

# C-MODELS AND NEGATION IN ENGLISH, DANISH AND GERMAN

by  
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This paper explores the nature of Continuity-models, or 'C-models', extending the analyses of English, Danish and German offered in Dienhart (1995). It goes beyond the 1995 article, which focused on obligatory clause constituents only, by taking into consideration the syntactic behavior of an important non-obligatory constituent – the negative particle. Thus the models are extended to include *not* in English, *ikke* in Danish and *nicht* in German. It is demonstrated that the C-models proposed for these three languages in Dienhart (1995) can be modified without difficulty to accommodate this type of negation. It is also demonstrated that even when negation is involved, subordinate clause structure is simpler and hence more basic than main clause structure in these languages.

## 1. *C-models: some basic characteristics*

In an earlier article in this journal (Dienhart 1995) I proposed a new type of model – a 'Continuity-model' or 'C-model', for short – for characterizing the syntax of constituents in clauses. The main features pertaining to C-model construction are:

- 1) The basic positional category labels refer to functions (not forms).
- 2) Obligatory constituents (that is, Subject, Predicator, and Arguments – i.e. valents of the verb) are more basic than optional constituents (such as Adverbials).
- 3) Continuous constituents are more basic than discontinuous constituents.
- 4) Subordinate clause structure is generally more basic than main clause structure, since constituents seem to be more continuous in subordinate clauses than in main clauses.
- 5) Discontinuities can be viewed as the result of movement.

In Dienhart (1995) I also offered my proposals for the basic design of C-models for three Germanic languages: English, Danish and German. These models took into account obligatory constituents only. Optional adverbials were not taken into consideration. In the present paper I shall examine one of the most significant of all adverbials, the negative adverbial particle: *not* in English, *ikke* in Danish, and *nicht* in German.

My aim is to show how the C-models presented in Dienhart (1995) can be extended in a simple and natural way to account for the syntactic characteristics of the negative particle in each of these languages. Before doing this, however, it may be useful to provide an overview of C-models in general – at the same time reviewing how C-models can illuminate the syntactic structure of English, Danish and German.

### 1.1. The notational system

As noted in Dienhart (1995:101-102), constituent functions in C-models are specified in terms of the 'Odense system', using the symbols described in Bache, Davenport, Dienhart and Larsen (1993). The five basic clause functions are:

S	Subject
P	Predicator
O	Object
A	Adverbial
C	Complement

When it is necessary to be more specific, the labels S, O, and C can be further subcategorized as follows:

Sp	Provisional Subject
Sr	Real Subject
Od	Direct Object
Oi	Indirect Object
Op	Provisional Object
Or	Real Object
Cs	Subject Complement
Co	Object Complement

Conjunctions can be either CO (Co-ordinator) or SUB (Subordinator).

### 1.2. The continuity principle

The most fundamental principle in a C-model is the principle of continuity. It is this which establishes that e.g. declarative sentences are more basic than interrogative ones, and that positive sentences are more basic than negative ones:

- 1a. Your friends HAVE ARRIVED. (continuous P)  
 1b. HAVE your friends ARRIVED? (discontinuous P)  
 1c. Your friends HAVE not ARRIVED. (discontinuous P)

It is also this principle which establishes that subordinate clauses are more basic than main clauses:

- 2a. Ingen aner om Jakob ER BLEVET syg. (continuous P)  
 2b. ER Jakob BLEVET syg? (discontinuous P)  
 3a. Jeg ved at han ikke HAR LÆST bogen. (continuous P)  
 3b. Han HAR ikke LÆST bogen. (discontinuous P)  
 4a. Ich hörte, daß er in Berlin GEWOHNT HAT (continuous P)  
 4b. Er HAT in Berlin GEWOHNT. (discontinuous P)

### 1.3. The basic C-models for English, Danish and German

It was demonstrated in Dienhart (1995) that at the very basic level (that is, in clauses with only obligatory constituents and no discontinuities, as best seen in subordinate clauses) English and Danish share a common structure:

S	P	Arg O/C/A
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Cp. English: *I know that*

Alice	will love	the trip	(SPO)
she	was	unco-operative	(SPC)
the play	may last	three hours	(SPA)

Cp. Danish: *Jeg ved, at*

han	har læst	bogen	(SPO)
Peter	blev	fløv	(SPC)
de	er taget	hjem	(SPA)

In German, on the other hand, the basic model reverses the positions of the arguments (Arg) and the Predicator (P):

S	Arg O/C/A	P
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Cp. German: *Ich weiß, daß*

er	zwei Bücher	gekauft hat	(SOP)
sie	krank	ist	(SCP)
du	in Berlin	gewohnt hast	(SAP)

It is obvious from these two diagrams that one of the chief differences between English and Danish on the one hand, and German on the other, is the basic order S P Arg in English and Danish vs. S Arg P in German. In other words, English and Danish are basically 'SVO' languages, whereas German is 'SOV' – to use a more traditional typology.

