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Cross-linguistic influence in bilingual grammars: evidence from gender assignment in unilingual Dutch and mixed speech

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Abstract

This study reports on grammatical gender assignment in elicited production data from heritage speakers of Turkish, Papiamento, and Spanish in the Netherlands. We selectively target the nominal domain, consisting of a determiner, a noun, and an adjective. Previous studies have demonstrated gender to be vulnerable in bilingual acquisition (e.g., Gathercole & Thomas 2005; Mitrofanova et al. 2018). The presence of grammatical gender in one language may affect gender assignment in the other language, suggesting cross-linguistic influence (Egger, Hulk & Tsimpli 2018; Eichler, Jansen & Müller 2013; Kaltsa, Tsimpli & Argyri 2019). In this chapter, we investigate the role of cross-linguistic influence from the heritage language onto the societal language by comparing three HLs that differ in terms of the properties of the nominal domain, including gender. Determiner phrase (DP) constructions consisting of a determiner, noun, and adjective were elicited by means of a director-matcher task (Gullberg, Indefrey &Muysken 2009), which was performed both in a unilingual Dutch mode, and in a code-switching mode. The results show that all groups tend to overgeneralize the common gender in the Dutch unilingual mode. Strikingly, heritage speakers of Spanish performed more target-like than the Papiamento and Turkish speakers, which is probably related to the fact that Turkish and Papiamento do not have a grammatical

gender system, whereas Spanish distinguishes masculine and feminine gender in the DP. As for code-switching from Dutch to the HL, we observe a similar preference for the common gender, such that most speakers tend to assign common gender to nouns that are inserted from their respective HLs into Dutch DPs. Some speakers also apply a gender assignment strategy based on the translation equivalent of the noun in Dutch, or produce a postnominal adjective construction with an uninflected adjective. An analysis of extra-linguistic variables demonstrated that in both the unilingual and the code-switching mode, gender assignment strategies seem to be determined to some extent by the degree of dominance of the societal language.

Keywords: cross-linguistic influence, bilingualism, code switching, grammatical gender.

1. Introduction

Children acquire gender agreement in the noun phrase of their first language along different timelines. A complex system with three genders (masculine, feminine, neuter) as in German is acquired relatively fast with use of gender marked articles at age 1;5 and nearly 90% correctness rates at age 3;0 (Szagun et al. 2007). A two-way gender system with phonological regularities such as Italian or Spanish is also acquired with high correctness rates at an early age for both monolinguals and bilinguals (e.g., Paolieri et al. 2010; Montrul 2004). A two-way gender system with less transparency such as French is acquired slightly later (e.g., Kupisch, Müller & Cantone 2002) and a two-way system such as Dutch for which gender assignment is even less transparent may take seven to nine years to acquire at an adult-like level (e.g., Cornips & Hulk 2006). As gender assignment in the latter language is notoriously difficult to acquire for monolingual children, it is an ideal test case for hypotheses about how grammatical gender is represented in the mind of bilingual speakers and which linguistic and extralinguistic variables may contribute to its acquisition.

In this chapter, we will consider strategies for gender marking in Dutch by (pre)adolescent and adult heritage speakers (HSs) of three different languages. Our main aim is to explore the role of cross-linguistic influence (CLI) from the heritage language (HL) onto the majority language. CLI is often discussed as a source of non-target-like behaviour in bilingual research. However, one could argue that much of the attested deviations may be due to either reduced input and/or reduced use of one of the languages, or to cognitive issues related to bilingualism. Since most research focuses on only one language pair, it is generally

impossible to distinguish CLI from these (and possibly other) factors. This study offers a valuable contribution to the study of CLI by comparing HSs of three different languages in the Netherlands regarding their strategies for gender marking in Dutch. Specifically, we look at two languages that do not have grammatical gender marking (Turkish, Papiamento) and one language that also employs grammatical gender (Spanish). We consider CLI to be any type of influence - whether facilitative or not - from the structure of one language onto the other. In addition to gender assignment, we also touch upon two other phenomena related to the nominal domain that are potential sources of CLI between the languages of interest, namely adjective noun order and definiteness.

By including HSs of different ages (children, teens and adults), we aim to bridge the gap between HL studies and studies on early child bilingualism (see also Aalberse & Hulk 2018). HL studies tend to include adults only, and focus exclusively on the HL (e.g., Benmamoun, Montrul & Polinksy 2013), often (implicitly) assuming dominance in the societal language. (Early) child bilingualism studies on the other hand, take both languages of the child into consideration, and typically conclude that both languages are acquired in a monolingual-like manner aside from potential temporary delays (e.g., De Houwer 1990; Meisel 2004, 2009). However, these studies typically do not follow children beyond the (pre-)school period. In the present study, we demonstrate that HSs show a considerable degree of non-target-like behaviour when assigning gender in Dutch, their (supposedly dominant) societal language. Moreover, we include bilinguals of a wide range of ages. Instead of a rigid division between child and adult participants, we treat age as a continuous variable and include it as a predictor variable in our analysis, in addition to age of onset of acquisition and various input-related variables.

Finally, our study provides an important contribution to the field by testing bilingual speakers both when they speak Dutch only (referred to as the ‘unilingual mode’ below) and in code-switching mode, i.e. when they embed nouns from the HL into Dutch (the matrix language), resulting into mixed determiner phrases (DPs).

In the following subsection, we describe the differences between the four languages under consideration with respect to the properties of the nominal domain which may induce CLI effects.

1.1. The nominal domain in Dutch, Spanish, Turkish and Papiamento

Standard Dutch exhibits a binary gender system consisting of common and neuter nouns. Gender is marked on determiners, as inflection on adjectives, and in the pronominal system. Common gender, which used to incorporate masculine and feminine[1], is the larger class, both in terms of simplex dictionary entries (75%, Hulk & Cornips 2006) and in terms of usage (67%, van Berkum 1996). The canonical word order in the Dutch DP is D(Adj)N. Nouns in the common gender select the definite article **de**[2], whereas neuter nouns select the definite form **het**. Plural nouns of both genders are assigned the article **de.** Other elements in the DP modified by the gender of the noun are demonstratives (common gender **deze** 'this' and **die** 'that', neuter **dit** 'this' and **dat** 'that') and the 1pl possessive pronoun (common gender **onze**, neuter **ons**). Adjectives are prenominal and are inflected with "-e" /ə/ at all times, except in indefinites with a neuter noun, as exemplified below:

1.	a.	common gender DP with definite article:	**de grote boom**	'the big tree'
	b.	common gender DP with indefinite article:	**een grote boom**	'a big tree'
	c.	neuter gender DP with definite article:	**het grote huis**	'the big house'
	d.	neuter gender DP with indefinite article:	**een groot huis**	'a big house'

The pronominal system has traditionally been analysed as a mixed system where for animate objects the pronoun agrees with the natural (semantic) gender (**hij** for masculine, **zij** for feminine and **het** for neuter), while for inanimate objects syntactic agreement occurs: **hij** is used to refer to common gender nouns and **het** for neuter gender nouns (e.g. Geeraerts 1992). However, in spoken Dutch, the distribution of personal pronouns referring to inanimate objects is subject to a process of resemanticization, whereby **hij** tends to be used for count nouns and **het** for mass nouns (Audring 2006, Kraaikamp 2017)

Although the Dutch gender system is generally non-transparent, one important morphological cue is the diminutive suffix **-tje** (or an allomorphic variation), which consistently denotes neuter gender. Other, less common cues are derivational suffixes like **-heid**, **-ing**, **-nis** (common), **-isme**, **-ment** and **-sel** (neuter) and prefixes **ge-**, **be-** (neuter).

Like Dutch, Turkish adjectives are also prenominal. However, Turkish does not have a definite article and does not have a grammatical gender distinction. Indefinite singulars (and some plural and mass nouns) are introduced by the determiner *bir*, which has to immediately

precede the head noun leading to the word order (Adj)(D)N while the numeral *bir* has the expected Numeral-(Adj)-N word order in the unmarked form with unmarked intonation contours. Furthermore, indefinite *bir* exhibits deletion of the final consonant in conversational speech while the numeral one does not. Because of such distributional differences, indefinite *bir* and the numeral *bir* are commonly accepted to be distinct categories in descriptive grammars (e.g., Kornfilt 1997:106, Göksel & Kerslake 2004:179) and assumed as such in formal analyses of the Turkish DP (e.g. Von Heusinger & Kornfilt 2005, Tat 2010, Kornfilt 2017). For example, in 2(b-c), the position of *bir* determines the categorical status of *bir* in the subject position as determiner versus numeral, while the absence of an overt determiner in (2a) entails a definite DP[3].

2. a. *Büyük ev amca-m-ın* definite DP
big house uncle-1sg.poss-gen
'The big house is my uncle's.'

b. *büyük bir ev hayal-im* indefinite DP
big a house dream-1sg.poss
'A big house is my dream.'

c. *bir (iki…) büyük ev hayal-im* indefinite DP
one (two…) big house dream-1sg.poss
'One (two…) big house(s) is my dream.'

Papiamento does not have a gender distinction either, but it is different from Turkish in that it has a definite article and postnominal adjectives.

3. a. DP with definite article: *e kas grandi*[4] 'the big house'

b. DP with indefinite article: *un kas grandi* 'a big house'

Spanish displays the same DN(Adj) order as Papiamento[5]. In contrast to Papiamento and Turkish it has a gender system, but in contrast to Dutch, it distinguishes masculine and feminine gender. All articles (*el* 'the' and *un* 'a' for masculine, *la* 'the' and *una* 'a' for feminine) and demonstratives (*este* 'this', *ese* 'that' and *aquel* 'that' for masculine, *esta* 'this', *esa* 'that' and *aquella* 'that' for feminine) show gender agreement, while most but not all adjectives show gender agreement (Caroll 1989). Most noun endings are a cue to gender, for instance, masculine nouns tend to have an ending in *–o,* while feminine nouns tend to end in *–a*. These are so called 'canonical' or 'transparent' nouns, while nouns ending in different

vowels or consonants are referred to as ‘non-canonical’ or ‘non-transparent’ nouns. Table 1 provides examples of Spanish nominal constructions.

Table 1. Agreement in Spanish nominal constructions. The elements showing gender agreement have been underlined.

