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Acquiring Nominal Gender by Deaf Learners and Hearing Adult Second Language Learners of Dutch

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Abstract

In this paper the acquisition of Dutch gender by deaf Dutch adults and hearing adult Turkish and Moroccan L2 learners of Dutch is discussed. Although, in the Netherlands, gender acquisition has been studied amply in ethnic minority children and adolescents, research with regard to ethnic minority adults and deaf adults is limited. The analysis of gender data was part of a comprehensive investigation of (writing) skills in these groups. The data were collected via a (semi-) spontaneous language task in which learners were invited to compose *The Frog Story* on the computer. Discovering and acquiring the gender paradigm turned out to be hard for the learner groups we investigated. Singular common nouns in Dutch take the definite determiner *de* and neuter nouns the definite determiner *het*. The results showed that in all learner groups most learners over generalized the use of *de* to neuter nouns. The reverse, the use of *het* with common nouns, hardly occurred. With respect to gender acquisition no differences were found between the various learner groups. The outcomes suggest that, in the domain of gender, the acquisition process in deaf learners of Dutch is comparable to the process of acquisition in hearing adult L2 learners of Dutch, despite their different learner situations (late L1 vs. late L2) and, in case of the adult L2 learners, their typologically different first languages. The explanation seems to be passing general learning stages, in combination with the disbalance between the effort required to learn a covert nominal gender distinction and the absence of informative or communicative value in using the gender distinction properly. This disbalance seems to lead to stagnation or fossization in early stages, in all learner groups.

Gender and Acquisition of Gender in Dutch

The Dutch language distinguishes two nominal gender categories: common and neuter. Gender is morphologically marked via the form of the singular definite article. Common gender nouns take the singular definite article *de* and neuter gender is linked to the singular definite article *het* (Table 1). The gender feature is represented as [±common]. The singular indefinite article, which is *een* for common as well as neuter nouns, and the plural definite article, which is *de* for both genders, does not have a gender distinction. Nominal gender is also visible on demonstrative pronouns, relative pronouns, and adjectives [1]. Table 2 gives examples for the common nouns *appel/hond* ('apple'/'dog') and the neuter noun *paard* ('horse').

Gender of noun	Definite articles		Indefinite articles
	Singular	Plural	Singular Plural
common	de	de	een Ø[1]
neuter	het	de	een Ø

Table 1: Dutch definite and indefinite articles.

Dutch has a covert gender system according to the classification of Corbett [2], as the grammatical gender of the noun is arbitrary for the majority of nouns. The only transparent cue is the diminutive (see for an overview of other regularities, with their exceptions, Blom et al.,

[3]). All diminutives are neuter nouns. The frequently used diminutive suffix *–je* (and its variants), such as in *het hondje* ('the little dog' or 'doggy') in Table 2, makes the noun neuter. The CELEX database shows that the ratio of the distribution of common nouns versus neuter nouns is about 2:1 [4]. Given the fact that *de* is also used for all definite plurals, the frequency of *de* in the input outperforms *het*.

Gender of noun	Definite articles		Indefinite articles	
	Singular	Plural	Singular	Plural
common	de appel (apple)	de appels	eenappel	Ø appels
neuter	de hond (dog)	de honden	eenhond	Ø honden
	het hondje (dim., little dog)	de hondjes	eenhondje	Ø hondjes
	het paard (horse)	de paarden	eenpaard	Ø paarden

Table 2: Examples of Dutch definite and indefinite articles in a noun phrase. Note: Dutch has two plural suffixes: -s and –en.

In order to cope with nominal gender in Dutch learners first have to acquire the gender feature, to distinguish neuter from common nouns. Moreover they have to learn that there are definite and indefinite articles and that the morphological form of the definite article is dependent on the gender features of the noun. Because of the absence of transparent cues, a learner of Dutch needs to specify and memorize for each noun the value of the gender feature [5].