#### 1.4. Constituent movement and extended C-models

Basic patterns like those given above can be converted into derived patterns, often containing discontinuities (indicated by the use of hyphens), by moving part or all of a constituent. This involves extending the model by adding 'Move'-columns. I argued in Dienhart (1995) that English and Danish have a common syntactic structure – even in the extended C-model – whereas the German structure, though similar, shows important differences:

The English and Danish Model

(SUB)	Move O/C/A(-)	Move P(-)	S	P	Arg O/C/A	Move S/O
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The German Model

(SUB)	Move O/C/A	Move P(-)	S	Move P(-)	Arg O/C/A	P	Move S/O
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The shaded areas of the diagrams show the basic constituent structure. All the other columns are filled only by moving (part of) one of the basic constituents. The single exception to this generalization is the first column, which marks the location of the subordinate conjunction in case we are dealing with a subordinate clause. One of the important results in Dienhart (1995) was the demonstration that the same language-specific C-model can be used for both main and subordinate clauses.

We have just noted that English and Danish differ from German in the basic order of S P and Arg (the shaded areas in the above diagrams).

But there is another important difference, as can be seen by an examination of the 'Move P' columns in the two diagrams above. As I argued in Dienhart (1995:128), the German model (unlike that for English and Danish) requires two slots for the movement of the Predicator: one to the left of the Subject and one to the right. I referred to these informally as the LONG move and the SHORT move, respectively. The two moves can be illustrated by the following examples:

- 5a. Ich weiß, daß er zwei Bücher gekauft hat. (no move)  
 5b. Er hat zwei Bücher gekauft. (short move)  
 5c. Hat er zwei Bücher gekauft? (long move)

While the extended C-model for German thus differs in two important ways from the C-models for English and Danish, one of the surprising results of the analyses given in Dienhart (1995) was that the extended C-models for English and Danish are identical. I argued (Dienhart, 1995:123-124) that differences between English and Danish are due primarily to conditions on constituent movement, particularly on Predicator movement. I demonstrated that the Predicator (P) is more mobile in Danish than in English. I also argued that the movable part of P, namely the Operator (Pop), is the finite verb in Danish, whereas it is the finite auxiliary in English. Danish and English were thus shown to differ primarily with respect to the conditions on Pop-movement.

One characteristic difference is manifested in the free movement of finite main verbs in Danish, where English requires *do*-support:

- 6a. Danish: Hvorfor TOG du min bog i går?  
 6b. English: Why DID you take my book yesterday?

The extra freedom of Pop in Danish, vis-à-vis English, appears to be directly related to the fact that the Danish verb also moves left (nearly) every time any constituent is placed in front of the Subject. In this respect, German is like Danish:

- 7a. German: Wohnt er in Berlin?  
 7b. Danish: Bor han i Berlin?  
 7c. English: Does he live in Berlin?  
 8a. German: Wo wohnt er?  
 8b. Danish: Hvor bor han?  
 8c. English: Where does he live?



- 9a. German: Im Winter wohnt *er* in Berlin.  
 9b. Danish: Om vinteren bor *han* i Berlin.  
 9c. English: In the winter *he* lives in Berlin.

Thus in German, as in Danish, Pop is the finite verb. And, as in Danish, the German Pop moves to the left of the Subject when any constituent is placed first in the clause. So Danish shares with English a basic clause pattern, while it shares with German the basic conditions on the nature and movement of Pop.

Let us conclude this review of C-models with some illustrative sentences from English, Danish and German, respectively.

### 1.5. English examples

No movement:

10. Nothing happened.  
 11. The play may last three hours.  
 12. Alice will love the trip.  
 13. She was unco-operative.  
 14. You do me a very great honor.  
 15. He has knocked them senseless.  
 16. That put more flesh on his bones.

Leftward movement of a single constituent:

17. Was she unhappy? (move P = Pop)  
 18. Have your friends arrived? (move Pop)  
 19. What lovely eyes you have! (move O)  
 20. How delightful it is! (move Cs)  
 21. On the shelf he placed an old teapot. (move A)

Rightward movement of a single constituent:

22. I take it that you're leaving. (move O)  
 23. It made him angry to think of it. (move S)

Leftward movement of multiple constituents:

24. What are you putting on the table? (move O and Pop)  
 25. On the shelf stood an old teapot. (move A and P)  
 26. Where did you put my letter? (move A and Pop)

Leftward and rightward movement of multiple constituents:

27. Would you like it if I gave you a raise? (move Pop and O)  
 28. Did it surprise you that she was late? (move Pop and S)

The C-model analyses of each of these English sentences (10-28) is displayed in the following table.

Table 1. Classifying the English examples in a C-model

	(SUB)	Move O/C/A(-)	Move P(-)	S	P	Arg O/C/A	Move S/O
10				S	P		
11				S	P	A	
12				S	P	O	
13				S	P	Cs	
14				S	P	Oi Od	
15				S	P	O Co	
16				S	P	O A	
17			P	S		Cs	
18			P-	S	-P		
19		O		S	P		
20		Cs		S	P		
21		A		S	P	O	
22				S	P	Op	Or
23				Sp	P	O Co	Sr
24		O	P-	S	-P	A	
25		A	P	S			
26		A	P-	S	-P	O	
27			P-	S	-P	Op	Or
28			P-	Sp	-P	O	Sr

## 1.6. Danish examples

No movement:

29. Lars forsvandt.  
 30. Peter blev flov.  
 31. Jeg har læst bogen.  
 32. Vi tog hjem.  
 33. Jeg fortalte min bror historien.  
 34. Det gør katten bange.