	Canonical noun	**Non-canonical noun**
Masculine	*el* / *un libro pequeño*	*el* / *un peine pequeño*
	‘the / a small book’	‘the / a small comb’
Feminine	*la* / *una mesa pequeña*	*la* / *una flor pequeña*
	‘the small table’	‘the small flower’

The table below illustrates the relevant differences and similarities between the four languages under discussion.

Table 2. Articles, gender marking, and Adj Noun order in four languages

	Definite article	Indefinite article	Gender marking definite article	Gender inflection adjective	Word order within the DP
Dutch	*yes*	*yes*	*yes*	*yes*	Det Adj Noun
Turkish	no	*yes* (optional)	n.a.	no	Adj (Det) Noun
Papiamento	*yes*	*yes*	no	no	Det Noun Adj
Spanish	*yes*	*yes*	*yes*	*yes*	Det Noun Adj

Apart from the structural differences between the three HLs of interest, there are also important differences between the Turkish, Antillean and Spanish-speaking communities in the Netherlands, especially in terms of length of language contact, as discussed in the following subsection.

1.2. The Turkish, Spanish and Papiamento-speaking communities in the Netherlands

Turkish is spoken by one of the largest immigrant communities in the Netherlands, made up of 409,877 people (Central Bureau of Statistics [CBS], 2019)[6] and consists mainly

of migrant workers who arrived in the 1960s and early 1970s from Turkey, their families who were reunited in the late 1970s, and their descendants. There is also a smaller community of political migrants, who arrived in the 1980s.

Spanish is a smaller, yet still relatively large immigrant language in the Netherlands with a total of 130,160 people (Central Bureau of Statistics [CBS], 2019)[7]. About a third of them have origins in Spain (46,741), but the majority comes from a variety of Latin American countries. Among the Spanish-speaking migrants were contracted workers from Spain in the 1960s and 1970s, political refugees from Latin America during the 1970s and 1980s, and more migrants during the 1990s (mainly from the Dominican Republic and Colombia) (Irizarri van Suchtelen 2016). Compared to Turkish HSs, Spanish HSs in the Netherlands are less inclined to form close-knit communities; they live more dispersed throughout the country (van Osch 2019).

Whereas Turkish and Spanish have a relatively short history of contact, Papiamento and Dutch share more than three and a half centuries of history. Papiamento is a Portuguese creole spoken on the ABC islands (Aruba, Curaçao, Bonaire), relexified by Spanish and influenced by Dutch due to this extended period of contact (Jacobs 2012). Nowadays, 161,265 Dutch Antilleans live in the (European) Netherlands (Central Bureau of Statistics [CBS], 2019)[8]. This sociologically very diverse group was already proficient in Dutch before their emigration, in contrast to the other two groups of HSs, although the Dutch spoken on the ABC islands and probably by migrants of the first generation as well is considerably different from European Dutch (Depuydt 2010). Aalberse, Backus and Muysken (2019) consider Papiamento in the Netherlands as a post-colonial HL, with an extended period of contact with Dutch, comparable to Hindi in the UK for instance[9].

2. Dutch gender in bilinguals

Several studies observed a differential acquisition of Dutch gender in bilinguals when compared to monolinguals. A frequently reported pattern in the literature is that bilinguals tend to overgeneralize the common gender. This has been found for Dutch in contact with English, a non-gendered language (Unsworth et al. 2014), as well as for Dutch in contact with Moroccan Arabic/Berber (Blom, Polišenská & Weerman 2008), which do have gender. Hulk and Cornips (2006) found a similar pattern for a group of child HSs of several different languages, some of which have gender (French, Moroccan Arabic/Berber) and some of which do not (Turkish, Akan, Ewe, Sranan).

Some studies suggest that the acquisition of Dutch gender in bilinguals is less problematic, or can even be accelerated if the other language has gender. For instance, Egger, Hulk and Tsimpli (2018) studied 21 Greek child HSs in the Netherlands (aged 4;4-13;3) in a Greek language school. The results suggest that gender acquisition in Dutch is accelerated - at least in the initial stages - by CLI from Greek. Similarly, Hulk and van der Linden (2010) argue that having French and Spanish as one of the languages accelerates the acquisition of gender in Dutch. Similar claims of CLI in the form of acceleration, or delays, in the acquisition of gender systems have been made for bilingual children of other language pairings (e.g., Eichler, Jansen & Müller 2013; Schwartz et al. 2015; Kaltsa, Tsimpli &Argyri 2019; but see Rodina et al. 2020). Furthermore, some studies on pronominal gender agreement in the (L2) acquisition of Dutch seem to suggest that the type of agreement strategy applied by learners (semantic vs. grammatical) may also be influenced by the specific type of gender system in the other language (see Aalberse & Weerman (in prep) for an overview)

In previous work (Boers et al. 2020), we analysed elicited production data of Spanish HSs in the Netherlands (one of the groups that are also considered in the present paper), and found that their command of Dutch gender assignment was considerably non-target-like, even more so than in Spanish, their HL. In line with other research, these speakers showed an overextension of common gender. In the present chapter, we complement these findings with data from two other (non-gendered) HLs in the Netherlands, in order to shed more light on the question of CLI.

Apart from linguistic factors, the acquisition of gender in bilinguals also seems to depend on various extra-linguistic factors related to the linguistic experience of the individual (e.g., Gathercole & Thomas 2005; Rodina & Westergaard 2017; Mitrofanova et al. 2018). For Dutch gender in particular, Unsworth et al. (2014) found that factors related to the quantity and the quality of the input as well as language use by the children were important predictors of bilingual children's accuracy in assigning common or neuter gender in Dutch. Cornips and Hulk (2008) report effects of age of onset and length and intensity of the input as important predictors for accuracy in Dutch grammatical gender in bilinguals. In Boers et al. (2020) we also demonstrated that age of onset, as well as input and exposure of the HL affected Spanish HSs' accuracy with Dutch gender.

3. Gender in code-switching

In code-switching, several strategies for gender assignment have been identified in the literature. Many studies report a default gender strategy, by which bilinguals use a single gender value to assign all nouns, for instance masculine gender in Spanish for Spanish-English bilinguals (e.g., Otheguy & Lapidus 2003, Balam 2016, Valdés Kroff 2016). For code-switching in Dutch, Clyne (1977) and Clyne and Pauwels (2013) show that a common gender default strategy is used by Dutch-English bilinguals (HSs and L2 speakers) living in Australia. Similarly, Boumans (1998) reports a common gender default for Dutch-Arabic bilinguals. Treffers-Daller (1993) on the other hand, mentions a neuter gender default in Dutch-French bilinguals in Brussels[10].

Another commonly reported gender assignment strategy is the analogical gender strategy, whereby bilinguals assign the gender of the translation equivalent of the noun. For instance, Spanish-English bilinguals might say "*la*.F table", because the translation of table in Spanish is *mesa,* which is feminine in Spanish (e.g., Jake, Myers-Scotton & Gross 2002). This strategy has also been attested for code-switching in Dutch (Clyne 1977; Clyne & Pauwels 2013). Another analogical strategy is used by French-Brabant Dutch bilinguals, who use the gender of the inserted noun itself, i.e. masculine French nouns inserted in Dutch agree with Dutch masculine determiners (Treffers-Daller 1993)[11].

Interestingly, some studies attested different gender strategies for the same language combination depending on the sociolinguistic characteristics of the community or the individual speaker. For instance, Królikowska et al. (2019) found that Spanish-English communities where code-switching is highly frequent are more prone to apply a masculine default strategy when they code-switch than communities where code-switching is less common. Liceras et al. (2008) looked at Spanish-English and Spanish-French bilingual children for whom Spanish was either the L1 or the L2 and found that the analogical gender strategy was used more often by the Spanish L1 speakers, while the masculine default strategy was preferred by the Spanish L2 speakers. Similarly, Munarriz-Ibarrola et al. (2021) demonstrated that Spanish-Basque bilinguals who acquired Spanish first were more likely to use the analogical gender strategy, while speakers with Basque as their first language tended to use phonological cues in gender assignment (i.e. the gender is assigned based on the phonological ending of the word).

In Boers et al. (2020), we found that Spanish HSs use a mix of gender assignment strategies when they insert Spanish nouns into Dutch phrases. The most common strategy

was a default gender strategy, which was the common gender for most speakers (e.g., **de**.C **zwarte** *cama*.N 'the black bed'), except for 2 speakers who used neuter gender across the board (e.g., **het**.N **zwarte** *flor*.C 'the black flower'). The analogical gender strategy was also adopted by several speakers (e.g., **het**.N **zwarte** *cama*.N 'the black bed'), particularly by those who were more dominant in Dutch. Finally, some speakers used a construction containing a postnominal uninflected adjective (e.g. **een** *cama* **zwart** 'a bed black'), possibly influenced by the possibility of having a postnominal adjective in Spanish, their HL. This chapter will offer more insight into this issue by including code-switching data from a HL in The Netherlands which allows postnominal adjectives (Papiamento) and one which does not (Turkish).

4. Research questions and Hypotheses

Our research interest is in the linguistic and extralinguistic variables that play a role in gender assignment in a Dutch unilingual mode and in code-switched speech. Do HSs of Papiamento and Turkish also overgeneralize the common gender in Dutch as Spanish HSs do? Does the presence or absence of a grammatical gender system in one's HL determine the degree to which the Dutch grammatical system is target-like? Which of the input-related extralinguistic factors are better predictors for the linguistic outcomes of the acquisition of Dutch grammatical system? In code-switching mode, do Papiamento and Turkish HSs use a default gender strategy across the board, or do those speakers who are Dutch-dominant tend to use the analogical gender strategy instead?

In the unilingual mode, we expect to find evidence for a common default gender assignment mechanism (cf. Unsworth et al. 2014; Blom, Polišenská & Weerman 2008; Hulk & Cornips 2006). However, we also expect to find potential differences between groups related to the particular properties of the nominal domain in their HL. First, we hypothesise that having a gender system in the additional language will facilitate the use of a two-way gender system in the other language (Spanish/Dutch), i.e. we expect the Turkish and the Papiamento HSs to perform less-target-like than their Spanish-speaking peers (cf. Egger, Hulk & Tsimpli 2018; Hulk & van der Linden 2010). Moreover, we expect other differences between the languages in the nominal domain with respect to word order and definiteness to potentially result in differences between the three groups regarding gender in Dutch.

With respect to extralinguistic factors, we take into consideration several input-related variables, such as the age of arrival to the host country, and the amount of input and use of the language in several domains. Based on previous studies (e.g., Unsworth et al. 2014; Cornips & Hulk, 2008), we expect age of arrival and amount of exposure and use of both languages to have an effect on gender accuracy in Dutch.

