



# Norwegian children's acquisition of the dialect feature *r*

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## ABSTRACT

The pronunciation of *r* is a central dialect feature of Norwegian. The main division is between a front and a back pronunciation. The back realization is acquired relatively early (around age 4), while the front realization is one of the most problematic sounds to acquire, and substitution sounds are frequent. Using two data collection points, we show how four children learning Norwegian start by substituting *r* using different strategies, and gradually learn the use of the *r* of their dialect area or idiolectal surroundings. The main argument of this article is that the *r*-development of kindergarten children is not only governed by rules on acquisition and development lines, but also by the sociolinguistic variation and use of *r* in the Norwegian speech community.

## KEYWORDS

child language, acquisition of phonetic features, linguistic development, sociolinguistics

## 1. Introduction

In Norwegian dialects, the pronunciation of *r* is a central linguistic feature. The main division is between the back (dorsal/uvular) *r*-pronunciation and the front (apical) *r* (Skjekkeland 1997: 89; Hansen 2010: 73).<sup>1</sup> Previous research on children's acquisition of *r* shows that children acquire the back *r* earlier than the front *r* (Fintoft et al. 1983: 41). In this article we are interested in the interplay between the acquisition of *r* and the acquisition of the local dialect. We will begin by giving a description of the distribution and use of the *r*-variants in the Norwegian speech community, as well as outlining previous research on the acquisition of *r* (section 1.1 and 1.2). In section 2 we provide some examples of how children, at around three years of age, use different versions of *r*, both conventional *r*-sounds and sounds not accepted in normal speech, and how this use develops over time. These examples are discussed in section 3, in relation to theory on children's linguistic development as well as their sociolinguistic development.

<sup>1</sup> We will use the terms *front* and *back* to cover the main division between realizations. See section 1.2 for a description of the various front and back variants found in the Norwegian speech community.

### 1.1 The *r*-variants in the Norwegian speech community

The Norwegian speech community is characterized by linguistic diversity. In addition to the indigenous languages (five Sami languages), the national minority languages Kven, Rom, and Romani (Bull et al. 2018), and the many modern immigrant languages (Aarsæther 2018), there is substantial linguistic variation within the Norwegian language (Kerswill 1994: 226). The Norwegian dialects vary in terms of phonology, morphology, syntax and lexicon. The *r*-variable discussed in this article, is in other words only one example of the many variables in Norwegian.

Another characteristic feature of the Norwegian speech community is that a spoken standard language does not exist, or more precisely: There are no strict social norms prescribing the use of a standard language in the public sphere or in formal situations. Norwegians neither speak a standard language with strangers on the phone or in a store, nor do they speak a standard language in classrooms and lecture halls, not even for speeches in courtrooms or in the parliament, Stortinget, is standard language necessary (Sandøy 2011). Instead, the Norwegians use 'their own' dialects in all speech situations, this normally referring to the dialect they first acquired (the dialect of their birthplace or the place they grew up), making minimal adjustments to it according to the formality of the speech situation. The fact that there is not a code switch between formal and informal speech and that Norwegians can use 'their own' dialects in all speech situations, leads to linguistic variation in the public sphere, as many dialects can be heard on the radio, television and so on. In addition to this, there is a social norm or expectation not to change 'their own' dialect despite moving to another place. A person from Tromsø who migrates to Bergen will be expected to keep his/her Tromsø dialect. As Norwegians are mobile, many Norwegians live in one dialect area while speaking another dialect. It is the normal situation that multiple dialects are heard in a workplace or even within a family (Røyneland 2018; Neteland 2017). Bugge (2016) describes the acquisition of sociolinguistic features (such as the local dialect) in three stages, based on network-widening events for the children such as beginning to attend kindergarten or beginning school. In her model, the language use within the family has a gradually smaller impact on the child's linguistic development, as the language use in the child's larger network (friends, kindergarten teachers, and so on) gradually becomes more important. Children at the second stage (1-5 years of age), acquires the language of their parents, but the phase is also characterized by a 'reorganization' of the spoken language in the direction of the speech of their peers. (Bugge 2016: 70, our translation). In other words, despite linguistic diversity among adults in the speech community, most children acquire the dialect spoken where they grow up, even if their parents speak dialects from other parts of the country.

This linguistic diversity, the norms of dialect use, and the gradual acquisition of the local dialect, form an important background for our investigation into the acquisition of *r* – as children growing up in Norway are exposed to multiple *r*-pronunciations from an early age, we might suspect that this will have consequences for the initial phases of their acquisition of *r*.