Leftward movement of a single constituent:

35. Talte hun russisk? (move P)  
 36. Kan hun tale russisk? (move Pop)

Rightward movement of a single constituent:

37. Det overraskede mig at han kunne læse. (move S)

Leftward movement of multiple constituents:

38. Hvor mange øl købte Peter? (move O and P)  
 39. Hvor mange øl har Peter købt? (move O and Pop)  
 40. Hvor lagde han bogen? (move A and P)  
 41. Hvor har han lagt bogen? (move A and Pop)  
 42. Fint skal det være. (move Cs and Pop)

Leftward and rightward movement of multiple constituents:

43. Er det umuligt at svare på spørgsmålet? (move P and S)

These Danish sentences (29-43) are analyzed in the next table.

Table 2. Classifying the Danish examples in a C-model

	(SUB)	Move O/C/A(-)	Move P(-)	S	P	Arg O/C/A	Move S/O
29				S	P		
30				S	P	Cs	
31				S	P	O	

Table 2 (continued)

	(SUB)	Move O/C/A(-)	Move P(-)	S	P	Arg O/C/A	Move S/O
32				S	P	A	
33				S	P	Oi Od	
34				S	P	O Co	
35			P	S		O	
36			P-	S	-P	O	
37				Sp	P	O	Sr
38		O	P	S			
39		O	P-	S	-P		
40		A	P	S		O	
41		A	P-	S	-P	O	
42		Cs	P-	S	-P		
43			P	Sp		Cs	Sr

## 1.7. German examples

Short leftward movement of P:

44. Er lachte. (either no movement, or short P-move)  
 45. Wir lernen Deutsch. (short P-move)  
 46. Er wohnt in Berlin. (short P-move)  
 47. Die Freude der Kinder war sehr groß. (short P-move)  
 48. Er erzählte seinem Sohn eine Geschichte. (short P-move)  
 49. Ich finde sie schön. (short P-move)  
 50. Er legte das Buch auf den Tisch. (short P-move)

Short leftward movement of Pop:

51. Ich habe zwei Bücher gekauft. (short P-move)  
 52. Er ist krank geworden. (short Pop-move)

Long leftward movement of P:

53. Wohnt er in Berlin? (long P-move)



## Long leftward movement of Pop:

54. Hast du in Berlin gewohnt? (long Pop-move)  
 55. Wird er ihm eine Geschichte erzählen? (long Pop-move)

## Leftward movement of multiple constituents:

56. Auf dem Tisch steht eine Vase. (move A and P)  
 57. Wo bist du gewesen? (move A and Pop)  
 58. Das Haus hat er rot gemalt. (move O and Pop)  
 59. Dir wird er eine Geschichte erzählen. (move Oi and Pop)  
 60. Sehr schön ist sie geworden. (move Cs and Pop)

## Leftward and rightward movement of multiple constituents:

61. Es freut mich, daß du kommen kannst. (move P and S)  
 62. Es hat mich gefreut, daß du bei mir warst. (move Pop and S)

Sentences 44-62 are analyzed in the next table.

Table 3. Classifying the German examples in a C-model

	(SUB)	Move O/C/A	Move P(-)	S	Move P(-)	Arg O/C/A	P	Move S/O
44				S	P			
45				S	P	O		
46				S	P	A		
47				S	P	Cs		
48				S	P	Oi Od		
49				S	P	O Co		
50				S	P	O A		
51				S	P-	O	-P	
52				S	P-	Cs	-P	
53			P	S		A		
54			P-	S		A	-P	
55			P-	S		Oi Od	-P	
56		A	P	S				

Table 3 (continued)

	(SUB)	Move O/C/A	Move P(-)	S	Move P(-)	Arg O/C/A	P	Move S/O
57		A	P-	S			-P	
58		O	P-	S		Co	-P	
59		Oi	P-	S		Od	-P	
60		Cs	P-	S			-P	
61				Sp	P	O		Sr
62				Sp	P-	O	-P	Sr

## 2. Incorporating the negative particle in a C-model

Having now reviewed the basic features of C-models and having constructed C-models to handle a range of sentences in English, Danish and German, it is time to move beyond the obligatory clause constituents: S, P, Oi, Od, Cs, Co and certain cases of A. It is very common to find sentences which contain, in addition to obligatory clause constituents, one or more optional elements, typically adverbial in function. Thus, to take English as an illustration, the sentence, *My boss will give me a raise*, can be embellished in a large variety of ways:

- 63a. NEXT TUESDAY my boss will give me a raise.  
 63b. My boss will give me a raise NEXT TUESDAY.  
 63c. My boss CERTAINLY will give me a raise.  
 63d. My boss will CERTAINLY give me a raise.  
 63e. FORTUNATELY, my boss will SOON give me a raise.  
 63f. BECAUSE OF MY DILIGENCE, my boss will give me a raise.  
 63g. My boss will give me a raise IN SPITE OF MY LAZINESS.

As these examples illustrate, there are numerous possibilities for the addition of optional adverbials. While such adverbials are typically added at the beginning or the end of the clause, the examples illustrate that other positions are also possible.

There is, however, one particular adverbial whose position is more fixed than that of any other adverbial, namely the NEGATION marker:

- 63h. My boss will NOT give me a raise.



