

MAPPING DIALECT CHARACTERISTICS TO DIALECT SPEAKERS

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ABSTRACT

Traditional dialect maps based on data from carefully selected informants, usually give clear-cut dialect borders, isoglosses, with one dialect characteristic present on one side of the isogloss and absent on the other. We have compared results from traditional dialect research with results from a thorough auditory analysis of /r/ and /l/ pronunciation among the 1015 informants in the Norwegian part of SpeechDat. Our analysis of /r/ pronunciation in the Norwegian SpeechDat database shows that traditional dialect maps give an idealized picture of the linguistic landscape, since variation and not uniformity is the rule rather than the exception. With no widely approved standard pronunciation Norwegians tend to use their own dialect in most situations. To what extent the Norwegian findings have parallels in other countries will depend on two main factors, dialect allegiance vs. a national standard pronunciation and the extent to which the population is sedentary or mobile.

1. INTRODUCTION

Traditional dialect maps are based on data from carefully selected informants, ideally people who have lived in one area throughout their life. This selection of informants usually results in clear-cut dialect borders, isoglosses, with one dialect characteristic present on one side of the isogloss and absent on the other [1].

It is attractive but simplistic for automatic speech recognition purposes to suppose that locating a speaker or a caller on the telephone would be sufficient for the speech recogniser to activate the appropriate acoustic models for the relevant dialect area. But it is unfortunately the case that traditional dialect maps give an idealised picture of the linguistic landscape, one where isoglosses delimit uniform linguistic communities, and where there is also little or no variation in other aspects of pronunciation between speakers.

In this paper we compare results from traditional dialect research with investigations of a recently compiled database of Norwegian centred on /r/ pronunciation.

2. TYPES OF /r/ PRONUNCIATION

There are two main types of /r/ pronunciation in Norwegian, a voiced apical tap and a voiced velar approximant or fricative. Typically the tap is characterised by a short epenthetic vowel-like sound before and/or after the period of tap contact between the tongue tip and the alveolar ridge. And the tap period shows up as a break in waveform and formants. Neither spectrogram nor waveform show any such abrupt changes for the velar /r/-pronunciation [2].

3. DISTRIBUTION

The Norwegian part of the European SpeechDat database [3], [4], comprised a sample of 1015 informants (of a total population of 4,4 million) which was representative of the total population in terms of age and dialect. The sexes were equally represented. All except 46 speakers provided information about where they lived and which of 23 dialect regions their dialect belonged to.

The results from the auditory analysis of /r/ pronunciation are shown in Table 1 with the 23 dialect regions pooled into 5 main regions and informants are divided according to their own assessment of which dialect they speak.

We have also auditorily analyzed /l/ pronunciation which in some positions has two main allophones, a voiced dental/alveolar lateral and a voiced retroflex flap [5]. However, for many of the informants the texts in the Norwegian part of the European SpeechDat database contain an insufficient number of /l/ occurrences to establish a solid basis for assessment of /l/ pronunciation. Also SpeechDat reading style favours the choice of lateral rather than retroflex flap with the Norwegian informants.

Table 1 shows that [r], alveolar tap, is the most common /r/ realisation in Northern, Central, and Southeastern parts of the country. The 672 [r]-users constitute 66.2 % of the total number of speakers. If we also include the other two tap-variants, the palatalized tap, [r^j], and the velarized tap, [r^v], 769 speakers, 75.8%, of the speakers use some kind of apical tap as their /r/ realisation.

The apical approximant, [ɹ], predominates in the Lofoten area in Northern Norway. The palatalized tap, [r^j], is typical of the Oslo area of Southeastern Norway, while the velarized tap, [r^v], is centred to the Molde and Sogn and Fjordane regions in Western Norway.

The 234 speakers who pronounced /r/ as a velar, [ɣ], or a uvular, [ʁ], fricative or approximant constitute 23.1% of the total number of informants. This dorsal pronunciation which predominates in the Southwestern region, was used by 124 speakers, 94%, and in the Western region of Norway dorsal pronunciation was used by 78 informants, which was 70.4% of the informants from that area. None of the 23 dialect regions show a uniform /r/ pronunciation.

A comparison of Map 1 and Map 2 shows the rapid spread of velar pronunciation of /r/ during the first decades of this century. The area taken over by velar /r/ pronunciation has nearly 15% of the Norwegian population, and the spread of this pronunciation still continues [6].

