en psykologisk perceptionsbegivenhed, der finder sted i sindet. Denne afhandling har et andet udgangspunkt, og betragter forvekslingsbegivenheden som en social, kommunikativ begivenhed. Det medfører, at forvekslingsbegivenheden er en begivenhed, i løbet af hvilken semiotiske ressourcer, der deles af de kommunikerende parter, instantieres i en *artikulationsbegivenhed* og en *perceptionsbegivenhed.*

Kapitel 3, "State of the art", giver en oversigt over semiotiske tilgange til varemærker baseret på udvalgt litteratur. Sigtet er at finde ud af, om forudgående semiotiske beskrivelser af varemærkefænomenet kan gøres til udgangspunkt for en analytisk tilgang, der fungerer i retstekniske sammenhænge. Idet oversigten fokuserer på litteratur fra (i) varemærkepraksis, (ii) marketing- og brandingteori og (iii) grafisk formgivning konkluderes det, at disse fagligheders modeller, i kraft af deres typologiske natur, ikke kan indfange forskelle og ligheder ved mærkerne fra korpussets sager analytisk.

Kapitel 4, "Multimodal Social Semiotics", giver en generel introduktion til det socialsemiotiske paradigme og diskuterer MSS-teoriens ophav i Michael Hallidays SFL. Diskussionens omdrejningspunkt er *kommunikationssystemet*, som det beskrives i socialsemiotisk teori. Der er to grundlæggende forskellige måder at anskue systemet på; en diakron og en synkron. Afhandlingens formål, at skabe et beskrivelsesapparat til grafisk form, der er systematisk, præcist, målbart og sammenligneligt, er til syvende og sidst et synkront forehavende. Imidlertid indebærer enhver synkron, strukturel beskrivelse en diakron, dynamisk analyse (jf. Lemke). Som en konsekvens heraf foreslår afhandlingen såvel en diakron teori om *grafetik* som en synkron teori om *grafologi*.

Et andet vigtigt forhold ved systemet, som tages under behandling i kapitlet, er dets omgivelsers natur. En nyere udvikling i socialsemiotisk teori er en forøget opmærksomhed på diakrone forklaringer på systemets arkitektur. Denne opmærksomhed har medført en økosocial forståelsesramme for systemets forhold til dets omgivelser. Afhandlingen foreslår at man tager konsekvensen af denne udvikling, og præsenterer en revideret stratifikationsmodel, hvor vores biologiske krop har en eksplicit plads som en del af systemets økosociale omgivelser.

Endelig diskuterer kapitlet typiske MSS-studieobjekters egenart. Om end sådanne studieobjekter kan omfatte tilfælde af sprog, er det langt fra altid

tilfældet. Derfor er den typiske genstand for et MSS-studium grundlæggende forskellig fra den sproglige genstand, som studeres i SFL. De er typisk, (om end ikke udelukkende) simultant snarere end sekventielt konstituerede. En af konsekvenserne af dette forhold er, at, selvom MSS er afledt af SFL, har teorien gradvist skiftet fokus og er blevet inherent paradigmatisk i den måde, hvorpå den modellerer systemet. Af denne grund lader mange MSS-teoretikere til at foretrække en deskriptiv arkitektur, der ikke tilgodeser den dobbelte artikulation på samme måde som SFL gør. Afhandlingen bemærker imidlertid, at man måske burde genforhandle det dobbelte artikulationsbegreb og tage det paradigmatiske valg snarere end den syntagmatiske sekvens som udgangspunkt for den anden artikulation af betydningsløse men betydningsdifferentierende forskelle.

I kapitel 5, "Shortcomings of MSS", gennemføres an analyse af én af sagerne fra afhandlingens korpus (Nike, Inc. mod Li-Ning Company, Inc.) for at sandsynliggøre den hypotese, at MSS i dens nuværende udviklingsstadie ikke er deskriptivt adækvat over for den grafiske form, og som resultat heraf ikke kan redegøre for forskelle og ligheder mellem mærkerne i korpussets sager.

I kapitel 6, "Graphetics", udforskes et diakront perspektiv på det grafiske udtryk. Den resulterende teori om grafetik har artikulationsbegivenheden som sit omdrejningspunkt. Forestillingen om at et varemærke, der perciperes i forvekslingsbegivenheden, er et materielt spor efter en forudgående artikulationsbegivenhed er helt central for den måde, hvorpå afhandlingen foreslår at forbedre forvekslelighedsvurderingen.

Kernen i artikulationsbegivenheden er naturligvis det grafiske (eller endog det multimodale-) artikulationsbegreb, som, i den form, det bruges i afhandlingen, er inspireret af den artikulatoriske fonetik i lingvistikken. Det er imidlertid nødvendigt at omdefinere artikulationsbegrebet, fordi afhandlingens genstand netop ikke er sprog. Eftersom afhandlingens teoriramme er MMS bør sådan en definition kunne imødekomme enhver artikulation af enhver tegnbærer i enhver semiotisk modalitet. Derfor definerer afhandlingen artikulationsbegivenheden som *en begivenhed, der forekommer, når en performer handler kropsligt for at manipulere en semiotisk modalitets materielle substans som følge af en kommunikativ intention*. Dette begreb omfatter også den lingvistiske artikulation, men er meget forskelligt fra det lingvistiske artikulationsbegreb. Det lingvistiske begreb er baseret på en lokaliseret, substansontologisk, synkron og generel beskrivelse af det menneskelige vokalapparat, hvilket giver mening eftersom vokalapparatets forskellige organer producerer distinkte lyde, der adskiller sprogets betydninger. En given grafisk form kan imidlertid produceres på utallige måder med mange forskellige dele af kroppen, og derfor foreslår afhandlingen at kroppen anskues ud fra et ikke-lokaliseret, procesontologisk, diakront og (mere) individuelt perspektiv som udgangspunkt for et multimodalt artikulationsbegreb. Et sådant begreb må indregne de muligheder, som krop, værktøj og materialer hver især bidrager med til den artikulatoriske handling.