As for code-switching, we expect to find several different strategies to be adopted but a preference for a common default strategy (cf. Clyne 1977; Clyne & Pauwels 2013; Boumans 1998; Boers et al. 2020). We moreover hypothesize that the correlation between language dominance and the use of the analogical gender strategy, which we demonstrated for HSs of Spanish in Boers et al. (2020) will be applicable to the HSs of Turkish and Papiamento as well, i.e. those speakers who are more dominant in Dutch are expected to assign gender based on the gender of the translation equivalent more.

5. Methodology

5.1 Procedure

A Director-Matcher task (cf. Gullberg, Indefrey & Muysken 2009) was used to elicit nominal constructions consisting of a determiner, a noun and an adjective. This task requires two participants, a director and a matcher sitting across from each other with a division between them, both with the same set of cards laid down before them. One participant - the director - instructs the other - the matcher - to arrange the cards in the same order as his or her own, thus eliciting phrases like “next to the black bed is a red house”. The task was played four times: first in two unilingual modes (Dutch and the specific HL) and then in two code-switching modes, in which they were instructed to perform the task in Dutch, but name only the object in the HL or vice versa. In this chapter, we only report the results from the Dutch unilingual mode and the code-switching mode with HL noun insertions into Dutch.

Prior to the experiment, participants received oral instructions in the language of preference, as well as a consent form. After the completion of the task, the participants (or the participant’s parent(s) in case of children younger than 12) were asked to fill in the background questionnaire in their language of preference. Participants older than 12 received monetary compensation, while those younger than 12 received a small toy.

5.2 Materials

The task was designed to test the default gender strategy and the analogical gender strategy. Table 3 below provides hypothetical code-switching strategies. If a default strategy is used, the majority of the nouns would be assigned to one gender category, either common or neuter. If the analogical strategy is applied, nouns would be assigned the gender of the translation equivalent.

Table 3: Examples of hypothetical gender assignment strategies with Papiamento nouns embedded in Dutch.

Gender strategy	*bòter* 'bottle' (cf. **de fles**)	*wowo* 'eye' (cf. **het oog**)
Default gender (common)	**de** *bòter*	**de** *wowo*
Default gender (neuter)	**het** *bòter*	**het** *wowo*
Analogical gender	**de** *bòter*	**het** *wowo*

Since Papiamento and Turkish do not have grammatical gender, the depicted objects were counterbalanced for their gender in Dutch as well as in Spanish. Cognates between Dutch and the three HLs were avoided. Furthermore, the objects were controlled for lexical variation in different Spanish dialects (cf. Balam et al. 2021). Because it was impossible to find 8 neuter nouns that fit all the required criteria (with respected to gender in Dutch and Spanish, canonicity in Spanish, non-cognates, etc.) the set contained 8 common gender objects and 7 neuter gender objects.) See table 4 for the objects used for this study.

Table 4: Objects in the Director-Matcher task according to gender and shape variables.

Dutch gender	Spanish gender	Spanish canonicity	Dutch noun	Spanish noun	Turkish noun	Papiamento noun	Translation
c	m	can	**hamer**	*martillo*	*çekiç*	*martin / martiu*	'hammer'
c	m	can	**hoed**	*sombrero*	*şapka*	*sombré / pèchi*	'hat'
n	m	can	**boek**	*libro*	*kitap*	*buki*	'book'
n	m	can	**oog**	*ojo*	*göz*	*wowo*	'eye'
c	f	can	**kaars**	*vela*	*mum*	*bela*	'candle'

c	f	can	**fles**	*botella*	*şişe*	*bòter*	‘bottle’
n	f	can	**huis**	*casa*	*ev*	*kas*	‘house’
n	f	can	**bed**	*cama*	*yatak*	*kama*	‘bed’
c	m	n-can	**bank**	*sofá / sillón*	*koltuk*	*sofa / banki*	‘couch’
c	m	n-can	**kam**	*peine*	*tarak*	*peña*	‘comb’
n	m	n-can	**hart**	*corazón*	*kalp*	*kurason*	‘heart’
n	m	n-can	**spook**	*fantasma*	*hayalet*	*spoki / spiritu*	‘ghost’
c	f	n-can	**sleutel**	*llave*	*anahtar*	*yabi*	‘key’
c	f	n-can	**bloem**	*flor*	*çiçek*	*flor*	‘flower’
n	f	n-can	**kruis**	*cruz*	*çarpı*	*krus*	‘cross’

The objects were depicted in four different colours, see Table 5 for an overview. All these colour adjectives inflect in Dutch. Three of the colour adjectives inflect in Spanish, while one does not (*verde* ‘green’). Dutch colour adjectives that were phonologically similar to HL colour adjectives were avoided. Every object occurred twice in a different colour.

Table 5: Colour adjectives used in the Director-Matcher task

Dutch	Spanish	Turkish	Papiamento	Translation
wit	*blanco / -a*	*beyaz*	*blanku*	‘white’
zwart	*negro / -a*	*siyah*	*pretu*	‘black’
rood	*rojo / -a*	*kırmızı*	*kòrá*	‘red’
groen	*verde*	*yeşil*	*berdè*	‘green’

A background questionnaire was designed to obtain information about language history, education, relative amount of Dutch and HL language use and exposure. For participants younger than 12 years, the questionnaire was completed by (one of) the parents.

The questionnaire for these younger participants also included questions on the parents' language history, education and language usage within the family.

5.3 Participants

A total of 58 HSs (29 male, 29 female) participated in the study. The participants mainly lived in the western part of the Netherlands (Randstad area). We included a wide range of speakers of different ages, with different ages of arrival and language use patterns, with the aim of including such variables as predictors in our analyses[12]. As a consequence, the groups differed significantly on some of these variables, as is illustrated in tables 6 and 7 (light vs. dark-coloured cells indicate a significant difference between two or more groups).

Table 6: Extralinguistic information according to HL group. Light vs. dark grey colouring indicates a significant difference.

	Spanish	Turkish	Papiamento
Number of participants	21	22	15
Gender	6 M, 15 F	15 M, 7 F	8 M, 7 F
Age at testing (range = 7 to 55)	17.19	24.82	27.27
Age of arrival (range = 0 to 21)	3.24	2.18	8.27
Years spent in the Netherlands	13.57	21.86	18.87
Years spent in heritage country	3.86	2.32	8.40
Self-reported HL skill (0-3)[a]	2.42	2.11	2.13
Self-reported Dutch usage[b]	60.97%	53.26%	58.28%
Self-reported HL usage[c]	35.12%	46.63%	39.97%
Other (media) HL input (hours/week) (range = 0 to 70)[c]	12.14	17.64	8.18
Participants who took HL classes	5/21	2/22	0/15
Heritage country visits (0-3)[d]	2.38	2.32	2.40

a: Average of self-reported reading, writing, listening, and speaking skill (0 = none, 3 = advanced). **b**: Average of self-reported usage with different family members and five frequent non-family contacts. **c**: Sum of self-reported input from different categories (books, television, music, social media). **d**: Frequency of visit to the heritage country (0 = never, 3 = at least once a year).

Table 7: Additional extralinguistic information for child participants according to HL group. Light vs. dark grey colouring indicates a significant difference.

	Spanish	Turkish	Papiamento
Dutch usage immediate family[e]	50.83%	40.75%	47.63%
HL usage immediate family[e]	44.17	59.25%	52.38%
Dutch usage non-immediate family[f]	73.75%	82.50%	94.50%
HL usage non-immediate family[f]	23.75%	17.50%	5.50%
Dutch input aged 0-4[g]	33.13%	25.00%	21.75%
HL input aged 0-4[g]	60.34%	75.00%	78.25%
Dutch input aged 4 till present[g]	38.44%	27.50%	49.00%
HL input aged 4 till present[g]	54.63%	72.50%	51.00%

e: Average of parent-reported usage with members of the immediate family (parents, siblings). **f**: Average of parent-reported usage with five frequent non-immediate contacts. **g**: Average of input from the parents, reported by the parents.

5.4. Coding

Participants sometimes produced a different type of speech from what was intended in a certain mode. Unilingual nominal constructions used in the code-switching mode were excluded from the analysis, since they did not represent regular unilingual speech (i.e. they had full nominal constructions from one language embedded in the other). Code-switched constructions that were not in the target directionality were included in the analysis.

If participants referred more than once to the same object (e.g., “next to A is B, and next to B is C”), both nominal constructions were included in the analysis. Nominal constructions that did not refer to the target stimuli (e.g., “the next card”) were not included.

6. Analysis and results

6.1 Unilingual Dutch mode

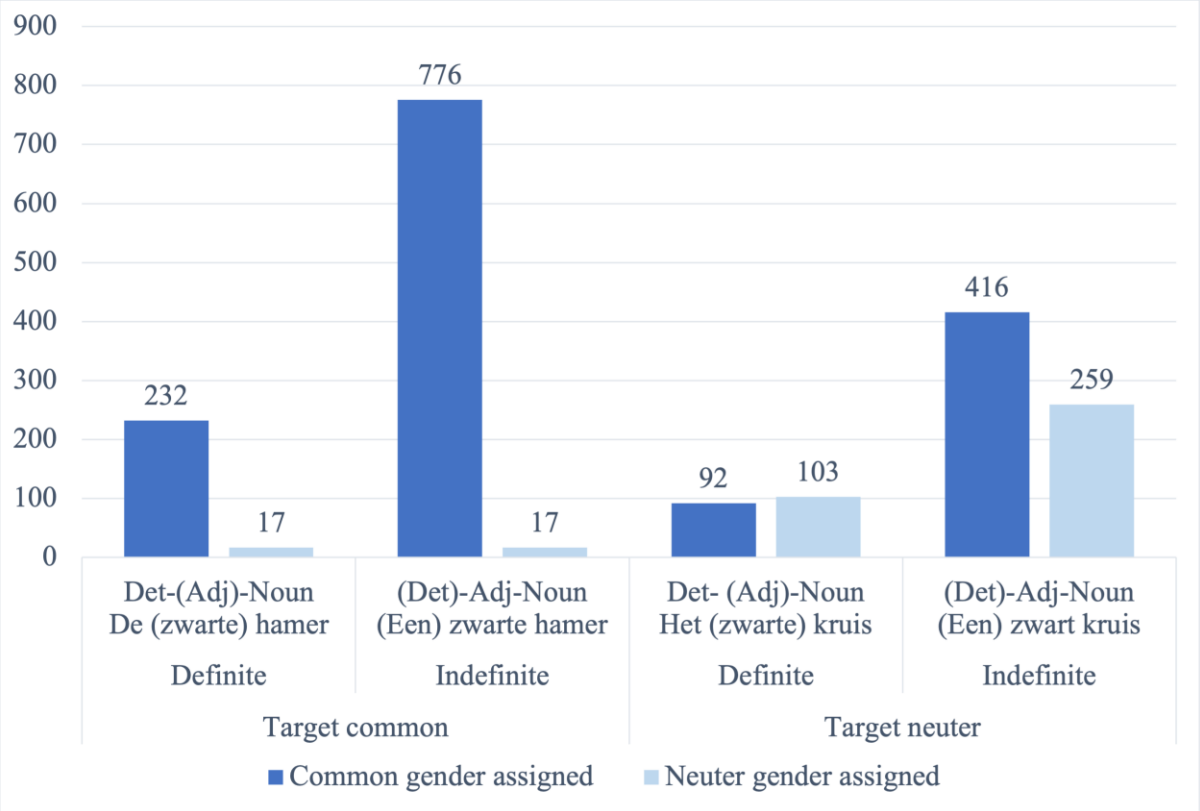
In previous work (Boers et al. 2020), we analysed data from Spanish HSs in the Netherlands regarding their gender assignment in Dutch. The findings reported in that study show that more gender errors were made with neuter nouns compared to common nouns. Moreover, age of arrival to the Netherlands, self-reported proficiency in Spanish, and the

