Variation in a tense/lax vowel pair in Dutch youngsters with different ethnic backgrounds

Linda van Meel, Frans Hinskens and Roeland van Hout

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Abstract

How do young bilingual speakers of current Turkish and Moroccan ethnolects of Dutch deal with phoneme contrasts that do not exist in their heritage languages and that are at the same time subject to regional and social variation in the Dutch speech community at large, such as that between Dutch phonemes /a:/ and /ɑ/? Data from speakers from the Amsterdam and Nijmegen urban areas were analyzed and compared. Two variable properties of /a:/ and /ɑ/ defining the phoneme pair were examined: (1) duration, and (2) place of articulation.

We found clear differences between the two urban areas (regional effect) and between the Amsterdam ethnic groups (social effect). In addition, we found variation dependent on the interlocutor (socio-stylistic effect) and the linguistic context. The main dimension of social and linguistic variation was place of articulation, length remaining the primary distinctive feature of the vowel pair. No heritage language effect was found. Young ethnolect speakers take part in existing patterns of regional and social variation.

Keywords: language variation, ethnolect, urban dialectology, interlocutor effect, tense/lax vowel pairs

1 Introduction

Ethnolects, language varieties which originate among members of specific ethnic groups, are a relatively new domain in the study of language contact and bilingualism. The present contribution focuses on the analysis of

dialectal and etnolectal variation from a language centered, sociolinguistic perspective, using quantitative tools to analyze patterns of linguistic variation. The analyses concern variation in the realization of the Dutch /a:/-/ɑ/ vowel pair contrast by young speakers from the urban areas of Amsterdam and Nijmegen, representing second and third generation Moroccan-Dutch and Turkish-Dutch as well as endogenous 'white' Dutch. The /a:/-/ɑ/ vowel pair is part of a larger set of tense-lax vowel contrasts which is both quantitative (duration) and qualitative (place of articulation) in nature. The phoneme contrast can be hard to learn for adult second language learners (see Burgos 2018 for adult Spanish learners of Dutch). El-Aissati et al. (2005:154) observed that two first generation Moroccan women did not produce any distinction in their L2 Dutch. They also studied a first generation Turkish woman who produced all tense vowels as their lax counterparts in Dutch, preserving their distinction by making them long. This woman pronounced *naartoe* ('towards', standard Dutch [na:rtu]) as [nɑ:rtu] where the [ɑ] is relatively long, having the duration of a tensed vowel (El-Aissati et al., 2005:156). Van Krieken (2004) examined three speakers of Moroccan-Dutch grown up in the Netherlands and noticed that two participants shortened long vowels overall, including /a:/.

The central question of this article is how young bilingual speakers with Turkish and Moroccan backgrounds deal in their Dutch with the phoneme contrast /a:/ and /ɑ/ that does not exist in their heritage languages and that is at the same time subject to regional and social variation in the Dutch speech community at large. The data are extracted from recordings of natural conversational speech in both in-group and out-group contact situations. The findings serve to address three general questions. The first general question we want to address is to what extent patterns of variation in /a:/ and /ɑ/ are rooted in interference from the original language of the ethnic group in question ('substrate effects'), in properties resulting from processes of second language acquisition or in endogenous non-standard varieties (typically urban dialects). The second general question concerns the role of processes of language acquisition in ethnolectal variation and the third general question addresses the place of the vowel pair in the verbal repertoires of speakers of Dutch, including the issue regarding the extent to which speakers of an ethnolect can shift between standard varieties and (non-ethnic) non-standard varieties.

Ethnolects have hardly been systematically studied in linguistic detail as yet, neither for the Dutch situation nor for most other language areas. Before we present our empirical study, the ethnolect concept as well as

some of the most pervasive topics in its study will be briefly discussed in the following subsections.

1.1 Defining ethnolect

Most definitions of the concept of ethnolect are stipulative in the sense that they do not describe plain distinctive features but focus on on what is conventionally meant by that notion. Clyne (2000:86), for instance, has defined ethnolects as 'varieties of a language that mark speakers as members of ethnic groups who originally used another language or distinctive variety'. Androutsopoulos (2001:2) defined an ethnolect as 'a variety of the majority language (or 'host language') which is used and regarded as a vernacular for speakers of a particular ethnic descent and is marked by certain contact phenomena'. According to Auer (2003:256), 'an ethnolect is a way of speaking (a style), which by the speakers themselves or by others is associated with one or more non-German ethnic groups' [our translation]. In Auer's conception, an ethnolect (also) stands out by grammatical properties, as opposed youth language. Muysken (2013) describes more such oppositions. In his view, ethnolects are more or less stable and their usage is at most semi-conscious. Ethnicity plays an inherent role, and the features involved are in the domains of phonology and syntax. Youth language, on the other hand, is dynamic and lexical, and its usage is (semi-) conscious.

Features which originated in the language contact situation underlying the development of a specific ethnic variety sometimes spread to other ethnic groups to become (what has been referred to as) 'multi-ethnolect' features (Clyne, 2000; Quist, 2008; Wiese, 2009, 2013). Multi-ethnolect features can also be stabilized second language acquisition phenomena and they, thus, need not be specific to any ethnic group and their heritage language. An example is variation in the marking of Dutch grammatical gender (Hinskens et al., to appear).

In connection with the functional dimension, the question arises as to whether ethnolects are *Mediums for Inter-ethnic Communication* or rather *Mediums for Community Solidarity*, in Baker's (2000) terminology. In the latter case, ethnolects function mainly or merely as in-group codes; in that case, the emblematic value of the ethnolectal variants, which are often quite distinct from the prestigious norm, is mainly defined by their signaling ethnic identification and solidarity. This is line with Benor's (2010:160) concept of the ethnolinguistic repertoire 'as a fluid set of linguistic resources that members of an ethnic group may use variably as they index their ethnic identities'.

In general, two complementary approaches to the study of ethnolectal variation can be distinguished: the language-centered and the ethnographic approach. The ethnographic approach conceives language systems as infinite resources from which speakers may freely[1] choose to construct their identity, capitalizing on the associations of the resources with specific groups. Some researchers call this approach the 'stylistic (practice) perspective' (Eckert 2012; Marzo & Ceuleers 2011). The language-centered approach tries to disentangle the laws, generalizations and restrictions on these resources,. The language- centered approach is marked by terminology such as 'ethnolect', 'multi-ethnolect' and 'multicultural variety'. The approach, which highlights features of linguistic structure, their origin and (internal and social) distribution, is quantitative, often in the Labovian tradition. The features' patterns of use are usually viewed from a rather macrosocial perspective (e.g. Cheshire et al., 2011; Hoffman & Walker, 2010).

1.2 Dutch ethnolects

A number of different Dutch ethnolects can be distinguished beginning in the nineteenth century and up until the last quarter of the twentieth century.[2] Some of these have been documented relatively well, others much less so. Two examples of historical ethnolects are Jewish Dutch and Indonesian Dutch.

As far as the recent past is concerned, there is a steadily growing Chinese community in the Netherlands ever since the second quarter of the 20th century, their main heritage languages being Cantonese and Hakka. In 1988 the group was estimated at a total of around 45,000 people (van de Berg & Pieke, 1991); recent statistics mention some 80,000 individuals, spread over towns all over the country without any particular geographical concentration. Very little scholarly attention has been paid to their ethnolect of Dutch.

After World War II considerable numbers of Ambonese people from Indonesia settled in the Netherlands. They used to speak Melaju Sini (Dutch name: 'Ambonees'), a Malay based creole language which is mainly spoken on the Moluccan islands Ambon and nearby Ceram (which have been a part of Indonesia since 1949), as well as Moluccan Malay Dutch (1920–). This ethnolect has been reported to be dwindling (Tahitu, 1989).

Surinamese Dutch (1900–) is one of the modern ethnolects. After approximately 1975 immigration from Surinam has gradually reached significant proportions. The majority of the speakers of Antillean Dutch (1950–) come from the Caribean island of Curaçao. More generally, with respect to the immigration from the former Dutch colonies, the Surinamese and

Antilleans are not only the most recent (and still ongoing, especially as far as the Antilles is concerned), but also among the most influential cultural groups. In contrast to Jewish Dutch and Indonesian Dutch, which according to De Vries (2005) are gradually fading away, Curaçao and Suriname ethnolects of Dutch are thriving. These ethnolects are spoken by people who / whose ancestors came from present and former Dutch colonies.