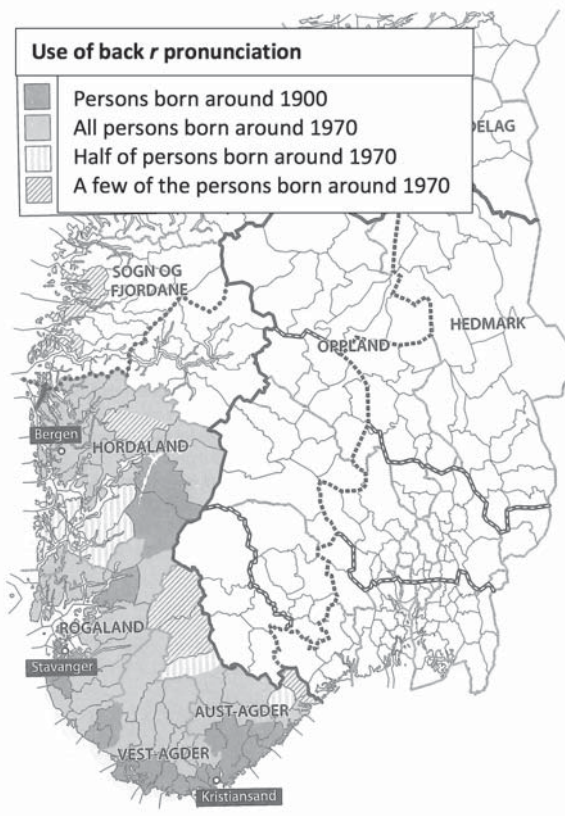
Like many European languages such as Dutch, French, German and English, the Scandinavian languages show a wide variety of pronunciations of *r* (van Hout & Van de Velde 2001: 1).

The /r/ appears to cover an impressive range of sounds between trills, taps, fricatives and vocalic realisations, ranging in place of articulation from labial to uvular. Moreover, one of the variants is the non-realisation of /r/, a variant that became famous in sociolinguistics since Labov's study in New York city. (van Hout & Van de Velde 2001: 1)

The pronunciation of *r* can be divided in two main groups; a back (dorsal/uvular) *r* and a front (apical) *r*. The front *r* is the traditional pronunciation in Norwegian, while the back *r* is a new variant that was spread from the European continent and was introduced to South West Norway in the late 1700s (Røstad 2015: 189).

From the South West urban center Kristiansand, the new variant gradually spread, first and foremost to the urban center Bergen, and subsequently to smaller towns and rural areas in the Southern and Western regions (Røstad 2015: 189; Sandøy 2015: 206–208). Figure 1 shows where the two *r*-variants are used today (back *r* in the grey shaded areas) and how the back *r* has spread over the last hundred years. Notice that the capital Oslo and the regions surrounding it traditionally have the front *r*. The four children in our investigation are growing up in Bergen, hence the local dialect they are acquiring has back *r*. However, they are also exposed to the front *r* in various degrees as adult in-migrants to Bergen (i.e. their parents, their kindergarten teachers, their friends, relatives and so on) might have this variant in 'their own' dialect.

Figure 1: The distribution of back *r* in geographical locations and age groups in Norway (from Hansen 2010: 74)



## 1.2 Acquisition of *r*, previous research

For the sake of simplicity, we most often describe the Norwegian *r*-variants as either a back *r* or a front *r*. However, these terms cover a diverse set of back and front *r*-pronunciations. The most usual pronunciations are given in the list below (based on Foldvik 1981):

Front *r*-pronunciations:

- [r] voiced apical trill
- [ɾ] voiced apical tap
- [ɹ] voiced apical approximant
- [ɹ̥] voiced retroflex approximant

Back *r* pronunciations:

- [ʁ] voiced uvular fricative
- [R] voiced uvular trill
- [ʁ̥] voiced velar median fricative
- [ʁ̥] voiced velar median approximant<sup>2</sup>

Additionally, Kristoffersen (2000: 72-87) describes the allophonic devoicing of front *r* after voiceless stops or /f/, as in *pris* [pɹi:s] ‘price’ and *fri* [fɹi:] ‘free’, and devoicing of *r* when followed by a voiceless, non-coronal obstruent, as in *skarp* [skaɾp] ‘sharp’ and *kork* [kɔɾk] ‘cork’ (Kristoffersen 2000: 79). Back realizations will also be devoiced in these positions.

The *r*-sounds are known to be acquired relatively late in many languages (Simonsen 1997: 33). A summary of studies of the acquisition age of *r* in English speaking countries (McLeod 2013) is inconclusive, since the acquisition age in the different studies referred, differed varying from 3;4 to 7;0. Stoel-Gammon and Menn (2013: 73), adapting information from Sander (1972) and Stoel-Gammon and Dunn (1985), state that by age 3;0, half of the children produce the *r* correctly at least half of the time (called ‘customary production’), and by age 6;0, at least 90% of the children produce *r* correctly across all word positions (called ‘age of mastery’). Shriberg (1993) claims that [r] is among the eight latest phonemes to be acquired. In Swedish, a language closely related to Norwegian, Nettelblatt and Salameh claim that children with a typical/normal language development have established *r* after age 6 (2007: 79). However, both Norwegian and Swedish have both front and back realizations of *r*, and the front variants in particular are

<sup>2</sup> Foldvik (1981) presents these variants of back *r*: postpalatal affricat/fricative [ʁ], velar approximant/fricative [ʁ̥], uvular approximant/fricative [ʁ̥], uvular trill [R], and these front variants: apical trill [r], apical tap /flap [ɾ] and alveolar approximant/fricative [ɹ], velarized alveolar tap/flap [ɹ̥] and palatal tap/flap [ɹ̥].

commonly known to be among the latest sounds to be acquired. As Preus writes (1982), one should not be surprised to meet six-year-olds who cannot pronounce front *r*. In the Trondheim survey, a study of the language of four-year-olds across Norway, Fintoft et al. (1983: 42) find that the children from the area with front *r* had a hard time acquiring the *r*: 38% of the participating children made more than 10% mistakes and were therefore categorized as not mastering the pronunciation. In a recent study, aiming to find the acquisition age of Norwegian consonants in four years olds, all informants were from areas with front *r*-variants. In this study only 75% of the children had *r* established word-initially, 87.5% medially and 87.5% finally (Olsen & Tråen 2015). Back *r* is considered easier to acquire and is often acquired before the age of 4 (Tetzchner et al. 1993: 210; Fintoft et al. 1983: 42; McLeod & Crowe 2018). Foldvik (1981) claims that the dorsal *r* has a larger articulatory variation, while [r] and [r̥] require more precise articulatory movements.