amount of 'other' exposure to Spanish (books, TV, social media, music) were found to influence gender accuracy in Dutch for these speakers. In the current study, we will use the same data on Spanish HSs as in Boers et al. (2020). These data are complemented with data from two other groups of HSs in the Netherlands, namely HSs of Papiamento and Turkish. To explore differences between these three groups in terms of the linguistic and extralinguistic variables that affect their gender assignment strategies in Dutch, we analyse the data from all three groups in a single analysis.

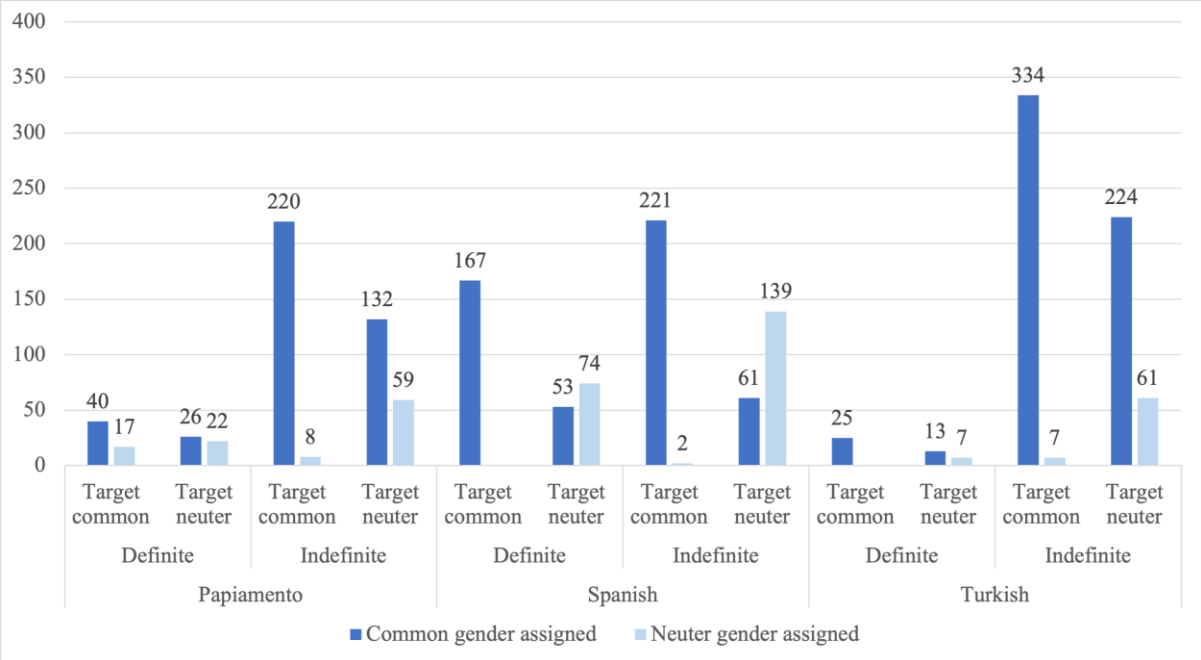
A total of 1958 cases were produced by all three groups of HSs combined. For each of these cases, the gender that was assigned to the DP (common or neuter) was determined. This was either based on the determiner (**de** for common, **het** for neuter), or, when the indefinite determiner **een** was used, or when there was no determiner, it was based on adjective inflection (cf. Bellamy et al. 2018): in these cases (1501 in total), an inflected adjective was taken to indicate common gender, while an uninflected adjective was taken to indicate neuter gender[13]. There were 14 cases where the gender of the DP could not be unambiguously determined, for instance some DPs contained an indefinite determiner and no adjective, and some lacked a determiner. These cases were also excluded.

In some cases, the adjective was placed after the noun, even though this is ungrammatical in Dutch. This happened in 36 cases, of which 28 were produced by the same speaker, a Turkish HS. The vast majority of these postnominal constructions (33) occurred with an indefinite determiner. Of these, all but one had an uninflected adjective, regardless of the gender of the noun (e.g. **een hamer**.C **rood**.N - 'A hammer red', **een hart**.N **wit**.N - 'A heart white'). These constructions are probably cases of a predicative construction with a missing copula, rather than DP-internal agreement (cf. Cinque 1994). Dutch adjectives are always uninflected when they are used in a predicative manner, and this is true regardless of the gender of the noun (**de**.C **boom**.C **is groot**-Ø - 'The tree is big' vs. **het**.N **huis**.N **is groot**-Ø - ´The house is big´)[14]. Therefore, these structures were excluded from the analyses on gender assignment.

Apart from these 36 cases, the participants adhered to the grammatical word order in Dutch, which is (D)AdjN. For those nouns for which the target was common (1042 cases), the common gender was assigned in 96.74% of the cases. However, when the target was neuter (870 cases), neuter gender was assigned only 41.61% of the time[15]. This percentage was especially low with indefinite nouns (38.37%) compared to definite nouns (52.82%). These results are depicted in figure 1.



If we split the group into the three different HLs, some differences between the groups are revealed (figure 2).



The Papiamento and the Turkish HSs seem to behave quite similarly: they prefer to use an indefinite determiner, and they tend to produce common gender across the board,

regardless of the target gender. The Spanish HSs, on the other hand, seem to produce definite and indefinite DPs more equally, and they produce the neuter gender more often when the target noun is neuter. In other words, they seem to be more target-like than the other two groups when it comes to neuter gender.

To check which, if any, of these effects are significant, we ran a series of generalized linear mixed effects models using the lme4 package in R (R Development Core Team 2019). In the first model, the dependent variable was the definiteness of the determiner used, and only the HL (Papiamento, Spanish or Turkish) was considered a variable of interest, which was coded using two contrasts: one between Turkish (coded as ⅔) versus the mean of Papiamento and Spanish (both coded as -⅓), and another one between Papiamento and Spanish (coded as +0.5 and -0.5 respectively). In this and all other models described in this chapter, random intercepts and slopes for "subject" and "item" (the object that had to be described) were also included if these significantly improved the model (following Baayen et al. 2008). Adding the variable HL significantly improved the model, as did the inclusion of the random intercepts for subject and object and the random slope for HL. The effect of HL was significant for both contrasts (contrast 1: β=5.17, SE=1.37, z=3.78, p<.001; contrast 2: β=3.74, SE=1.71, z=2.19, p=0.03). This means that Turkish HSs used the indefinite determiner more than both other groups, and Papiamento HSs in turn used the indefinite determiner more than the Spanish HSs. Turkish speakers were thus the most likely to use an indefinite determiner.

Another model was run to test which linguistic factors affected gender assignment. In this model, the dependent variable was target-likeness, i.e. whether the gender assigned to the DP (based on the determiner and/or the adjective) corresponded to the target gender. Predictor variables taken into consideration were the target gender (common vs. neuter), the definiteness of the DP (definite vs. indefinite) and the HL (Papiamento, Spanish or Turkish). As mentioned earlier, the 36 postnominal constructions were excluded from this analysis. For all binary factors, orthogonal sum-to-zero contrasts were used, coded as -0.5 vs 0.5. For the ternary variable HL, one contrast was set at ⅔ for Spanish vs. -⅓ for both Papiamento and Turkish, and another one at +0.5 for Papiamento vs. -0.5 for Turkish. All the independent variables, as well as all possible interactions between them, were added to the model one by one in a forward regression manner, and nested models were compared by performing log likelihood ratio tests. Variables that did not improve the model significantly were excluded

from the final model. The best fitted model included random intercepts for subject and object as well as random slopes for HL and target gender. The intercept of the model was significant (β=1.73, SE=0.39, z=4.48, p<.001), which means that participants on the whole produced more target-like than non-target-like constructions. The model also contained a main effect of target gender (β=5.91, SE=0.82, z=7.24, p<.001), meaning that participants were more target-like with common nouns than with neuter nouns, indicating an overextension of the common gender. Moreover, we found a significant main effect of HL (β=3.34, SE=0.75, z=4.44, p<.001) for the first contrast, which means that Spanish HSs were more target-like than the Papiamento and the Turkish speakers combined.

This effect of HL interacted with target gender, although not significantly (β=-2.79, SE=1.58, z=-1.76, p=.078). The direction of the effect suggests that the advantage for the Spanish HSs compared to the other groups is more pronounced when the target is neuter than when the target is common gender. To explore this interaction further, we conducted post hoc comparisons using the Tukey test, which revealed that indeed, for neuter gender, the Spanish HSs were significantly more target-like than both the Turkish speakers (z=3.71, p=.002) and the Papiamento speakers (z=-2.73, p=.045). The difference between Spanish and Papiamento speakers was significant for common gender nouns as well (z=-2.95, p=.02).

The effect of definiteness was not significant, nor did it interact with any of the other variables, indicating that gender assignment was not determined by the definiteness of the determiner.