In this contribution, we present findings based on data from speakers of Moroccan and Turkish ethnolectal varieties of Dutch living in the cities of Amsterdam and Nijmegen. These ethnolectal varieties of Dutch originated in labor migration which gained momentum in the 1970s. Both ethnolectal varieties have been investigated by several researchers (e.g. El-Aissati et al., 2005; van Krieken, 2005). Some researchers have investigated these new ethnolects in relation to the notions of stylization and identity and from a rather ethnographic perspective (cf. Flanders: Jaspers, 2008; Netherlands: Nortier & Dorleijn, 2008). The present contribution is the first study of Moroccan and Turkish Dutch from a language-centered approach.

1.3 The urban speech communities

The dialects spoken in Amsterdam and Nijmegen have become urban sociolects as a result of the fact that by the end of the 19th century standard Dutch started to take root in oral usage in the higher status groups. Nowadays, the Amsterdam and Nijmegen urban dialects are spoken in their most pronounced form in the low-income neighborhoods (cf. for Amsterdam: Brouwer, 1989; Schatz, 1986; for Nijmegen: van Hout, 1989, 1999) and their prestige is low. The urban linguistic situations are marked by socially stratified linguistic continua between the urban dialect and standard Dutch.

Former immigrants from Turkey and Morocco and their families typically live in densely populated neighborhoods with cheap housing, low incomes, high unemployment rates and reduced access to infrastructure. Growing up in these areas situated near the bottom rung of the socioeconomic ladder brings the second and third generation immigrants into contact with peers of Dutch descent who use urban dialect as their native speech in the neighborhood as well as in school. This situation of long-lasting, intensive exposure seems to be an ideal context for youngsters with a different ethnic background to acquire the surrounding local urban dialect. And to judge from the variation in their Dutch speech, this is in fact what they do – as we will explain in the next subsection.

In 2014 51% of the population of Amsterdam and 25% of Nijmegen had an immigrant background, meaning that at least one parent was born

abroad. The figures are fairly stable over the years, including the share of people with a Moroccan or Turkish origin. In Amsterdam about 10% has a Moroccan and about 7% a Turkish origin. The numbers in Nijmegen are lower. About 3% has a Turkish and about 2% a Moroccan origin.

1.4 Earlier findings from the Roots of Ethnolects project

The study we present here is part of a larger research project entitled 'The roots of ethnolects. An experimental comparative study'. The project concentrates on the emergence, position and social spread of new ethnolects of Dutch in Amsterdam and Nijmegen. Earlier findings were presented in van Meel, Hinskens & van Hout (2013; 2014), van Meel (2016), Hinskens (2011), Hinskens et al. (to appear).

Van Meel, Hinskens & van Hout (2014) focus on the Dutch diphthong /ɛi/ that has a range of different variants. A first relevant distinction is the one between the urban dialects of Amsterdam and Nijmegen. In Amsterdam, this diphthong is subject to monophthongization and lowering, leading to realizations as [æ:] or [a:]. In Nijmegen, the diphthong is only subject to monophthongization, leading to the variant [ɛ:]; both variants have low overt (and no covert) prestige. A second relevant distinction concerns the spoken standard variety. From the early 90's onwards, a new variant of the diphthong /ɛi/ has been observed in colloquial standard Dutch: the lowered, diphthongal variant [ai]. All this means that ethnolect speakers have a pool of variants they can 'choose' from: the traditional standard Dutch variant [ɛi], the new, expanding variant [ai], and the local monophthong variants marking the dialects of Amsterdam and Nijmegen, respectively. The outcomes from our quantitative analyses show that 'white' Dutch speakers appear to favor the new substandard or even standard realizations, while Turkish- and Moroccan-Dutch speakers are taking over the older urban dialect variants which had developed into markers. The traditional dialect variants of this diphthong thus undergo a complex, long-term sociolinguistic evolution: about a century ago they developed from dialect into sociolect features, now they seem to be evolving from sociolect into ethnolect markers.

Hinskens (2011) and van Meel, Hinskens, & van Hout (2013) deal with the ethnolect speakers' variation in the realization of the voiced sibilant /z/. The results show that /z/ in word-initial position has several traces of interference from the original languages of one of the ethnic groups under study. The dental, voiced realization of /z/, which occurs variably in the Dutch ethnolects of Turkish-Dutch and Moroccan-Dutch speakers in the cities of Nijmegen and Amsterdam, has its origin in the Moroccan languages and is not part of the dialectological and/or sociolinguistic patterns

of variation of traditional endogenous Dutch. This dentalized /z/ has noticeably and demonstrably more frication and it therefore sounds 'sharper' than the traditional Dutch variant, which is alveolar. Apart from the place of articulation, we also investigated voicing, as in a large part of the language area (including the Amsterdam and Nijmegen regions) /z/ is involved in processes of devoicing in standard Dutch. We established that the Turkish and Moroccan ethnolectal varieties of Dutch are marked by significantly less devoicing. Moreover, the speakers of these ethnolects have reshaped the phonological conditioning of the voiced /z/ to include environments following an obstruent – where no endogenous variety of Dutch would ever show any voicing.

Again on the basis of fieldwork data from the Roots of Ethnolects project, Hinskens et al. (to appear) discuss ethnolectal variation in grammatical gender marking from the point of view of second language acquisition effects.

1.5 The research questions

In the present study, we use the same corpus as in our earlier studies to investigate how speakers of current Dutch ethnolects deal with Dutch segmental contrasts which do not occur in the heritage languages involved (see section 2), and which are marked by intricate regional and social stratification patterns in varieties of Dutch. A contrast that unequivocally meets these criteria is that between Dutch long and short (phonologically analyzed as tense versus lax) vowels, such as /a:/ – /ɑ/ as in e.g. *maan* 'moon' – *man* 'man', *maat* 'measure; buddy' – *mat* 'mat', and the like. Such a contrast does not occur in Turkish, Moroccan Arabic and Berber (see section 2). Its absence from the heritage languages involved could bring about a substrate or a second language acquisition effect.

While the emergence of the sharp, dentalized /z/ is a substrate effect and the variation in the realization of /ɛi/ originates in the surrounding urban dialects / sociolects, in studying the variation in the realization of the /a:/-/ɑ/ contrast we hope to be able to test for second language acquisition effects. After all, unlike Dutch, neither Turkish nor Moroccan Arabic nor Berber have length contrasts in their vowel inventories (see again section 2).

The first general question we want to address concerns the embedding of the patterns of variation in /a:/ and /a/ in relation to the original languages and the surrounding urban dialects. More specifically we pose the following specific research questions:

– are there any systematic differences between the Turkish- and Moroccan-Dutch on the one hand and the 'white' Dutch speakers on the other in

the way they realize vocalic tense-lax contrasts between /a:/ and /ɑ/? If so, do the differences concern vowel quantity (length, duration) or quality (place of articulation) or both?
– is the internal conditioning (in terms of segmental environment) of the differences in duration and place of articulation identical for the 'white' Dutch on the one hand and the Turkish- and Moroccan-Dutch on the other?
– what is the social distribution of the variation in the realization of both contrasting vowels?

The second general question concerns the extent to which we can reduce features of ethnolects to properties resulting from *processes of language acquisition*. Second language acquisition plays an important role in the emergence of ethnolects, although the ethnolect for the speakers themselves is the first language, maybe next to the heritage language.

Generally speaking, language acquisition can leave two different types of traces behind: either interference from L1 (substrate effects, one of the subjects of the first questions) or general, language independent characteristics of second language acquisition. Both kinds of acquisition traits are found in ethnolects. However, although ethnolects emerge in the context of second language acquisition, they are not fully determined by it, since they are not mere learner's varieties. These latter varieties are used to communicate, but their norms are – in contrast with norms of ethnolects – not rooted in the speech community. The specific research question we want to answer is:
– to which extent is the variation in the realization of the contrasts between /a:/ and /ɑ/ a matter of acquisitional fine-tuning? To determine the role of acquisition, in the *Roots*-project (i) speakers of two age groups (12 and 20 years of age) are compared

The third general question addresses the place of the vowel pair in the verbal repertoires of its speakers. The specific research question we want to answer is:
– do the patterns of variation found show style shifting in the verbal behavior of the speakers?