Children's acquisition of *r* has also been investigated in diffuse speech communities: Sæther (1982) researched the outcome of the dialect acquisition of children attending a kindergarten reserved for students' children in Bergen. On the contrary to growing up in a speech community where most adults have the same dialect, these children's parents had various dialects from all over Norway. Sæther investigated acquisition of several features that might be affected by the parents' dialects, including the *r*-variable. He found that the three children with parents using a back *r*, also used a back *r* themselves. Three children of parents with a front *r*-pronunciation varied between front and back *r*, and one child with parents with front *r* did in fact use front *r*. The informants are few, but the findings support the idea that back *r* is an easier sound to acquire, and that, at least in a back *r*-area, children of parents with back *r* use back *r*, while children of parents with front *r* vary between pronunciations.

Before children can pronounce the *r*-sound adequate to their dialectal surroundings, they may replace the sound of the surrounding dialect with a different sound. The different substitutions are probably not incidental but systematic, and often have a common or similar place of articulation or a common or similar manner of articulation as the sounds being substituted. Some of these *r*-variants are not conventional in any adult dialects, yet they are quite widespread. When children use these variants, they can be categorized as substitutions, but when adults use them they are often perceived as individual speech errors, as they are used by individuals to replace the conventional front or back *r* of the dialect in question. An exception for this is the adult use of back *r* in a front *r* area, an accepted (but still marked) part of an idiolect and also used by some speakers of an upper-class Oslo sociolect. In children's speech we most often find these substitutions for *r*:

- [l] voiced alveolar lateral approximant
- [z] voiced alveolar or dental median fricative
- [ð] voiced apico-dental median fricative
- [j] voiced palatal median approximant

These substitutions are mainly used to substitute front *r*. The Trondheim survey claims that the most frequent substitution of front *r* was voiced dental fricative [ð], but also [j], [l], and zero realization were frequently used (Fintoft et al. 1983: 92). Simonsen (1990: 136f) describes how the ‘adult phoneme /r/’ has the largest variation in realizations in her three informants from the Oslo area, which has front realization of /r/. The possible realizations are [r, ʀ, j, l, ð, ʀ] and zero realization [Ø], where the realizations [j, l, ð, ʀ] are deviant from the inventory of the adult language, i.e. not found in any of the Norwegian dialects. She describes the substitutions as flapping (/r/ → [ʀ]) or as isolated opening from fricative to approximant (/r/ → [j]), opening plus fronting (/r/ → [ð]) or opening plus retraction (/r/ → [ʀ]). Simonsen (1997: 46) shows how morphological structure might also influence the pronunciation of *r*: One of her informants uses word-final *r* when it is a part of the root, but not as part of an affix. Olsen and Tråen found that typical substitutions for front *r*’s are *j*, *l*, but also *d*, a linguolabial sound and a variation between *j* and ð (2015).<sup>3</sup>

As mentioned earlier, the back realizations of *r* are supposed to be easier to acquire, and the accepted articulatory variation is larger (Foldvik 1981). Accepted variants are velar approximant / fricative [ʁ], uvular approximant / fricative [ʁ] and uvular trill [ʀ] (Foldvik 1981). Postpalatal affricate / fricative [j] is also a common realization (see for instance Tetzschner et al. 1993: 211), though it is considered a speech error in adult speech. This implies that back *r* too can be fronted in various ways as a strategy for substitution of the sound (Simonsen 1990: 134ff.). Additionally, in child language and disordered speech, we might find other realizations such as palatoalveolar click [ʈ] and unvoiced uvular fricative [χ]. The lines between normal child language development and disordered speech can be blurry, as a substitution sound can be age adequate at one developmental stage and a speech error at a later stage. An *r*-pronunciation that is correct in one dialect might also be considered wrong when used in another. As the children in this investigation are three/four years old, in the midst of the language developmental phase, all *r*-sounds that are used in adult speech (regardless of dialect) are considered correct, although we expect the children to eventually learn the back *r* of their local dialect (see section 2). Some of the substitution sounds can also be interpreted in different ways: When the girl Runa from Western Norway was around the age of three, she pronounced her name [ju:na]. Georg, age 2;10, similarly pronounced the book title *Gyrre Myrre Max* [gyje myje mas]. Both children substitute the expected voiced uvular fricative [ʁ] with a voiced palatal median approximant [j], one of the typical substitutions. However, the fact that [j] is used as a substitution for both front and back *r* might complicate our analysis of influence from other dialects, as it might be difficult to know what the [j] is a substitution for.

