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‘I don’t want to sound racist, but…’

Examining the Effects of Accent and Speech Rate on Judgments of Speaker Credibility

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Abstract

Previous studies have found that non-standard language varieties are at risk of discrimination in legal contexts. Additionally, slow speech has been shown to be less credible than normal speech. However, little is known about how accent and speech rate interact. In order to investigate this phenomenon further, this thesis examines how Dutch listeners judge utterances on a seven-point scale when presented with auditory stimuli in two accents of Dutch (Standard Dutch and Moroccan Dutch) and two speech rates (normal and slow). Contrary to previous studies indicating that non-standard language is perceived as less credible, the results of this study revealed that listeners generally perceive both accents as equally credible at a normal speed. Slower speech was judged as less credible in both varieties, but Standard Dutch was given lower ratings overall. The results suggest that what has previously been established for slow speech in languages such as English also holds true for Dutch, and may have adverse consequences for individuals in contact with the law.

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Introduction

Communication within legal contexts forms a unique social space: one that is characterized by highly institutionalized practices. It can therefore be viewed as "a linguistic event of a highly specialized and marked kind, with numerous well-defined roles and conventions with respect to speaking for a successful outcome" (Foley, 1997, p. 252). At the same time, this highly codified infrastructure makes all legal contexts a particularly vulnerable communicative space for those who come into contact with figures of authority, irrespective of whether they participate in such exchanges as witnesses, suspects, plaintiffs or defendants. Not adhering to the agreed set of norms, be it linguistic or otherwise, can have potentially life-changing consequences.

In particular, the use of non-standard language varieties in legal contexts has been shown to disadvantage speakers and has been the motivation for a large volume of linguistic research. Language-based discrimination has been extensively documented in various parts of the world including Australia (Eades 1993, 1996, 2012), the United Kingdom (Brown-Blake & Chambers, 2007; Dixon, Mahoney & Cocks, 2002) and the United States (Frumkin, 2007; Gumpertz, 1983; Hutchins, 1999; Lev-Ari & Keysar, 2010; Lippi-Green, 2012; Rickford & King, 2016; Sullivan, 2016). Sociolinguists in these countries have analyzed numerous cases in which variation at the lexical level, the phonological level, politeness pragmatics and other domains have been the root cause for miscommunications and damaging outcomes. Among the most notable examples is the work of Diana Eades (1993, 1996, 2012), who has written extensively about Aboriginal varieties of English in Australia. Eades (2012) investigated how pragmatic features, such as silence and "gratuitous concurrences"[1], as well as discourse structure, such as ways of seeking and giving information, differ dramatically from mainstream Australian English. Eades' work has focused on several cases in which witnesses were mistreated, and in some more extreme cases wrongly convicted, as the result of interlocutors' unfamiliarity with Aboriginal ways of communication.

Sociolinguistic research from the United States has also brought to light various issues concerning discrimination against non-standard language varieties and accents, particularly those that are specific to ethnic minorities. A phenomenon known as "linguistic profiling" or "the auditory equivalent of visual 'racial profiling'" (Baugh, 2003, p. 105) has been investigated at

[1] The act of responding 'yes' to Yes–No questions regardless of whether the speaker agrees or has understood the question (Eades, 2012, p. 478).

length, and is supported by a number of studies demonstrating that listeners are able to correctly deduce ethnicity only from hearing a speaker's voice and without any visual aid (Holliday & Jaggers, 2015; Purnell, Idsardi & Baugh, 1999; Walton & Orlikoff, 1994). Most notably, this has raised a number of concerns over language-based discrimination in the United States housing industry. Squires and Chadwick (2006, p. 409) found evidence that home insurance agents' ability to determine racial identity over conversations by telephone with prospective applicants negatively affected African American speakers (see also Baugh, 2003).

Recent work from the United States has also focused on "dialect unfamiliarity" (Rickford & King, 2016, p. 950) and social prejudice as potential reasons for discriminatory practices (Lippi-Green, 2012; Rickford & King, 2016; Sullivan, 2016). A prominent and recurring example in literature on courtroom miscommunications is the use of African American Vernacular English (AAVE), a dialect that has been the subject of much debate on language attitudes and ideologies (see among others Lippi-Green, 2012; McWhorter, 2017). A frequently cited case and the catalyst for extensive debate on the issues mentioned above was the fatal shooting of Travyon Martin, an unarmed African American teenager, which gave rise to the #BlackLivesMatter movement (Rickford & King, 2016, p. 949). The key witness in this trial, Rachel Jeantel, was a childhood friend of Martin who was on the phone with him moments before he was killed by George Zimmerman, a neighborhood watch volunteer. However, one juror in this case reported that Jeantel's statements were entirely discounted during the jury's deliberations, despite her role as an ear witness and several hours of testimony (Rickford & King, 2016; Sullivan, 2016). Jeantel was criticized for her speech throughout the trial in vicious attacks on social media and one jury member reported in an interview that they found her "difficult to understand" and "not credible" (as cited in Rickford & King, 2016, p. 950; see also Sullivan, 2016). In recent years, linguists have taken a particular interest in the jury's decision to acquit and to overlook Jeantel's testimony. The outcome of the trial has been overwhelmingly explained as the result of jurors' unfamiliarity with her dialect and negative perceptions of AAVE (McWhorter, 2013; Rickford, 2013; Rickford & King, 2016; Subtirelu, 2013; Sullivan, 2016).

The Zimmerman trial, which was the inspiration for this thesis, is an excellent example of how the use of non-standard language can be detrimental within highly institutionalized and standardized communicative contexts. Furthermore, this trial raises another interesting question:

What makes a speaker sound 'credible'? And moreover, what is the strength of various linguistic cues in establishing speaker credibility? To answer these questions, Jeantel's testimony serves as inspiration for a few reasons. Firstly, linguistic analyses of her speech suggest that some speakers of mainstream varieties of English demonstrate a negative bias toward non-standard varieties (Rickford, 2013; Subtirelu, 2013). Consequently, such biases may adversely impact how speakers of non-standard language varieties and accents are perceived throughout the legal process. In fact, this phenomenon has been well documented in previous research. A number of controlled experiments have provided evidence that both non-standard accents and non-native accents can negatively influence a witness' perceived trustworthiness (Dixon, Mahoney & Cocks, 2002; Frumkin, 2007; Lev-Ari & Keysar, 2010).

On the other hand, Jeantel's speech presented a unique case in that it was characterized by a number of features that are potentially problematic for listeners, namely: malocclusion (an underbite), which disrupts the realization of certain phonemes (Wassink, 2017), accompanied by low speaking volume, low pitch, and breathiness (Rickford & King, 2016, pp. 975–976). In addition to these factors, it is possible that prosodic variables could have had a negative impact. Jeantel's speech rate, for example, was at times particularly slow, which may leave the listener with the impression that the speaker is lying (Dr. Tina Cambier-Langeveld, personal communication, October 2017). Previous research has indeed indicated that slower speech rate is strongly correlated with credibility. Slower speech has been shown to be less persuasive (Miller, Maruyama, Beaber & Valone, 1976), less credible and more passive (Apple, Streeter & Krauss, 1979; Brown, Strong & Rencher, 1973, 1974; Smith, Brown, Strong & Rencher, 1975).

One area that remains yet to be investigated is how the use of non-standard language interacts with other variables, such as speech rate, and how these factors may impact a speaker's credibility. In addition, relatively little research has been conducted in this area on languages other than English. The Dutch language is among the many examples of languages where there is room for further legal linguistic research. To this end, this thesis aims to investigate how listeners judge speech samples in two accents of Dutch, Standard Dutch and Moroccan Dutch, when uttered at various speeds by the same speakers. The latter in particular has been selected because of its growing presence in literature on ethnolects and language attitudes in the Netherlands (El-Aissati, Boumans, Cornips, Dorleijn & Nortier, 2005; Muysken, 2013; Nortier & Dorleijn, 2008; Van Meel, 2016), its appearance in Dutch national media and its potential

relevance to minority profiling practices among police in the Netherlands (Amnesty International, April 2016).

The structure of the present study is as follows. Chapter 1 lays out both the theoretical frameworks and developments in Dutch society that are relevant for this research. Following a brief overview of the sociopolitical context in which Moroccan Dutch is situated, I will pay particular attention to the acoustic features that differentiate it from Standard Dutch and will explore attitudes toward this accent. In addition, I will consider the potential relevance of the effects of speech rate on listener attitudes as it applies to the Dutch legal context. The chapter concludes with a summary of the above, followed by the research questions, hypotheses and aims of this project. Chapter 2 presents the methodology employed in this study. In this chapter, I also address some of the fundamental methodological issues classically associated with attitudinal studies and how I address these in the context of the present experiment. Furthermore, I reiterate the relevant methodological considerations with respect to speech rate as a unit of analysis, and describe the methodological frameworks that are employed in the present study. The results are presented in Chapter 3. Finally, I will conclude with a discussion of the results in Chapter 4 and their broader implications for communication within a legal context.

Chapter 1

Motivating literature and orientation to the present study

1.1 Why Dutch?

As mentioned in the introduction to this paper, the majority of pioneering work on language-based discrimination within a legal context has focused on the English language and non-standard varieties of English. In particular, linguistic studies from the United States, the United Kingdom and Australia stand out. This does not come as a surprise when one considers a few of the common denominators these nations share, both in terms of sociopolitical history as well as the structure of their judiciary systems. When referring to the literature (Dixon, Mahoney & Cocks, 2002; Eades, 1993, 1996; Rickford & King, 2016), race, ethnicity and oppression of social minorities are common themes. Furthermore, all three of these nations have a jury system, where a jury of peers may play a role in determining the outcome of a particular trial. Taken together, these factors lay the perfect groundwork for linguistic differences to be of interest, which perhaps is one of the underlying reasons for the large body of research on linguistic discrimination that has been conducted in these countries.

The Netherlands and the Dutch language may provide a unique perspective on linguistic discrimination in legal contexts for a few reasons. Though stereotypically renowned for its culture of tolerance and liberal-minded individuals, the Netherlands has not been free of concerns over ethnic profiling and discrimination. In recent years, individuals of Moroccan descent, one of the largest minority groups in the Netherlands (Nortier & Dorleijn, 2008, p. 129), have received particular scrutiny both in politics as well as in mainstream culture. According to Nortier & Dorleijn (2008, p. 136), this negative attitude can be traced back to the attack on the Twin Towers on September 11, 2001, after which opinions about Muslims began to change. The authors remark that certain events soon thereafter reinforced the attitude of some Dutch citizens that Muslims were to blame and led to further division between Muslims and non-Muslims (Nortier & Dorleijn, 2008, p. 135). One such event was the assassination of politician Pim Fortuyn, whose provocative views on immigration and Islam exacerbated the newfound fear toward Muslim individuals in the Netherlands (Nortier & Dorleijn, 2008, pp. 135–136). The

authors remark that around the same time, Dutch filmmaker Theo van Gogh was assassinated by a young man of Moroccan descent after the release of his short film about the treatment of women in Islam (Nortier & Dorleijn, 2008, p. 136). Furthermore, Nortier & Dorleijn (2008, p. 136) point out that during this period, around the year 2004, there were also growing concerns over problems with Moroccan gangs, whose media presence was escalating. Consequently, the image of Moroccans has continued to evolve in a mostly negative light ever since (Nortier & Dorleijn, 2008, p. 136). This is evident in more recent media attention to the so-called *Mocro-oorlog* 'the Moroccan War' or the *Mocro-maffia oorlog* 'the Moroccan mafia war', terms used to refer to drug crime in the Netherlands. In 2014, the publication of a book written by two Dutch journalists with the title *Mocro maffia* (Laumans & Schrijver, 2014), which describes the Moroccan criminal circle in Amsterdam, contributed to the already negative image of Moroccans. Although the term has been criticized by some for the fact that it puts Moroccan criminals in the spotlight, despite the fact that the gangs involved have Antillean and endogenous[2] Dutch members as well ("*Mocro-Maffia Bestaat Niet* 'The Moroccan Mafia Does Not Exist'", 2014), the majority of popular Dutch newspapers continue to refer to this phenomenon as such.

Equally noteworthy, and perhaps the most well known illustration of this newly developed sentiment, is the political movement of right-wing Dutch politician Geert Wilders. Wilders' statements about "the Islamification of the Netherlands" have gained traction on an international level (van Leeuwen, 2014, p. 226). The politician reached international newspapers when he was brought to court for "inciting hatred" after asking the crowd at a political gathering: "Do you want more or fewer Moroccans in this city and in the Netherlands?" (Siegal, 2016, para. 2–3). Thus, it is not difficult to imagine the momentum this topic has garnered within the Netherlands itself.