The acquisition of Dutch gender takes a relatively long time for L1 learners, mostly till the age of seven [3,6-8]. In Table 3 the five successive stages of acquisition distinguished in the L1 literature are given. Compared to the stages presented in Keij et al. [9] especially stage 3 has been adapted in this paper.

Stage	Features	Realization of definite article/noun combinations
Stage 0		Nouns do not carry articles.
Stage 1	[+definite]	There is no gender feature, all nouns carry de.
Stage 2	[+definite] [+definite] [+neuter] variable noun marking	Most nouns are not marked for gender, a few starting to be marked as neuter. A limited number of neuter nouns carry het, all other nouns carrying de.
Stage 3	[+definite] [+common] [+definite] [-common] variable gender marking	All nouns are marked for gender, but variably and sometimes incorrectly. Inconsistencies occur and the overuse of het shows up.
Stage 4	[+definite] [+common] [+definite] [-common] intrinsic gender marking	The target system is attained: common nouns carry de, neuter nouns het.

Table 3: Development stages of the nominal grammatical gender feature in Dutch.

L1 children often realize *de* as default in the first stage of spontaneous spoken language production [8]. We suppose that they have not acquired the gender feature yet, and that the production of *de* as default is related to the earlier acquired characteristic of *definiteness* [1]. *Definiteness* [+definite] is realised with *de* in all singular and plural definite contexts. Experimental studies show that L1 children till the age of six massively over generalize the definite article de to neuter nouns, as formulated in stage 2 [10,11]. At a certain moment a learner starts to become conscious that the article *het* is also part of the language input and that this article is used with certain nouns. This is the very moment that the gender feature is discovered by the learner (stage 3). Blom et al. [3] mentioned that the correct use of the neuter article *het* increased when the children grew in age, but it was still only 75% correct at the age of seven. On the other hand, around the age of three, the correct use of *de* is at a level of 90%. The relatively late acquisition and unilateral overgeneralization of gender distinguishes Dutch from other languages, like French, German or Spanish, for which gender is already acquired around the age of three [12]. Finally, in stage 4, intrinsic gender marking results in the target system.

Gender Acquisition by Deaf Learners and Hearing Adult L2 Learners

Little is known about the acquisition of Dutch gender by deaf people, but omission of articles is frequently mentioned for both children [6] and adults [13]. Van Beijsterveldt [14] investigated the use of noun phrases in written stories by deaf children, youngsters, and adults (N=57). In all age groups learners did not realize articles, but this tendency decreased with age. A different picture emerged in gender selection, as errors did not diminish with increasing age.

More is known about the acquisition of Dutch gender by learners with another or competing first language. Studies by Blom et al. [15], Cornips and Hulk [16] and Hulk and Cornips [17,18] suggest that both so-called 2L1 children (bilinguals from birth on) and children who started learning the L2 between four and seven massively use *de* for neuter words, but hardly *het* with *de*-words. At first sight this is in line with the findings for L1 learners, but there turns out to be a huge difference. The neuter nouns of the oldest bilingual children (age 10; 5-12; 11) in these studies were only in 42.5% of the cases correctly realized with the article *het*, while L1 children had already acquired gender at that age. On the basis of these results Cornips and Hulk [16] concluded that there is a qualitative difference between L1 children and bilingual children: the eldest L2 learners have not (yet) reached a mother tongue level and fossilize in the stage of overgeneralization, while L1 children have reached the intended mother tongue level. Hulk and Cornips ascribe the L2 children's fossilization to the qualitatively different input compared to L1 children. The older generations of the ethnic groups to which these L2 children belong, also still over generalize *de* to neuter words.