The design of our database (which will be presented in Sections 4.1 and 4.2 below) enables us to address these various issues empirically, by studying the distribution of the variation in /a:/ and /ɑ/ in extralinguistic dimensions while taking into account the role of linguistic conditions, and by

considering the way variation plays an active role in face-to-face interaction (style shifting dependent on the background of the interlocutor).

In section 2, we first will discuss the different realizations of the /a:/-/ɑ/ contrast in standard Dutch, of the relevant variants in the Amsterdam and Nijmegen dialects, and their nearest neighbors in the heritage languages at issue. The methods are discussed in Section 3, followed by a presentation of the results in Section 4. Section 5 contains the discussion and conclusions.

2 /a:/ and /ɑ/ in the languages involved

Some of the main information about /a:/- and /ɑ/-like segments in the language varieties involved is summarized in Table 1. The details are discussed in the following subsections. It turns out that none of the varieties involved has a phonemic distinction in the lowest part of the vowel triangle except for Dutch and its urban varieties. Nevertheless, there is a lot of (allophonic) length and place variation in the low vowels in all varieties. In the two Dutch urban dialects involved, many variants are found for place of articulation, but not for length. Length seems to be the more solid feature for Dutch and its varieties, (cf. Booij, 1995).

Table 1 Overview of relevant phonemes and their features in the language varieties involved; PoA = place of articulation

Language	Phonemes, features	Variability
Standard Dutch	/a:/ and /ɑ/ tense vs. lax, different in PoA and length	
Amsterdam	/a:/ and /ɑ/ tense vs. lax, different in PoA and length	PoA variants for both phonemes stable length distinction
Nijmegen	/a:/ and /ɑ/ tense vs. lax, different in PoA and length	PoA variants for /a:/ stable length distinction
Turkish	/a/, also represented as /ɑ/	allophonic variation in PoA and length long variant in loan words
Moroccan-Arabic	/a/	allophonic variation in PoA and length
Tarifit (Berber)	/a/	allophonic variation in PoA long realization in closed syllables

Morocco is a multilingual country with Moroccan Arabic and Berber languages used as mother tongue(s) by the Moroccans (El-Aissati & E-rramdani, 2001; cf. El-Aissati et al., 2005). Moroccan Arabic consists of several dialects which are mutually intelligible. The Berber languages can be divided

into three main language groups that are not mutually intelligible: 1. Tarifit (also called Riffian or Rif Berber), 2. Tachelhit (also written as Tachelhiyt or Tashelhiyt), 3. Tamazight (Central Atlas). El-Aissati et al. (2005:150) estimated that some 60 percent of the Moroccans in the Netherlands to speak Tarifit, 10 percent to speak Tachelhit and the remaining 30 percent to speak a Moroccan Arabic dialect as their mother tongues. In the last two subsections below, the phoneme /a/ is being discussed for Moroccan Arabic and for the Berber languages concentrating on Tarifit.

Turkey, too, is a multilingual country, with Kurdish being an important minor language. Kurdish does not seem to be as strongly represented among the inhabitants of the Netherlands who have a Turkish background as the Berber and their languages among the Dutchmen with a Moroccan background.

2.1 Standard Dutch

Standard Dutch, as spoken in the Netherlands, has nine full monophthongs, of which /a:/ and /ɑ/ are the lowest two in place of articulation (Gussenhoven, 1999). The two vowels differ in several respects. First, /a:/ is phonologically a tense and /ɑ/ a lax vowel. In Dutch, tense vowels are phonologically long (except the high ones), which also means that they occur in other environments than their counterparts, the lax vowels, which are all phonologically short. Lax vowels, such as /ɑ/, have to be followed by a tautosyllabic consonant (e.g., */pɑ/, but /pɑs/), whereas tense vowels may end a Dutch syllable (e.g., both /pa:/ and /pa:s/ are allowed). Lax vowels may also be followed by more consonants within the same syllable than tense vowels: /a:/ may be followed by only one consonant, plus /s/ and/or /t/, whereas /ɑ/ may be followed by two consonants, plus 'extrasyllabic' /s/ and/or /t/ (Booij, 1995). So, /kɑlm/ is a possible word in Dutch, but /ka:lm/ is not.

It follows that in a considerable number of cases the two low vowels occur in the same phonological environment. For instance, *lat* /lɑt/ 'pole' and *laat* /la:t/ 'late' are two different Dutch words. The risk of confusing the two words seems high, because the vowels are both phonologically low and unrounded. However, Booij (1995:5) and Gussenhoven (1999) point out that /a:/ is (phonetically) more central, i.e. front, and, as mentioned above, it is longer. The acoustic study of Van der Harst, van de Velde & van Hout (2014) additionally shows that /a:/ is lower and more fronted than /ɑ/.

Van der Harst et al. (2014) only found some minor regional differences between standard language speakers in the Netherlands: /ɑ/ is slightly more

front among standard speakers in the northeast of the Netherlands than among standard speakers in the southeast of the Netherlands. For /a:/, Van der Harst et al. (2014) do not report regional differences. The vowel is generally assumed to be relatively stable in Standard Dutch (cf. van Heuven, Edelman & van Bezooijen, 2002).

2.2 The urban dialect of Amsterdam

As described in the previous section, /a:/ in Standard Dutch is more central, i.e. front, than /ɑ/. In the Amsterdam dialect, this opposition is reversed, with /ɑ/ being more fronted than /a:/ (cf. Schouten, Crielaard & van Dijk, 1998). In addition, the height difference between the two vowels, measured as the difference in the second formant, is substantially smaller than in Standard Dutch (Schouten et al., 1998:113). Schatz (1986:62, 63) observed a fronting and raising of /ɑ/ to [ɛ] in Amsterdam vernacular, i.e. Standard Dutch *pan* 'pan' /pɑn/ being pronounced as [pɛn]. This seems to match the fronting found by Schouten et al. (1998). At the same time /a:/ is subject to backing, together 'with a certain degree of rounding and diphthongization' (Schatz, 1986:63), i.e. *kaas* 'cheese' /ka:s/ being pronounced as [ka:ɔs]. Brouwer (1989:29) characterizes the Amsterdam vernacular /a:/ as [+low], [+back], [+round]. She distinguished four variants that range from the standard variant to the (most) non-standard variant: [a:], [ɑ:], [ɑ.ɔ], and [ɔ:] (Brouwer, 1989:30, 32), going from front to back, with rounding.

2.3 The urban dialect of Nijmegen

The Dutch phoneme /a:/ has different origins in the West-Germanic vowel system. These origins were still present in the older stages of the Nijmegen dialect, but they disappeared more recently under the influence of standard Dutch (van Hout, 1989). /a:/ has three variants in the spontaneous speech of Nijmegen speakers. There is the raised variant [æ:], but also the back variant /ɑ:/ (the most frequent variant in the dialect of Nijmegen nowadays) and sometimes the back rounded variant [ɔ:]. /ɑ/ has no dialect-related variants, although it can be pronounced a bit more rounded than in Standard Dutch. Finally, the Nijmegen dialect is marked by stronger processes of vowel shortening and reduction than Standard Dutch (van Hout, 1989:206).

2.4 Turkish

Turkish has a vowel /a/ which is traditionally described as low or non-high, back and unrounded (e.g. Comrie, 1997), and is often represented as /ɑ/ (e.g. Kiliç & Öğüt, 2004; Ladefoged, 2005; van Heuven & van Houten, 1985). The vowel has two allophones. The first allophone is described by Lewis

(2000[1967]:13) as 'a back, open, unrounded vowel, like the *a* of French *avoir* or northern English *man*'. Swift (1963:8) describes this allophone as 'a low central unrounded vowel approximating the vowel of American English *hot* '. According to Göksel & Kerslake (2005:xxii) this allophone is 'pronounced as *u* in *cup*'. The second allophone of /a/ is a more fronted one. According to Lewis (2000[1967]:14) this 'front sound of *a*' is 'verging on that of *e* (i.e. like French *être*), which can be heard in careful speakers' pronunciation of some Arabic borrowings and in the Istanbul word *anne* 'mother' (elsewhere *ana*)'. Göksel & Kerslake (2005:10) restrict the context further: 'Its fronted allophone [ạ] occurs with the palatal consonants /c/, /ɟ/ and /l/ in loan words.' The native Turkish vowel /a/ is normally short phonemically, but may be long depending on syllable position and following context (Göksel & Kerslake, 2005; Kornfilt, 1997; Lewis, 2000[1967]). In contrast to native Turkish words, borrowed words (from Persian and Arabic) can have a phonemic long vowel /a:/.