3 There seems to be a gender difference in the acquisition of some phonemes, where boys in most cases have a low accuracy level (Smit et al. 1990: 72). Fintoft et al. (1983) found that more boys than girls in Eastern Norway had trouble pronouncing apical *r* (74% of the boys make more than one mistake vs 53% of the girls), while in Western Norway, 23% of the boys made more than one mistake, vs. 13% of the girls (1983: 52). We will not examine this further at this point.

## 2. Three-year-olds' use of *r* and substitutions for *r*

In this section we give examples of how four three-year-olds pronounce *r* and of how the pronunciation changes from the first to the second data collection point. The speech data stems from video films that were collected as part of a larger research project called *Children's language. Language and dialect contact in the modern kindergarten* (Selås & Gujord 2017: 12).<sup>4</sup> In this project we collected data on language and dialect use in two kindergartens in the South-West Norwegian urban center Bergen. The children were filmed while playing with a friend with some toys we had provided in an undisturbed room in the kindergarten they attended. The first data set was collected in April 2016 and the second during the autumn of 2016.

The four children selected as informants for this article are given the fictitious names Eirik, Helene, Håkon and Frank. Eirik was 3 years and 7 months at the time of the first data collection point in April 2016, Helene was 3 years and 2 months, Håkon 3 years and 5 months and Frank 3 years and 1 month. We have chosen these four children as informants because they are the same age and attend the same kindergarten. They even attend the same group in kindergarten, meaning all four meet the same staff in kindergarten on a day-to-day basis. However, they differ from each other when it comes to the use of dialects and languages in their families (see below). Taken together, we assume that these four children represent the linguistic diversity in the families of an ordinary Norwegian kindergarten. When it comes to the dialect use in the kindergarten, their two primary kindergarten teachers spoke a North-Norwegian dialect and the local Bergen dialect. The background information on the dialect use in their families was collected through a short questionnaire. Eirik grew up in a family using the local dialect; both of his parents and his older brother use the Bergen dialect. Helene's parents also speak the local Bergen dialect. They are however divorced, and her mother's new boyfriend (with whom Helene lives) speaks a rural West-Norwegian dialect (with back *r*). Her mother also states that Helene spends a lot of time with her North-Norwegian speaking grandparents. Håkon's father speaks the local Bergen dialect and his mother speaks an East Norwegian dialect. His elder brother speaks what the parents have called 'Bergen-East Norwegian' in the questionnaire, as they perceive his dialect as neither the local Bergen dialect or an East Norwegian variety. Frank has Karen as his first language and uses this language at home with his family. The parents also state in the questionnaire that Frank sometimes replies to them in Norwegian.

An overall impression from listening to the recordings is that Eirik and Helene are acquiring a typical Bergen dialect, as they already use quite a lot of the usual morphology and phonology of the dialect as well as a Bergen lexicon. Håkon has a more individual speech pattern, an idiolect that combines the morphology and phonology of the Bergen dialect with an East Norwegian intonation pattern. Frank had only attended kindergarten for nine months when we met him for the first time in April 2016. In other words, he had been acquiring Norwegian as a second language for nine months at the first data collection point. A general first impression from listening to his language use in the first recording is that he is acquiring Norwegian, although

<sup>4</sup> The project's title is translated by us for this publication. In Norwegian, the title is *Barns språk. Språk- og dialektkontakt i den moderne barnehagen*.

for the time being, it is not easy to determine whether he is acquiring the local Bergen dialect or another variety.

Before we turn to the examples of the children's *r*-pronunciations, we want to point towards some expectations we can derive from the previous investigations on children's acquisition of *r* and the sociolinguistic situation in Norway presented in the previous sections. Firstly, because the back *r* has an acquisition age at around 4 years, we expect to find that some of the children use back *r* or acquire the pronunciation in the period from the first to the second data collection point. Secondly, because of the sociolinguistic situation of substantial dialect variation in their social networks, we expect that some children deviate from this pattern, for example when their parents or other important adults in their network have dialects with a front *r* pronunciation.

### 2.1 Use of *r* and *r*-substitutions at first data collection point (April 2016)

The data presented here are selected examples collected from the videos of the children playing with each other. We have listened to each child's *r*-use across the whole length of the videos and then selected some examples that are representative of the variation the child displays at the data collection point.<sup>5</sup>

#### HÅKON (3 YEARS, 5 MONTHS)

Despite his young age, Håkon has very little variation at the first data collection point. He uses a back *r* variant in the whole transcription. He mostly uses a uvular fricative [ɣ], as transcribed in these examples, and on a few occasions, we hear a uvular trill [ʀ].

*Examples of Håkon's pronunciation of r*

- (1) *Men jeg har ikke føtter.*  
[mɪn je həkə føtɛɣ]  
'But I have no feet.'
- (2) *Jeg har denne store bilen, brannbilen.*  
[jɛi hɑ denə stu:ɾə bi:l ... bɾɑnbi:lɪn]  
'I have this large car, the firetruck.'
- (3) *Ja, for han er mindre.*  
[ja ... fɔɾ hɑn ɛ mɪndɾə]  
'Yes, because he is smaller.'