On the basis of the results of Hulk and Cornips [17,18], Unsworth [10] looked at the acquisition of Dutch gender by English learners, to whom the drawback of a qualitatively different input does not apply. Accordingly, stagnation in the stage of overgeneralization was not expected. Unsworth tested English-speaking L2 children and adults (N=103) who performed a (semi-) spontaneous narrative. Most learners indeed over generalized *de* to neuter nouns. There were also several children and adults who had acquired the correct use of *het*. Unsworth ruled out the variable age as a crucial factor in the successful acquisition of gender, as some adults performed well. Not so much the age at which input starts, but the quantity of the input was decisive. This conclusion was based on two observations: (i) the correct use of the gender correlated significantly with the length of the language interaction; and (ii) the frequency of the noun played a role in the correct realization of *het*. If the neuter noun was frequent, the correct use of the article *het* increased. Lengthy and intensive language input can however not be the only explanation, given the fact that there were still learners who even after a lengthy exposure had not reached the level of a native speaker.

Transfer from L1?

For all groups concerned in gender acquisition we can safely set aside transfer from the L1. SLN is a language without gender system and without articles, similar to Turkish. The Turkish language only knows the numeral *bir* ('one') that can be used as an indefinite article [19]. In contrast, the Moroccan Arabic language has definite and indefinite articles, but these are not marked for gender. The Moroccan Arabic language has a dual gender system that distinguishes between male and female gender. Not only do many female words end on –*a*, but the adjective is also marked for gender and agrees with the noun [20]. Blom et al. [15] specify the gender feature in Moroccan Arabic as [±female]. Sabourin [21] shows that the existence of a gender specification in L1 is not sufficient enough to successfully acquire the gender in Dutch as L2. There has to be a semantic or morphosyntactic overlap between the two languages in order to let the learner profit from his L1. Unlike in Dutch, in Moroccan Arabic definiteness is only marked on the article and gender is only marked on the adjective [±female]. So, there is a partial overlap. The marking of gender and definiteness in Moroccan Arabic is much more transparent than in Dutch.

The language situation in Morocco is complex, most speakers being multilingual [22]. We took Moroccan Arabic as the first language of our adult Moroccan participants, as all of them indicated to be fluent in that language. The multilingual society of Morocco stands in contrast to the fairly monolingual society of Turkey.

Hypotheses

In this paper we want to compare the acquisition of gender of deaf adults to proficiency-matched non-native hearing adult L2 learners who started acquiring Dutch after puberty.

	Dutch	Turkish	Moroccan Arabic	SLN
Articles	Yes	No	Yes	No
Gender marking	Yes	No	Yes	No
Gender marking articles	Yes	No	No	No
Language family	Indo-European (Germanic)	Turkic (Oghuz)	Afro-Asiatic (Semitic)	Sign Language
Type of acquisition	-	Late DL2	Late DL2	Late DL1 Early DL2
Language input	-	Auditory, visual	Auditory, visual	Visual
Levels of proficiency	-	Low to high	Low to high	Low to high

Table 4: Characteristics of the languages and language learner groups involved in the study. DL1=Dutch as a first language; DL2=Dutch as a second language; SLN=Sign Language of the Netherlands.

Table 4 gives an overview of the characteristics of the languages and the learner groups involved. Some characteristics will be discussed in more detail in the section on method. The information in Table 4 is helpful in understanding the scope of the three hypotheses we have formulated.

With respect to language input in Dutch, the deaf and hearing groups obviously show major differences. First of all, deaf people receive visual input via written Dutch, whereas hearing adult L2 learners may rely on auditory input via spoken language, next to the visual input they get through reading. In most Dutch L2 courses, especially in the initial phase, the focus is on oral instead of written language proficiency. Secondly, there is a difference in age of onset in learning Dutch. Deaf people start around the age of three or four with formal instruction in Dutch via writing (late DL1; or early DL2 when SLN is their first language), whereas adult L2 learners encounter the Dutch language after the age of 15. The first difference represents a disadvantage for deaf learners: limited input in Dutch because of problematic functioning of the auditory channel. The second difference points to a disadvantage for hearing L2 learners: late input in Dutch because of the age of onset of instruction. The first languages of the participants involved have a wide range. The spoken languages belong to three different language families.