2.5 Moroccan Arabic

Moroccan Arabic has a vowel /a/ that occurs in all positions within words, in combination with all consonants. It has several different pronunciations though. Moroccan Arabic /a/ is generally fronted to phonetic [æ] in non-backing consonantal environments, i.e. when it is not next to an emphatic consonant or one of the uvular and pharyngeal consonants *q*, *x*, *ġ*, *ḥ*, and ع (Harrell, 1962; Heath, 2002) and when it is in non-final position. This allophone is characterized as 'High Low' and 'Front' by Abdel-Massih (1973). /a/ then sounds like [æ] in English 'mad'.

When /a/ is preceded or followed by an emphatic consonant, it is pronounced approximately 'like the 'a' of English 'father'' (Harrell, 1962:12) or even 'a little further back than the 'a' of English 'father'' according to Abdel-Massih (1973:24). This allophone is characterized as 'Low' and 'Back' by Abdel-Massih (1973:23).

Harrell (1962) distinguishes a third allophone. Before or after the uvular and pharyngeal consonants as well as at the end of words (the latter irrespective of the preceding consonant) the 'a' has a pronunciation 'intermediate between the 'a' of 'mad' and the 'a' of 'father'' (Harrell, 1962:12).

2.6 Berber

Just as Moroccan Arabic, most Berber dialects have three vocalic phonemes: /i/, /u/ and /a/ (Kossmann & Stroomer, 1997). Kossmann & Stroomer (1997) state that the phonetic realization of the vowel /a/ ranges from [ɑ] to [æ]. According to Lafkioui (2007), the phoneme /a/ is a mid vowel that

is realized with maximum opening of the mouth as [æ] or [ɛ]. When the vowel is in contact with back phonemes, it is pronounced more front and more open, and becomes [a]. The vowel has a more back realization when in contact with pharyngeal phonemes and is pronounced as [ʌ] or [ʌˑ] in closed syllables at word end (Lafkioui, 2007). The vowel /a/ becomes longer in closed syllable i.e. [æˑ] or [ɛˑ]. The lengthening in closed syllables at word end is a characteristic of the Riffian vowel system.

3 Methods

3.1 Participants

For the current research we used the same sample of 51 youngsters as in previous studies (van Meel, Hinskens, & van Hout 2013, 2014). The participants represent three different groups: Moroccan-Dutch, Turkish-Dutch and 'white' Dutch. The groups were controlled for residence (Amsterdam vs. Nijmegen), for age (10-12 versus 18-20 years old) and, in the case of the 'white' Dutch speakers, the presence (strong inter-ethnic friendship ties, i.e. having friends with Moroccan Dutch and/or Turkish Dutch backgrounds) or absence (no inter-ethnic ties) of regular contacts with Turkish-Dutch and Moroccan-Dutch peers. Table 2 gives the speaker design.

All participants were born in the Netherlands and grew up in their place of residence (either Amsterdam or Nijmegen), Dutch being (one of) their mother tongue(s). The participants with a Moroccan or Turkish background have at least one parent who immigrated from Morocco or Turkey respectively.

Table 2 Overview of the research design and the number of participants (all male)

Background	Moroccan-Dutch		Turkish-Dutch		'white' Dutch			
Inter-ethnic ties?	Yes		Yes		Yes		No	
years of age	10-12	18-20	10-12	18-20	10-12	18-20	10-12	18-20
Amsterdam	3	4	3	4	2	3	3	3
Nijmegen	3	3	3	3	3	3	4	4

Due to unanticipated complications during the fieldwork sessions, there is only scant information available about the language skills and linguistic profiles of the speakers in our sample. The notion linguistic profile refers to such issues as the domains of language use, network-specific linguistic practices and the like. For 14 of the 51 speakers in the sample studied, we have no information whatsoever about their linguistic profiles; 7 of them

being 'white' Dutch, 4 Turkish-Dutch and 3 Moroccan-Dutch. All Turkish-Dutch speakers reported knowledge of Turkish and all Moroccan-Dutch speakers reported to know either one or more of the Moroccan languages as shown in Table 3.

Reading Table 3, several things need to be kept in mind. First, 'language skills' was usually handled by the informants as a yes/no variable and there is no reliable information regarding the speakers' relative proficiencies in the languages mentioned – nor in the varieties of the languages at issue. Second, certain languages were sometimes not mentioned precisely (e.g. 'Moroccan' may refer to Moroccan Arabic, to Berber, or even to both). The fact that precise information was not always asked for by the fieldworkers further complicates the picture. For all these reasons, we refrained from using this information in our analyses.

Table 3 **Self-reported language skills; for all subsets of speakers, the languages are ordered identically, starting with Dutch, i.e. they do not necessarily reflect the order given by the speaker(s); (English, German, French and Spanish are foreign languages learned in secondary education)**

Background	Years of Age	n of speakers	Language skills
Turkish-Dutch	10-12	6	Dutch, Turkish
	18-20	2	Dutch, Turkish
		4	Dutch, Turkish, English
		1	Dutch, Turkish, English, German, Spanish
Moroccan-Dutch	10-12	2	Dutch, 'Moroccan'
		1	Dutch, Moroccan Arabic
		2	Dutch, Berber
		1	Dutch, Berber, 'a little Moroccan Arabic'
	18-20	1	Dutch, 'Arabic'
		1	Dutch, Moroccan Arabic, English
		1	Dutch, Moroccan Arabic, English, German
		1	Dutch, Moroccan Arabic, English, French, Spanish
		2	Dutch, Berber, English
		1	Dutch, Berber

3.2 Material and data

Each participant took part in three or four rather free conversations. The speakers with a 'white' Dutch background with inter-ethnic ties as well as those with a Moroccan-Dutch or Turkish-Dutch background were recorded in at least one in-group conversation and two different out-group conversations. In an in-group situation the conversation partner was a peer with the same background (i.e. a Turkish-Dutch speaking with a Turkish-Dutch), while in the out-group situations they talked with a peer from the other two

ethnic groups. The 'white' Dutch participants with no or at best very weak inter-ethnic friendship ties (C group) were only recorded in in-group conversations with fellow Dutch that equally have no inter-ethnic ties. They serve as the control group for the 'white' Dutch participants with strong inter-ethnic ties (D group). Each conversation involved two peers of the same age group. The majority of the speakers attended the same school as their conversation partners, and many of them were classmates (especially so in the case of the 10-12 year olds). Preferably, the interviewer was only present at the beginning and the end of the conversation to ensure a more natural conversation. However, especially so in the case of the 10-12 year olds, additional guidance was needed to keep them talking for one hour (i.e. suggesting topics to talk about, introducing card games).

Table 4 **Number of targeted /a: / and /ɑ/ sounds in closed syllable per speaker per conversation**

	___[non-liquid]		___[liquid] (i.e. /l/ or /r/)	
	primary stress	secondary stress	primary stress	secondary stress
/a:/	up to 5	up to 5	up to 5	up to 5
/ɑ/	up to 5	up to 5	up to 5	up to 5

The conversations were recorded on a Marantz Professional CD recorder CDR300. Ten to 15 minutes of each recording was transcribed orthographically using the multimedia annotator Elan (cf. Brugman and Russel, 2004). These transcriptions were checked by a second transcriber.

From each conversation, up to 20 /a:/-sounds and up to 20 /ɑ/-sounds in closed syllables were selected per speaker according to the divisions in Table 4, starting with the checked part of the transcriptions. If there were not sufficient words per cell (i.e. 5, see Table 4) in the checked part, the unchecked transcriptions were scanned.

The first three minutes of each conversation were skipped to give the participants some time to get used to being taped and pay less attention to their way of speaking. We defined a set of criteria to select proper /a:/ and /ɑ/ words. The words had to meet the following criteria:

1 /a:/ or /ɑ/ must have either primary or secondary stress.
2 To ensure the data were not biased by specific high frequency words, a word was selected at most two times for a given speaker in a given conversation. However, a word was only selected twice if there were not enough different words per cell (i.e. 5, see Table 4).
3 The frequent words *ja* ('yes'), *dat* ('that') and *maar* ('but') were excluded.