I kapitel 7, "Graphology", udforskes et synkront perspektiv på grafisk det grafiske udtryk. Kapitlet er afhandlingens primære svar på de fordringer, forskningsspørgsmålet fremsætter. Det forslag til en teori om grafologi, der præsenteres, har den paradigmatiske valgmulighed som sit omdrejningspunkt. Således spørger kapitlet hvilke formelle valgmuligheder, eller strukturelle variable, vi har til rådighed, når vi skaber grafisk betydning. Kapitlet har tre hovedafsnit. I det første præsenteres en rudimentær metode til analyse af den simultant konstituerede grafiske *struktur*. Dette greb er nødvendigt, fordi, som det senere viser sig, er det næsten umuligt at diskutere strukturelle valgmuligheder uden henvisning til faktisk instantieret struktur. Andet og tredje hovedafsnit fokuserer på to afgørende aspekter af grafikkens formelle egenskaber; *rum* og *form*.

Struktur
På et overordnet plan foreslår afhandlingen at analysere grafisk struktur efter dens *strukturelle tæthed* (en optælling af strukturelle 'L-1' *forekomster* i en grafisk struktur) og dens *strukturelle kompleksitet* (en optælling af strukturelle 'L-1' *varianter*). Begge disse analytiske begreber er bliver beskrevet som valgmuligheder. De er kontinuummer, der strækker sig fra fx høj til lav kompleksitet. Ydermere foreslås det at analysere grafiske strukturer efter deres *strukturelle kontrast* (den relative *distribution* af tæthed og kompleksitet i en struktur).

Rum
Afhandlingen foreslår at analysere den grafiske *overflade* efter de *regioner* og *klynger* af regioner, den er opdelt i. Hvis sådanne regioner identificeres, kan de beskrives efter deres relative *størrelser*, *placeringer* og *orienteringer*.

Form
De strukturelle variable, der til sammen udgør det grafiske potentiale for form, er afgørende for at forstå den grafiske stilistiks udtryksplan. Afhandlingen foreslår at anskue en form (facon) som en konfiguration af instantierede valg mellem lige/ikke-lige, rund/kantet og konveks/konkav. En given form kan komme til syne for os på mange måder, der er konfigurationer af valg mellem positiv/negativ, linje/masse og opdelt/sammenføjet. Både *form*- og *udformningsvariable* korrelerer med rum- og strukturvariable og skaber et potentielt uendeligt antal kombinationsmuligheder.

Kapitel 8, "Application", diskuterer mulighederne for at anvende en kombineret grafetisk og grafologisk metode til sammenlignende retstekniske analyser af grafiske varemærker.

Først gives en præsentation af den juridiske disciplin, der kendes som "IPR" (Intellectual Property Rights), hvoraf varemærkeretten er en underdisciplin. Dernæst gennemføres en eksemplarisk analyse af Danfoss og Dazhous varemærker for at demonstrere egnetheden af den fremlagte metode.

Introduktionen til IPR diskuterer nogle problemstillinger vedrørende den teoretiske kompatibilitet mellem MSS og varemærkejura. Diskussionen adresserer den tilsyneladende kendsgerning, at varemærkepraksissens

syntetiske- og MSS-teoriens analytiske tilgang til sammenligningen af varemærker er i konflikt. Imidlertid er det afhandlingens konklusion, at der ikke er nogen sådan konflikt. Den foreslåede metode er ikke den "pedantiske granskning af detailforskelle" (Wallberg 2004:95), som varemærkelitteraturen advarer imod. Derimod analyseres en grafiske strukturs overordnede kvaliteter ved at beskrive, hvilke varianter, der er instantieret i dem, og i hvilket antal og relativt forhold. Resultatet kan præsenteres som en statistisk profil.

Den eksemplariske analyse af Danfoss og Dazhous mærker viser at en kombineret grafetisk og grafologisk metode inden for rammerne af en overordnet multimodal socialsemiotisk teori faktisk udgør et systematisk, præcist, målbart og sammenligneligt alternativ til den aktuelle standard i forvekslelighedsvurderingen.

Et af aspekterne er dog mere udfordrende end de andre. Den objektive målbarhed af strukturelle variable gøres vanskelig fordi vi kun kan have adgang til "tokens" af varemærkets "type". Og eftersom at tokens kan variere meget i størrelse er vi nødt til at henholde målinger til en struktur-intern konstant snarere end en struktur-ekstern målestok som fx SI. Det gør enhver måling relativ snarere end absolut. For at imødekomme dette forhold foreslår afhandlingen, som ét muligt eksempel, begrebet "Weight Scale Rating" (WSR) som et udtryk for stregdynamik. WSR går stregdynamikken i to varemærker sammenlignelig uanset størrelsen as de tilgængelige tokens.

Sammenfattende kan afhandlingen betragtes som et skridt i retning af en mere systematisk, præcis, målbar og sammenlignelig forvekslelighedsvurdering. Der vil imidlertid stadig skulle en del fremtidig forskning til, før alle de foreslåede variable er operationaliserede på en måde, der minder om WSR.