I shall refer to *not*, and the corresponding forms in Danish (*ikke*) and German (*nicht*) as the 'NEGATIVE PARTICLE'. In English the particle also has a contracted form: *n't*. The rest of this paper will be devoted to an investigation of the syntactic behavior of these three particles and to the adjustments which need to be made in the respective C-models in order to incorporate negation.

We shall examine the behavior of the negative particle in two types of construction: in declarative sentences (such as 64a, b, c) and in interrogatives (such as 65a, b, c):

- 64a. English: He will NOT miss the train.  
 64b. Danish: Han spiste IKKE sin mad.  
 64c. German: Er hat es NICHT getan.
- 65a. English: Why didN'T he leave yesterday?  
 65b. Danish: Kommer han IKKE snart?  
 65c. German: Warum steigt er NICHT ein?

A superficial examination of sentences such as these might give the impression that the positioning of the negative particle is quite erratic in the three Germanic languages under consideration here. I shall show that this is not the case. Negation can be handled very systematically in each of these languages by a relatively simple extension of the C-models which we have already constructed.

Before examining each of the languages in more detail, however, let me provide some general evidence that the negative particle is less mobile than one might imagine. In each of the three languages, there are negative adverbs which, in meaning and behavior, are very close to the negative particles themselves. Thus we can compare *not* to *never* (English), *ikke* to *aldrig* (Danish) and *nicht* to *nie* (German). The second member of each pair can be viewed as combining negation with a time element – equivalent roughly to 'not' + 'ever'. In some cases the members of each pair display the same syntactic pattern:

66. English: He has not been to Chicago.  
 He has never been to Chicago.
67. Danish: Jeg spiser ikke spinat.  
 Jeg spiser aldrig spinat.
68. German: Sie kommt nicht zur Zeit.  
 Sie kommt nie zur Zeit.

However, the following examples illustrate that *never*, *aldrig* and *nie* are more mobile than the negative particles *not*, *ikke* and *nicht*:

69. English: Never have I seen such a performance!  
 \*Not have I seen such a performance.
70. Danish: Aldrig har jeg set noget lignende!  
 \*Ikke har jeg set noget lignende.
71. German: Nie warst du so schön wie heute!  
 \*Nicht warst du so schön wie heute.

It seems clear that the negative particle occupies a very special place in clause structure. Though it does not count as an Argument (since it plays no role in the general subcategorization of verbs), nonetheless it needs to be singled out for special treatment.

### 3. Negation in Danish

I have chosen to start with the Danish case, since the behavior of the negative particle (*ikke*) in this language seems to be easier to codify than the corresponding particles in English (*not*) and German (*nicht*).

At first glance such a statement might seem overly optimistic as a characterization of the Danish situation. Consider the following examples of the use of *ikke* in Danish main clauses:

- 72a. Han læste ikke bogen.  
 72b. Han har ikke læst bogen.  
 72c. Læser han ikke bøger?  
 72d. Havde han ikke læst bogen?  
 72e. Han skulle ikke have læst bogen.  
 72f. Hvilke bøger læste han ikke?

This looks rather unsystematic. We find *ikke* located in the following positions in these examples:

- between the MAIN VERB and the OBJECT
- between the AUXILIARY and the MAIN VERB
- between the SUBJECT and the OBJECT
- between the SUBJECT and the MAIN VERB
- between TWO AUXILIARY VERBS.
- at the END of the clause.



What is the basic pattern here? Let us seek an answer to this question by turning our attention to the behavior of *ikke* in SUBORDINATE CLAUSES, since subordinate clauses are typically more continuous, and hence more regular, than main clauses. The main clause examples which were given above have the following counterparts when subordinated:

- 73a. Jeg ved [at han ikke læste bogen].  
 73b. Jeg ved [at han ikke har læst bogen].  
 73c. Jeg spurgte [om han ikke læser bøger].  
 73d. Jeg spurgte [om han ikke havde læst bogen].  
 73e. Jeg ved [at han ikke skulle have læst bogen].  
 73f. Jeg ved [hvilke bøger han ikke læste].

The regularity is now apparent: the basic position of *ikke* is just before the Predicator. The various MAIN CLAUSE patterns can then be seen as the result of P-movement, complicated further by the consequent creation, in some of the examples, of a discontinuous Predicator.

We can handle all the above data (main clauses and subordinate clauses) by modifying the Danish C-model in two ways:

- make room for the negative adverbial particle by adding an extra column (which I shall label 'Neg A') to the left of the 'P' column;
- add a new 'Move P' column to the left of 'Neg A'.

The expanded C-model for Danish is shown in Tables 4a and 4b. The former analyzes the examples with subordinate clauses (73a-73f), where the Predicator is continuous, while the latter treats the main clause examples (72a-72f), which involve P-movement.

Table 4a. Negation in Danish subordinate clauses (examples 73a-73f)

	(SUB)	Move O/C/A(-)	Move P(-)	S	Move P(-)	Neg A	P	Arg O/C/A	Move S/O
73a	SUB			S		A	P	O	
73b	SUB			S		A	P	O	
73c	SUB			S		A	P	O	
73d	SUB			S		A	P	O	
73e	SUB			S		A	P	O	
73f		O		S		A	P		

The regularity of the position of *ikke* in subordinate clauses is strikingly clear from Table 4a: we see that in all the examples *ikke* directly precedes the Predicator. It is also evident that there are no discontinuities in these examples. In particular, there is no P-movement and hence no discontinuity in the Predicator in any of these sentences.