Do all these differences between the learner groups lead to a difference in the end levels that can be obtained? No predictions can be made on the basis of existing data, because we do not know which end level adult deaf people reach in their spoken late L1 and what the variation in proficiency is within this group. Adult L2 learners are marked by wide ranges in the proficiency levels they obtain and they hardly ever succeed in obtaining a native level, but we do not know whether deaf adults show the same range of variation in their performance, perhaps depending on the linguistic structure studied, and whether some of them perhaps succeed in reaching a native level of proficiency.

Why is the acquisition of gender in this comparison of learner groups so interesting? It is to be expected that both deaf learners and hearing late L2 learners of Dutch have a problem with gender. Discovering and acquiring the gender paradigm turns out to be complex for all learners of Dutch, including regular L1 learners, but also for hearing early L2 children and children with Specific Language Impairment [9]. It is not obvious though whether our adult groups of learners show similar problems and a comparable way of dealing with the nominal gender distinction.

The central research question in this study is whether the acquisition of gender by deaf learners shows similarities with the acquisition by hearing adult L2 learners. Despite differences in input and the age at which Dutch is being acquired, the output could be comparable. Another distinction seems to be relevant for the deaf learners. Deaf learners of Dutch start relatively late with the acquisition of Dutch, but the position of Dutch may be different depending on their start with sign language (Sign Language of the Netherlands; SLN). Dutch can be a late L1 or an early L2, SLN being the L1. This distinction is part of the two hypotheses with respect to the acquisition of nominal gender in deaf and hearing learners, where the first one pertains to differences between groups of deaf learners and the second one to differences between the deaf learners in general and the adult or late L2 learner groups:

H1: There is no difference between deaf learners with Dutch as their first or their second language with respect to the acquisition of nominal gender. Both the error frequencies of the groups and the distribution of the adults over the five stages of gender acquisition are similar.

H2: There is no difference between deaf Dutch adults and hearing adult Turkish and Moroccan L2 learners of Dutch with respect to the acquisition of nominal gender. Both the error frequencies of the groups and the distribution of the adults over the five stages of gender acquisition are similar.

In the absence of differences in nominal gender acquisition patterns at intergroup-level, given the two hypotheses above, individual differences can occur between deaf adults and hearing L2 adults in the extent to which they successfully use the gender marker. It seems obvious that individual differences in gender marking are linked to their general command of the Dutch language. We included general language proficiency as a separate factor in order to investigate if general proficiency is directly linked to their success in dealing with the gender distinction. Differences between learners are linked to their proficiency in Dutch. We have expressed this in the following hypothesis:

H3: General proficiency in Dutch is reflected in success in mastering nominal gender marking (gender proficiency).

To test the hypotheses we need to determine how successful learners are in applying the gender distinction in using the definite article. We need to investigate if all research groups show the same

patterns of *overgeneralization, in particular the unilateral overgeneralization of de to het*. The number of differences in characteristics between languages and language learner groups in Table 4 indicate that we ventured to be confronted with learner group differences in gender marking. The languages involved (Moroccan Arabic and Turkish) in the adult learner groups are typologically unrelated which may trigger divergent L1 transfer effects. We explained, in addition, that only Moroccan Arabic has a partial, perhaps facilitating overlap with the nominal gender marking of Dutch.

Method

The analysis of gender data was part of an extensive investigation of written language proficiency in Dutch. Semi-spontaneous written language production was elicited with the use of the well-known picture book *Frog, where are you?* [23]. The pre-assessment tool of the *Instaptoets Anderstalige Volwassenen* (IAV) (a standardized C-test; [24]) was used to arrive at an assessment of the general Dutch language proficiency of the participants. Relevant background information was gathered using a written questionnaire.