4 No /a:/s or /ɑ/s were selected which were preceded or followed by a vowel (e.g. *indiaan*, 'indian'; *chaos*, 'chaos') or when the previous of following sound was unclear.
5 Foreign words and names like *hardcore* and *Jari Litmanen* (a soccer player) were excluded.
6 Words in which the vowel is followed by an ambisyllabic consonant were not selected: e.g. *pakken* ('to fetch'), *grappig* ('funny'), *strakker* ('more tight'), *plaatje* ('picture'), *vangen* ('to catch'), *lachen* ('to laugh'), vanaf ('from').
7 Sounds with an orthographical <a> which according to the standard norms can be pronounced either with [a] or with [ɑ] were excluded (e.g. the first <a> in *Marokkaan*, /marɔkan/ or /mɑrɔkan/, 'Moroccan').
8 Words which were read from for example (news)papers and magazines were not taken into account.
9 Words which were uttered in an (intentionally) conspicuous way were not selected either. For the most part these were imitations.

3.3 Variants and coding

Table 5 contains the variants distinguished in coding the realizations of the /a:/ and /ɑ/ variants for duration (three values or codings) and place of articulation (five values or codings). The Standard Dutch /a:/ has code 2 for duration as well as for Place of Articulation, while the Standard Dutch /ɑ/ has code 0 for duration and code 3 for PoA.

Table 5 Coding schemes for (a) duration and (b) place of articulation

(a) Duration		(b) Place of Articulation		
0	Short	0	ə	Unspecified
1	In-between	1	æ, ɛ	[-back, -low]
2	Long	2	a	[-back, +low]
		3	ɑ	[+back, +low]
		4	ɔ	[+back, -low]

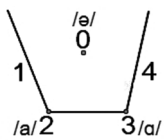

Figure 1 Coding scheme for place of articulation

In total 3855 tokens were coded by two raters. Three-quarters of them were coded by the first author, while the fourth quarter was coded by the other rater. The agreement between the raters was evaluated by drawing a random sample of two /a:/ tokens and two /ɑ/ tokens from 20 speakers. All tokens had primary word accent and were all followed by an obstruent. All 80 tokens were scored independently by the two raters. All /a:/ tokens got a score between 1 and 3 for place of articulation. The variation in scores for /ɑ/ was larger. All five variants for place of articulation turned out to occur, the most frequent one by far being the score of 3 (33 times for rater 1, 32 times for rater 2). The two raters disagreed on the assignment of the reduced variant ('ə'), which is always short. They agreed twice, but scored three other reduced variants. The reduced variants will not be taken into account in the analyses below, as all Dutch vowels may be subject to general processes of vowel reduction in spontaneous speech (cf. Booij 1995). The analyses on agreement between the two raters were done on the remaining 72 realizations. The agreement score (kappa) for place of articulation is.621, that can be qualified as acceptable. The agreement for duration was .787, indicating that the agreement was substantial.

Additionally, the validity of the rater scores was established by comparing them to acoustic measurements. The duration of the 72 vowels was measured acoustically. It turned out to be strongly correlated with the rater scores (for rater 1: .721, for rater 2: .739). We measured F1 and F2 values of the 72 vowels at midpoint (50% of the vowel duration interval). The two formants turned out to be strong predictors of the place of articulation scores for both raters. Applying a multinomial regression analysis on rater 1 returned 81.9% correctly classified scores; the success rate for rater 2 was 84.7%.

The conclusion is that the scores of both raters are reliable and valid and can be used to estimate the properties of the variants distinguished, both with respect to duration as to place of articulation.

3.4 Data analyses

After excluding all reduced (= ə) variants from the analysis, we analyzed the patterns of variation of /a:/ and /ɑ/ before non-glides. We decided to leave out the realizations before liquids because of complications in the patterns of variation in the realization of a following liquid, as many liquid variants turned out to be present, with strong differences between Amsterdam and Nijmegen. /r/ in Nijmegen is strongly reduced and uvular, whereas /r/ in Amsterdam is varying between an alveolar, uvular and bunched realization

(cf. Sebregts, 2015). A following /l/ turned out to be involved in patterns of vocalization, with obvious distinctions between Amsterdam and Nijmegen. Variation in the realization of the two vowels will thus be analyzed in the contexts of a following nasal or obstruent, the remaining natural classes of 'genuine' consonants.

In the following section we first analyze the mean index scores per speaker for both vowels for duration and place of articulation. The explanatory variables are city, age, background of the speaker and background of the interlocutor (section 4.1). Subsequently, on the basis of the difference scores (using Ashman's D index) between the two vowels in duration and place of articulation we investigate whether the size of the differences varies and whether it is reduced in particular speaker groups (section 4.2).

4 Results

4.1 Mean index scores

Figure 2 presents the mean index scores of /a:/and /ɑ/, per single speaker in two contexts. The non-liquids are split up for a following obstruent (left panel) or nasal (right panel). For each single speaker, the means were calculated over the various conversations studied (i.e. irrespective of the background of interlocutor). The place of articulation is visualized on the horizontal axis (with values ranging from 1 to 4; see the coding scheme in Figure 1 above), duration on the vertical axis (with values ranging between 0 and 2; see the coding scheme in Figure 1). Figure 2 shows straightforwardly that the two phonemes are marked by a robust distinction in duration in the obstruent context; there is large gap between the two phonemes (about .50 milliseconds). The context before nasals gives a less outspoken pattern, but there is no overlap in duration, indicating that /a:/ is shorter on average in the nasal than in the obstruent context. The gap between the two vowels is also less outspoken for place of articulation (PoA), the amount of variation and overlap again being larger in the nasal context.

For both vowels in both contexts, the Amsterdam speakers (black symbols) differ from the Nijmegen speakers (white symbols). Compared to the Nijmegen speakers, the Amsterdam speakers produce more back realizations for the /a:/ as well as more fronted realizations for the /ɑ/, resulting in an overlap in PoA. For the Nijmegen speakers the /a:/-/ɑ/ distinction is much more outspoken, with no overlapping mean scores between the two phonemes.

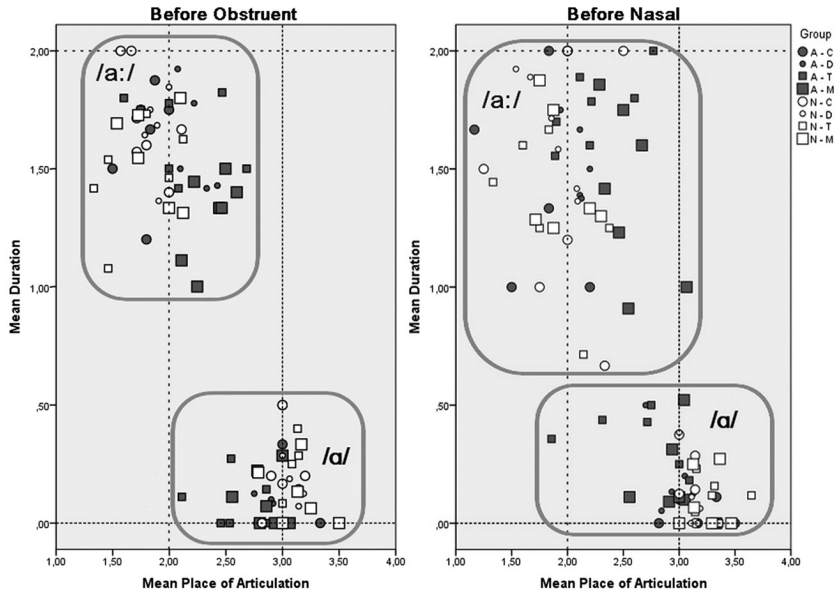

Figure 2 *The realization of /a:/ and /ɑ/ in two contexts, before obstruents (left panel) and before nasals (right panel). Each symbol (dot; square) represents a speaker (some symbols overlap). A = Amsterdam, N = Nijmegen. The C and D speakers are the white Dutch speakers without inter-ethnic ties (C) and with strong inter-ethnic ties (D). The T speakers are Turkish-Dutch; the M speakers Moroccan-Dutch. The C groups only engaged in in-group conversations; the means in the other groups resemble the average of both in- and out-group conversations. The dashed lines represent a typically standard Dutch /a:/ (wide spaced dashed lines) and /ɑ/ (small spaced dashed lines) according to our coding scheme.*