This change in political climate and shift in attitude toward certain ethnic minorities has also become a popular topic of discussion in entertainment media. Well-known figures such as Arjen Lubach from the late night television program *Zondag met Lubach* 'Sunday With Lubach' have addressed increasingly negative attitudes in the Netherlands toward immigration. Lubach shed light on the issue in a recent comedic sketch about the absurdity of impossibly difficult

[2] Van Meel (2016, p. 9) explains that: "the term 'white' is often used in North-American studies, but is controversial in other parts of the world". She therefore uses the term 'endogenous' to refer to white-Dutch speakers. The same terminology has been adopted in this thesis.

questions in the Dutch *inburgeringsexamen* or 'civic examination'.[3] What is even more remarkable, however, is the amount of attention in entertainment that has been given to the linguistic issues surrounding the ethnic groups involved in immigration to the Netherlands. Moroccan Dutch has been front and center on the Dutch national stage and has burgeoned into a hotly debated topic, both inside and outside of the academic community. In the past few years especially, popular Dutch television programs have begun to explore language attitudes by investigating the use various Dutch accents in everyday exchanges. Some television shows, such as *De Kennis van Nu* 'The Knowledge of Now', have already begun to address the apparent negative perception of the Moroccan Dutch accent. The research initiative *Sprekend Nederland* 'Speaking the Netherlands',[4] which was featured on *De Kennis van Nu*, found in a survey that Moroccan Dutch was rated the least intelligent-sounding Dutch accent out of all the major Dutch accents in the Netherlands.

1.2 A word on Standard Dutch

At this stage, a few remarks must be made with respect to Standard Dutch, as this will shed light on the ways in which Moroccan Dutch deviates from more widely recognized norms of pronunciation. The aim of this thesis is not to give a full phonetic inventory of both varieties; rather, I will provide an overview of those features that are most relevant to the present analysis.

When speaking of a "standard" variety of any language, it is important to consider that such a label is "an abstraction" at best (see Lippi-Green, 2012, pp. 41–62). As Sullivan (2016, p. 10) puts it: "what counts as standard and formal varies by cultural, regional, societal, and even institutional contexts". In addition to this, Smakman (2012) points out that authoritative sources (such as dictionaries), "expert" sources (such as linguists) and lay people all differ with regards to what is viewed as "standard", which further complicates the possibility of a unified definition (Smakman, 2012, pp. 27–29).

While a more in-depth discussion of defining standardness is beyond the scope of the present analysis, a few generalizations can be made. For example, previous literature on the topic suggests a certain degree of phonetic normalcy with respect to what may be considered Standard

[3] Available at: https://www.npo.nl/zondag-met-lubach/22-01-2017/VPWON_1265479.
[4] A national research project about Dutch accents and language attitudes that is currently underway in collaboration with the Dutch public broadcaster NTR. Information available at: https://www.dekennisvannu.nl/site/special/Groot-Nationaal-Onderzoek-Sprekend-Nederland/17.

Dutch pronunciation. For reasons that will become clear in the sections that follow (see section 1.4), I will focus on the Standard Dutch pronunciation of *g* and *r*. With regards to Dutch *g*, there appears to be a general agreement in the phonetic literature that the standard pronunciation is the voiceless fricative /x/, although the exact place of articulation has been widely debated and lies somewhere between post-velar and pre-uvular (Collins & Mees, 2003; Mees & Collins, 1982; Smakman, 2006). Mees and Collins (1982, p. 7) have noted that for speakers of Standard Dutch, /x/ is produced "with considerable scrape". According to Smakman (2006, p. 289) /x/ has only one acceptable realization no matter where its position within a syllable. Moreover, he concluded that /x/ is most frequently realized as a voiceless uvular fricative, which can be realized "either with or without rasp" (Smakman, 2006, p. 234).

Dutch *r*, on the other hand, has a wider range of variability (Smakman, 2006, p. 289). Smakman (2006, p. 287–289) found that whereas /r/ varies in postvocalic position, there seem to be only two acceptable realizations in onset position: alveolar or uvular. In a more recent large-scale geographical study, Segbregts (2015, p. 278) found that the three most frequent onset realizations are a voiced alveolar tap, a uvular approximant and a uvular trill. These findings are in line with the view of Grondelaers and Van Hout (2010, pp. 223–224), who argue that Standard Dutch is continuously evolving in a manner that allows for more variation with respect to pronunciation.

When speaking of phonetic norms, another issue that arises is how to determine who is a speaker of Standard Dutch. Smakman (2006, p. 10) provides a few possible approaches for this. On the one hand, he argues that one might rely on lay opinions, as there is a general belief that Standard Dutch is spoken in the western Dutch city of Haarlem (2006, p. 10). Alternatively, he suggests that one could assume that certain professions, such as news anchors, speak something close to Standard Dutch, as one would expect that these individuals are hired, in part, for their ability to produce speech in a standard register (2006, p. 10). Finally, he proposes that it is possible to have listeners judge speech and rate its degree of standardness (2006, p. 10). Using all these methods, Smakman (2006) ultimately found that region was indeed an important factor in perceptions of standardness, as "speakers from the western cities are in particular associated with Standard Dutch" (Smakman, 2006, p. 292). Other more recent studies, however, suggest that there is a growing acceptance toward regional variation in Standard Dutch (Grondelaers & van Hout, 2010; Groendelaers, van Hout & Steegs, 2010; Segbregts, 2015).

All in all, it is evident that the boundaries of standardness are not always easily defined. Nonetheless, based on previous literature, it is reasonable to posit a few overarching generalizations with respect to pronunciation. With this in mind, the following section will outline the features of Moroccan Dutch that deviate from what is generally accepted as Standard Dutch pronunciation.

1.3 Moroccan Dutch

Before exploring attitudes toward Moroccan Dutch in more depth, I will first outline some of the features of Moroccan Dutch that differentiate it from Standard Dutch. First and foremost, it is necessary to clarify what is meant by the term 'Moroccan Dutch' as it is used in the present paper. This requires a brief overview of previous scholarship and the various terms that have been used. In earlier work, Nortier & Dorleijn (2008, p. 126) identified the emergence of a Moroccan-sounding "ethnic accent" used by both speakers of Moroccan descent, as well as by endogenous Dutch speakers and speakers without a Moroccan background, which they termed 'Moroccan Flavored Dutch'. According to the authors, Moroccan Flavored Dutch differs from the speech of first generation immigrants who speak Dutch with their L1 accent in that certain phonetic features are hyperbolized and morphosyntactic features are subtly manipulated in a norm-breaking style (Nortier & Dorleijn, 2008, pp. 129–132). Preceding this study, the same authors referred to this accent as simply 'Moroccan Dutch' (El-Aissati, Boumans, Cornips, Dorleijn & Nortier, 2005), a term that has since been adopted by a number of other linguists and is used to describe the Moroccan Dutch ethnolect (Muysken, 2013; Van Meel, 2016). It is important to note that Moroccan Flavored Dutch is not to be confused with 'Murks', another Moroccan variety of Dutch that arose in the early 2000s and consisted of stereotypes of Moroccan and Turkish speakers (Nortier & Dorleijn, 2008, p. 127). Importantly, according to Nortier & Dorleijn (2008), Murks was only used by young endogenous Dutch speakers in in-group contexts "because it sounded tough" (2008, p. 127). However, it was considered offensive if used in front of Moroccan or Turkish speakers (2008, p. 127).

Following Dorleijn & Nortier's (2008) study, Muysken (2013) and Van Meel (2016) carried out work on the sociolinguistic status of Moroccan Dutch. What is remarkable about Van Meel's (2016, p. 1) analysis is the status of Moroccan Dutch as a "multi-ethnolect" – an ethnolect or features of an ethnolect that are used by more than one ethnic group (Van Meel,

2016, p. 1). In particular, Van Meel (2016) identified three main ethnic groups who use Moroccan Dutch: Moroccan-Dutch speakers, Turkish-Dutch speakers, and endogenous (i.e. 'white') Dutch speakers, the latter group being subdivided into speakers with strong social connections to the other two ethnic groups and speakers with fewer connections to these ethnic groups (Van Meel, 2016, p. 9).

Central to Van Meel's (2016) analysis, and essential for providing a clear picture of what Moroccan Dutch represents within the linguistic fabric of Dutch society, is the question of where to draw a distinction between "ethnolects" on the one hand and "youth languages" or "street language" on the other. According to the author, the main differences can be explained as follows:

> "Ethnolects are relatively stable, while youth languages keep changing and can be qualified as highly dynamic. The linguistic features of ethnolects largely pertain to the phonological and (morpho-)syntactic components, while most defining features of youth languages have a lexical or pragmatic nature. Speakers of youth language are usually conscious of the way they speak, while this holds less for speakers of ethnolects. In the definition of ethnolects, ethnicity is seen as something inherent and self-evident, while ethnicity is a dynamic and evolving property for speakers of youth language. Even more, in youth languages, expressing generational differences may be more important than expressing ethnic boundaries." (Van Meel, 2016, p. 1)

According to Van Meel (2016, pp. 1–8), Moroccan Dutch can be classified as an ethnolect, or more precisely, as a multi-ethnolect, rather than a youth language. Nevertheless, Van Meel (2016, p. 1) points to the observations made by Muysken (2013), who warns that when defining the boundary in such dichotomous terms, one must be aware that the two are not always clearly separated: "We do not know how stable ethnolectal features really are, the issue of consciousness is quite complex on both sides, ethnicity is likewise a complex phenomenon, and the range of features of both sets of phenomena remains to be studied" (Muysken, 2013, p. 742). Moreover, Muysken (2013, p. 743) points out that ethnolects are socially complex and develop within particular sociopolitical infrastructures: "ethnolects are not the automatic results of the existence of ethnic groups but constructs in specific social and political configurations". From this perspective, Moroccan Dutch can be viewed as the unique linguistic product of the Moroccan ethnic group as it has developed in Dutch society, as opposed to a youth language that expresses generational identity.

In this thesis, I will not examine Moroccan Dutch from a traditional variationist

sociolinguistic perspective; rather, the goal of this research is to investigate a more general phenomenon of 'sounding Moroccan', and how the use of such an accent, in contrast to the use of a Standard Dutch accent, may or may not disadvantage speakers in contact with legal authorities. Accordingly, I use the term 'Moroccan Dutch' to refer exclusively to the level of perception.

1.4 Distinctive features of Moroccan Dutch

According to Nortier & Dorleijn (2008, p. 130), the Moroccan Dutch accent is characterized by a number of phonetic and phonological features that are based on the accent of first generation Moroccan speakers. A summary of the most salient features as outlined by Dorleijn, Mous and Nortier (2015) and Nortier & Dorleijn (2008) is provided in Table 1.

Table 1

Phonological and Phonetic Features of Moroccan Dutch (Dorleijn, Mous & Nortier, 2015, pp. 275–276; Nortier & Dorleijn, 2008, p. 130)

Features exhibited by first generation speakers	Features exhibited by second generation speakers
• Gemination of Dutch uvular /x/, which is pronounced in a "sharper" and "harder" manner than in Standard Dutch • Gemination of /z/, which is more voiced than in Standard Dutch • /sx/ is pronounced as [ʃx] • /tje/ is not palatalized • frequent schwa deletion • trill /r/ • Difficulty accurately pronouncing Dutch diphthongs and long tense vowels	• /x/ is even "sharper" and more "rasping" than first generation speakers • Syllable-initial /z/ is even more voiced than first generation speakers • Pronunciation of tense vowels and diphthongs is the same as native Dutch speakers • Overgeneralization of /sx/ → [ʃx]; /s/ is pronounced as [ʃ] when it occurs as the first sound in a consonant cluster

As illustrated in Table 1, second generation speakers who use Moroccan Dutch are most conspicuous in their embellishment of /x/, which is realized with much "sharper" and more "rasping" qualities than in Standard Dutch (Nortier & Dorleijn, 2008, p. 130). Among the most notable phonemes present in the speech of second generation speakers (and later generations) are uvular fricative /x/ and trill /r/. These are typically among the first phonemes listed in phonetic literature on Moroccan Dutch. Thus, it seems evident that these sounds provide a solid foundation for comparison with Standard Dutch.

Although morphosyntactic features are not the primary focus of this particular experiment, they nonetheless play a role in the apparently negative attitudes surrounding the Moroccan Dutch accent in general; therefore, I will briefly address these features as well. In addition to features at the level of pronunciation, Nortier & Dorleijn (2008) note the use of Arabic and Berber functional elements and interjections, as well as the breaking of norms through the intentionally incorrect use of 'de' and 'het' words, e.g. *die meisje* 'that girl' instead of the Standard Dutch *dat meisje* (2008, pp. 130–132). Muysken (2013) provides a similar overview and identifies other stylistic norms, such as omitting functional elements like object and subject pronouns, the Dutch locative and quantitative *er*, indefinite articles, auxiliaries and copulas (Muysken, 2013, pp. 752–753). Muysken (2013, p. 753) also highlights the use of unique forms of negation and possessive relations as interesting features. Thus, while phonetic features will be the focus of this research, it should not be overlooked that grammatical features may also play a role in the social perception of Moroccan Dutch speakers.