Extralinguistic variables

To investigate the influence of extralinguistic variables on the HSs' performance with gender in Dutch, we carried out another statistical analysis with the extralinguistic information deduced from the background questionnaire. Apart from HL (Spanish, Papiamento and Turkish), the following independent variables were taken into consideration: age at testing, age of arrival to the Netherlands, length of residence in the Netherlands, years spent in the heritage country, number of visits to the heritage country, instruction in the HL, self-reported proficiency in the HL, usage of the HL and Dutch, both with immediate family[16] and outside of the family for children younger than 12, and reported hours of other types of input/use in the HL such as through TV, social media, books and/or music. As some of these variables (i.e. age at testing, age of arrival, length of residence in the Netherlands, length of residence in heritage country) correlated, to avoid issues with multicollinearity, we first ran a set of models including each of these factors as a single variable. Of this set, only the model

containing age of arrival turned out to be significant. We therefore chose this variable to be included in the larger model. All other variables, as well as the interaction between each of these variables with HL were introduced stepwise to the model. The optimal model included random intercepts for subject and item. As for the fixed factors, it included a significant main effect of the HL for contrast 1 (Spanish vs. the other two languages) (β=1.97, SE=0.50, z=3.91, p<.001) similar to the previous model.

There was also a main effect of total usage of the HL (β=-3.50, SE=1.18, z=-2.98, p=.002), which indicates that, the less the HL was used, the higher the accuracy with gender in Dutch, the societal language. Age of arrival was another significant predictor in the model (β=-0.14, SE=0.05, z=-2.73, p=.006), meaning that the younger a HS was when s/he arrived to the Netherlands, the higher the accuracy score with gender in Dutch.

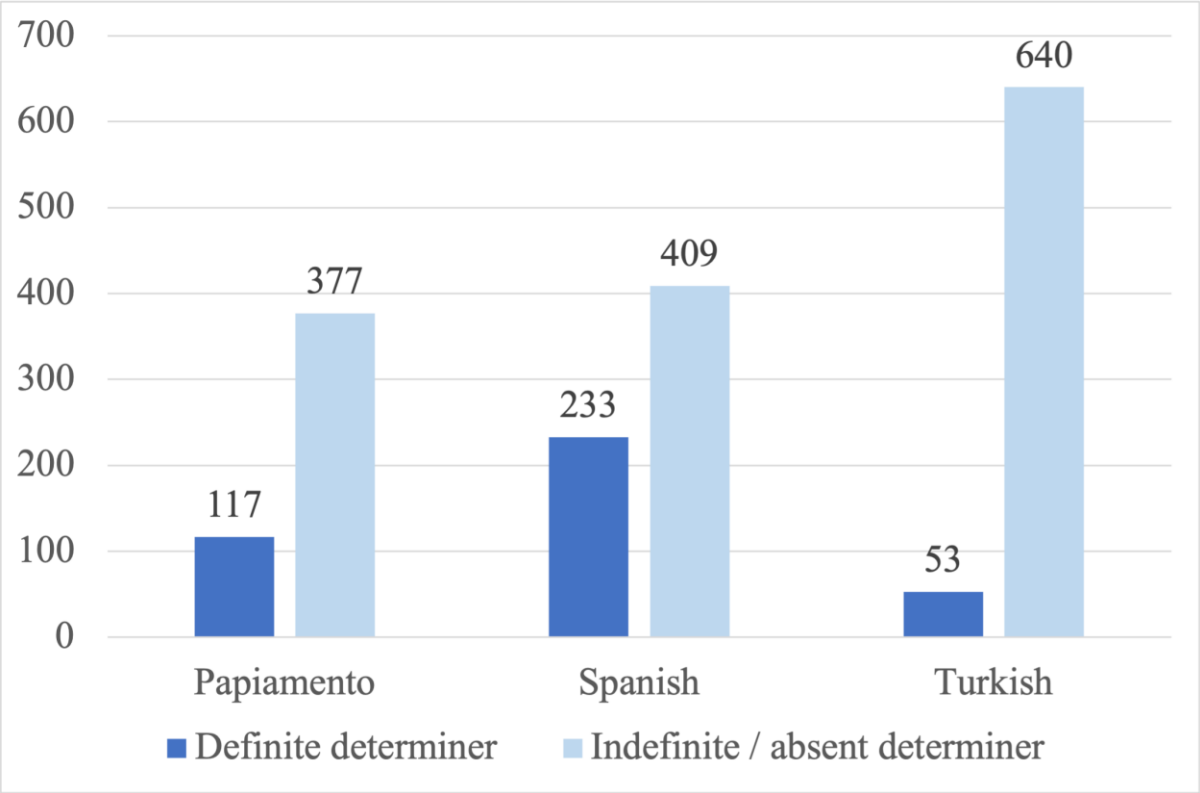
Finally, there was a significant main effect of the general proficiency level as reported by the participants (β=1.48, SE=0.38, z=3.88, p<.001), which indicated that, perhaps surprisingly, better performance with gender in Dutch correlated with higher proficiency in the HL.

Given that the children's questionnaire contained some additional questions, a separate analysis was carried out for this group, in which previous input was also taken into consideration, and a distinction was made between usage of the HL with the immediate family and outside the family. The best fitted model included random intercepts for subject and object, and two significant main effects. First of all, similar to the full model, there was a significant main effect of the general proficiency in the HL (as reported by the parents in this case) (β=3.40, SE=0.88, z=3.87, p<.001), indicating that, the higher the proficiency in the HL, the higher the accuracy with Dutch gender. Moreover, there was an effect of the usage of the HL with the immediate family (β=-7.40, SE=2.18, z=-3.40, p=<.001), which meant that with more exposure to the HL at home, gender accuracy in Dutch decreased.

6.2 Code-switching mode

In this mode, participants were instructed to perform the task in Dutch, but name the object in their HL. This led to a total production of 1810 mixed DPs (a Dutch determiner and adjective followed by a noun in the HL) by all three groups combined. Of these, 1413 DPs contained an indefinite or absent determiner, and 397 contained a definite determiner. As in the unilingual mode, there were differences between the three groups with respect to definiteness: Spanish HSs produced relatively more definite DPs (36.44%) compared to the Papiamento (23.68%) and the Turkish HSs (7.65%). To test whether these differences were

significant, a generalized mixed effects model was run with the definiteness of the determiner as the dependent variable, and the HL (Papiamento, Spanish or Turkish) as the independent variable, again, with one contrast between Turkish vs. the other two languages, and another one between Papiamento and Spanish. Including HL significantly improved the model, as did the inclusion of the random intercept for subject. The effect of HL was significant for the contrast between Turkish and the other two languages: $\beta=6.38$, $SE=1.89$, $z=3.38$, $p<0.001$. This means that the Turkish HSs used the indefinite determiner significantly more often than the other two groups when code-switching into Dutch (figure 3).



Interestingly, in a relatively large proportion of all elicited DPs (234 cases), the Dutch adjective was placed following the noun, which is not a possible word order in Dutch. As mentioned in section 6.1 these could not be coded as either common or neuter, given that they can probably be considered predicative constructions. They will be analysed separately below.

For all other DPs, we coded the assigned gender either based on the determiner, when it was definite, or on the (prenominal) adjective, when the determiner was indefinite or absent. There were 34 ambiguous cases, in which the gender could not be determined, for instance because an inflected adjective was produced in combination with a non-Dutch definite determiner (*el* **rode**.C/N *banco* - 'the red couch'). These were excluded from the

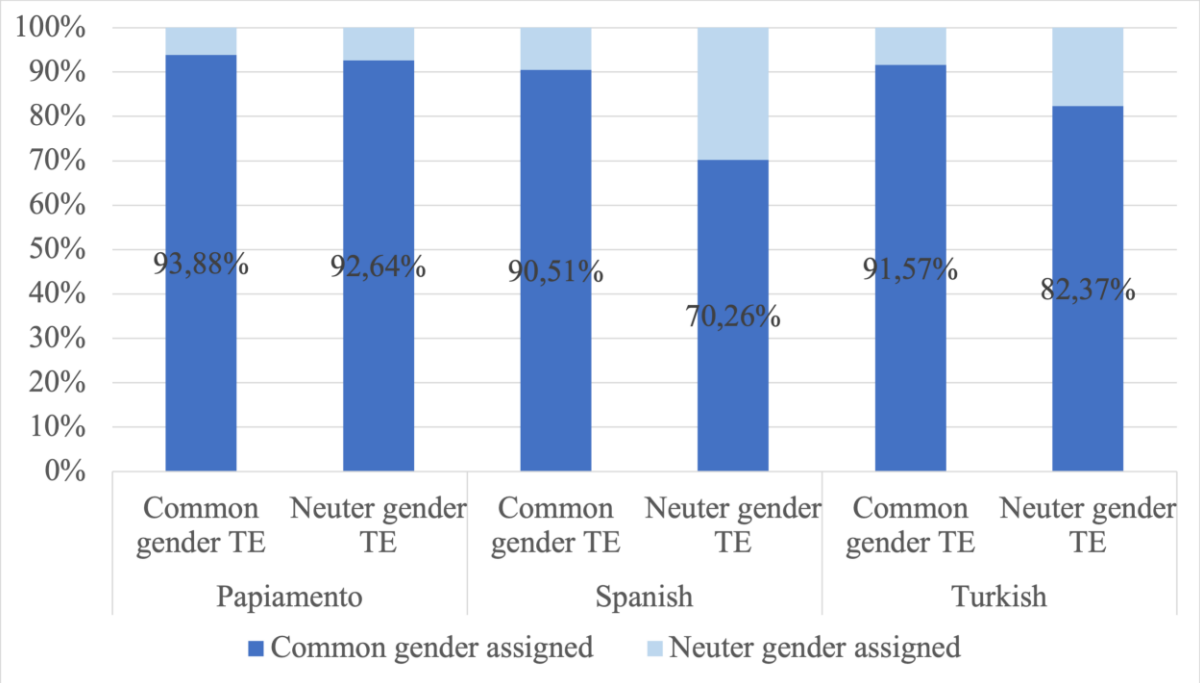
analysis. Of all unambiguous cases with prenominal adjectives, 86,64% was assigned common gender, suggesting an overall common default. The preference for common gender differed between the three HLs, though: for Spanish HSs it was 80.82%, for Turkish HSs 87.28% and for Papiamento HSs 93.31 %. Overall, the gender assigned to the noun tended to match the translation equivalent in Dutch (57.87%), but this number differed depending on HL group (54.60% for the Papiamento speakers, 57.04% for the Turkish speakers and 61.44% for the Spanish speakers) and depending on the gender of the translation equivalent (91.80% for common gender nouns vs. only 19.24% for neuter nouns). As far as definiteness is concerned, the distribution of common vs. neuter gender was very similar for definite DPs and indefinite DPs: in definite DPs, 87.46% of all cases were assigned common gender and 12.54% neuter, whereas in indefinite DPs the distribution was 86.42% common vs. 13.58% neuter).