We tested the social contrasts in the D, T, and M groups for duration and PoA statistically by ANOVAs (GLM, Repeated Measures). In these analyses, we included city, age, and the backgrounds of both the interlocutor and the speaker as explanatory variables. Unfortunately, because of small numbers of realizations in the obstruent context, this causes one speaker to be left out of the analyses of the /ɑ/ data, and another speaker of the analyses of the /a:/ data. In the nasal context, three speakers were left out of the analyses of the /ɑ/ data, and two other speakers from the analyses of the /a:/ data. For these speakers too few relevant data were available for one of the three interlocutor conditions. Table 6 gives an overview of the significant effects found. We analyzed the C and D groups in in-group conversations separately, because the D group speakers were not recorded in any

Table 6 **Significant effects for Duration and PoA in the contexts before obstruent and before nasal for the D, T, and M groups (background speaker); the PES (partial eta squared) values are given for significant effects. I = interlocutor, Spr = speaker**

	Duration				PoA			
	/ɑ/		/a:/		/ɑ/		/a:/	
	Obs	Nas	Obs	Nas	Obs	Nas	Obs	Nas
Main effects								
City		.358			.470	.455	.598	.362
Age		.251					.186	
Interaction effects								
Background Spr * City				.305		.245		
Background Spr* Background I			.274					
Background Spr * Background I * Age		.283				.198	.320	
Background I * City * Age				.166				

out-group conversations. The results for the D, T, and M groups are given in Table 6, those for the C and D groups in Table 7. The Partial Eta Squared (PES) is given for each significant effect.

Table 7 **Significant effects for Duration and PoA in the contexts before obstruent and before nasal for the C and D groups (background speaker); the PES (partial eta squared) values are given for significant effects. Spr = speaker**

	Duration				PoA			
	/ɑ/		/a:/		/ɑ/		/a:/	
	Obs	Nas	Obs	Nas	Obs	Nas	Obs	Nas
Main effects								
Background Spr							.388	
Interaction effects								
Background Spr * Age		.323						
Background Spr * City * Age				.214				

Duration

In the obstruent context the duration of /ɑ/ did not show any significant extra-linguistic effect. This is different for the nasal context. On average, Amsterdam speakers have a higher mean duration of /ɑ/s before nasals (mean value: .27) than Nijmegen speakers (.10). This causes a significant effect of city ($F(1,22)=12.293$, $p=.002$, PES=.358. See /ɑ/ in the right-hand panel of Figure 2). There is also an age effect ($F(1,22)=7.378$, $p=.013$, PES=.251); the 12 year olds use on average longer /ɑ/s before nasals (.24) than the 20

year olds (.13). In addition, there is a 3-way interaction effect: background speaker * background interlocutor * age ($F(4,44)=4.339$, $p=.005$, PES=.283). Separate analyses on the three speaker groups (D, T, M) reveals an interaction effect of age and the background of the interlocutor for the D group: $F(1.904,13.327)=4.190$, $p=.040$, PES=.374. The 12 year olds have longer /ɑ/ realizations in interaction with Turkish interlocutors, whereas the same effect is found for the 20 year olds talking with Moroccan interlocutors. Such an interlocutor effect was neither found for the Turkish-Dutch nor for the Moroccan-Dutch speakers.

For the duration of /a:/ before obstruents, no main effects were found. Only one interaction effect was found in the obstruent context, namely between the background of the speaker and that of the interlocutor ($F(4,48)=4.519$, $p=.004$, PES=.274). A first look at the patterns (nine means) of the three groups (D, T, M) in interaction with participants from these three groups (D, T, M) might suggest that the 'white' Dutch speakers with inter-ethnic ties use on average shorter /a:/'s when speaking to Turkish-Dutch speakers (1.25) than in conversation with speakers of the other two groups (D: 1.67; M: 1.79), although this difference is not significant in a post-hoc analysis. The Turkish-Dutch reply to that by using on average shorter /a:/'s when speaking to the D group (1.28) compared to speaking to the Moroccan-Dutch (1.62) and their own group (1.63), an effect that turned out to be significant ($F(2,16)=3.783$, $p=.045$, PES=.321) in a subsequent analysis of the Turkish-Dutch group. The Moroccan-Dutch use, on the other hand, longer /a:/s when speaking to the D group (1.71) than in conversation with the Turkish-Dutch (1.37) or members of their own group (1.36), and this effect of interlocutor is significant ($F(2,18)=5.4843$, $p=.014$, PES=.379), in a subsequent analysis of the Moroccan-Dutch group. In this pattern of interactionally conditioned variation, the Moroccan-Dutch replicate the pattern of the variation in the duration of /a:/ in the speech of the members of the respective groups: M ≤ T < D. This is therefore a clear instance of a language style as audience design effect, as first discussed by Bell (1984).

No main effects were found in the mean duration of /a:/ before nasals either. However, two interaction effects were encountered: background of the speaker * city ($F(2,23)=5.038$, $p=.015$, PES=.305), and background of the interlocutor * city * age ($F(2,46)=4.565$, $p=.016$, PES=.166). The two-way interaction can be explained by separate analyses of Amsterdam and Nijmegen which showed no effect of background of the speaker for Nijmegen, but a significant effect for Amsterdam. The Turkish-Dutch speakers from Amsterdam (mean: 1.83) differ significantly from the Moroccan-Dutch

speakers from the same city (1.34), F(2,13)=5.769, p=.016, PES=.470. The 'white' Dutch speakers with inter-ethnic ties (1.51) pattern with both groups. Another way to explain the two-way interaction (background of the speaker * city) is by analyzing the three background groups separately. The Turkish speakers from Amsterdam use significantly longer /a:/s than the ones from Nijmegen. Given the patterns for the M and D groups, the Turkish speakers from Amsterdam seem to take a distinct position with respect to the duration of /a:/ before nasals compared to the other speakers.

The three-way interaction, background of the interlocutor * city * age, is brought about by the fact that an interaction effect was encountered for Nijmegen: background interlocutor * age, F(1.820,18.198) =4.356, p=.031, PES=.303. The 12 year olds from Nijmegen use longer mean /a:/s (1.78) than the 20 year olds (1.19) when talking with 'white' Dutch interlocutors, while they use shorter mean /a:/s when speaking with Moroccan-Dutch interlocutors compared to the 20 year olds (respectively 1.16 and 1.43). There is no difference between the two age groups when talking to Turkish-Dutch interlocutors (respectively 1.63 and 1.64).

How different are the two 'white' Dutch groups (see Table 7)? When comparing /ɑ/ before nasals of the 'white' Dutch with interethnic ties (the D group) with that of the 'white' Dutch without inter-ethnic ties (the C group), no significant main effect was found between the two groups (i.e. background of the speaker). However, for duration a significant interaction effect was found between background of the speaker and age (F(1,17)=8.123, p=.011, PES=.323). The 20 year old 'white' Dutch without inter-ethnic ties (the C group) use slightly longer /ɑ/s before nasals (.13) than the 12 year olds (.03), whereas the pattern is opposite for the 'white' Dutch with inter-ethnic ties (i.e. D group): 12 year olds .25 and 20 year olds .00.

When comparing the two 'white' Dutch groups on the duration of /a:/, no significant main effect was found between the two groups (i.e. background of the speaker). However, for /a:/ before nasals, one significant interaction effect was found in in-group situations for duration of /a:/ before nasals: background of the speaker * city * age, F(1,17)=4.630, p=.046. Among the Amsterdam 12 year olds, the C group members' /a:/'s are longer than the D group members' /a:/'s, while for the 20 year olds the D group members use longer realizations tan the C group members. For the Nijmegen speakers there are no differences.