1.5 Perceptions of Moroccan Dutch

As mentioned in the previous section, there are also Dutch speakers with no Moroccan background who have appropriated the Moroccan accent. This further complicates a precise understanding of how the Moroccan accent is perceived and makes a clear-cut answer far from straightforward. Nortier & Dorleijn (2008) noted a wide range of reactions from young speakers, with both Dutch and other ethnic backgrounds, upon publishing a presentation about the use of Moroccan Dutch in 2006. Below are a few examples (as cited in Nortier & Dorleijn, 2008, p. 126):

(1) *Ik herken het. Ik spreek zelf ook soms met dat accentje.*
'I recognize it. Sometimes I use that little accent myself.'

(2) *Ik stoor me al tijden aan die irritante tongval. En idd, zelfs (laag opgeleide) autochtonen wagen zich eraan*
'I get irritated by that way of speaking. And indeed, even (uneducated) Dutch people use it'

(3) *Hoor je maar al te vaak*
'You hear it way too often'

In the few comments above, themes indicating a negative attitude toward the use of this accent are already evident, namely that the accent sounds "irritating" and is associated with being "uneducated".

Despite the fact that some speakers do admit to using the accent themselves, it seems that cyberspace is overwhelmingly abound with negative sentiment. In April of 2017, Moroccan comedian and Youtuber Salaheddine Benchikhi touched upon this issue in his video *Praten met een echt Nederlands accent!* In the video, Benchikhi addresses language attitudes by interviewing Moroccan Dutch youth in the city of Dordrecht, asking them if they can put on an accent "so that people will think [they] sound just white" (Benchikhi, 2017). During these exchanges, the participants laugh as they struggle to convincingly reproduce a Standard (or 'white') Dutch accent. When the video reached the popular Dutch video and photo sharing website *Dumpert*, it received vicious criticism. Below are a selection of comments left by viewers:

(1) *Kun je Nederlands zonder Marokkaans accent spreken heet dat. Prachtig voorbeeld hoe Turken en Marokkanen zich volledig buiten de maatschappij plaatsen.. Ik kan er niet om lachen.. Zullen dus nooit Nederlanders worden.*

'Can you speak Dutch without a Moroccan accent is what that's called. Wonderful example of how Turkish and Moroccan people place themselves completely outside of society.. I can not laugh at it.. Then they will never be Dutch.'

(2) *Leuk verhaal, maar dit klopt niet helemaal. Als jij opgroeit in Friesland is dat logisch, daar praat iedereen zo. Als jij als Nederlander met een Marokkaanse achtergrond opgroeit in bijvoorbeeld Utrecht, heb je genoeg mensen om je heen die ABN praten. Het accent wat ze gebruiken is in dit geval dus een keuze. Ik ken Turken en Marokkanen die perfect Nederlands praten omdat ze dat zelf willen en omdat ze als Nederlander serieus genomen willen worden. Dit heeft te maken met willen integreren . . . Marokkanen willen niet integreren, ze willen Marokkaan*

> *blijven terwijl ze hier al generaties wonen. Maar nee, als Nederlander moeten we dit accepteren. Dit is een beetje het omgekeerde integratiebeleid.*
>
> 'Nice story, but this is not quite right. If you grow up in Friesland, that makes sense, everyone talks like that. If you as a Dutchman grow up with a Moroccan background in, for example, Utrecht, you have plenty of people around you who talk ABN. The accent they use is therefore a choice in this case. I know Turks and Moroccans who speak Dutch perfectly because they want to and because they want to be taken seriously as a Dutch person. This has to do with wanting to integrate . . . Moroccans do not want to integrate, they want to remain Moroccan while living here for generations. But no, as a Dutchman we have to accept this. This is a bit of reverse integration policy.'

The comments above, though they represent an extreme end of the spectrum of attitudes, are revealing for a few reasons. Whereas other sources (Nortier & Dorleijn, 2008; *Sprekend Nederland*) suggest that the Moroccan accent is largely viewed as less pleasant and less intelligent than other Dutch accents, the anecdotes above suggest that, in reality, the issue runs much deeper than sounding less-educated or tough on some surface, phonetic level. That is, beyond indexing an ethnic group associated with certain social markers, the accent has come to index what Van Meel (2016, p. 47) explains as "a more global 'non-native' identity". Crucially, this is an identity claim that some endogenous Dutch listeners equate with being an outsider, or worse, a kind of self-positioned outsider who does not wish to integrate into Dutch society. In this regard, the potential for bias is multi-faceted: on the one hand, some may associate Moroccan Dutch with criminal behavior or extremism (refer to the discussion in section 1.1); on the other hand, the use of Moroccan Dutch may provoke bitter sentiment due to a much broader social issue of 'us versus them', and may in fact reflect a more divided society.

1.6 Speech rate

In addition to non-standard accents and language varieties, another variable known to be detrimental to how one is perceived is slow speech rate. Several experimental studies have demonstrated that slower speech consistently leads to more negative judgments by listeners when presented with a variety of different speech rates (Apple, Street & Krauss, 1979; Brown, Strong & Rencher, 1973, 1974; Miller, Maruyama, Beaber & Valone, 1976; Smith, Brown, Strong & Rencher, 1975). Specifically, slower speech has been judged as having less "competence" and

"benevolence" (Smith, Brown, Strong & Rencher, 1975, p. 150), and has been demonstrated to negatively impact speaker credibility and trustworthiness (Apple, Streeter & Krauss, 1979). For these reasons, speech rate adds another valuable dimension to the study of non-standard language within a legal context.

Among the first studies was an experiment conducted by Brown and colleagues (Brown, Strong & Rencher, 1974), who recorded two male speakers reciting the sentence "We were away a year ago" (1974, p. 313). The researchers then manipulated the speech samples by computer for speech rate, mean fundamental frequency and variance of fundamental frequency (Brown et al., 1974, p. 313). The authors took the natural speech of the speakers as the 'normal' rate, which was then decreased to half the normal speed or increased by one and a half times the normal speed for the 'slow' and 'fast' conditions (1974, p. 313). Two male speakers were recorded to produce a total of 54 voices, which were then judged along the personality measurements "competence" and "benevolence" (Brown et al., 1974, pp. 313–314). The authors found that decreased speech rate also led to a decreased "competence" rating (1974, p. 314). However, the techniques employed by Brown and colleagues (1973, 1974) pose a number of methodological issues. As Apple et al. (1979, p. 717) point out, these studies used too few voices (only two speakers) in their stimuli. In addition to this, the same content was repeated in all manipulations, thus raters heard the same sentence repeated under multiple conditions (Apple et al., 1979, p. 717). The design implemented in Brown and colleagues' study (1974) therefore raises questions regarding the ecological validity of the recorded judgments, which are arguably not comparable to judgments made in a more naturalistic setting (Apple et al., 1979, p. 717).

In a similar study, Miller, Maruyama, Beaber and Valone (1976) used natural speech produced by the same speaker at different rates to elicit judgments about a speaker's credibility and persuasiveness. The speaker was asked to recite the same stretch of speech in different speeds, which was "achieved by simply instructing the speaker to practice delivering the speech as rapidly and slowly as possible while controlling his level of enthusiasm and involvement" (Miller et al., 1976, p. 618). According to the authors, the slow speech rate condition was delivered at an average of approximately 102 words per minute and the fast speech rate condition at 195 words per minute (1976, p. 618). However, this method poses similar issues. Once again, Apple et al. (1979, p. 716) remark that natural speech contains a variety of factors, such as amplitude, pitch, and rate, which may change when a speaker delivers an utterance at different

speeds. For this reason, Apple et al. (1979, p. 716) point out that listeners may have been reacting to other variables in addition to speech rate, an obstacle that could have been controlled with the systematic manipulation of various parameters by computer.

Apple et al. (1979) addressed these issues by recruiting forty male speakers to answer six interview questions. The speakers were presented with questions and instructed to "give brief answers, but to give more than a yes-or-no response" (Apple et al., 1979, p. 717). After the speakers were recorded, the researchers chose two questions to use in a series of experiments and manipulated the samples for pitch and speech rate. The average speech rate of the speakers was altered by an algorithm that linearly compressed and expanded the speech, producing new speech samples that were 77% of the normal condition (i.e. the 'slow' rate) and 143% of the normal condition (i.e. the 'fast' rate) (Apple et al., 1979, p. 718). The authors remark that these measurements were selected because the manipulated speech remained both natural and acoustically in tact (1979, p. 718).

In the first experiment, the researchers told participants that half the speakers had been asked to tell the truth, whereas the other half had been told to lie, after which subjects had to listen to the speech samples and rate them on a seven-point Likert scale of "truthfulness": 1 being 'not at all truthful' and 7 'entirely truthful' (Apple et al., 1979, p. 718). The authors found that the effect of speech rate on truthfulness judgments showed an "inverted-U function, with slower speech perceived as least credible" (1979, pp. 720). Although fast rates were also rated as less truthful in this experiment, the authors found in a second experiment that slower speakers were associated with less desirable traits. In the second experiment, speakers were rated on adjectives from Osgood, Suci and Tannenbaum's (1957) 'semantic differential'.[5] Specifically, the authors selected the scales for the 'potency' factor (thin-thick, small-large, and weak-strong), and the 'activity' factor (slow-fast, cold-hot, and passive-active) (Apple et al., 1979, p. 721). Slower speakers were rated as "less active" and "more passive", but "more potent" (Apple et al., 1979, pp. 721–722). Finally, in a third experiment, participants were asked to rate speakers on fluency, emphaticness, persuasiveness, nervousness and seriousness (Apple et al., 1979, p. 722). The authors found that, once again, the effects for speech rate showed "an inverted-U shape" for fluency, emphaticness, persuasiveness, and nervousness, but that slow speakers were by far judged the lowest on these attributions (1979, pp. 722–723). All in all, the authors conclude that

[5] A "scale, defined by a pair of polar (opposite-in-meaning) adjectives" (Osgood et al., 1957, p. 25).

slower speech seems to consistently have the most negative impact on both "state" and "trait" attributions, specifically among male speakers (1979, p. 724).

Although an improvement upon earlier models, one of the main limitations of Apple et al.'s (1979) study is that the context of utterances appeared to have an effect on ratings, which they attribute to the "emotionally involving" nature of some of the stimulus questions, both for the speakers and for the raters (Apple et al., 1979, p. 724). In addition, some of the stimuli were longer, which could have added to their processing complexity (Apple et al., 1979, p. 724). Despite these methodological shortcomings, however, Apple et al.'s (1979) study offers a number of intriguing hypotheses. A particularly interesting conclusion that the authors draw concerns why slower speech produces lower truthfulness ratings. With respect to such judgments, the authors hypothesize that listeners infer lying from what they may perceive as difficulty in utterance production: "Listeners may have assumed that lying increases speakers' cognitive load, resulting in slower rates" (Apple et al., 1979, p. 725). In fact, this hypothesis has since been strengthened, if not confirmed, by a number of studies (Vrij & Semin, 1996; Rockwell, Buller & Burgoon, 1997; Vrij, Edward, Roberts & Bull, 2000).

The observations made in previous studies regarding the relationship between speech rate and deceit are intriguing. In some ways, they are reminiscent of the issues raised by the Zimmerman trial. Given that slower speech has been consistently linked to decreased credibility, a relevant question that arises is to what extent a speaker's credibility is influenced by the language variety they speak and to what extent speech rate may play a role. In light of previous findings with respect to speech rate, it is possible that slower speech rate may have an equally disadvantaging effect in legal contexts.

1.7 Police and minorities in The Netherlands

One legal context in the Netherlands in which the issues laid out above are potentially fruitful for analysis is in exchanges between individuals and the police. According to Tak (2003, pp. 27–28), although the public prosecutor is the primary authority, the Dutch police force may conduct investigations on their behalf. For this reason, policemen are highly influential in determining the outcome of investigations: "the criminal investigation police are largely responsible for investigating the facts and ascertaining the truth. The majority of criminal offences, which come to trial, are prosecuted only on the basis of the information collected by the investigating police

officers" (Tak, 2003, p. 28). In this regard, although police do not directly determine one's guilt or innocence, one might view communicative exchanges between individuals and the police as having a sort of trickle-up effect, where interactions at a lower level have potentially serious ramifications at higher levels of decision-making.