In Boers et al. (2020), we showed that for Spanish HSs in the Netherlands, in (D)(Adj)N constructions, the gender of the translation equivalent in Dutch determined the gender that was assigned to the noun, i.e., neuter gender was assigned significantly more often with Spanish nouns that had a neuter translation equivalent in Dutch than with nouns that had a common translation equivalent in Dutch, suggesting evidence for the analogical gender strategy. In addition, the data also revealed a common default strategy, as, common gender was the preferred gender across the board

In the present paper, we compare these results to the data collected for the HSs of Turkish and Papiamento. An analysis was performed on all (D)(Adj)N constructions for all three HL groups combined. The dependent variable was the gender assigned to the DP (based on the determiner and/or the adjective). Independent variables taken into consideration were the HL and the gender of the translation equivalent, as well as the interaction between them. For the variable HL, two contrasts were created: one comparing Papiamento (coded as +⅔) to Spanish and Turkish together (both coded as -⅓), and one comparing Spanish to Turkish (coded as +0.5 and -0.5 respectively).

The optimal model included random intercepts for subject and item, a main effect of the gender of the translation equivalent (β=1.55, SE=0.33, z=4.66, p<.001), and an interaction between HL and the gender of the translation equivalent, for both contrasts (contrast 1: β=1.97, SE=0.64, z=3.07, p=.002; contrast 2: β=1.15, SE=0.59, z=1.96, p=.049). The significant main effect of the gender of the translation equivalent showed that the group as a

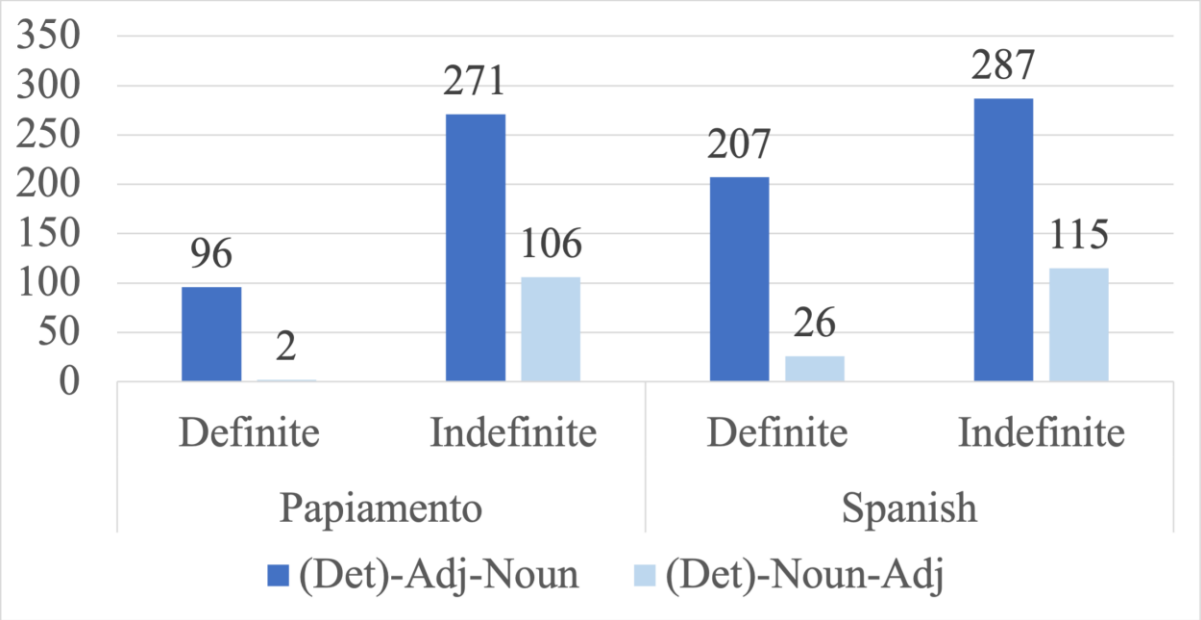
whole assigned common gender relatively more often to those nouns whose translation equivalent is also common. In other words, participants made use of the analogical gender strategy. However, the interaction with HL showed that this effect was more pronounced for the Spanish HSs than for the Turkish and Papiamento speakers (contrast 1), and that it was less strong in the Papiamento speakers as compared to the Turkish speakers (contrast 2). Post hoc comparisons using the Tukey test revealed that the effect of the gender of the translation equivalent was significant for the Spanish HSs ($z=5.95$, $p<.001$) and for the Turkish HSs ($z=3.58$, $p=0.003$), but not for the Papiamento HSs ($z=0.411$, $p=0.99$), indicating that only the Turkish and the Spanish HSs made use of the analogical gender strategy. These differences are illustrated in figure 4, shown here in percentages to visualize the differences more clearly.



The intercept of the model was significant as well ($\beta=4.98$, $SE=0.83$, $z=5.98$, $p<.001$). This means that common gender was preferred across the board by all speakers and in all conditions, suggesting that a common default strategy was used. However, there were also slightly more nouns with a common gender translation equivalent in our sample (805 vs. 707 neuter nouns), probably because the division between common noun objects and neuter noun objects was slightly skewed towards more common noun objects. A more valid way to confirm a common gender default is therefore to look only at the mismatch cases, that is: those cases where the gender assigned to the DP did not match the gender of the translation equivalent. An analysis was performed on these cases. To check whether the default effect was stronger for some groups than other, the variable group (Spanish, Papiamento and

Turkish) was added to the model as a predictor, but it did not improve the model significantly. The final model included only a random effect of object, and contained a significant intercept (β=12.87, SE=2.24, z=5.75, p<.001) indicating that all groups showed a similar effect of a common default with prenominal adjectives.

As mentioned earlier, we found a relatively large number of constructions including a postnominal adjective (234). Of these, 126 were produced by Spanish HSs and 108 by Papiamentu speakers, but none by Turkish HSs. Most of these postnominal constructions occurred in combination with an indefinite determiner, (211, of which 73 had the determiner in the HL). The adjective was almost always produced in Dutch (except for 8 cases), and interestingly, in all but one cases (225 out of 226), the adjective was uninflected) (e.g. **een** *cama* **zwart**.N – 'A bed black'). The postnominal construction was used slightly more with nouns that had a common gender translation equivalent (56.60%), than with a neuter gender translation equivalent (43.30%). To check whether this difference was significant, we performed an analysis with word order as the dependent variable. Gender of the translation equivalent, HL group and definiteness, as well as the interactions between them, were added to the model one by one. The final model included a main effect of definiteness (β=2.35, SE=0.96, z=2.44, p=.01), as well as an interaction between definiteness and HL (β=-5.71, SE=1.93, z=-2.95, p=.003), and random effects of subject and object. The intercept of the model was also significant (β=-11.2, SE=1.72, z=-6.52, p<.001), indicating that overall (D)AdjN order was more frequent than (D)Nadj order. The effect of definiteness indicates that postnominal adjectives were more likely to be used with indefinite determiners, and the interaction means that this effect of definiteness was stronger in the Papiamento group than in the Spanish group. These results are illustrated in figure 5.



Extralinguistic variables

To check whether any extralinguistic variables correlated with a specific type of strategy, we checked for each participant 1) how often each word order was used, and, for the prenominal adjective constructions 2) in how many cases common and default gender were assigned, and 3) how often the assigned gender matched that of the translation equivalent. This way, 4 main strategies were identified:

1. Common gender default (AN word order)
2. Neuter gender default (AN word order)
3. Analogical gender strategy (AN word order)
4. Postnominal predicative construction

Based on this information, one or several strategies were deduced for each participant. For instance, if a participant always used a prenominal adjective and common gender, this suggests a common default strategy. If a participant used mostly common gender, but also sometimes neuter, when this matched the gender of the translation equivalent, this was considered to be a mix of a common gender strategy and the analogical gender strategy. This information is summarized in appendix A.

Not surprisingly given the group results, the common default with prenominal adjectives was the most frequently used strategy (43 speakers), followed by the analogical gender strategy (12 speakers), the postnominal predicative construction (9 speakers) and

finally, the neuter default in prenominal adjective constructions (5 speakers). In Boers et al. (2020), we demonstrated that Spanish HSs used different strategies when assigning gender to Spanish code-switched Dutch nouns, and that some of the adopted strategies could be traced back to variables related to language dominance, exposure and use. In short, the common gender default strategy was used more by participants who were relatively more target-like with Spanish gender than with Dutch gender, who had later ages of arrival, and who likely received relatively more input in Spanish. The analogical gender strategy, in contrast, was used more by the more Dutch-dominant speakers: those participants who scored high on Dutch gender, arrived early in the Netherlands and indicated a relatively higher use of and exposure to Dutch.

An exploratory analysis of the data from the present study[17] largely confirms these patterns for the group as a whole. The common gender strategy is used more by those speakers who scored relatively low on gender accuracy in the Dutch unilingual mode. Moreover, this strategy seems to be adopted more by those speakers who use their HL relatively more often, both in terms of contact with relatives and friends and with respect to exposure to the HL through books, social media, TV and music. However, somewhat puzzling is the fact that this strategy also seems to be used more by speakers who have spent more time in the Netherlands.

As for the analogical gender strategy, we can only consider the data from the Turkish and Spanish HSs, as the Papiamento speakers did not make use of this strategy at all. Combining the Turkish and the Spanish data together clearly confirms the pattern reported in Boers et al. (2020) of this strategy being associated with a Dutch-dominant profile. For instance, out of the 12 speakers who used the analogical gender strategy as (one of) their gender assignment strategy/ies, 7 were born in the Netherlands, and had not spent any time in their home country; and 4 others arrived before the age of 6. Moreover, the majority of subjects who applied the analogical gender strategy indicated using relatively more Dutch than their HL with their relatives and friends. They also indicated relatively less exposure to ‘other’ input in the HL, and they were also the ones who scored highest with gender accuracy in the Dutch unilingual mode.