Consider now the main clause examples (Table 4b), whose structure – though different from that of the subordinate clauses – can nonetheless be analyzed by means of the same C-model as the one used for the subordinate clauses in Table 4a:

Table 4b. Negation in Danish main clauses (examples 72a-72f)

	(SUB)	Move O/C/A(-)	Move P(-)	S	Move P(-)	Neg A	P	Arg O/C/A	Move S/O
72a				S	P	A		O	
72b				S	P-	A	-P	O	
72c			P	S		A		O	
72d			P-	S		A	-P	O	
72e				S	P-	A	-P	O	
72f		O	P	S		A			

From Table 4b we see that despite the apparent variety in the placement of *ikke* relative to other constituents, *ikke* is in fact a stable element in Danish main clauses. The different environments are created by the movement of P, not by any variation in the position of the negative particle itself.

We are now ready to characterize the position of the negative particle, *ikke*, in Danish clause structure:

- The basic position of *ikke* is immediately to the left of the Predicator. This is evident from an examination of subordinate clause structure.
- In main clauses, this basic position of *ikke* is obscured by the following condition on Pop-movement in Danish: WHEN THE PREDICATOR IN A DANISH MAIN CLAUSE IS NEGATED, MOVE POP TO THE LEFT OF THE NEGATIVE PARTICLE. Recall that, for Danish, Pop is defined as the finite verb (auxiliary verb or main verb).



3. The leftward movement of Pop is either SHORT (to the right of S) or LONG (to the left of S), depending on the nature of the main clause itself. If the clause is interrogative, or if any of the Arguments have moved to the left of S, then Pop, too, moves to the left of S. Otherwise it moves to the right of S.

#### 4. Negation in English

Turning our attention now to English, let us consider the position of *not* in main clauses (examples 74a-74e) and subordinate clauses (75a-75e):

- 74a. He does not eat fish.  
 74b. He will not eat fish.  
 74c. Has he not eaten the fish?  
 74d. He should not have eaten the fish.  
 74e. What fish can he not eat?
- 75a. I know [that he does not eat fish].  
 75b. I know [that he will not eat fish].  
 75c. I believe [that he has not eaten the fish].  
 75d. I knew [that he should not have eaten the fish].  
 75e. I wonder [what fish he can not eat].

Because English typically requires *do*-support when the negative particle is introduced, the pattern in English main clauses looks somewhat more regular than in Danish main clauses. However, as in Danish, the pattern is clearest in subordinate clauses. But here we find one of the major structural differences between Danish and English:

Whereas the negative particle in Danish precedes the Predicator, in English it falls 'within' the Predicator.

In other words, the addition of the negative particle creates a DISCONTINUITY in the Predicator in subordinate clauses as well as in main clauses. This is, of course, a very concrete method of negating the Predicator. However, it poses certain difficulties for our analysis. There are two alternative analyses that come to mind.

The first, which for convenience we can label the 'continuous Predicator' approach, would be to extend the English model in exactly the same way we extended the Danish one: insert the negative particle to the left of the Predicator, and then apply P-movement, shifting Pop to the left of the particle. Such an analysis would have two advantages:

- It would allow us to start with a continuous Predicator, thus conforming to the basic tenet of C-model construction.
- From a typological point of view, it would simplify comparison with Danish. Were we to adopt the 'continuous Predicator' analysis, the main difference between English and Danish could be stated as follows: in English, P-movement to the left of negation is obligatory in subordinate clauses as well as in main clauses, whereas in Danish it takes place only in main clauses.

But there would be disadvantages with this analysis as well. In the first place, it would set up a structure for English (negative particle to the left of the Predicator) which is totally artificial in that it never 'surfaces' in this position, not even in subordinate clauses. If we were to adopt this solution, we would be ignoring the evidence provided by subordinate clauses.

Furthermore, there is an important aspect of negation in English which we would have some difficulty in explaining if we were to adopt the 'continuous Predicator' approach. In English the negative particle can become a suffix on Pop (creating what I shall label Popn) – that is, it can be contracted and encliticized, as illustrated in the next set of examples (the contracted counterparts of 74a-74e):

- 76a. He doesn't eat fish.  
 76b. He won't eat fish.  
 76c. Hasn't he eaten the fish?  
 76d. He shouldn't have eaten the fish.  
 76e. What fish can't he eat?

We see here that not only can the negative particle attach itself to Pop, it can thereafter move along with Pop (as in examples 76c and 76e). That is, the negative particle, when contracted, can participate in P-movement – at least in main clauses (this movement appears to be blocked in subordinate clauses, as we shall see below).

Suppose, therefore, that we wished to characterize the structure of sentence 76c (*Hasn't he eaten the fish?*) in terms of the 'continuous Predicator' approach. The basic (ungrammatical) structure would be:

Move P(-)	S	Move P(-)	Neg A	P	Arg O/C/A
	He		not	has eaten	the fish



Then we would have to envision a P-movement around the negative particle:

Move P(-)	S	Move P(-)	Neg A	P	Arg O/C/A
	He	has	not	eaten	the fish

followed by contraction and encliticization:

Move P(-)	S	Move P(-)	Neg A	P	Arg O/C/A
	He	has	-n't	eaten	the fish

and then P-movement once again:

Move P(-)	S	Move P(-)	Neg A	P	Arg O/C/A
Hasn't	he			eaten	the fish

Thus P-movement would have to be invoked twice – once to 'pick up' the negative particle, and then again to create the yes/no-question.