Ethnic profiling poses a particular risk in this regard. A recent report by Amnesty International defines ethnic profiling as "[t]he use by the police, with no objective and reasonable justification, of grounds such as race, colour, language, religion, nationality or national or ethnic origin in control, surveillance or investigation activities" (Amnesty International, 2016, p. 35). According to Amnesty International, "criminal profiling" uses a combination of elements such as personal attributions and statements made by relevant parties about a crime that has already taken place (Amnesty International, 2016, p. 35). On the other hand, "ethnic profiling" differs in that it concerns the "targeting [of] specific individuals or groups based on their characteristics for no objectively justified reason but a generalized assumption of their involvement in criminal activity, often with no specific crime yet to be investigated" (Amnesty International, 2016, p. 35). The report further states that although ethnic profiling is not an official procedure, nor is it an act that officers of law usually confess to, certain individuals are inevitably at greater risk in a variety of police operations (Amnesty International, 2016, p. 35).

According to the report, Amnesty International has brought to light a number of issues concerning ethnic profiling in police practices in the Netherlands over the past few years, which are outlined in the report *Proactief politieoptreden vormt risico voor mensenrechten: Ethnisch profileren onderkennen en aanpakken* 'Proactive police action poses a risk to human rights: Recognizing and addressing ethnic profiling' (Amnesty International, 2013). Although this report states that ethnic profiling is not a phenomenon specific to the Dutch police, it has had a particular impact in recent years on Moroccan-Dutch youth (Amnesty International, 2013, p. 16). The organization cites an article published by the well-known newspaper NRC in which a politician proclaimed that Moroccan-Dutch youth have acquired an "ethnic monopoly on nuisance" (Amnesty International, 2013, p. 16). In the words of this report, such proclamations in the media have perpetuated harmful sentiment toward Moroccan-Dutch youth because they insinuate that such "nuisance" is caused exclusively by young people of Moroccan descent (Amnesty International, 2013, p. 16). However, this characterization is inaccurate, and

Moroccan-Dutch youths are disproportionately represented in “incidents related to nuisance” (Amnesty International, 2013, p. 16).

In light of the above, it is reasonable to hypothesize that the use of the accent associated with this social group (Moroccan-Dutch youth) has the potential to bias the actions of those in a position of authority, whether at a conscious or subconscious level.

1.8 Summary and aims

Until now, we have seen that non-standard language use and slower speech rate can negatively influence how a speaker is perceived. In addition, ethnic minorities appear to be at greater risk for language-based discrimination, which makes such individuals particularly vulnerable when in contact with legal authorities. In the Netherlands, Moroccan-Dutch individuals are subject to discrimination at different levels of society, including encounters with the police. However, to the best of my knowledge, no linguistic studies have investigated how non-standard language use and speech rate interact. To this end, this thesis aims to answer the following research questions:

(1) What are the effects of speech rate on a speaker’s perceived credibility?

(2) How is slower speech perceived in speakers of Moroccan Dutch compared to speakers of Standard Dutch when judged by non-Moroccan listeners?

In light of the literature discussed in Chapter 1, the hypotheses for the present research can be formulated as follows:

Hypothesis 1	Slower speech will produce more negative judgments overall of speaker credibility.
Hypothesis 1a	Slower speech will produce more negative judgments when present in Moroccan Dutch speech samples than when present in Standard Dutch.

Chapter 2

Methodology

In order to investigate how listeners judge Moroccan Dutch and Standard Dutch in different speech rates, a listening experiment was conducted with native Dutch participants. Participants were tested on how they judge different combinations of accent and speech rate on a seven-point Likert scale. This section provides a detailed account of the methodology used in this study. First, it introduces the theoretical frameworks that shaped the experimental design (section 2.1). This is followed by a description of the participants (section 2.2), the speakers used in this study (section 2.3), and the creation, recording and processing of the stimuli (section 2.4). Lastly, the experimental design and procedure are described in detail (section 2.5), followed by an overview of the statistical analyses conducted (section 2.6). Each stage of this research adhered to the Leiden University Centre for Linguistics Ethics Code.

2.1 Methodological framework

The methodology employed in the present study draws mainly on experimental methods applied in attitudinal sociolinguistic studies. Namely, the listening experiment employed in this study applies some of the basic principles of the 'Matched Guise Technique', developed by Lambert and colleagues (1960). This method was first developed by Lambert, Hodgson, Gardner and Fillenbaum (1960) in order to investigate the broader social implications of listener attitudes toward spoken language. Though the original study by Lambert et al. (1960) investigated attitudes toward French and English, this method can be used to investigate attitudes toward any two or more languages or language varieties. The method consists of having the same speakers read the same passage in the target languages or language varieties, after which listeners are asked to rate the speakers on various personal attributions such as intelligence, likeability and so forth. The central assumption underlying such a method is that using the same speakers and the same content reduces the likelihood that listener judgments will be affected by either vocal characteristics of the speaker or the content of the stimuli (Lambert et al., 1960, p. 44).

Despite the fact that a number of sociolinguistic studies have employed this method, Schilling (2013, p. 105) lists a number of criticisms. Firstly, the author explains that the Matched Guise Technique is "partially indirect, in that it involves direct elicitation of participants' attitudes toward speakers and only indirect elicitation of attitudes toward language" (2013, p. 105). Another issue is the task itself, which consists of read speech as opposed to spontaneous speech, thus bringing into question whether the unnatural conditions influence listener ratings (2013, p. 105). In addition, a logistical issue lies in finding speakers who have an equally proficient command of both languages or language varieties (2013, p. 105). Finally, the question remains whether the results of such experiments are an accurate depiction of attitudes toward the target language or language variety (2013, p. 106). As Schilling (2013, p. 106) remarks: "This may be because listeners do not have free access to their attitudes or the ability to accurately convey them, or because they do not wish to express negative attitudes they might really hold".

In order to remedy some of the issues presented by the Matched Guise Technique, a number of alternative approaches have been proposed. One such method is the 'verbal guise' technique, which requires different speakers for each language or language variety as opposed to introducing the same speaker across the stimuli as though the speech came from multiple voices (Campbell-Kibler, 2010, p. 378). In this experimental setup, however, it is important to consider the fact that speaker differences in cues such as pitch, intonation and voice quality might all affect listener judgments (Schilling, 2013, p. 105). In matched-guise designs, on the other hand, the advantage is that these factors come from the same speakers and therefore do not vary dramatically (Campbell-Kibler, 2010, p. 378).

Another alternative method that has been used in a number of studies is the use of 'commitment measures', which bases conclusions about language attitudes on listener behavior (Schilling, 2013, p. 106). Among the most famous studies of this type was carried out by Bourhis and Giles (1976; as cited in Schilling, 2013, p. 106), who tested attitudes toward four language varieties in Wales by observing theatre visitors' levels of cooperation when asked in different language varieties to fill out a questionnaire. However, as Schilling points out, such experiments can be exceedingly tricky to design (2013, p. 106). A similar, albeit less explicit approach was employed successfully by Cooper and Fishman (1974; as cited in Schilling, 2013, p. 106), who analyzed language attitudes by way of observing listeners' reported behavior. In this experiment, the authors tested the claim that, among bilinguals in Israel, Hebrew is the preferred language for

scientific arguments, whereas Arabic is preferable for religious ones (Schilling, 2013, p. 106). The researchers asked bilingual Muslims to listen to arguments against tobacco and liquor in both languages, after which participants had to decide whether to endorse higher taxes, thus allowing the researchers to draw conclusions based on the listeners' reported reactions to each argument (Schilling, 2013, p. 106).

The present study drew on the methods mentioned above by using four different speakers rotated across conditions in a 4 x 4 x 4 within-subjects factorial design. The four speakers were recorded reading a list of 40 sentences, once in Standard Dutch and once in Moroccan Dutch. In each version of the experiment, participants heard each speaker in one of the guises (Standard Dutch or Moroccan Dutch) and in one of two speeds (normal or slow). The independent variables (accent and speech rate) were rotated across lists (i.e. the different versions of the experiment) such that each speaker was judged in every possible condition for all sentences (see section 2.5 for a full description of the experimental design).

2.2 Participants

The participants that completed this experiment consisted of 32 students from Leiden University of various academic backgrounds (13 males and 19 females).[6] They were all native Dutch speakers from the Netherlands. Given that any biases prevalent among policemen are "likely a reflection of the opinions of society at large" (Amnesty International, 2016, p. 11), students can implicitly be viewed as an appropriate sample population for this research. All participants gave their informed consent before the experiment and were debriefed afterwards. Participants received a free beverage in cooperation with a local café as compensation for their participation.

2.3 Speakers

As mentioned in section 2.1, it is difficult, and sometimes impossible, to find speakers who speak two or more accents completely naturally. Given the difficulty of finding a sociolinguistically homogeneous group of speakers (i.e. native speakers of both Moroccan-Dutch and Standard Dutch, from the same region, with similar linguistic and educational backgrounds,

[6] The academic backgrounds of the participants included: psychology, law, linguistics, medicine, philosophy, history, international relations, statistics, Middle-Eastern studies, life science and technology, religious studies, child studies, and French language and culture.

etc.) within the allotted timeframe, various compromises became necessary.[7] In order to ensure that these compromises did not undermine the research design, a separate listening group of five native Dutch speakers was consulted (discussed in detail at the end of this section). The largest concession involved the ethnic and linguistic backgrounds of the speakers recruited for this research. During the speaker selection process, it quickly became apparent that finding ethnically Moroccan speakers with a fluent command of both accents was difficult, if not impossible. In the beginning stages of this search, some potential candidates who were ethnically Moroccan reported that they were not able to naturally produce a Standard Dutch accent and declined to make any attempts to do so. The search was therefore extended to ethnically non-Moroccan speakers as well.

During the initial search, some non-Moroccan speakers with personal connections to the Moroccan community reported that they were able to closely imitate the variety themselves, despite not being ethnically Moroccan, due to their exposure to the Moroccan accent via friendships, co-workers, or other interpersonal ties. Despite not being native users of Moroccan Dutch, the advantage with these speakers was that they could confidently (and naturally) produce Standard Dutch, as well as speech that nearly perfectly resembled Moroccan Dutch, at least as perceived by endogenous Dutch listeners. In addition to this, the fact that a language variety or accent is specific to a certain ethnic group does not preclude the possibility that members of another ethnic group can appropriate it. Sullivan (2016, p. 9), for example, points out that the use of African American English is not exclusive to African American individuals. A similar phenomenon has been identified in previous studies on Moroccan Dutch. In fact, Van Meel (2016) identified endogenous Dutch speakers as one of the *main* ethnic groups that speak Moroccan Dutch. Nortier & Dorleijn (2008, pp. 125–126) also provide anecdotal evidence that endogenous Dutch speakers who use Moroccan Dutch are capable of producing the accent in a manner that is indistinguishable from that of ethnically Moroccan speakers (2008, p. 127). Thus, while this thesis does not pretend to claim complete validity, due to the fact that not all the speakers recorded were ethnically Moroccan, the fact remains that speakers from other ethnic groups have been identified as speakers of Moroccan Dutch as well. This knowledge, together

[7] When the international project that was initially planned for this thesis was not possible to carry out due to administrative issues, very little time remained to find suitable speakers.

with the fact that alternative solutions were too time-consuming for an MA thesis, provided sufficient justification for using non-Moroccan speakers.

A total of five speakers were recorded for this thesis. The speakers initially selected for the project included four men between the ages of 18 and 25: a 26-year-old Dutch male of Pakistani descent, a 20-year-old Dutch male of Moroccan descent, a 26-year-old endogenous Dutch male, and a 22-year-old Dutch male of Moroccan descent. However, the endogenous Dutch male could not consistently produce the Moroccan guise naturally and was therefore replaced by a 28-year-old endogenous Dutch male. All four speakers who were ultimately recorded for this project were from the Randstad.[8] Although only two speakers were ethnically Moroccan (second generation), the other speakers had sufficient exposure to Moroccan Dutch to be able to produce the accent convincingly, either through friends, family, co-workers, having grown up in multi-cultural neighborhoods, or by other means. All the speakers in this study were offered 10 Euros as compensation for their participation, but every single speaker insisted on their voluntary participation.

In order to gauge their suitability for this research, each speaker recorded five sample sentences in both accents on their mobile phones, which were then presented to a trained Dutch phonetician, as well as informally to several native Dutch listeners on separate occasions (two linguists and three non-linguists). Both the phonetician and the listeners were asked whether the speech samples sounded authentic in both accents. In order to further verify the authenticity of the accents in a more controlled way, a separate listening group was assembled and consulted after the speakers had been recorded on high quality laboratory equipment. This listening group consisted of five native Dutch listeners (three linguists and two non-linguists) from the same sample population as the participants in the main listening experiment (students from Leiden University). All listeners heard the same four sentences used in the post-test interviews of the main listening experiment (discussed further in section 2.5.1), which they listened to through headphones in a quiet room. Listeners were asked to describe their impressions of each voice in as much detail as possible. In order to lend structure to this otherwise open question, they were told that they could include, for example, information such as age, sex and so on. The responses

[8] An area in the western part of the Netherlands that includes four major cities: Amsterdam, Rotterdam, Utrecht and The Hague.

from this listening group confirmed that the non-Moroccan speakers used in this study sounded Moroccan.