#### EIRIK (3 YEARS, 7 MONTHS)

Eirik has much more variation than his playmate Håkon at the first data collection point. He uses many front *r* variants, but also a back *r* variant. We find examples of the front *r* variants al-

<sup>5</sup> The examples were transcribed by one of us and then controlled by the other.



veolar approximant [ɹ], alveolar tap [ɾ] and dental fricative [z], and use of the back *r* variant uvular fricative [ʁ] on a few occasions. Interestingly, the front *r* variants are both ordinary adult-like front *r* pronunciations and substitution sounds for *r*, while the back *r* variant is a conventional back *r* pronunciation.

*Examples of Eirik's pronunciation of r*

- (4) *De skal sitte oppi der, sånn at de kjører.*  
[dɪ ska sitə ɔpi dɛɪ ...sɔn at di ʃø:ɾɑ]  
'They shall sit in there, so that they drive.'
- (5) *Wow! Han har drage på seg.*  
[vu:au hn a dza:gə pɔ sɛɪ]  
'Wow! He has a dragon on him.'
- (6) *Den skal være bak sofaen.*  
[dɛn ska væ:ɐ bɑ:k su:faɲ]  
'That should be behind the sofa.'
- (7) *Hø? Hvor lenge skal -? Hø? Hvorfor piper den?*  
[hø: vu lɛŋə ska ... hø: kufo:ɐ pi:pɑɐ dɛn]  
'What? How long shall -? What? Why is it squeeking?'

**HELENE (3 YEARS, 2 MONTHS)**

Like Eirik, Helene also varies between front and back *r* pronunciations at the first data collection point. She uses the front *r* variants voiced alveolar tap [ɾ], unvoiced alveolar tap [ɽ] and apico-dental median fricative [ð]. She also uses the back *r* variant uvular fricative [ʁ] and a velar median approximant [ɰ]. This implies that Helene's front *r* pronunciations include some substitution sounds as well, while her back *r* pronunciations are conventional.

*Examples of Helene's pronunciation of r*

- (8) *Et bord.*  
[it bu:ɾɔ]  
'A table.'
- (9) *Det var bedre.*  
[dɛ va be:dðɛ]  
'That was better.'

- (10) *Det var ikke der oppi.*  
[də vɑ ikə də:r ʊpi]  
'It was not in there.'
- (11) *Jeg kan gjøre det.*  
[jɛi kɑn jø:rə də]  
'I can do it.'
- (12) *Det er bare leker. Det er bare leker.*  
[də e bɑ:jə lɛ:kɑɐ. də e bɑ:ʉə lɛ:kɑɐ]  
'It is only toys. It is only toys.'

#### **FRANK (3 YEARS, 1 MONTH)**

Frank is, as mentioned earlier, learning Norwegian as a second language, and has learnt Norwegian for nine months at the time of this first data collection point. He has considerable variation in his language, and we cannot always determine exactly what he is saying. The examples referred to here are taken from instances where we are sure of our interpretation of his speech. We have only found a few instances of *r* in Frank's speech at this first data collection point. He mostly avoids the *r*, but on a few occasions, we can hear a sound that can either be interpreted as a back *r* or as a front vowel influenced by the articulation of a back *r* (that is inaudible). This is transcribed as a velar median approximant [ʉ] in the examples given below, though it is quite inaudible.

#### *Examples of Frank's pronunciation of r*

- (13) *Jeg har motorsykkel.*  
[jɛi ɑ mɑmɑsykɛl]  
'I have motorbike.'
- (14) *Du har vondt?*  
[dʉ hɑ: vunt]  
'You have pain?'
- (15) *Jeg kommer!*  
[jɛ kɔmɛʉ]  
'I'm coming!'

## **2.2 Use of *r* and *r*-substitutions at second data collection point (autumn 2016)**

Håkon had a systematic use of back *r* pronunciations at the first data collection point, and he has the same system at the second data collection point. His use of back *r* is conventional, with no

substitutions for *r*. We therefore do not provide additional examples of his speech from the second data collection point in this section, rather we turn to the speech of the three other children. These children had considerable variation at the first data collection point, and in this section, we give examples of their *r*-pronunciations at the second data collection point.

#### EIRIK (4 YEARS, 0 MONTHS)

At the second data collection point, Eirik uses more back *r* pronunciations. However, we can still find a few examples of front *r* pronunciations as well. The back *r* variants he uses are conventional; uvular fricative [ʁ] and velar median approximant [ɰ], while his front *r* variants are substitution sounds for *r*; palatal median approximant [j] and apico-dental median fricative [ð].

*Examples of Eirik's pronunciation of r*

- (16) *Hvor?*  
[vʉ:ʁ]  
'Where?'
- (17) *Her.*  
[hæ:ʁ?]  
'Here.'
- (18) *Se, han kjører bil. Se, han kjører bil.*  
[se han çøʉʁ bi:l. se han çøʉʁ bæi:l]  
'Look, he drives a car. Look, he drives a car.'
- (19) *Og så kommer det en pappa og så tar bosspannet han. Og så tar han deg oppi bosspannet.*  
[çsə kɔmæʁ də ... e:n pɑpɑ çsə tɑ:j bɔspanə han. çsə tɑ:ð han dei ... ʉpi bɔspanə]  
'Then it comes a daddy and then the trashcan takes him. And then he takes you into the trashcan.'