There was some indication that the neuter default in prenominal adjective constructions also seemed to be related to being dominant in Dutch, as 4 out of 5 participants who adopted this strategy were born in the Netherlands and reported lower proficiency in the HL.

7. Discussion

This study has focused on gender assignment in Dutch by HSs of Spanish, Turkish and Papiamento in the Netherlands, with the main objective of exploring the role of CLI from the HL onto the societal language. We considered whether the linguistic properties of the HL affect gender assignment strategies in the unilingual Dutch mode as well as in code-switching. We moreover aimed to explore which extralinguistic factors best predict linguistic behaviour, both in unilingual and code-switching mode. We predicted a preference for common gender in all HS groups, both in the unilingual mode and in code-switching mode. We also expected that having a gender system in the HL would facilitate target-like gender assignment in Dutch, i.e. Spanish HSs would outperform Turkish and Papiamento HSs. We moreover hypothesized that differences between the three HLs in terms of definiteness and noun-adjective word order would be reflected in the type of constructions produced by our participants. As for extra-linguistic variables, we expected age of arrival and amount of exposure and use of both languages to influence gender assignment in Dutch and we hypothesized to find a relationship between language dominance and the analogical gender strategy, as was attested for the Spanish HSs in Boers et al. (2020).

In the Dutch unilingual mode, we found a clear overgeneralization of the common gender by all groups. This has been demonstrated before for simultaneous bilinguals and (early) child bilinguals acquiring Dutch gender (e.g., Hulk & Cornips, 2006; Blom, Polišenská & Weerman 2008; Unsworth et al. 2014). However, while previous work on this topic has focused on children up to age 11, our study, which included participants with an age range from 7 to 55, shows that non-target behaviour with gender assignment in Dutch can persist well into adulthood. Our results are also relevant to the field of HL studies, as they underline the importance of taking into account the other language, which is often ignored in the literature. Our study shows that not only the HL but also the societal dominant language may be vulnerable to differential acquisition as a result of reduced input and or use of the language[18]. HSs' linguistic systems are *bilingual* systems and thus, both languages should be considered, instead of focusing on only one of the languages.

It is important to point out that there are other possible explanations for the non-target performance in Dutch demonstrated in this study, apart from, or in addition to CLI and/or other effects related to bilingualism. Cornips (2008) mentions that the overextension of common gender in bilingual children may also be an identity marker for certain communities of ethnic minorities in the Netherlands. If this is the case, then it may not be accurate to consider the linguistic behaviour of these speakers to be a consequence of the reduced input and exposure that are inherently part of the bilingual experience, but rather the adoption of a

different variety of Dutch that is shared among young generations of HSs. Nevertheless, these bilingual speakers have undeniably been exposed to a vast amount of input of standard Dutch as well, in school, through the media, etc. It thus begs the question whether they may actually have two different varieties of Dutch at their disposal - standard Dutch and their particular ethnolect - and whether they might be able to switch between the two depending on the specific interlocutor or the context. In a similar vein, for the Papiamento speakers, it can be argued that they may have been exposed to a different variety of Dutch, given that Antillean Dutch sometimes exhibits the common gender determiner where European Dutch would use the neuter determiner, and it also frequently inflects the adjective in indefinite neuter DPs (Depuydt 2010). With this in mind, one might wonder whether the Papiamento speakers in this study might be able to alternate between standard Dutch and Antillean Dutch and simply 'selected' Antillean Dutch during the task.

However, if the overextension of the common gender by the HSs in this study were a mere reflection of the adoption of a different variety, we might not expect to see the effects of age of arrival and usage of the HL that were attested in the analysis of the extralinguistic variables. If it is a matter of choice for these speakers to speak standard Dutch, we would not expect this choice to depend on how old they were when they arrived in the Netherlands, or how much they use Dutch in their everyday life. It thus seems reasonable to assume that the HSs' performance with gender in Dutch is at least in part a consequence of bilingualism and the reduction in use and exposure of Dutch that it entails.

A reviewer mentioned the possibility that the three communities in question might differ in terms of their Socio-economic status (SES), which could, in turn, affect their linguistic behaviour. Although we have no reason to suspect substantial differences between the Spanish-speaking, Papiamento-speaking and Turkish-speaking communities in the Netherlands, we cannot verify that there are no such differences in our sample, since our background questionnaire did not specifically target information on SES. This is something that should be taken into account in future studies.

A final factor that may have contributed to the observed overuse of the common determiner, is the fact that all the nouns targeted in this study were count nouns. As mentioned in section 1.1, gender agreement of personal pronouns in Dutch is partly determined by the semantic properties of the noun (count vs. mass). Cornips, Hulk, Reijers and González (2012) show similar effects for DP-internal agreement; both Dutch monolingual and Spanish-Dutch bilingual children correctly assign the neuter gender in Dutch more frequently with mass nouns than with count nouns (see also Roodenburg & Hulk

2008). Given that our study only included count nouns, it is impossible to discern whether this issue applies to our data, but it is worth taking into account the effect of semantic properties of the noun in future research on gender assignment in Dutch.

In spite of the fact that all three HS groups overextended the common gender in Dutch, there was a difference between the groups with respect to the degree of overextension, that is, the Spanish speakers exhibited more target-like use of the neuter gender than the Papiamento and the Turkish speakers. This may well be related to the fact that Spanish has a two-way gender system, while the other two languages do not have grammatical gender at all, suggesting CLI between the two languages in contact (cf. Eichler, Jansen & Müller 2013; Schwartz et al. 2015; Kalsta et al. 2019). In other words, the presence of a gender system in the HL may facilitate gender acquisition or at least gender awareness in the societally dominant language (cf. Egger, Hulk & Tsimpli 2018; Hulk & van der Linden, 2010). However, it is important to keep in mind that there were several differences between the sociolinguistic profiles of the participants in each group, as described in section 5.3. Given these differences, it is worth exploring the possibility that the advantage for the Spanish group might be due to something other than structural similarities between the gender systems in their two languages. For instance, Spanish-speaking participants were on average younger at the time of testing than the other two groups, and they reported a higher proficiency in the HL (at least as compared to Turkish speakers). However, it is unclear how these differences would benefit them in the acquisition of Dutch gender. Two potentially relevant differences between the Spanish and the Papiamento HSs are the fact that the Spanish speakers reported a younger age of arrival than the Papiamento speakers, and the child participants in the Spanish group reported relatively less previous input in the HL (and thus more input in Dutch) compared to the children in the Papiamento group. However, the differences with the Turkish group were not significant (in fact, the Turkish HSs reported an even earlier age of arrival than the Spanish HSs), so based on these variables, one would not expect the Spanish HSs to outperform the Turkish ones. What is more, considering other variables such as the reported length of residence in the Netherlands and the amount of use of the HL with non-immediate family (as reported for the children), the Spanish group would be expected to perform even less target-like than the Papiamento speakers, as they had spent significantly less time in the Netherlands and used Dutch significantly less frequently (at least outside of the home environment). It is therefore likely that the advantage of the Spanish

speaking group can be explained by the fact that their HL exhibits a gender system, while that of the Papiamento and the Turkish speakers does not.

Overall, Papiamento and Turkish speakers use the indefinite determiner more often than Spanish speakers. This may result from an avoidance strategy that is applied whenever a speaker is uncertain about the gender of the noun. Given that for indefinite nouns, the same determiner (‘*een*’) is used for both common and neuter gender, this may seem to the speaker to be a safer option, even though gender marking is different for adjectives in indefinite common and neuter DPs. Note that Turkish speakers produced significantly more indefinites than Papiamento speakers, which is possibly related to the fact that, unlike Papiamento, Turkish lacks a definite article (Kornfilt 1997). Hence, the frequency of use of indefinite determiners may be another indicator of CLI found in this study. Backus, Doğruöz and Heine (2011) report that Turkish HL speakers in the Netherlands manifest an overextension of the usage context of *bir* in their Turkish using Dutch as a model. We can therefore say that the Dutch-Turkish influence is reciprocal: one the one hand, Turkish HSs use *bir* more often than monolinguals in their Turkish due to the influence from Dutch; on the other hand, they use *een* frequently in their Dutch because its equivalent is available in their HL.

In code-switching mode, we hypothesized that participants would use a mix of the default strategy, the analogical gender strategy, and a construction containing a postnominal adjective (only for Papiamento-speaking participants), similar to what was attested for the Spanish HSs reported on in Boers et al. (2020). Indeed, the most commonly adopted strategy by all three groups was the use of a common gender default in code-switching. In addition, the Papiamento speakers, similar to the Spanish speakers, occasionally used a construction with a postnominal adjective, which is ungrammatical in Dutch. The Turkish HSs on the other hand, did not use this type of construction at all. This seems to be another clear manifestation of differential influence from the HL, given that postnominal adjectives are the preferred option in Papiamento and Spanish, whereas they are ungrammatical in Turkish[19].