2.4 Stimuli and recordings

2.4.1 Creation of the stimuli

The stimuli consisted of a list of 40 sentences of approximately two seconds per utterance (Appendix A). The sentences were controlled for number of syllables, salient phonetic characteristics of both accents, and sentence type. Each utterance contained exactly 8 syllables. The most salient phonetic characteristics as reported in linguistic literature (El-Aissati et al., 2005; Muysken, 2013; Nortier & Dorleijn, 2008; Van Meel, 2016) included the realization of /x/, /r/ and /z/. Next to the scientific literature, informal evidence suggested that these sounds were the most salient markers of the Moroccan accent. The native Dutch listeners consulted for this project singled out these sounds in particular as features that made the Moroccan guises sound specifically Moroccan. Furthermore, the speakers in this study who were not ethnically Moroccan also seemed to pay most attention to these phonetic features when producing sample utterances for the Moroccan Dutch guise. Tokens of /x/, /r/ and /z/ were therefore evenly distributed throughout the 40 sentences, with every token occurring in each utterance.

Care was also taken to ensure that there was a relatively even distribution of sentence types. The sentence types were all some form of declarative statement, of which there were three categories:

1. Simple declarative statements, e.g. *He went to the store.*
2. Declarative statements containing a protest with the conjunction ‘but’, e.g. *He went to the store, but he didn’t stay there.*
3. Yes or no statements, e.g. *Yes, he went to the store. / No, he didn’t go to the store.*

This allowed for each sentence to contain information that could be believed or not believed along a gradient scale. The variation in sentence type also served to keep the listening experiment interesting and stimulating for the participants. In addition to the above, the sentences were constructed so that they were neutral content-wise, i.e. so that they did not contain information that might influence listener judgments of truthfulness, such as lengthy narratives or sentences without real-life plausibility. All sentences therefore contained a

proposition that could either be true or not, and that could be believed or perceived as a lie when presented to listeners.

The final list of stimuli contained 15 sentences from the first and second categories and 10 from the third category. From this list, four sentences were excluded from the experiment. Sentences 6 and 24 were excluded because the researcher had miscounted and included one syllable too few (sentence 24) or one syllable too many (sentence 6). Sentence 32 was excluded due to the fact that there was interfering background noise in one of the speakers' recordings. Finally, sentence 10 was excluded in order to maintain an equal number of sentences across the four lists, and also because the expression it contained (*Ik zweer het man* 'I swear it man', taken from Nortier & Dorleijn, 2008, p. 126) was possibly too informal for an utterance that could realistically occur in an exchange between a suspect and a policeman. This sentence had initially been included due to the remarks of Nortier & Dorleijn (2008, p. 126), that the expression '*Ik zweer het man*' is strongly linked to perceptions of Moroccan Dutch. However, sociolinguistic principles such as 'audience design' (Bell, 1984) predict that individuals will adjust their speech to their interlocutor, in which case the above utterance is less likely to be spoken under the social constraints of a police interview. Accordingly, this token was excluded altogether. Sentence 22 (*Ik zou met een vriend gaan poolen* 'I was going to play pool with a friend') was adapted from an utterance used in an actual police interview (*Ik zou 't met me vriendin gaan poolen* 'I was going to play pool with my girlfriend' (Charldorp, 2014, p. 10).

Finally, four sets of nine sentences each were assembled so that the speakers would be judged for all 36 sentences across conditions (Standard Dutch – Moroccan Dutch, slow speech – normal speech). In each set, there was an equal number of each of the three sentence types.

2.4.2 Recording of the stimuli

All speakers signed informed consent forms before proceeding to the recording sessions. During the recording session, before beginning recordings of stimuli in a particular accent, speakers were given the chance to adjust to the target accent. This was achieved by having each speaker read one paragraph of a news article in the target accent. For the Moroccan Dutch recordings, the first ten stimuli sentences were used instead because the news was not an appropriate style for

this accent. Thus, the speakers practiced part of the actual task in Moroccan Dutch but not in Standard Dutch.

The recordings were made in a soundproof booth in the Phonetics Laboratory at Leiden University using Adobe Audition and professional recording equipment. All recordings were made at a sampling frequency of 44.1 kHz, and saved as wave files. The stimuli were presented to speakers on a computer screen as a PowerPoint presentation, allowing for brief pauses (approximately five to ten seconds) between utterances. The speakers were instructed to imagine that they were being asked a question to which they would answer the sentence presented on the screen. During each session, a native Dutch speaker was present to judge the naturalness of each speaker's production of both Standard Dutch and Moroccan Dutch.

Three speakers were present during the first recording session, including the speaker who was ultimately replaced. The speakers took turns recording the sentences in two rounds: first in Standard Dutch and then in Moroccan Dutch. Each speaker read through all 40 sentences presented to them, after which they were given a short rest. In general, the speakers handled the task well. Only a handful of sentences had to be re-recorded in the Standard accent, either because the tempo was too fast or a sentence was read incorrectly. However, not all speakers found the task equally easy in Moroccan Dutch. The Moroccan Dutch guise was more tiring for the Pakistani-Dutch male, who struggled at first to maintain a perfect accent in all the sentences. In order to overcome this, this speaker recorded the sentences in blocks of 10 with a brief pause of a few minutes between each block. In addition to this, the ethnically Moroccan speaker spoke with him via a microphone through the booth between utterances so that he could maintain a natural accent.

The last two speakers were recorded at two separate sessions and followed the same general procedure as outlined above.

2.4.3 Speech rate manipulations

The recordings of each participant were altered in order to create two speech rates for each accent: the original or 'normal' speech rate and a 'slow' speech rate. This was achieved using a duration manipulation script in Praat, which linearly lengthened each utterance by a factor of 1.2 of the original speed. This factor was chosen because it still sounded natural when presented to

four native Dutch listeners (two linguists and two non-linguists). The result was four versions of the 40 stimuli sentences for each of the four speakers: Moroccan Dutch 'normal', Moroccan Dutch 'slow', Standard Dutch 'normal' and Standard Dutch 'slow'.

Here, it is necessary to remark that speech rate may influence fundamental frequency (F_0) range (Reetz & Jongman, 2009, p. 217). In addition to this, listeners can detect differences in pitch when the difference in fundamental frequency is roughly 1–2 Hz (2009, p. 218) or 0.3–2.5 for artificial speech (Rietveld & Van Heuven, 1997; 't Hart, Collier & Cohen, 1990). The F_0 means were manually checked in Praat for each speaker and did not differ more than 2% between speech rates in both accents.

2.5 Experimental design and procedure

The listening experiment for this project employed a 4 x 4 x 4 within-subjects factorial design. In order to get rid of the effects of differences in voice quality or other factors that might influence listener judgments, the recordings were distributed over sixteen separate lists (i.e. experiment versions), with each speaker producing a particular set of ten sentences in a particular accent and a particular speed in each list. Rotating the speakers and conditions across lists thus eliminated any speaker effect. Within each list, speakers were pseudo-randomly ordered, such that for the majority of the sequence, there was as much time as possible between the same voices occurring (see Lambert et al., 1960), but without any predictable order that might influence listener judgments (e.g. a repeated sequence of Speaker 1 – Speaker 2 – Speaker 3 – Speaker 4). In addition, care was also taken to avoid any predictable order of accent or speeds (e.g. a repeated sequence of Standard Dutch – Moroccan Dutch or slow speed – normal speed) that might create a rhythm during the trial that could bias listener responses.

Participants were linearly assigned to one of the sixteen experiments. The listening test was conducted using Praat software at the phonetics laboratory at Leiden University. Participants were told before and during the experiment that the listening test was about lie detection, and that recent research into lie detection has shown that laypeople may detect lies just as well as trained policemen. They were then told that they would hear a series of recordings from a police interview in which approximately half the statements were lies, and that they would be asked to indicate on a seven-point scale how much they believed each statement (1 = *helemaal niet* 'not at all', 7 = *helemaal* 'completely'). In order to avoid the possibility that speakers might pinpoint a

particular speaker as a liar, they were told that a given speaker might lie and tell the truth within the same interview. Before beginning the actual experiment, there were three practice sentences to allow participants to familiarize themselves with the seven-point Likert scale and to clarify any misunderstandings that they might have after the practice round. Three of the four sentences that were excluded from the final list of stimuli were used as the practice sentences. Each participant listened to the stimuli through headphones (Beyerdynamic DT 770 Pro 80 Ohm).

2.5.1 Post-test interviews

After the experiment, semi-structured post-test interviews were conducted with all 32 participants. During each interview, participants were asked to listen to the same four stimulus sentences a second time (sentences 1, 22, 26 and 40). These sentences were pseudo-randomly selected to ensure that they were not all the same sentence type, which served to keep participants stimulated. After listening to each recording, the researcher asked one open question (*When you hear this statement, what are your overall impressions of this speaker?*) and two more targeted questions (*Do you think this speaker is educated/uneducated? Do you find this speaker trustworthy/untrustworthy?*). The latter two closed questions served to provide direction to the interview and to help less expressive participants articulate their impressions. In addition to this, using some pairs of personal attributions (educated-uneducated, trustworthy-untrustworthy) allowed otherwise anecdotal data to be somehow quantifiable.

2.6 Statistical analyses

For each participant, the following information was collected from the experiment results files in Praat: (1) the order in which the 36 stimuli sentences were presented to a particular listener, (2) the speaker, accent and speech rate in which participants heard a particular sentence, and (3) participants' judgments in response to the question *Gelooft u deze spreker?* 'Do you believe this speaker' on a seven-point scale (1 = *helemaal niet* 'not at all', 7 = *helemaal* 'completely').

In total, 33 listeners completed the experiment. However, one participant's responses were excluded. A visual inspection of histograms for all participants revealed that this participant's frequency of responses at both extreme ends of the scale (1–2, 6–7) was abnormally high in comparison to other participants. During the post-test interview, it became clear that this

participant did not interpret the task and instructions in the intended manner; therefore, they were excluded from the final analyses.

The data were analyzed using the statistical processing software program R version 3.3.3 (R Core Team, 2017) and the R package *lme4* (Bates, Maechler & Bolker, 2015). A series of generalized linear mixed-effects models (GLMMs) were performed to analyze the relationship between accent and speech rate. First, a model was built with participant responses as a function of the interaction of accent with speech rate and sentence type as a main fixed effect. The fixed factors for the model were accent (Standard Dutch, Moroccan Dutch), speech rate (normal, slow) and sentence type (yes-no, simple declarative, declarative with protest), whereas random factors were participant and sentence. The model with the interaction was then compared to a model with no interaction and likelihood ratios were used to assess the significance of the fixed effects. An analysis was conducted in such a top-down manner because investigating the interaction effect was most relevant for answering the research questions under investigation (*What are the effects of speech rate on a speaker's perceived credibility? How is slower speech perceived in speakers of Moroccan Dutch compared to speakers of Standard Dutch when judged by non-Moroccan speakers?*).

Secondly, in order to confirm that sentence type did not influence listener responses, the model with the interaction effect was compared to a model without sentence type to test for a significant effect. Sentence type was not significant ($p = 0.32$) and was therefore excluded from the final model.

Finally, random slopes were added for by-subject and by-item effects of participant and sentence respectively as an interaction. Both by-subject and by-item effects were significant ($p = 0.0014$) and were therefore included in the final model.

As pointed out by Winter & Grawunder (2012, p. 810), it is not possible to interpret *p*-values for main fixed effects when a significant interaction effect is present. For this reason, if a significant interaction effect was found between accent and speech rate, *p*-values are only reported in this paper for the interaction effect.

Due to the fact that a visual inspection of the residual plots indicated a deviation from homoscedasticity and normality (Appendix B), a separate ordinal logistic regression analysis was conducted using the package *ordinal* (Christensen, 2018) to confirm the validity of the results obtained from the generalized linear model. A cumulative link model (CLM) was built to further

evaluate response as a function of the interaction of accent and speech rate. The reason for including this model in the analyses stems from the fact that there is no clear consensus among researchers regarding which statistical methods are most appropriate for ordinal data. On the one hand, Christensen (2015, p. 3) argues that cumulative link models are in principle preferred for data sets where the dependent variable is ordinal. The author explains that, although ordinal data can be analyzed with traditional methods such as ANOVA models or generalized linear regression models (GLMs), such models might be "over-confident" and presume that the data are more robust than they are in reality (Christensen, 2015, p. 3). The crux of this argument involves the nature of the response categories of a Likert scale; the difference between increments on the scale is not entirely clear (Christensen, 2015, p. 3). Linear models, however, assume that these differences are uniform, thus increasing the risk of drawing faulty conclusions from the data (Christensen, 2015, p. 3).