A better solution is to heed the structural evidence provided by negation in subordinate clauses, and allow for the direct 'insertion' of the negative particle into the Predicator at the very start. This can be termed the 'discontinuous Predicator' approach. The result is the following extension of the model for English:

(SUB)	Move O/C/A(-)	Move P(-)	S	P(-)	Neg A	(-)P	Arg O/C/A	Move S/O
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In terms of this model, we see that (for the first time in our system) a discontinuity can be created without movement of any kind (unless one wishes to view the 'insertion' of the negative particle as a kind of 'movement' – from outside the model to within the model).

With this extension of the model, we are now ready to analyze the structure of all the negative English sentences we have examined so far.

This is done, for main clauses, in Tables 5a (examples 74a-74e) and 5b (examples 76a-76e), and, for subordinate clauses, in Table 5c (examples 75a-75e).

Table 5a. Negation in English main clauses (non-contracted forms)

	(SUB)	Move O/C/A(-)	Move P(-)	S	P(-)	Neg A	(-)P	Arg O/C/A	Move S/O
74a				S	P-	A	-P	O	
74b				S	P-	A	-P	O	
74c			P-	S		A	-P	O	
74d				S	P-	A	-P	O	
74e		O	P-	S		A	-P		

Observe that in this analysis, discontinuous Predicators can be created by Neg-insertion alone (74a, b, d), as well as by the already established patterns of P-movement as in, for example, yes/no-questions (74c) and *wh*-questions (74e).

Consider next the analyses of the contracted forms in main clauses (Table 5b):

Table 5b. Negation in English main clauses (contracted forms)

	(SUB)	Move O/C/A(-)	Move P(-)	S	P(-)	Neg A	(-)P	Arg O/C/A	Move S/O
76a				S	P-	A	-P	O	
76b				S	P-	A	-P	O	
76c			P-A	S			-P	O	
76d				S	P-	A	-P	O	
76e		O	P-A	S			-P		

We see that the analysis of contracted forms is similar to the analysis of the non-contracted forms (compare Tables 5a and 5b), though in the contracted forms the negative particle, being attached to Pop (and thus resulting in Popn), moves along with Pop whenever Pop moves (as in 76c, e).



Whether a contracted form such as *hasn't* should be treated as a verb or as a verb plus adverb is a moot point. Sticking to the analysis proposed in Bache, Davenport, Dienhart and Larsen (1993), I have chosen to treat the negative particle as an adverb whether it is contracted or not.

The next table (5c) displays the analysis of negation in subordinate clauses:

Table 5c. Negation in English subordinate clauses

	(SUB)	Move O/C/A(-)	Move P(-)	S	P(-)	Neg A	(-)P	Arg O/C/A	Move S/O
75a	SUB			S	P-	A	-P	O	
75b	SUB			S	P-	A	-P	O	
75c	SUB			S	P-	A	-P	O	
75d	SUB			S	P-	A	-P	O	
75e		O		S	P-	A	-P		

The structure of the subordinate clause is, as we would expect, highly regular. The insertion of the negative particle splits the Predicator, resulting in the pattern P- A -P.

Contracted forms exist in subordinate clauses, too, as the following examples (the contracted counterparts of 75a-75e) indicate:

- 77a. I know [that he doesn't eat fish].  
 77b. I know [that he won't eat fish].  
 77c. I believe [that he hasn't eaten the fish].  
 77d. I knew [that he shouldn't have eaten the fish].  
 77e. I wonder [what fish he can't eat].

But the analysis of these forms is fully parallel to the analysis of the non-contracted forms. The relevant structure is P- A -P. Since P-movement is rare in subordinate clauses, we do not expect auxiliary verbs to move, and consequently we do not expect the particle to travel either. An interesting fact about English is that even on those rare occasions where we do find P-movement in subordinate clauses, the contraction and subsequent movement of the negative particle is BLOCKED:

- 78a. Had it not been for the rain, we would have departed long ago.  
 78b. \*Hadn't it been for the rain, we would have departed long ago.

- 79a. Were he not so ill, we could move him.  
 79b. \*Weren't he so ill, we could move him.

We are thus able to make the following generalization: while Popn (that is, the negative operator) can appear in both main and subordinate clauses, MOVEMENT OF POPN OCCURS ONLY IN MAIN CLAUSES.

#### 4.1. Negation in English tag-questions

The claim that Popn does not move in subordinate clauses has interesting consequences for the analysis of tag-questions in English. Consider:

80. You can speak Russian, can't you?  
 81. You can speak Russian, can you not?  
 82. Your father is not coming, is he?  
 83. Alice left at noon, didn't she?

These are often labelled 'tag-questions', and the underlined portions are referred to as 'tags'. But there is no consensus on how to analyze the tag with respect to the sentence as a whole. The tag is clearly clausal, since it has a subject and a finite predicator. But is it to be interpreted as a subordinate clause of some sort, or as an asyndetically attached main clause?