#### HELENE (3 YEARS, 9 MONTHS)

When we meet Helene again after seven months, we still find quite a lot of variation between front and back variants of *r*. The back *r* pronunciations Helene uses at this second data collection point are uvular fricative [ʁ] and velar median approximant [ɰ], and the front *r* pronunciations are unvoiced alveolar tap [ɾ] and voiced apical approximant [ɹ], as well as the retroflex sounds [ɖ] and [ɳ].<sup>6</sup> Notice that Helene no longer uses unconventional substitution sounds: Helene varies between different *r* sounds that are used in various Norwegian dialects. The way she pro-

<sup>6</sup> Retroflex sounds result from merging that occurs when a front *r* is followed by *d*, *t*, *n*, *l* or *s*, to [ɖ], [ɽ], [ɳ], [ɽ] or [ɳ] (see Kristoffersen 2000: 88ff.). The sounds are most often described and transcribed as retroflex, although the tongue does not actually make the backwards retroflex motion.

nounces back *r* is quite conventional for the urban Bergen dialect (which is the dialect we assume she is acquiring). The way she uses front *r* is quite typical of Norwegian dialects with front *r*, including the devoicing of *r* in front of *k* and the retroflex sounds that are common to all front *r* dialects outside of West Norway. (Possible reasons for this variation pattern are discussed in section 3.2.).

*Examples of Helene's pronunciation of r*

- (20) *Han sitter i stolen.*  
[han sitæ̃ i stu:l̥n̥]  
'He is sitting in the chair.'
- (21) *Eh. Hvordan skal vi åpne dørene?*  
[e:ə vuɖɑ̃n ska vi o:pnə dø:ŋə]  
'Eh. How can we open the doors?'
- (22) *Ja, jeg kan gjøre det.*  
[ja jɛi kan jø:uə də]  
'Yes, I can do it.'
- (23) *Jeg er sterk.*  
[jɛ ə stɛɾk]  
'I am strong.'
- (24) *Derfor er -, det ikke går å åpne den.*  
[dɛfɔ̃ɾ ɛ̃, də ikə ɡo:ɪ ə o:pnə d̥n̥]  
'Therefore is -, it doesn't work to open it.'

#### **FRANK (3 YEARS, 8 MONTHS)**

At the second data collection point, Frank has attended the kindergarten for 1 year and 3 months, and his development as a Norwegian speaker has been substantial. When it comes to his *r* pronunciations, we find that he still omits *r* on quite a few occasions. However, he uses *r* or substitutions for *r* more often than in the first recording. Because we could find some examples of vowels influenced by a back *r* pronunciation at the first data collection point, we expected to find more back *r* pronunciations in the second data collection point. The data collection show that Frank uses mostly palatal median approximant [j] as substitution, but he also uses other substitution sounds, like the labio-dental approximant [v], or he deletes the *r*.

*Examples of Frank's pronunciation of r*(25) *Frokost!*

[fukɔst]

'Breakfast!'

(26) *Min er to mørkeblå. Jeg har mørkeblå og grønn.*

[min ɛ tu mɔjkeblɔ. jeɪ ha mɔjkeblɔ ɔ gjøn]

'Mine is two dark blue. I have dark blue and green.'

(27) *Ok, jeg ringer nå.*

[ɔkei ... je vɪŋe nu]

'Ok. I call now.'

**2.3 Summary and comparison**

At the first data collection point, Håkon has acquired the back *r* system of the urban Bergen dialect, while the three other children have not: Eirik and Helene vary between different pronunciations of back *r* as well as front *r* and use quite a lot of substitutions for *r*, while Frank mostly avoids *r*. At the second data collection point, Eirik and Helene still have significant variation. Eirik uses conventional back *r* pronunciations and substitutions for *r*, while Helene varies between front and back *r*'s that are conventional in different Norwegian dialects. Frank still avoids *r* quite often, and the *r*'s he actually pronounces are substitution sounds.

Helene and Frank's variation patterns lead us to the somewhat surprising conclusion that we cannot actually know that all four of these children are in the process of acquiring the local back *r* pronunciation. Some of the front *r*'s that are used by the children are substitution sounds, while others are conventional front *r*'s in other Norwegian dialects. Is the use of these *r*'s a part of the acquisition process or is it a reflex of the variation in the input of the children? This will be discussed in the next section.

**3. Discussion****3.1 The children's acquisition of *r***

As shown earlier, there are several possible pronunciations of *r*. The table shows the pronunciation patterns of the four children presented earlier. We can see that the children improve in their pronunciation of *r*, from non-audible *r*-sounds to audible substitutions for *r*, or from substitution sounds typical of children's speech or defective speech, to more frequently used and conventional *r*-sounds.

TABLE 1: INDIVIDUAL ACQUISITION OF *r*

	Age	First observation	Age	Second observation
Håkon	3;5	Mainly [ʁ], occasionally [R]	3;10	[ʁ]
Eirik	3;7	Conventional sounds [r], [ʀ], [ʁ], substitution sound [z]	4;0	More conventional back sounds [ʁ], [ʀ], substitution sounds [j], [ð]
Helene	3;2	Conventional sounds [ʁ], [ʀ], [r], substitution sounds [ʀ], [ð], [j]	3;9	Conventional sounds [ʁ], [ʀ], [r], [ʀ]/_k, retroflex sounds [ŋ], [d]
Frank	3;1	Avoids <i>r</i> , almost inaudible <i>r</i> (transcribed [ʀ])	3;8	Substitution sounds [j] and [v]