On the other hand, a number of researchers have rejected the claim that linear mixed-effects models increase the risk of Type I error (Endresen & Janda, 2015; Gibson, Piantadosi & Fedorenko, 2011; Kizach, 2014; Norman, 2010). Gibson, Piantadosi and Fedorenko (2011, p. 521), for example, have previously argued that mixed models are appropriate even if the data do not meet the necessary assumptions for linear regression models. More recent simulations support this view as well. Kizach (2014) found that using linear models on Likert scale data has no increased risk of Type I error and that cumulative models may be even less reliable. Endresen and Janda (2015, pp. 1–10) found that both parametric and non-parametric models (ANOVA, ordinal logistic regression, regression mixed-effects, regression tree and random forests, classification tree and random forests) produce similar results with negligible differences between the two types of models.

In order to reconcile these varying perspectives, the present study used a cumulative link model as a secondary measure to validate the findings of the linear mixed effects model. A cumulative link model with the interaction effect was compared against a model without the interaction. Likelihood ratio tests were used to evaluate the significance of the interaction effect.

Chapter 3

Results

3.1 Statistical results

There was a significant interaction of accent and speech rate ($\chi^2(18) = 41.3$, $p = 0.0014$), though not entirely in the predicted manner. The median response on the seven-point scale was 4.5 ± 0.2 standard errors for both accents in the normal speech rate (Figure 1). Slower speech negatively affected listener responses but the effect was small, lowering judgments by about 0.4 ± 0.1 standard errors. For slow speech, there was also a subtle effect: responses were 0.4 ± 0.2 standard errors lower in Standard Dutch. Notably, there was no significant effect of sentence type on listener judgments ($p = 0.32$), which confirmed the initial assumptions set forth in the methodology section of this paper. Table 2 provides a summary of the linear mixed effects model, including the values obtained for the intercept, the coefficient of each effect, the corresponding standard errors and the *t*-values.

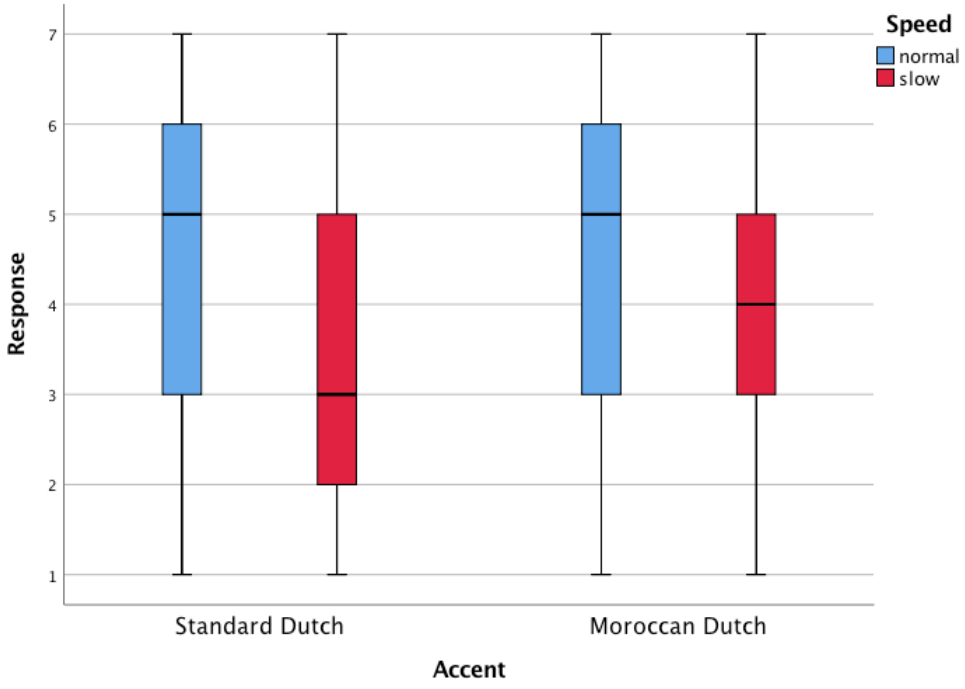

Figure 1. Response by accent and speech rate. Bold lines indicate the median and whiskers indicate 1.5 times the interquartile range.

Table 2

Summary of Mixed Effects Model for Listener Responses Between Accents and Speech Rates with the Intercept and Coefficients, Standard Errors and t-values

Fixed effects	Estimate	Standard error	t-value
Intercept	4.48	.16	27.07
accentStandard	<.001	.20	<.001
speedslow	-.45	.14	-3.34
accentStandard:speedslow	-.42	.20	-2.08

As mentioned in chapter 3, the Q-Q plot for the data obtained revealed a slight deviation from homoscedasticity and normality (Appendix B). However, a separate analysis conducted using a cumulative link model and likelihood ratio tests revealed that the interaction effect was indeed significant ($\chi^2(1) = 4.7$, $p = 0.03$). The coefficient for the interaction of accent and speech rate (Standard Dutch x speed slow) rate was negative (-0.45 ± 0.21, $z = -2.2$, $p < 0.05$) indicating that a decrease in speech rate in Standard Dutch is more likely to yield lower judgments on the seven-point scale. Note the small negative value of the interaction coefficient, which once again reflects the subtlety of the interaction effect. Table 3 provides a summary of this model including the coefficients and the corresponding parameter estimates, standard errors, z-values and Wald p-values[9] for the fixed effects factors.

Table 3

Summary of Cumulative Link Model for Listener Responses Between Accents and Speech Rates with Coefficients, Parameter Estimates, Standard Errors, z-values and Wald p-values

Coefficients	Estimate	Standard Error	*z*-value	Pr(>|z|)
accentStandard	.009	.15	.06	.95
speedslow	-.49	.15	-3.31	<.001
accentStandard:speedslow	-.45	.21	-2.16	.03

[9] The *p*-values "for the tests of the parameters being zero" (Christensen, 2018, p. 4).

3.2 Post-test interviews

As stated earlier in Chapter 2 of this paper, semi-structured post-test interviews were conducted with all 32 participants. During each interview, participants were asked to listen to four of the stimulus sentences a second time. After listening to each recording, the researcher asked one open question (*When you hear this statement, what are your overall impressions of this speaker?*) and two closed questions (*Do you think this speaker is educated/uneducated? Do you find this speaker trustworthy/untrustworthy?*).

On the whole, slower speech was judged as less educated and less trustworthy than utterances spoken in the normal speech rate. One participant explained that the slower speech rate made it seem as if the speaker was making up a story (participant 12). In addition to this, participants commented that the slower guises came across as "lacking emotion" (participant 20), "dimwitted" (participant 12), or sounded "like an addict" (participant 32).

In general, there were also differences in responses inter-accent. Participants' overall impressions of Moroccan Dutch speakers were markedly different from their impressions of Standard Dutch speakers. In particular, responses to the open question for sentence 26 (*Ja, ik krijg ze voorgeschreven* 'Yes, I get them prescribed') exhibited a considerable amount of variation, which, based on qualitative data, appeared to be influenced to some extent by the accent in which the stimulus was presented. Of the 16 participants who heard sentence 26 in the Standard Dutch guise, 8 listeners described a young man telling the police about a medical prescription or otherwise described the speaker as trustworthy. By contrast, 6 of the 16 participants who heard this sentence in the Moroccan Dutch guise described a young man who was most likely dealing drugs or was not being honest, and 3 listeners reported that they were not sure whether the speaker was being honest but leaned toward untrustworthy. Of the 8 participants who did not believe the statement in Standard Dutch, 5 of these utterances were presented in the slower speech rate; moreover, 4 of these 5 participants commented that the slower speech rate was the reason they did not find the speaker credible.

The descriptive results show that the overall means for sentence 26 are approximately the same in both normal and slow speech rates (Table 4). A closer look at the distribution of responses, however, indicates that, for the Moroccan Dutch guises, responses lean slightly more toward the lower end of the seven-point scale in the normal speech rate and are considerably more negative in the slower speech rate (Figure 2).

Table 4

Mean Response and Standard Deviation for Sentence 26 by Accent and Speaker

Accent	Speech rate	*M*	*SD*
Standard Dutch	normal	4.13	1.81
	slow	3.63	1.68
Moroccan Dutch	normal	4.00	1.69
	slow	3.88	1.88

Note. N = 8 in all conditions.

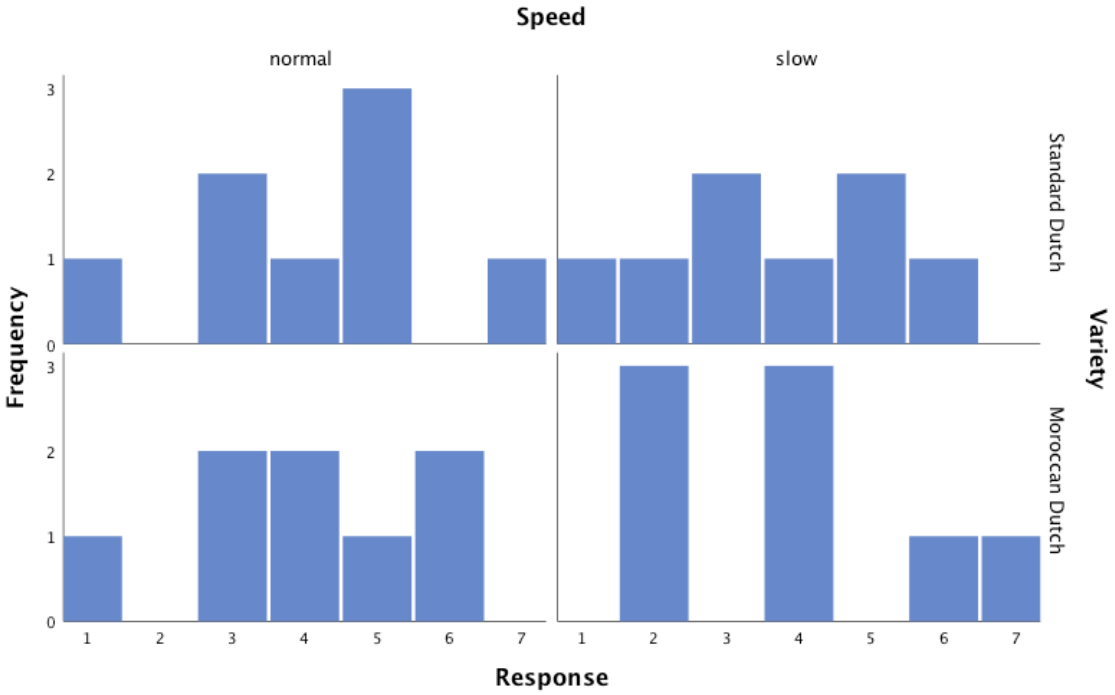

Figure 2. Responses for sentence 26 by variety and speed

Similarly, the difference in responses regarding attributions (educated-uneducated, trustworthy-untrustworthy) was striking between the two accents. Standard Dutch speakers were predominantly described as more educated and more trustworthy, whereas Moroccan Dutch speakers were described as lower educated and less trustworthy. With regards to educational

level, Standard Dutch speakers were typically placed in HBO or university, whereas Moroccan Dutch speakers were more often described as MBO or HBO.[10]

[10] In the Netherlands, there is a three-tiered system for higher education. University is the highest level, followed by HBO or *hoger beroepsonderwijs* 'higher vocational education' and MBO or *middelbaar beroepsonderwijs* 'middle vocational education'. HBO thus refers to universities of applied sciences, whereas MBO more accurately describes vocational training.

Chapter 4

Discussion

This thesis aimed to shed light on the effects of accent and speech rate on speaker credibility. In particular, this project aimed to scrutinize how these factors might interact and to determine how they may affect speakers in legal contexts. This was tested by means of a listening experiment that investigated how Dutch listeners rate the credibility of a speaker on a seven-point scale when presented with spoken stimuli in Standard Dutch and Moroccan Dutch at two different speech rates. The main research questions investigated were how speech rate affects a speaker's credibility, and whether there is an interaction between accent and speech rate.

This section begins with a summary of the general findings and how these relate to previous literature (section 4.1). Secondly, the findings are discussed in relation to inconsistencies with the original hypotheses and previous research (section 4.2). Lastly, the limitations of the present study are addressed (section 4.3).