Map 3 shows /r/ pronunciation based on the informants' assessment of which dialect they speak. A

comparison between Map 2 and Map 3 shows that Norwegian SpeechDat informants do not take /r/ pronunciation into account when they assess their own dialect, since both the Oslo area in the Southeast and the

Narvik area in the North have informants with velar /r/ pronunciation, which is typical of Southwestern Norway.

Dialect area	Apical /r/					Dorsal /r/		Sum
	ɹ	ʀ	ɹ	ɹʲ	ɹʷ	ʀ	ʁ	
Northern	7	1	2	101	0	1	0	112
Central	0	1	2	135	20	0	0	158
Western	1	2	0	23	11	78	10	125
South-western	0	0	1	7	0	121	3	132
South-eastern	0	0	56	369	1	5	1	432
Non-native speaker	0	0	0	4	1	5	0	10
Dialect unknown	0	0	1	33	2	10	0	46
Sum	8	4	62	672	35	220	14	1015

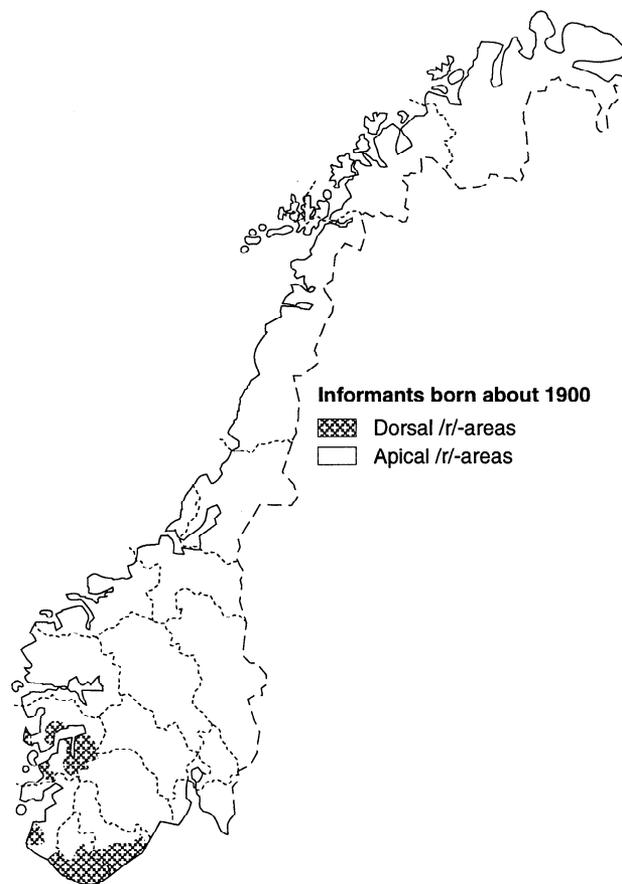
Table 1: Apical and dorsal /r/ pronunciation of Norwegian SpeechDat informants in different dialect areas subdivided into 5 apical and 2 dorsal variants [7].

Finally Map 4 shows the /r/ pronunciation based on where in Norway the SpeechDat informants made their call from. This map highlights population mobility in the Norway today. With Map 3 it also shows that further spreading of velar /r/ is possible all over the country. Over the last decade or so we have namely noticed a increasing tendency among children of velar /r/ parent(s) who grow up in apical /r/ areas to copy their parent(s) /r/ pronunciation but otherwise speak the local dialect.