The pattern in this material is that the children move towards more conventional sounds and seem to gradually omit the front realizations and the substitution sounds. Another obvious pattern is the large variation. Håkon has ended up using the local back *r* used in the local Bergen speech community and is an example of the fact that many children manage the back *r*-sound by age four. Eirik has both front and back conventional sounds and substitution sounds at the first observation point. At the second point, he has more conventional back realizations, but he still uses [ð], a sound used as a substitution for front *r*. Helene, the only girl, shows the same variation as Eirik at the first observation, but, unlike Eirik, at the second observation, she has both back and front realizations and some retroflex sounds which are conventional in different Norwegian dialect varieties. Frank, the second language learner, shows an improvement from avoiding producing *r*, to the use of different substitution sounds. His pronunciations are [j], a sound that seems to be a general substitution sound in both front *r* and back *r*-areas, and [v], a non-frequent *r*-realization associated with defective speech or children's speech. Other substitution sounds are more strongly related to either a front or a back place of articulation.

Each of the four children have chosen their individual path towards the pronunciation of *r*. All these children live in the Bergen area and are therefore expected to acquire the back *r*. We can see improvement from the first to the second interview, but in the language of three of the informants, there is still a lot of variation.

### 3.2 The children's acquisition of the sociolinguistic feature *r*

Growing up in the Norwegian speech society implies receiving a diverse input of *r* pronunciations. Acquiring the dialectally correct realization of the phoneme /r/ is therefore not only a developmental process of being able to pronounce a sound – it is also a sociolinguistic task of identifying the right *r*-sound for the dialect system one is acquiring (cf. Bugge 2016). The children chosen as examples in this investigation all live in Bergen and are assumed to be acquiring the local Bergen dialect. However, the language use in their network is diverse, with various *r*-sounds being used, which gives the children in question a diverse input of *r*-pronunciations. In this section, we discuss whether this diversity has affected the children's acquisition paths, and if so, in what ways.

Håkon's parents perceive his speech and that of his elder brother as a mixture of East Norwegian and Bergen dialect features, and attribute this to the mother's East Norwegian dialect and the father's Bergen dialect. The general impression of Håkon's speech in the recordings confirms their explanation, as he seems to have an idiolectal mix of East Norwegian intonation and word forms with local Bergen morphology and phonology. When it comes to *r*-pronunciation, Håkon does not mix the local Bergen back *r*-pronunciation of his father with his mother's East Norwegian front *r*'s: He has acquired the back *r*-pronunciation conventional in the local Bergen dialect as early as at the first data collection point.

Eirik's parents, as well as his elder brother, all speak the local Bergen dialect. Based on this, we did not expect to find much variation in his *r*-pronunciations. As shown in the previous sections, he does indeed use back *r*-sounds conventional for the local Bergen dialect and some substitutions for back *r*. However, he also uses conventional front *r*-pronunciations and typical substitutions for front *r* in the first recording. At the second data collection point, most of the front *r*-pronunciation and substitutions are gone, but he still uses a typical substitution for front *r* ([ð]). He also uses [j], a sound that can substitute both front and back *r*. This means that the explanation for his variation patterns cannot be found in his family's dialect use. Although Eirik seems to settle on local Bergen back *r*-pronunciations, we cannot, nevertheless, be absolutely sure about this based on the data presented.

Helene's family network includes speakers of the local Bergen dialect and a speaker of rural West-Norwegian dialect with back *r*-pronunciation, as well as speakers of North Norwegian dialects using front *r* and retroflex sounds. Helene has considerable variation in *r*-pronunciation and substitutions at the first data collection point, and by the time of the second, she still has a great deal of variation in her *r*-pronunciations, although all the *r*-sounds are conventional in Norwegian dialects. The combination of *r*-sounds is, however, not conventional to any single Norwegian dialect – the various *r*-sounds are found in different Norwegian dialects. What is striking about this is that all the *r*-sounds Helene uses are found in the various dialects of her family network. She uses back *r* conventional for West Norwegian dialects and front *r* and retroflex sounds conventional for North Norwegian dialects. There are clear traces of the speech of the various caregivers in her family network in Helene's speech. Whether she will settle on the local Bergen dialect at a later stage, keep her idiolectal variation, or develop two dialects (bidialectism), is not possible to predict from the data we have collected.

Frank is developing Norwegian as a second language, and mostly uses his first language at home with his parents. This means that he does not have a diverse input of various Norwegian *r*-pronunciations in his family networks, unlike his friends Håkon and Helene. In our recordings with him, he often omits the *r*, although we can sometimes hear the vowel being influenced by a tongue movement toward pronouncing an (inaudible) back *r*. Frank also uses substitutions for *r*, and the number of substitutions increases from the first to the second data collection point, which we interpret as a positive development because he more clearly shows that he knows where to pronounce *r*'s. However, the substitutions he uses for *r* are [j], which can both substitute back and front *r*, and the infrequent [ʊ], which most often replaces a front *r*. It is therefore not clear, from the data we have collected, whether he is developing a front or a back *r* pronunciation.