4.1 Discussion of the overall findings

The results revealed that despite a significant interaction effect of accent and speech rate, this interaction did not manifest entirely in the direction hypothesized at the beginning of this thesis. This was unexpected in light of previous literature suggesting that non-standard accents and language varieties are overwhelmingly subject to discrimination (see among others Eades 1993, 1996, 2012; Sullivan, 2016). Here, it is useful to recall the term "linguistic profiling", introduced in chapter 1 of this thesis, which Baugh (2003, p. 105) defines as: "the auditory equivalent of visual 'racial profiling'". This definition is especially useful in interpreting the results of this research design, which only presented listeners with auditory stimuli. As demonstrated by past studies (e.g. Squire & Chadwick, 2006), the mere auditory perception that a speaker is of a particular background might be the reason they are discriminated against. Considering how powerful sound alone is in shaping listener perceptions, in combination with the body of literature suggesting that non-standard accents are at greater risk for adverse treatment, the results presented here are surprising.

Although slower speech was more detrimental in the Standard Dutch guises, slower speech indeed negatively affected listener responses in both varieties as expected. Apple, Streeter and Krauss (1979) found that slower speakers were consistently given the lowest ratings compared to normal and fast speakers. In addition to this, the authors found that slower speakers were not only perceived as less truthful, but were also found to be "colder" and "more passive" (1979, pp. 721–722). Similar to the state and trait attributions studied in their experiment (thin-thick, small-large, weak-strong, slow-fast, cold-hot, and passive-active (1979, p. 721), the slower speakers in this study were frequently described in the post-test interviews under similar semantic parameters. Irrespective of accent, the speakers in the slow speech condition in the present study were characterized as "cold", "uninterested", "unemotional", "dimwitted" and "a bit like an [drug] addict", to name a few examples. Here, it is worthwhile to note the parallels between these characterizations and descriptions of Rachel Jeantel's speech in the Zimmerman trial, who was called "a junkie", "stupid" and "uneducated" on social media (see Rickford, 2013, para. 7).

With respect to speech rate, the findings presented in the current paper not only confirm previous findings, but may allow us to generalize more broadly cross-linguistically. That is, the results here are in support of the proposal that what has previously been demonstrated for slower speech in English also holds true for Dutch. While these results should be addressed with caution, given the small sample size and scale of this study, the post-test interviews suggest that such a theory is supported for the Dutch language as well.

4.2 Accounting for the direction of the interaction

The results indicate that speakers of Moroccan Dutch are not subject to discrimination by non-Moroccan listeners. In fact, the values for the median response were the same in both accents, suggesting that listeners do not take accent into consideration at all when judging utterances at a normal speed. Nevertheless, the qualitative and quantitative data might still be cautiously interpreted as evidence suggesting the contrary. The overwhelming majority of participants explained in the post-test interview that their preconceptions of Moroccans were triggered upon hearing the Moroccan guises, which gave them a heightened awareness of their bias and drove them to consciously base their responses on other factors such as intonation, perceived emotional state of the speaker such as anger or disgust, and so forth.

In addition to this, several participants commented on the difficulty of the task itself. Next to only hearing each statement once, each utterance had to be judged completely out of context, without any knowledge of the speaker or situation. This suggests that responses could be a reflection of the task rather than attitudes toward a particular accent.

Finally, an extra layer of ambiguity is added to the results when one considers how the participants varied in their personal backgrounds, education and life experiences. Taken together, all these factors might contribute to how they interpreted the task and the strategy they used in selecting their responses. This was mostly evident in how they handled their awareness of the variation in accents. Overall, participants seemed highly sensitive to the phonetic variables under investigation and frequently referred to sounding "foreign", or more specifically, sounding "Moroccan", as the reason for responding in a particular way. For some participants, especially those with research backgrounds and experience designing experiments, this meant ignoring the variation in accents and purposefully looking for other linguistic cues, such as intonation or stress patterns. For others, this meant honestly reacting to their biases and stating so forthrightly. A few participants stated that their positive ratings for the Moroccan guises stemmed from the desire to prove such stereotypes wrong. In this respect, some participants may be viewed as more honest than others in their responses. Additionally, it is possible that some participants made conscious decisions about how to carry out the task, but did not verbalize this in the post-test interview as several of the other participants did. Such variation is difficult to control for, and as a result, it remains unclear whether the responses participants chose are representative of their real-life opinions or behavior.

In light of the above, one might take the interview data as qualitative evidence of a social-psychological effect of the listening test itself. That is, the target variables may have been so salient in listeners' minds that the observed interaction effect is better understood as the result of political correctness as opposed to real attitudes or behavior. Such an effect might also be interpreted as an indication of a high level of awareness toward a socially sensitive topic. This was in fact evident in the interviews. Numerous participants described the experiment as "a confronting experience", several even verbally expressing their discomfort about voicing their opinions by way of some variation of the comment that forms the title of this thesis: "I don't want to sound racist, but…"

At the same time, the data suggest that despite some participants' apparent efforts to counter the expected effect, it may in reality be difficult to entirely escape latent biases. Whereas speakers in the Moroccan guise were frequently described as sounding "aggressive" and "from the street", speakers in Standard Dutch were described as "Caucasian" and "a normal Dutch guy". In a similar vein, returning to the discussion in Chapter 1, which highlighted the sensationalized media attention surrounding Moroccan gangs, it is relevant to note the results for the two sentences in this experiment that refer either explicitly or implicitly to drugs. These sentences exhibit a similar response pattern to sentence 26 (see section 3.1). Sentence 13 (*Ik verkocht niets. Dat is onzin* 'I didn't sell anything. That's nonsense') and sentence 37 (*Ze gebruikt hasj, maar verkoopt niets* 'She uses hash, but she doesn't sell anything') show lower mean ratings overall for Moroccan Dutch at normal speed: 2.38 and 3.38 for sentences 13 and 37 respectively, versus 3.75 and 5 for Standard Dutch (see Table 5, Appendix C). Although responses increase slightly in the slow Moroccan Dutch condition, they remain at the lower end of the scale. Between accents, responses for sentence 37 are also lower in Moroccan Dutch. These results suggest a slight negative bias toward Moroccan Dutch speakers, at least in the normal speech rate condition. As seen in the histograms of these sentences (see Figures 4–5, Appendices C1 and C2 respectively), listener responses for the normal condition exhibit a pattern that much more closely resembles the expected outcome: lower ratings in the non-standard accent. This observation seems logical in light of previous literature on perceptions of Moroccans in the Netherlands as well as participants' own statements about their perceptions of this social group. Moreover, what is remarkable about this particular finding is that stereotypes seem to prevail, even where the rest of the data suggest otherwise. A question that remains is whether the semantic content of a statement, when consisting of themes associated with a particular social group, might be a stronger trigger for such biases than accent or speech rate. The stimuli in this research fall short of drawing further conclusions in this domain, but this may provide a useful direction for future experiments.

4.2.1 Responses per speaker

The experimental design employed in this study served to cancel out any speaker effect. That is, the rotation of speakers across lists in the various possible conditions eliminated (theoretically)

the possibility that listener responses might reflect their reaction to the voice of a particular speaker. Nonetheless, anecdotal evidence from both the participants and the separate listening group suggest that there may have been a subtle effect.

The separate listening group who was consulted in order to confirm the authenticity of the Moroccan guises was asked to listen to the same four recordings presented to listeners in the post-test interview and to describe their impressions of the speakers in as much detail as possible. Upon describing a different speaker, listener 3 remarked that speaker 1 had a noticeably stronger Moroccan accent: "Moroccan background but has a less heavy accent than [speaker 1], makes him sound more integrated in Dutch society, also makes me think he has a higher level of education than [speaker 1]". In fact, this is more widely reflected across participants' responses: speaker 1 was rated consistently lower than the other three speakers in the Moroccan guise (see Figure 6, Appendix D) and had lower ratings overall (Table 6, Appendix E). It is unclear why speaker 1 also had lower ratings in Standard Dutch. Nevertheless, listener 3's characterization is noteworthy. It is evident from this listener's description of the speaker that the strength of a speaker's accent might make them more or less associated with certain stereotypes. The extent to which the strength of an accent might influence listeners perceptions and attitudes could be further investigated in future studies.

4.3 Limitations

Over the course of this project, a number of limitations came to light regarding various aspects of the experiment. One limitation of the current study involves the content of the stimuli. Although sentence type had no significant effect on listener responses, the content of the sentences may have. This became evident in the post-test interviews with sentences 22 and 40. When asked about sentence 22 (*Ik zou met een vriend gaan poolen* 'I was going to play pool with a friend'), several participants commented that such sentences were difficult to judge because of the fact that there was nothing out of the ordinary about the statement, and therefore they found it more difficult to have an opinion.

On the contrary, the content of some of the other sentences seemed to trigger assumptions of guilt. One such example became evident with sentence 40 (*Ze zei dat, maar ze liegt altijd* 'She said that, but she's always lying'). The most salient remark regarding this sentence, and one that recurred over the course of the interviews, was that such an overgeneralization (i.e. that someone

could "always" lie) made both the statement and the speaker seem untrustworthy. In light of this, it may be the case that some sentences were arguably more incriminating than others, which made it more difficult for participants to make a judgment. Notably, where the Standard Dutch speakers were deemed untrustworthy in the post-test interview, participants often attributed this to the nature of the statement itself. Moreover, it seems from the histograms in Figures 4–5 (Appendices C1 and C2) that sentences with content relating to stereotypes may be stronger triggers for underlying biases. Future studies could investigate this phenomenon in more detail.

Another limitation of the present study involves the experimental design. Participants were instructed to not think too much about the task and to follow their first instincts. However, there was no time pressure to choose a response, which may explain why some participants seemed more conscious of the research question than others. In addition to this, listeners were asked to make judgments about utterances taken entirely out of context, which is not consistent with the conditions under which listeners normally make judgments. Finally, all four speakers read the stimuli sentences from a PowerPoint presentation, which resulted in unnatural utterances that several participants described as sounding "read".

The profile of the speakers used in this study may also have contributed to the variability in participants' judgments. The speakers were all between the ages of 20 and 28. However, some participants perceived even the youngest speaker as "an older man" and estimated that he was probably between the ages of 30 and 40. Thus, it became clear that there was no agreement across participants in relation to the age of the speakers. Recall that in Chapter 1 of this thesis, it was established that Moroccan male *youth* are typically more at risk for maltreatment by legal authorities. This study therefore sought to investigate how listeners react to the speech resembling that of young Moroccan males. Crucially, a speaker's perceived age might affect listener attitudes and the socio-indexical dynamics at play. For example, in the second listening group consulted for this project, one listener described speaker 1 as "a young guy in his 20s . . . Kind of reminds of those 'Gucci fannypack' guys".[11] It is clear from this anecdote that certain stereotypes surrounding Moroccan males are associated with, if not restricted to, specific age groups. Therefore, it may be the case that the variation in participants' responses is related to what they perceived as the age of the speakers.

[11] A stereotype about Moroccan male youth in the Netherlands is that they wear "fannypacks" or carry small purse-like shoulder bags, often from specific brands of clothing.

Finally, the sample population from which the data were obtained must be kept in mind when drawing conclusions. Although any biases policemen have are arguably indicative of the more widespread views of the society they are a part of (Amnesty International, 2016, p. 11), university students are also quite distinct from policemen in terms of age, educational level, socioeconomic status and general life experiences. It is possible that replicating this study with other populations might yield considerably different results. Moreover, it is important not to overstate the interaction effect found in this study, as the participant pool was relatively small (32 listeners). Thus, caution is necessary in generalizing these results.

Conclusion

The results of this study revealed that listeners generally perceive both accents as equally credible at a normal speed, but Standard Dutch as less credible at a slower speed. As such, participants indeed found slower speech to be less believable, though the interaction was not entirely in the expected direction. Slower speech was found to be less credible in both Standard Dutch and Moroccan Dutch, which both confirms the findings of past studies and contributes new knowledge about the perception of speech rate in Dutch. In this regard, some of the results confirm past findings that slower speech is less credible (Apple et al., 1979; Brown et al. 1973, 1974; Miller et al. 1976; Smith et al. 1975). This knowledge is relevant for our understanding of how linguistic variables may affect Dutch speakers in contact with the law. On the other hand, some aspects of the results were not in agreement with previous research. Contrary to past studies (Eades, 1993, 1996; Rickford & King, 2016; Sullivan, 2016; among others) there was no evidence that speaking with a non-standard accent makes one more prone to discrimination. Despite evidence to the contrary, qualitative data from the post-test interviews suggests that there may in fact be an underlying bias that was not quantitatively reflected in the results. Improvements to this study may provide useful paths for future research that aims to improve our understanding of how accent interacts with speech rate, and why this may be of interest for minimizing language-based discrimination in societies around the world.