Place of Articulation (*PoA*)

We will first consider the distribution over the M, T and D groups. Examining the average PoA of /ɑ/ in the obstruent context, a clear main effect was found for city (F(1,24)=21.311, p=.000, PES=.470). The speakers from

Nijmegen have a mean of 3.13, while the ones from Amsterdam have a mean of 2.71. This implies that /ɑ/ before obstruents from the Nijmegen speakers goes in the direction of [+back, -low], while that of the Amsterdam speakers goes in the direction of [-back, +low]. This is visible in Figure 2: most Nijmegen speakers are located on the right side of the vertical dashed line, while the Amsterdam speakers are mostly situated at the left.

The ANOVA of /ɑ/ in the nasal context showed a main effect of city too ($F(1,22)=18.371$, $p=.000$). The pattern is the same as for the obstruents: /ɑ/s realized by speakers from Nijmegen had a higher mean (3.24) than those realized by the speakers from Amsterdam (2.80). However, the variable city interacts with the background of the speaker significantly, $F(2,22)=3.579$, $p=.045$., PES=.245). For all three backgrounds, the Nijmegen speakers have a higher mean than the Amsterdam speakers, but the difference is the largest for the Turkish-Dutch group who score the lowest in Amsterdam (2.58 vs. 2.93 for Moroccan-Dutch and 2.87 for 'white' Dutch) and the highest in Nijmegen (3.37 vs. 3.24 for Moroccan-Dutch and 3.11 for 'white' Dutch). Just as for duration of /ɑ/ before nasals the 3-way interaction background speaker * background interlocutor * age showed up for PoA of /ɑ/ ($F(4,44)=2.724$, $p=.041$, PES=.198). No main effects and no interaction effect of age and background interlocutor were found in the separate analyses of the D, T and M group. It is clear that an interlocutor effect plays a role, but it is hard to define it more precisely.

For PoA of /a:/ before obstruents, a significant main effect of City was found ($F(1,24)=35.705$, $p=.000$, PES=.598). The Amsterdam speakers had a higher value (2.24) than the Nijmegen speakers (1.73). Also an age effect was found, $F(1,24)=5.470$, $p=.028$, PES=.186. The 20 year olds had a higher value (2.10) than the 12 year olds (1.88). Neither the background of the speaker nor the background of the interlocutor has a significant main effect. One significant interaction effect was found: background speaker * background interlocutor * age, $F(4,48)=5.645$, $p=.001$, PES=.320. To reach a better understanding of this three-way interaction, we examined the three speaker groups (D, T and M, i.e. background speaker) separately. No relevant effects were found for the D and M speaker groups. However, a significant interaction effect between background interlocutor and age was found for the Turkish-Dutch speakers, $F(2,16)=9.843$, $p=.002$, PES=.552. The 20-year-old Turkish-Dutch speakers use more backed /a:/'s when speaking to Dutch interlocutors (mean: 2.43), then when speaking to their own peers (2.07) or to Moroccan-Dutch interlocutors (1.72). On the contrary, the 12-year-old Turkish-Dutch speakers use the more fronted /a:/'s when speaking to Dutch interlocutors (mean: 1.47) compared to speaking to Moroccan-Dutch interlocutors (1.78) and to their own peers (1.86).

Just as PoA for /a:/ before obstruents, a similar significant effect for city ($F(1,23)=13.044$, $p=.001$) was found for the nasal context. The Amsterdam speakers had a higher mean value (2.30) than the Nijmegen speakers (1.90). In contrast to the context 'before obstruent', no age effect was found nor the 3-way interaction-effect.

How different are the two 'white' Dutch groups (see Table 7)? Examining the PoA of /ɑ/ in connection with the speakers' backgrounds, we did not find any differences between the 'white' Dutch without and with inter-ethnic ties (i.e. C group and D group, respectively) in in-group conversations in both contexts ('before obstruent' and 'before nasal').

When comparing the PoA of /a:/ of the 'white' Dutch with interethnic ties (the D group) with those of the 'white' Dutch without inter-ethnic ties (the C group), a significant difference was found in the obstruent context between the two groups (i.e. background of the speaker), $F(1,17)= 10.758$, $p=.004$, $PES=.388$. The Dutch with inter-ethnic ties (D) had a higher mean in in-group conversations (2.09) than the Dutch without inter-ethnic ties (C, 1.81).

4.2 Difference scores between /a:/ and /ɑ/

For both duration and PoA, we calculated the differences between the two vowels by using Ashman's *D* (see Labov, 2014:10). For a given vowel pair, it measures the absolute[3] mean difference ($|\mu_1 - \mu_2|$) divided by the standard deviation calculated on the basis of the variances in both vowels. We calculated Ashman's *D* index scores for each speaker for duration and PoA between /a:/ and /ɑ/.

The background of the interlocutor was not taken into account as an independent variable in the analyses, as (1) there were not sufficient data for two 20 year olds in the obstruent context and for five 12-years old speakers in the nasal context data, and (2) this factor has been found to be involved merely in certain three-way effects, and does not have any autonomous influence (see previous sections). Therefore, there is no need to analyze the data for the 'white' Dutch speakers without inter-ethnic ties (C group) separately. First of all, no significant effects were established in the statistical analysis of duration. We have seen earlier that there is a robust difference in duration between /a:/ and /ɑ/. The results for Ashman's D show that the difference is not only robust, but that it is stable as well.

The outcomes of the analyses of the differences in place of articulation are visualized in Figures 3 and 4. Figure 3 gives the results of PoA for the four speaker groups in relation to city. Figure 4 gives the results for the two age groups in relation to the four speaker groups. The Ashman's index is always positive, indicating that the /a:/ has a more fronted realization than

the /ɑ/, although the difference may be reduced to .50. The statistical results of the ANOVAs (GLM, Univariate) for PoA are summarized in Table 8 for the significant effects.

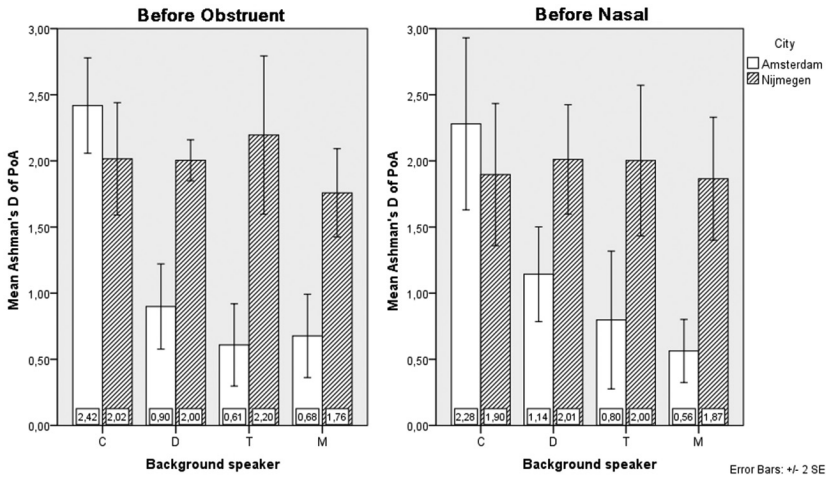

Figure 2 *Mean Ashman's D of Place of Articulation. C = Dutch-Dutch speakers with no inter-ethnic ties, D = 'white' Dutch speakers with strong inter-ethnic ties, T = Turkish-Dutch; M = Moroccan-Dutch.*

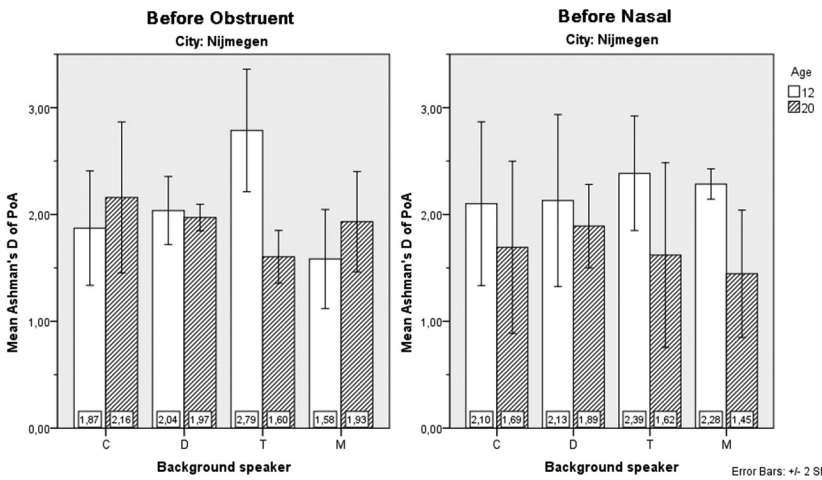

Figure 3 *Mean Ashman's D of Place of Articulation for speakers of Nijmegen. 12 = 10-12 year olds, 20 = 18-20 year olds, C = Dutch-Dutch speakers with no inter-ethnic ties, D = 'white' Dutch speakers with strong inter-ethnic ties, T = Turkish-Dutch; M = Moroccan-Dutch.*