It seems to me that we must view it as more like a main clause than a subordinate clause, since Popn DOES MOVE to the left of the subject in these constructions (as in examples 80 and 83), and we have just seen that movement of Popn is normally blocked in subordinate clauses.

#### 5. English and Danish negation compared

We are now in a position to compare the structure of negated clauses in English and Danish:

##### Negation in English

(SUB)	Move O/C/A(-)	Move P(-)	S	P(-)	Neg A	(-)P	Arg O/C/A	Move S/O
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##### Negation in Danish

(SUB)	Move O/C/A(-)	Move P(-)	S	Move P(-)	Neg A	P	Arg O/C/A	Move S/O
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The only difference – but it is an important one – is in the nature of the fifth column – the one immediately to the left of the negation slot, 'Neg A'. We see that in Danish this is a 'Move' column, while in English it is not. In subordinate clauses (where P-movement is rare), the negative particle thus PRECEDES the Predicator in Danish, whereas it is 'INFIXED' within the Predicator in English. In main clauses, Pop moves to the left of the negative particle in Danish, establishing a parallel with English in those cases where Pop is a finite AUXILIARY verb.

### 6. Negation in German

Let us turn now to the German case. If we were to base our analysis of the German negative particle (*nicht*) solely on its position in main clauses, the situation would appear to be nearly as chaotic as it first seemed in Danish. But now we know that the pattern is likely to be simpler in subordinate clauses, so let us go directly to these structures.

Intransitive subordinate clause:

84. Ich weiß, [daß du nicht schläfst].  
85. Ich weiß, [daß du nicht schlafen kannst].

Monotransitive subordinate clause:

86. Es ist schade, [daß er das Buch nicht las].  
87. Ich weiß, [daß er das Buch nicht gelesen hat].  
88. Ich erzählte ihm, [daß er das Buch nicht gelesen haben sollte].  
89. Ich weiß, [welche Bücher er nicht gelesen hat].

Ditransitive subordinate clause:

90. Ich weiß, [daß Dietrich ihr sein Auto nicht verkauft hat].

In examples like these, the situation seems clear: the negative particle, *nicht*, precedes the Predicator. This is the same structure we found in Danish (though we must bear in mind that in German the Predicator follows the Arguments, whereas in Danish it precedes them).

However, the German situation is more complicated than this, as the following sentences, with non-O Arguments, indicate:

91. Ich weiß, [daß sie nicht krank gewesen war].  
92. Ich weiß, [daß er die Bücher nicht auf den Tisch gelegt hat].  
93. Ich weiß, [daß er sie nicht sehr schön findet].

Here we see that if the clause contains Arguments other than Objects (that is, if it contains C or an obligatory A), then *nicht* typically precedes these arguments. In other words, the insertion of the negative particle 'SPLITS' THE ARGUMENT SLOT. The German model can thus be extended to accommodate the negative particle in the fashion depicted in Tables 6a (subordinate clauses) and 6b (main clauses). For convenience, examples 84-93 are repeated here as part of Table 6a. The corresponding main clauses (94-103) are given in Table 6b.

Table 6a. Negation in German subordinate clauses

	(SUB)	Move O/C/A	Move P(-)	S	Move P(-)	Arg O	Neg A	Arg C/A	P	Move S/O
84	SUB			S			A		P	
85	SUB			S			A		P	
86	SUB			S		O	A		P	
87	SUB			S		O	A		P	
88	SUB			S		O	A		P	
89	SUB	O		S			A		P	
90	SUB			S		Oi Od	A		P	
91	SUB			S			A	Cs	P	
92	SUB			S		O	A	A	P	
93	SUB			S		O	A	Co	P	

Examples:

84. Ich weiß, [daß du nicht schläfst].  
85. Ich weiß, [daß du nicht schlafen kannst].  
86. Es ist schade, [daß er das Buch nicht las].  
87. Ich weiß, [daß er das Buch nicht gelesen hat].  
88. Ich erzählte ihm, [daß er das Buch nicht gelesen haben sollte].  
89. Ich weiß, [welche Bücher er nicht gelesen hat].  
90. Ich weiß, [daß Dietrich ihr sein Auto nicht verkauft hat].  
91. Ich weiß, [daß sie nicht krank gewesen war].  
92. Ich weiß, [daß er die Bücher nicht auf den Tisch gelegt hat].  
93. Ich weiß, [daß er sie nicht sehr schön findet].



Table 6b. Negation in German main clauses

	(SUB)	Move O/C/A	Move P(-)	S	Move P(-)	Arg O	Neg A	Arg C/A	P	Move S/O
94				S	P		A			
95				S	P-		A		-P	
96				S	P	O	A			
97				S	P-	O	A		-P	
98				S	P-	O	A		-P	
99		O	P-	S			A		-P	
100				S	P-	Oi Od	A		-P	
101				S	P-		A	Cs	-P	
102				S	P-	O	A	A	-P	
103				S	P	O	A	Co		

Examples:

94. Du schläfst nicht.
95. Du kannst nicht schlafen.
96. Er las das Buch nicht.
97. Er hat das Buch nicht gelesen.
98. Er sollte das Buch nicht gelesen haben.
99. Welche Bücher hat er nicht gelesen?
100. Dietrich hat ihr sein Auto nicht verkauft.
101. Sie war nicht krank gewesen.
102. Er hat die Bücher nicht auf den Tisch gelegt.
103. Er findet sie nicht sehr schön.