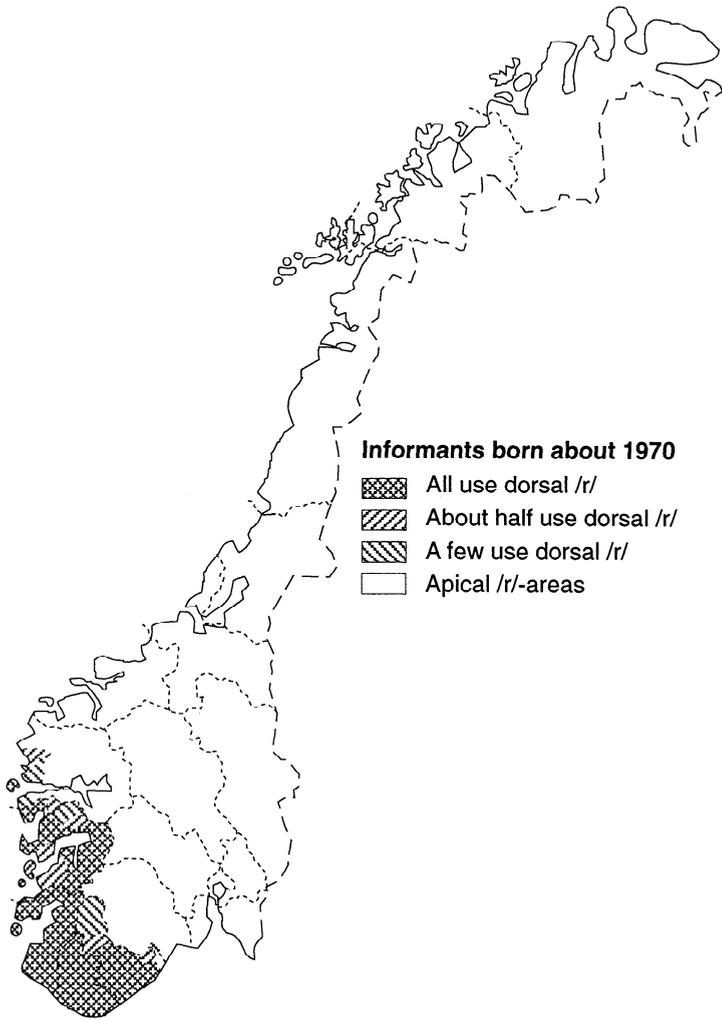
4. CONCLUSION

Our analysis of /r/ pronunciation in the Norwegian SpeechDat database shows that variation and not uniformity is the rule rather than the exception. To what extent do the Norwegian findings have parallels in other countries? We assume that this depends on two main factors, Firstly, the extent to which there is dialect allegiance vs. a national standard pronunciation and secondly, the extent to which the population is sedentary or mobile.

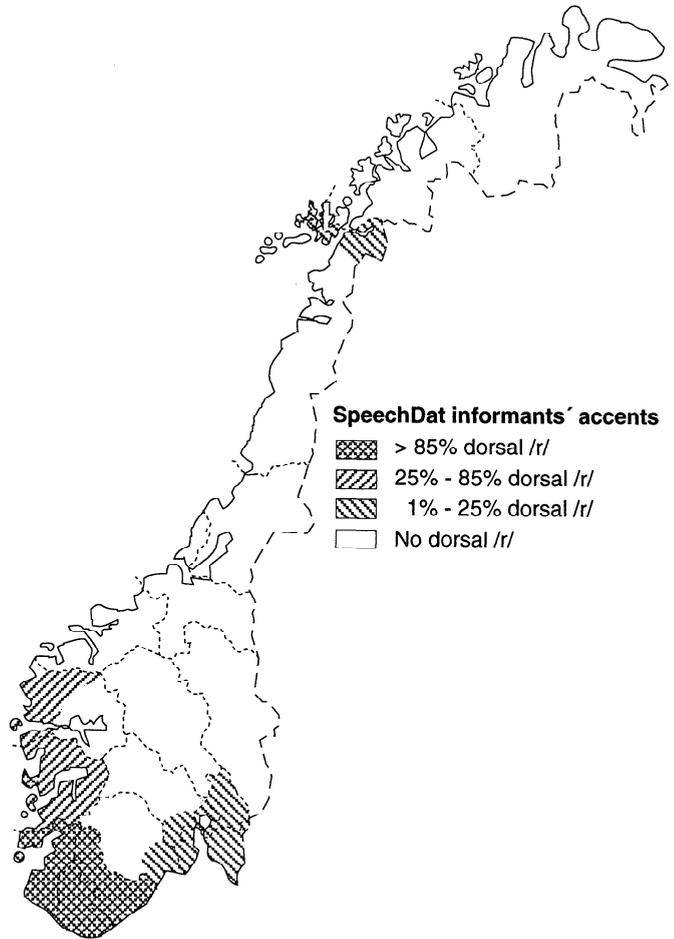
In Norway, there is no approved standard of pronunciation, and Norwegians, whether they be MPs, teachers, or trade union leaders or whatever, tend to use their own dialect in most situations. Consequently, the amount of variation in Norwegian is probably greater than in a country with a widely accepted standard pronunciation. As for mobility, Norway has had a traditional policy of regional development which has supported rural areas, counteracting centralisation to the bigger towns. It would be tempting to assume, therefore, that Norwegians are somewhat less mobile than many other Europeans. However, a recent report shows that this is not the case [6]. In fact, Norway has the highest internal mobility rate of 10 European countries in the survey.