Of the three children with Norwegian speaking family networks, it is Helene who is most clearly influenced by the dialectal variation when it comes to *r*-pronunciation. This is what we expected, based on previous research results on acquisition of *r* (i.e. Sæther 1982, see section 1.2). Based on this, we would also expect Håkon, with a diverse input of dialects, to have variation between back and front *r*'s, and Eirik, with his local Bergen network, to be the most consistent back *r* user of the children in this investigation. It was therefore rather surprising to find that Håkon, despite his otherwise mixed idiolect, consistently uses the local back *r*-pronunciation, while Eirik has not yet settled on the local Bergen back *r*. Frank's development of a Norwegian *r*-pronunciation somehow resembles Eirik's variation in that they both use some typical front *r*-substitutions, which means that it is not so straightforward to conclude that they are developing a back *r*-pronunciation.

We have now considered the children's input from their family networks as possible explanation factors for their *r*-pronunciations. The discussion clearly shows that the children's speech is not a mere reflex of their primary caregiver's dialect use. In his investigation from 1982, Sæther found that children who had parents with dialects other than the local Bergen dialect, used local dialect features if one of the parents also had the dialect feature in question in their dialect (Sæther 1982). This also included *r* pronunciation; the children used the local back *r*-pronunciation exclusively if one of their parents had a back *r*, otherwise they varied between back and front *r*. This clear connection between the parents' dialect and the child's language use is not found in our investigation, despite the fact that some of the children seem to be influenced by the speech in their family networks.

However, the discussion of family influence is based on the premise that the children's individual variation in input frequency of various *r*-pronunciations leads to the variation in their own *r*-pronunciation. This implies that we should also consider the input they receive from other places like their kindergarten staff, friends in kindergarten or from the media.<sup>7</sup>

All four children speak and spend time with the educational staff in their kindergartens on a day-to-day basis. The staff's dialect use can therefore be considered a factor that affects all the children equally (contrary to their families' speech), as we must assume they show an equal interest in all the children, giving them approximately the same speech time, i.e. the same input of *r*-s. The two persons responsible for these four children are a kindergarten teacher that speaks a North Norwegian dialect and an assistant that speaks the local Bergen dialect. The North Norwegian dialect has a front *r* pronunciation. Despite the fact that some of the children use front *r* or substitution sounds predominantly used to substitute front *r*, we cannot say that it is the front *r* pronunciations of the kindergarten teacher that has affected them. Because she has not affected all of the four children equally, there is a risk that saying that she has affected some of the children but not all, is an *ad hoc* explanation, as this implies that special conditions and exceptions apply in many cases.

Friends and older children do also provide input on *r*-use. Bugge (2016) emphasizes that

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<sup>7</sup> To investigate the children's media use and the speech in, for instance, children's television programs is beyond the scope of this article.



children are gradually less influenced by their families and more by their peers. This means that their kindergarten friends provide each other with a lot of different input, mainly the local Bergen dialect but also other dialects. However, in role play, Norwegian children use their own dialect for directing and staging the role play, while a particular East Norwegian variety is often used for in-role utterances (Høigård 2013: 95). Most children adopt the East Norwegian *r* system for these in-role utterances, regardless of the *r* system in their own dialect, i.e. children using back *r* can also use front *r* and retroflex sounds in in-role utterances. The four children presented in this article are too young to have adopted this linguistic play-code, and we do not find any instances of this particular language use in the recordings. However, the recordings are taken from play situations, and as the children clearly go into roles and make in-role utterances with high pitched voices, there is a possibility that some of the variation in *r* pronunciations comes about because the children are trying out the use of the particular East Norwegian role play variety.

The four children taken as examples in this article clearly show that the acquisition of the local urban dialect of Bergen is not as straightforward as previous research implies. For some children (Helene in particular) the *r*-development is closely linked to the *r* use in the dialects used by adults or older siblings in the children's network, while for other children (Håkon, Eirik and Frank) there is no obvious link between the network's dialect use and the children's *r*-development. In these cases, we assume that the overall variation in input from various sources in the society leads to the variation in the children's speech. This implies that children can acquire a linguistic feature (for example *r*) without acquiring the sociolinguistic value of the feature (for example knowing that back *r* is the local variant).

Most children growing up in Bergen acquire the local urban Bergen dialect, regardless of their family's language and dialect use (Bugge 2016). Whether or not these four children will speak Bergen dialect at a later stage is not clear from the recordings we have analyzed here. This leads to multiple questions for future research, including the question of when children acquire a local dialect feature, and the question of whether this points to a new tendency in the Norwegian speech community for children to not acquire the local dialect of the place they grow up.

#### 4. Conclusion

In this article we have been interested in the interplay between the acquisition of *r* and the acquisition of the local dialect. How do Norwegian children in a back *r* dialect area develop the pronunciation associated with their local dialect? And how do their individual network and the linguistic variation in the community affect the children's acquisition?

Firstly, it seems clear that the age of acquisition, as well as the path of acquisition, differs from child to child. As children's individual speech-motor development differs slightly, some children will learn and master pronouncing an *r* earlier than others. Secondly, it is not clear whether these four children are actually developing a local Bergen dialect. Children growing up in Bergen today do not only hear the local Bergen dialect, they hear all kinds of Norwegian dialects every day to various degrees. This affects the children's acquisition of *r*, as the variation

patterns clearly show, but (with the exception of Helene) it is not clear who or what the primary influential force is. The complex variation this linguistic feature shows on the society level in Norway is reflected in the complex individual acquisition patterns.

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