Appendix A – Stimuli Sentences

1. Dat is niet wat er gezegd werd.
2. Dat klopt ja, maar zij ging eerder.
3. Dat ging toen niet, ik reed niet zelf.
4. Dat zegt u, maar toen was ik thuis.
5. Zij groette me, maar dat was het.
6. Zij wilde wel, maar ik heb geen drugs.
7. Ik ging weg voordat ze kwamen.
8. Ik heb ze maar één keer gezien.
9. Ik heb geld, maar niet zo veel meer.
10. Ik zag hem niet. Ik zweer het man.
11. Ik zie hem, maar hij is geen vriend.
12. Ik kom er wel, maar niet zo graag.
13. Ik verkocht niets. Dat is onzin.
14. Ik vond de brief op zaterdag.
15. Zij was daar niet. Ze was al weg.
16. Ik gaf haar wat, maar niet zo veel.
17. Ik zag het wel, maar niet zo goed
18. Ik hoorde wie zij heeft gebeld.
19. Ik zag dat hij naar ons toe kwam.
20. Ik zag hem, maar we praatten niet.
21. Ik zag ze, maar ik ken ze niet.
22. Ik zou met een vriend gaan poolen.
23. Ja zij was daar. Om half negen.
24. Ja dat klopt. Ze ging daarheen.
25. Ja ik lachte, maar zij was boos.
26. Ja, ik krijg ze voorgeschreven.
27. Ja, ik zou met haar gaan chillen.
28. Nee, ik heb ze niet aangeraakt.
29. Nee, ik heb haar nog nooit gezien.
30. Nee, ik zou met haar gaan shoppen.
31. Nee, ze hebben zomaar gechilled.
32. Nee, ze wilden gewoon praten.
33. Om negen uur ging ik naar Zeist.
34. Om zeven uur ging ik naar huis.
35. We lagen daar. Niets bijzonders.
36. Zij praatten, maar dat was geen punt.
37. Ze gebruikt hasj, maar verkoopt niets.
38. Ze vroeg het me, maar ik zei nee.
39. Ze gingen me in elkaar slaan.
40. Ze zei dat, maar ze liegt altijd.

Appendix B – Residuals plot

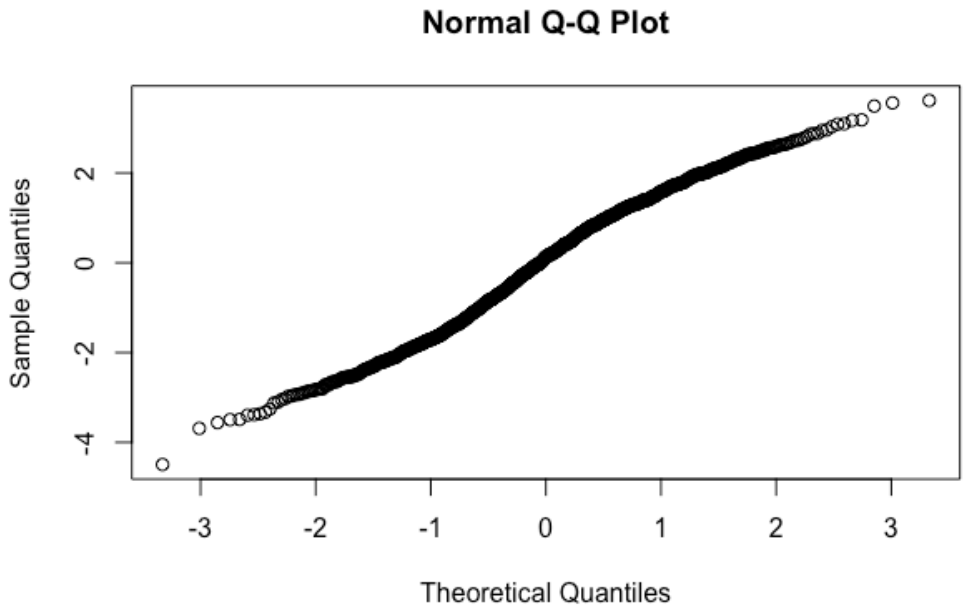

Figure 3. Normal Q-Q plot of residuals for the linear mixed model revealing deviation from homoscedasticity and normality

Appendix C – Table With Response Values for Sentences 13 and 37

Table 5

Mean Response and Standard Deviation by Accent and Speech Rate for Sentences 13 and 37

Accent	Sentence	Speech rate	*M*	*SD*
Standard Dutch	13	normal	3.75	1.75
		slow	3.13	1.55
	37	normal	5.00	1.85
		slow	4.00	2.07
Moroccan Dutch	13	normal	2.38	2.00
		slow	3.50	1.77
	37	normal	3.38	1.92
		slow	3.50	1.41

Note. N = 8 in all cases.

Appendix C1 – Histogram Sentence 13

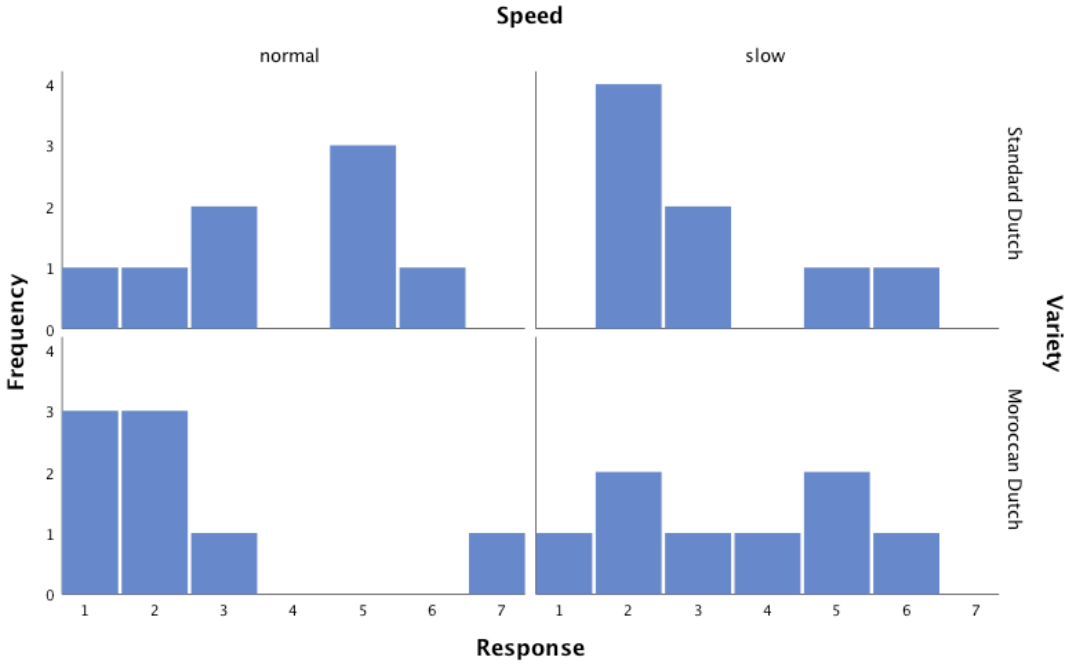

Figure 4. Responses for sentence 13 by variety and speed

Appendix C2 – Histogram Sentence 37

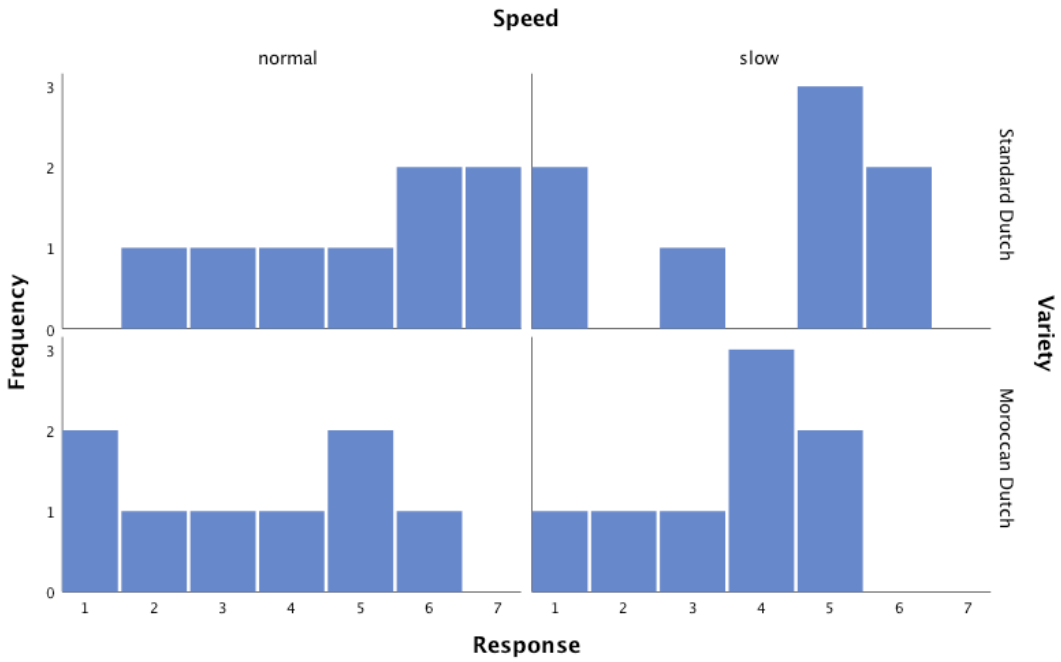

Figure 5. Responses for sentence 37 by variety and speed

Appendix D – Boxplots of ratings per speaker

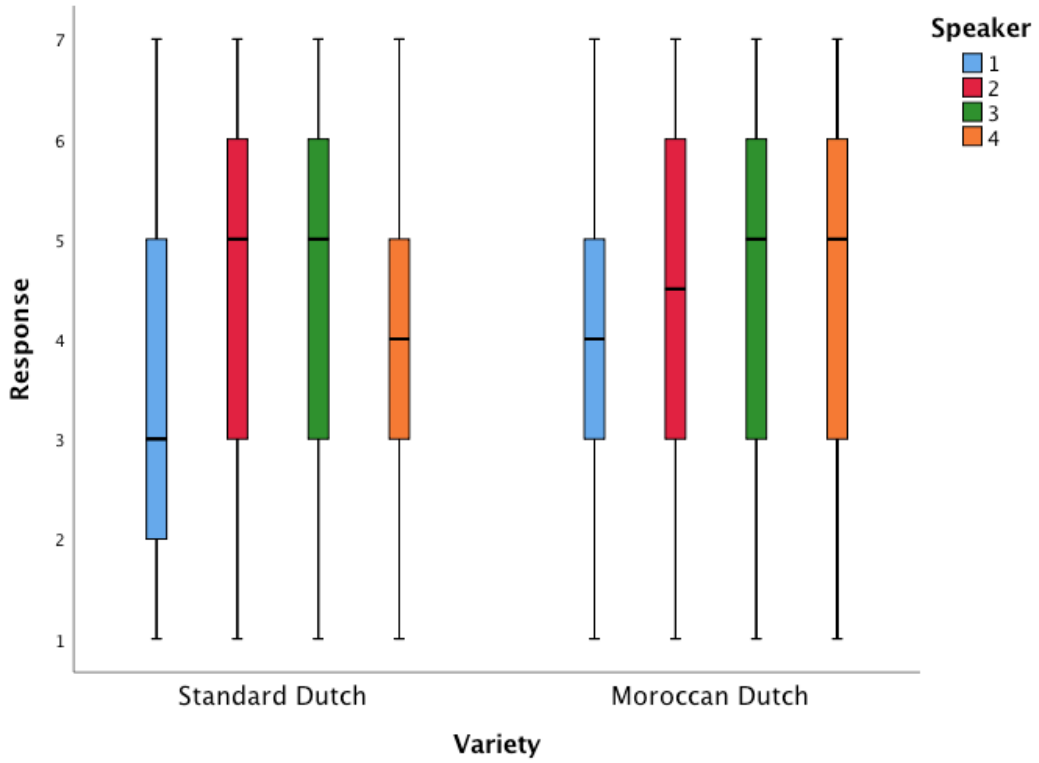

Figure 6. Responses per speaker by accent

Appendix E – Table With Response Values Per Speaker

Table 6

Mean Response and Standard Deviation by Accent and Speaker

Accent	Speaker	*M*	*SD*
Standard Dutch	1	3.49	1.73
	2	4.53	1.68
	3	4.40	1.72
	4	3.74	1.49
Moroccan Dutch	1	4.13	1.63
	2	4.28	1.62
	3	4.33	1.59
	4	4.27	1.85

Note. N = 144 for all cases.

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