What we see from Table 6b is that the main clause pattern is also very regular – as far as the placement of the negative particle is concerned. The apparent irregularities can be seen to be the result of P-movement rather than the result of variation in the placement of the negative particle itself.

### 7. Negation compared in English, Danish and German

If we restrict ourselves first to a description of the basic position of the negative particle in each of these three languages, we have the following picture (in subordinate clauses). Starting with English, the negative particle splits the Predicator, coming after Pop; if there is no Pop, *do*-support is activated:

English

(SUB)	Move O/C/A(-)	Move P(-)	S	P(-)	Neg A	(-)P	Arg O/C/A	Move S/O
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In Danish the negative particle directly precedes the Predicator:

Danish

(SUB)	Move O/C/A(-)	Move P(-)	S	Move P(-)	Neg A	P	Arg O/C/A	Move S/O
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Finally, in German the negative particle splits the Arguments (if there are any) – more specifically, it follows O and precedes C and A. If there are no Arguments, it directly precedes P:

German

(SUB)	Move O/C/A	Move P(-)	S	Move P(-)	Arg O	Neg A	Arg C/A	P	Move S/O
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In main clauses, the negative particle is far more stable in all three languages than a first glance might suggest. Most of the variable patterns result from instances of P-movement – such as fronting due to interrogation – which have nothing to do with negation itself.

There are basically only TWO types of movement in main clauses which are directly related to negation: 1) Popn-movement in English, and 2) Pop-movement around the negative particle in Danish.



### 7.1. Popn-movement in English main clauses

In English, the negative particle can be contracted and encliticized to become a suffix on Pop, yielding Popn. Popn can then move just like Pop in e.g. main clause interrogatives: *Hasn't the mailman been here yet?*

### 7.2. Pop-movement in Danish main clauses

In addition to the normal conditions on Pop-movement in Danish, Pop obligatorily moves to the left of the negative particle in main clauses. The move is SHORT in typical declarative sentences (*Han spiste ikke op*), and LONG in e.g. interrogatives (*Spiste han ikke op?*).

### 8. Summary and conclusions

We have seen that the C-models constructed in Dienhart (1995) for treating obligatory clause constituents in English, Danish and German can be extended in a simple and fairly uniform way for all three languages to accommodate the three negative particles: *not* (English), *ikke* (Danish) and *nicht* (German).

A new column, 'Neg A', has been added to the C-model for each language. This has resulted in a slight difference between the C-models for English and Danish, which were shown in Dienhart (1995) to be identical as long as only obligatory constituents were taken into consideration. The addition of the 'Neg A' column has necessitated a new Predicator column in both English and Danish. However, in Danish this column is for derived structures (hence it is a 'Move P' column), whereas in English it is for basic structures (hence a plain 'P-' column). No new P-columns (of either type) are necessary in German.

Looking at each of the languages in turn, we have seen that in Danish the negative particle precedes the Predicator in subordinate clauses, whereas in main clauses P-movement shifts (part of) the Predicator to the left of the particle, often creating a discontinuous Predicator.

In German, too, the negative particle precedes the Predicator in subordinate clauses. However, if the clause contains Arguments other than Objects (that is, if it contains C or A), then the particle typically precedes these Arguments as well. In main clauses P-movement shifts (part of) the Predicator to the left of the particle, as it does in Danish.

In English we found that the particle creates a discontinuous Predicator in subordinate clauses as well as in main clauses. We also saw that in its contracted form the particle does not move in subordinate clauses.

Focusing on the similarities, we see that our analysis has resulted in English, Danish and German sharing two additional typological features: 1) all three C-models have gained a 'Neg A' column to the right of the Subject, and 2) all three models contain three 'P-columns' – though in Danish and German two of these are 'Move-P' columns, whereas in English only one of them is.

Finally, it is worth emphasizing that – as was the case when only obligatory constituents were considered – subordinate clause structure is seen to be more continuous, and hence more basic, than main clause structure when negation is involved. This is particularly apparent in Danish and German subordinate clauses, where we find the negative particle preceding a fully continuous Predicator.

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### References

- Bache, Carl, Mike Davenport, John M. Dienhart, Fritz Larsen. 1993. An introduction to English sentence analysis. Second edition. (First edition 1991.) Copenhagen: Munksgaard.
- Diderichsen, Paul. 1972. Essentials of Danish grammar. Copenhagen: Akademisk Forlag. (First published 1964.)
- Diderichsen, Paul. 1976. Elementær dansk grammatik. Copenhagen: Gyldendal (3rd edition, 7th printing; 1st edition 1946).
- Dienhart, John. 1995. Beyond Diderichsen: C-models and the comparison of English, Danish and German clause structure. RASK 3.93-135.
- Greenfield, Eric. 1967. German grammar. 2nd edition (1st edition 1940). New York: Barnes & Noble.
- Koefoed, H. A. 1967. Structure and usage as applied to word-order. Årbog for universitetet i Bergen, Humanistisk Serie, No. 1. Bergen and Oslo: Norwegian Universities Press.
- Petersen, Uwe Helm. 1995. Topologie des Satzes. Manuscript. Odense University, Denmark: Center for Tyske Studier, 27 pp.