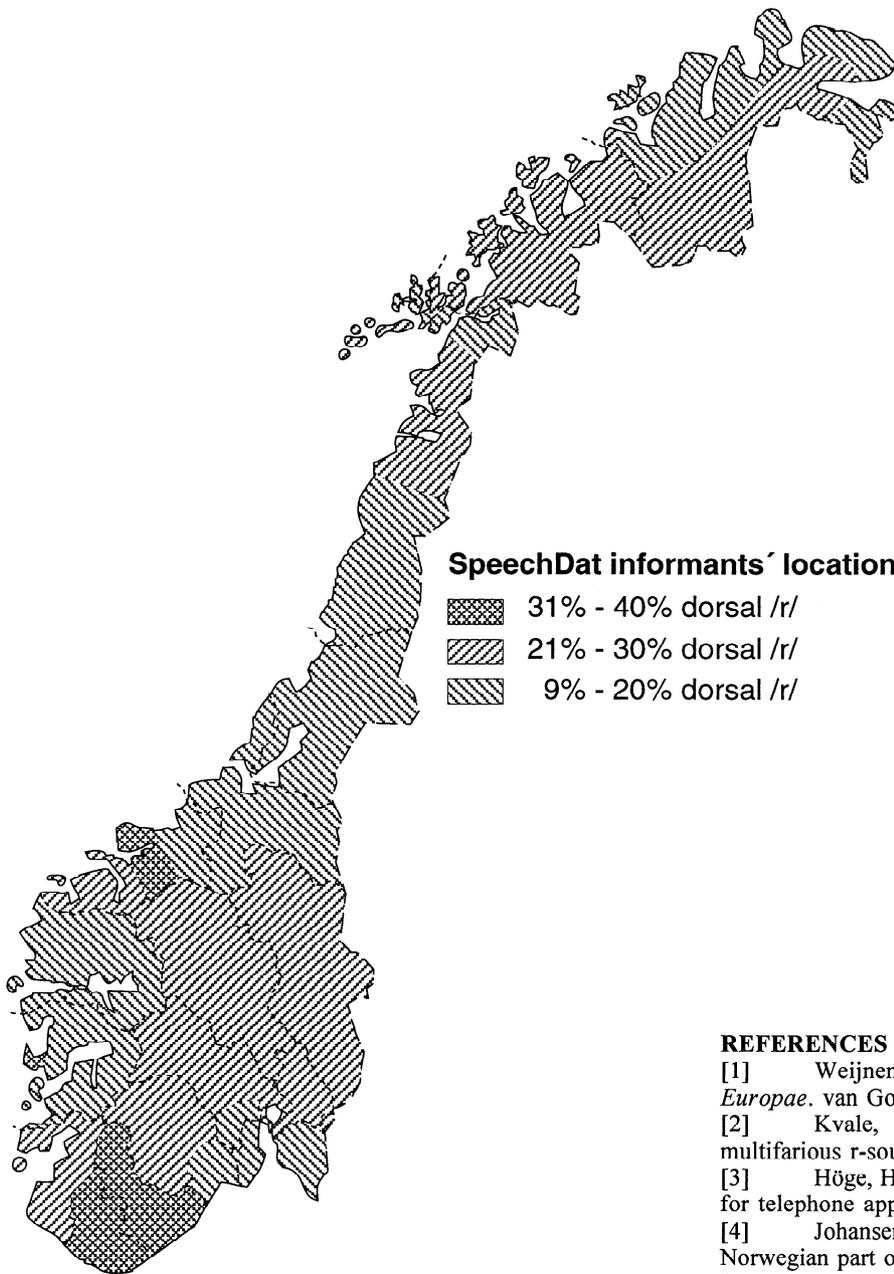
Map 1



Map 2



Map 3



Map 4

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