Another difference between the groups concerned the reliance on the analogical gender strategy. The statistical analysis revealed a three-step hierarchy between the three languages where Spanish HSs used this strategy the most, followed by the Turkish HSs, while the Papiamento HSs did not use the analogical gender strategy at all. How can we explain these differences? One possibility is that the use of the analogical gender strategy is related to the level of competence in Dutch. After all, in order to be able to use the analogical gender strategy to assign gender to a HL word in Dutch, a speaker needs to possess accurate

knowledge of Dutch gender. In order to assign neuter gender to a Turkish word like *ev* ('house'), a speaker needs to know that the gender of the translation equivalent of this word in Dutch (**huis**) is neuter. Thus, it is not surprising that the group that performed best with gender accuracy in the unilingual mode - the Spanish HSs - also made use of the analogical gender strategy the most. The strategy was also used relatively often by the Turkish HSs, and significantly more so than by Papiamento HSs. However, it was not the case that the Turkish group was more target-like than the Papiamento group with Dutch gender in unilingual mode – if anything, the latter group was more target-like (though not significantly). How can we then explain the difference between the Turkish and the Papiamento speakers regarding the analogical gender strategy? We suspect that this may be related to the amount of Dutch language input during early childhood. As mentioned above, Munarriz-Ibarrola et al. (2021) found that in a group of Spanish-Basque early bilinguals, those speakers who were exposed to Spanish (the gendered language) first, were more prone to adopt the analogical gender strategy than those speakers who had been exposed to Basque before Spanish. This seems to suggest that early input in the language that has gender is crucial for the option of the analogical gender strategy. If we compare our three HL groups, one of the major differences between the Papiamento speakers on the one hand, and the Turkish and the Spanish speakers on the other, is the age of arrival: on average, the Papiamento speakers arrived at age 8.27, while the Turkish and Spanish speakers arrived in the Netherlands on average at ages 2.18 and 3.24 respectively. Even though the Papiamento speakers were also exposed to Dutch in their home country before arriving to the Netherlands, we can assume that this exposure was probably limited to formal registers, as Papiamento tends to be used much more than Dutch in everyday life at the Antilles (Severing & Verhoeven 2001). This also becomes evident when we compare the reported numbers for previous input between age 0-4: Papiamento-speaking children reported the highest percentage of use of the HL in early childhood (78.25%), compared to 75% for the Turkish-speaking children and 60.34% for the Spanish-speaking children. Moreover, this explanation is in line with the results from the analysis on individual differences, which revealed a relationship between the use of the analogical gender strategy and age of arrival to the Netherlands. Other important predictors that were found in this analysis were the patterns of use of and exposure in both languages: the more Dutch was used with friends and family, and the more exposure to Dutch through books, social media, TV and music, the more the analogical gender strategy was used. This suggests that it may be a matter of dominance of Dutch more generally (cf. Boers et al. 2020), rather than just of early input.

Alternatively (or in addition), the code-switching patterns in the communities may also play a role in determining the gender assignment strategies, as suggested by Króliwkowska et al. (2019), who found that frequent code-switching in the community corresponds to a higher use of the common default strategy. We did not ask our participants about their code-switching practices, but what we know from the literature is that code-switching is widespread in the Turkish-speaking community (Backus 2011) as well as in the Papiamento-speaking community (Parafita Couto & Gullberg 2019). For Spanish HSs in the Netherlands we do not have any information when it comes to code-switching habits. This is another issue worth exploring further in future research.

8. Conclusion

This chapter focused on gender assignment in unilingual Dutch utterances and in code-switching phrases by HSs in the Netherlands with different HLs: Turkish, Papiamento, and Spanish. The main objective of our study was to shed light on the role of CLI. We were furthermore interested in the influence of extra-linguistic variables such as age of arrival and amount of input and use of both the HL and the societal language. The results of an elicitation task demonstrated that HSs of all three languages tend to overgeneralize common gender. This is the case when they speak unilingual Dutch as well as when they insert nouns from their HLs into Dutch. However, some interesting differences between the three communities were found that could be traced back to structural differences between the respective languages. First, Spanish HSs were more accurate in Dutch gender and showed the lowest degree of overextension of the common gender. We argued that the most likely explanation for this is a facilitative effect of the presence of grammatical gender in Spanish. Second, Turkish HSs used the highest number of indefinite DPs, possibly due to the lack of a definite determiner in Turkish. Finally, both Spanish and Papiamento speakers sometimes used postnominal adjectives when they code-switched, whereas the Turkish speakers did not. We suspect that this is related to the possibility of having postnominal adjectives in Papiamento and Spanish, but not Turkish. These findings support the idea that CLI is indeed an important factor in language contact and can also occur in the direction from the HL (the supposedly weaker language) to the societally dominant language. It is worth noting that these effects would have been hard to demonstrate convincingly by looking at only one language pair, which emphasizes the value of comparisons across language pairs. Finally, our findings reveal an important role of extra-linguistic factors such as age of onset and amount of input and use of both languages, not only in gender assignment in Dutch, but also when it comes to

code-switching strategies. This study therefore testifies to the importance of considering extra-linguistic variables, both in terms of individual differences between speakers and at the level of the communities.

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Appendix A:

HL	Participant	Adjective - noun				Post-nominal Adjective	Main strategy
		Common gender		Neuter gender			
		match	mismatch	match	mismatch		
Papiamento	PA01	18	15	1	2		Common default
	PA02	21	16				Common default
	PA03	19	10				Common default
	PA04	17	23				Common default
	PA05	15	10	1	1		Common default
	PA06	16	13	1			Common default
	PA08	16	14				Common default
	PA09	12	13				Common default
	PA10	7	5	9	9		Neuter default
	PC01		2			25	N-Adj
	PC04	1				29	N-Adj
	PC05	15	12				Common default
	PC06					27	N-Adj
	PT01					24	N-Adj
	PT02	27	18				Common default
Spanish	SA01	2				28	N-Adj
	SA02	13	16				Common default
	SA03	3	1			25	N-Adj
	SA04	14	15				Common default
	SA05	10	7			12	Common default & N-Adj
	SA06	18	11	7			Common default & AGS
	SA07	15	14				Common default
	SA08	21	10	5	1		Common default & AGS
	SC01	10	3	3		3	Common default & AGS
	SC02		3				-
	SC03	15	1	13	1		AGS
	SC04	24	25			2	Common default
	SC05	12	13			2	Common default
	SC06	16	6	7	1		Common default & AGS
	SC07	4	1	11	11		Neuter default
	SC08	4	5	5	1	15	Common default & N-Adj
	ST01	8	8		1	6	Common default
	ST02	16	8	7			Common default & AGS
	ST03	9	2	11	8		Neuter default & AGS
	ST04					23	N-Adj
	ST05	15	14			1	Common default
Turkish	TA01	15	12	1			Common default
	TA02	17	12	1			Common default
	TA03	15	11	3			Common default
	TA04	17	13				Common default
	TA05	16	14				Common default
	TA06	14	9	4	2		Common default & AGS
	TA07	15	15				Common default

	TA08	16	14			Common default
	TA09	17	10	3		Common default & AGS
	TA10	16	14			Common default
	TA11	16	14			Common default
	TA12	6	4	11	9	Neuter default (& AGS)
	TA13	28	25	2	1	Common default
	TA14	16	4	10		N-Adj
	TA15	14	16	1		Common default
	TA16	16	13			Common default
	TC01	12	8			Common default
	TC02			14	15	Neuter Default
	TC04	12	9	5	3	Common default & AGS
	TC06	17	13			Common default
	TT01	15	14			Common default
	TT02	16	13			Common default

Endnotes

[1] Some varieties of Dutch in Brabant, Limburg and Flanders, have retained the distinction between masculine and feminine gender.

[2] Throughout the paper, **bold text** is used for Dutch, while *italics* are used for the heritage languages and other languages.

[3] Note, though, that definiteness, or specificity to be more precise, is marked with an accusative suffix in Turkish under differential object marking (see Enç 1991).

[4] Papiamento words follow the Curaçaoan spelling used by Dijkhoff (2016).

[5] However, in both Spanish and Papiamento, prenominal adjectives are possible for some adjectives in certain contexts.

[6] Note that these numbers only include speakers of the first and second generations, i.e. immigrants and the children of at least one immigrant. Retrieved 15.11.2020 from https://opendata.cbs.nl/#/CBS/en/dataset/37325eng/table?dl=45763

[7] Retrieved 15.11.2020 from https://opendata.cbs.nl/#/CBS/en/dataset/37325eng/table?dl=45605.

[8] Note that this number includes people who do not necessarily speak Papiamento, such as migrants from Sint Maarten, Sint Eustatius and Saba. Retrieved 15.11.2020 from https://opendata.cbs.nl/#/CBS/en/dataset/37325eng/table?dl=45609.

[9] We have not been able to find information about socio-economic status (SES) in these communities, but we have no reason to suspect that they differ in this respect.

[10] However, the gender system in Brussels Dutch is different from that of standard Dutch in that it is a three-way (masculine, feminine and neuter) gender system.

[11] Some studies (e.g. Bellamy, Parafita Couto & Stadthagen-González 2018, Parafita Couto et al. 2015). report a gender assignment strategy based on the morphophonological ending of the noun. Note though that this strategy is not very relevant for gender assignment in Dutch due to its non-transparent nature. Even though there are some morphological cues for gender in Dutch, the objects in the task were selected such that they did not target any nouns containing such cues.

[12] We are aware that not all our participants would be considered HSs under all definitions of a HS. Most definitions use some cut-off point for age of arrival. However, this cut off point differs between studies (Ortega 2020) and, in our opinion, any particular cut-off point may be arbitrary. Moreover, we included a wide range of ages of arrival to be able to include this as a predictor variable.

[13] A reviewer suggested that adjectival inflection may reflect gender agreement rather than assignment, and that bilinguals may have better mastery of assignment rules (selecting the correct determiner) than agreement rules (selecting the correct adjective). However, as we will mention below, definiteness was not a significant predictor for gender assignment. This means that the distribution between common and neuter gender was similar irrespective of the fact whether the definite determiner or the adjective was used to indicate gender assignment. Moreover, in those cases in which both a definite determiner and an adjective were used, the gender of the definite determiner and the adjective corresponded to each other (three exceptions were excluded from the analysis). Based on these facts, we think that the inflection of the adjective can be used as an appropriate indicator of gender assignment.

[14] It was brought to our attention by an anonymous reviewer that postnominal adjectives were in fact possible in Middle Dutch (and are still present in certain poems and songs) and were always uninflected in that position.

[15] A reviewer wondered about the use of diminutives, which are a consistent cue for neuter gender. Diminutives were used by the participants only 34 times in our sample, and of these 15 were assigned common gender, so the noun ending did not seem to function as a cue for gender assignment in this case.

[16] An anonymous reviewer asked about the effect of having one or two non-Dutch speaking parents. While we have this information, we did not include this as a variable because we believe it is very coarse-grained. A native Turkish/Papiamento/Spanish parent may speak Dutch at home, just as a native Dutch parent may speak the HL if s/he learned is as an L2.

Instead, our questionnaire asked about the input from different family members/in different contexts in both languages in percentages and we calculated average percentages based on those numbers. We believe this reflects amount of input more precisely than a categorical variable such as mixed vs. non-mixed.

[17] Unfortunately, the number of participants in each strategy category was too low to be able to perform a statistical analysis on these variables.

[18] Ideally, a monolingual control group should be included to verify if, and to what extent, these HSs differ from matched monolingually raised speakers. This aspect is important to consider in future research.

[19] The Papiamento and Spanish speakers barely used this construction in the unilingual model (4 exceptions). However, quite puzzlingly, one Turkish-speaking participant used postnominal adjectives across the board in unilingual Dutch, but not in code-switching mode.