Table 8 **Significant effects for PoA of Ashman's index *D* in the contexts before obstruent and before nasal for the C, D, T, and M groups (background speaker); PES is given for significant effects; Spr = speaker**

	Obstruents	Nasals
Main effects		
City	.556	.345
Age		.123
Background Spr	.533	.301
Significant interaction effects		
Background Spr * City	.523	.317
Background Spr * City * Age	.203	

The ANOVAs analyses performed on Ashman's *D* in the obstruent context showed significant main effects for city (F(1,35)=43.875, p=.000, PES=.556), and background speaker (F(3,35)=13.302, p=.000, PES=.533). The mean value of Ashman's *D* of Nijmegen speakers (2.00) is larger than that of the speakers from Amsterdam (1.57). The main effect of the factor speakers' background has to be interpreted using the interaction effect of background speaker * city (F(3,35)=12.771, p=.000, PES=.523). The mean Ashman's *D* scores split out for groups and city are given in Figure 3, with the left panel for the obstruent context. Nijmegen is distinct from Amsterdam, as no differences show up between the speaker groups. The situation is obvious in Amsterdam. The 'white' Dutch Amsterdam speakers without inter-ethnic ties (C group) differ significantly from the other three groups.

A three-way interaction in Ashman's D was found between the background of the speaker, city and age (F(3,35)=2.964, p=.045, PES=.203). This interaction effect can be ascribed to the fact that an interaction effect between the background of the speaker and age was found for Nijmegen. This can be seen in the left panel of Figure 4. The 12 year old Turkish speakers in Nijmegen have on average a larger distance (2.79) between /a:/ and /ɑ/ than the 20 year old Turkish speakers (1.60) or any of the other Nijmegen speakers (group means between 1.58 and 2.16).

In the nasal context, we found comparable results as for the obstruent context, i.e. a main effect for city with a larger mean value for Nijmegen than for Amsterdam (F(1,35)=18.419, p=.000, PES=.345) and a main effect of the background of the speaker (F(1,35)=4.928, p=.033, PES=.123). The interaction effect of background speaker * city is significant as well (F(3,35)=5.415, p=.004, PES.=.317). Figure 3 makes clear that the patterns for the nasal context are similar tothe obstruent context. There are no differences between the groups in Nijmegen, but in Amsterdam the C groups stands out. There

is also a main effect for age ($F(1,35)=4.928$, $p=.033$, PES=.123). The distances are smaller for the 20 years old, as can be seen for the Nijmegen speakers in Figure 4.

5 Conclusion, discussion and issues for future research

As far as the variation in the realization of each of the two segments is concerned, the main findings can be summarized as follows. No general main effects of the background of the speaker (general question 1) or the interlocutor (general question 3, style as audience design) were found for the two vowels, neither in the two linguistic conditions nor for the two dimensions of variation, duration and place of articulation (PoA). Interestingly, however, the backgrounds of the speaker and of the interlocutor were involved in several important interaction effects. The clearest one is an audience design effect in the speech of the Moroccan Dutch speakers in the context before obstruents: Turkish Dutch speakers produce the shortest /a:/'s when speaking to the endogenous, 'white' Dutch, whereas Moroccan Dutch speakers produce the longest /a:/'s when speaking to the endogenous, 'white' Dutch. The age of the speaker (general question 2, acquisitional fine-tuning) only rarely has a main effect, viz. on /ɑ/ before nasals and on the PoA of /a:/ before obstruents. For both vowels age is involved in a few complex two-way interaction effects.

Amsterdam speakers used more front realizations of /ɑ/ than the speakers from Nijmegen, while for /a:/ the opposite was established. Amsterdam speakers also produced significantly longer /ɑ/'s before nasals. The 12 year olds use on average longer /ɑ/'s before nasals than the 20 year olds; before obstruents, the 12 year olds used more front realizations of /a:/ than the 20 year olds. Overall, more variation occurred in place of articulation than in duration. The /a:/-/ɑ/ contrast is phonetically realized by all groups, though with variation across groups in place of articulation.

This observattion is corroborated by the outcomes of the analyses of the differences between the two vowels by means of the Ashman's D index. There are no significant results for duration, indicating that the length distinction between the two vowels is robust and stable. The analyses of the differentiation between /ɑ/ and /a:/ in PoA render an essentially different picture. In this respect the young men with Turkish and Moroccan backgrounds show a smaller difference than their 'white' Dutch peers. And the Amsterdam speakers as a group make a smaller difference between the vowels than the Nijmegen speakers. In Amsterdam

the Moroccan Dutch, the Turkish Dutch and the 'white' Dutch young men with strong interethnic ties all realize smaller differences between /ɑ/ and /a:/ than the 'white' young men with weak or no interethnic ties – but in Nijmegen there is no difference between the four groups of speakers. Conversely, before a nasal the 12 year old Nijmegen speakers appear to make more pronounced differences between the two vowels than their 20 year old fellow Nijmegen citizens, whereas in Amsterdam both age groups do not differ in this respect.

In short, in so far as the Turkish and Moroccan Dutch do not realize the distinction between /ɑ/ and /a:/ in the same way as their 'white' Dutch peers, they do so in place of articulation – not in duration. In this respect they do not differ from the Amsterdam 'white' Dutch young men with strong interethnic ties, nor (in the context before a nasal) from the 20 year old Nijmegen speakers. We can thus establish that the expected L2 effect does not manifest itself. This latter finding is in line with Labov's (2008) questioning substratum explanations of changes in varieties with origins in bilingualism.

Finally, we want to put forward a few observations with respect to the social spread of the patterns of variation. Despite the style as audience design effect on the length of /a:/ before obstruents in the speech of the Moroccan Dutch, and despite the fact that before nasals the Moroccan Dutch produce shorter /a:/s than the Turkish Dutch, both groups do not differ in the way they differentiate between /ɑ/ and /a:/. This does not always hold for the 'white' Dutch speakers with and those without Moroccan and/or Turkish friends; especially before obstruents the 'white' Dutch speakers with interethnic ties pattern with their Moroccan and Turkish peers. Social network may play a role here as well.

Follow-up research of the 'Roots of Ethnolects' data could focus on other tense/lax vowel contrasts in Dutch, such as /ɔ/ versus /o:/ and /ɪ/ versus /e:/. Future work should also target other potentially variable features in the complex defined by the typological distinction between stress-timed and syllable-timed systems, which seems to correlate with the distinction between language with and without vocalic length contrast. Our data contain e.g. instances of vowel apocope and of the use of full forms of small and prosodically recessive but grammatically weighty function words (such as *er* and *het*, lit. 'there' and 'it', as [ɛr] and [hɛt]) in contexts where 'white' native speakers typically use reduced or cliticized forms, such as [dər] or [ər] and [ət] or [t].

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Notes

1. I.e. without discernable internal conditioning – as in the structuralist concept of 'free variation'.
2. The past and present-day emergence of Dutch ethnolects is detailed in Hinskens (2011) and Muysken (2010; 2013). Cf. Den Besten & Hinskens (2005:289-293) on Jewish Dutch and Hinskens & Muysken (2007) on (among other things) Jewish Dutch and the Chinese and Surinamese communities in present-day Amsterdam.
3. Ashman's D uses absolute differences, which means negative values are 'lost'. With regard to Place of Articulation, a negative value imply that the mean articulation of /ɑ/ is more fronted than that of /a:/. In the obstruent context, one speaker has a negative value: -.04. The mean /ɑ/ of this 20 years old Moroccan Dutch speaker from Amsterdam is more fronted than his mean /a:/. The same is the case for two 20 years old Turkish-Dutch speakers from Amsterdam in the nasal context: -.36 and -.05.

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