Participants

In the present study 46 deaf Dutch adults took part (age 15; 9-60; 3, M=34; 6, SD=12; 8), 39 hearing Turkish adult L2 Dutch learners (age 22; 7-47; 7, M=31; 3, SD=6; 7), and 24 hearing Moroccan Arabic adult L2 Dutch learners (age 22; 2-41; 0, M=32; 9, SD=4; 6). A group of 10 adult native speakers of Dutch were the control group (age 19; 4-34; 2, M=26; 3, SD=4; 7). All participants lived in the Netherlands.

Deaf participants: In the Netherlands, a child is being diagnosed deaf if the average hearing loss of the best ear is 80 decibel or more[2] [25]. Of the Dutch deaf population, 90 to 95% is born into hearing families. A minority of deaf children is born into a deaf family.

Most Dutch deaf adults are to some extent bilingual, Dutch and Sign Language of the Netherlands (SLN) being the languages in question. At most schools, systematic input in Dutch through lip reading, writing, and reading was provided from age three or four onwards, which means that the starting point of acquisition of Dutch is roughly the same for the entire group of deaf children.

The deaf group in our study contained 22 male and 24 female adults. The age at the moment of the investigation ranged from 15; 9 to 60; 3 (M=34; 6, SD=12; 8). None of them had in that period a Cochleair Implant (CI)[3]. Cochlear implants are generally associated with better spoken language acquisition [26,27]. One person was born in the Dutch-speaking part of Belgium, but lived in the Netherlands and was dominant in the use of SLN. All participants were born deaf or had become deaf before the age of three. The measured hearing loss was for all participants higher than 90 dB. Of all participants 19 used a hearing aid in daily life.

Within the deaf group, three language learner groups could be distinguished. In labeling these three groups we used the terms *late* and *early* in a special way. *Late DL1* learners started to acquire their L1 Dutch (= D) when they enrolled at school at the age of three; as adults they had no or limited proficiency in SLN. *Late DL1–Early SL2* learners started acquiring their L1 Dutch plus their L2 SLN at the age of three, which is considered late for Dutch, but rather early for their L2 SLN. *Early DL2–Early SL1* learners acquire SLN as their first language, and they receive instruction in their second language Dutch

at school from age three or four onwards, which is considered early for an L2.

More information on the three groups distinguished is given in Table 5.

Group	Hearing status family members	n	Age (range)	Age at start of acquisition sign language
Late DL1	hearing parents (n=19) deaf siblings (n=2) deaf family (n=3)	24	31;3 (15;9-60;3)	No SLN (n=10) SLN > 4 (n=6) SLN > 12 (n=5) SLN > 16 (n=3)
Late DL1 - Early SL2	hearing parents (n=7)	7	38;3 (28;0-49;0)	0 (n=1)[4] SLN > 4 (n=6)
Early DL2 - Early SL1	deaf parents (n=3) deaf siblings (n=2) deaf family (n=10)	15	38;2 (17;7-58;4)	0 (n=15)

Table 5: The three groups of deaf adults distinguished (n=46).

Turkish and Moroccan Arabic adult L2 learners of Dutch: We selected adult L2 learners from the two largest immigrant groups in the Netherlands. Their country of origin is Morocco and Turkey. The adult L2 learners were selected out of the entire country via many different organizations and teaching establishments where Dutch L2 courses were offered. Important criteria for the selection of participants in this study were that the adults had come to the Netherlands after the age of 16 and had had no earlier contact with the Netherlands. In total 39 Turkish and 24 Moroccan Arabic adults participated in the study (32 female and 31 male). The youngest participant was 22; 2 and the eldest 47; 7 with an average age of 31; 9. Next to Moroccan Arabic, 15 Moroccans had acquired also Berber. All Moroccan participants had some knowledge of the French language. For the Turkish adults the age at the moment of entrance in the Netherlands ranged from 16; 0 to 37; 0 years (M=23; 2, SD=5; 1), and at the moment of examination from 22; 7 to 47; 7 years (M=31; 3, SD=6; 7). The length of stay varied between 0; 5 to 28; 7 years (M=8; 1, SD=6; 7). For the Moroccans the age at the moment of immigration ranged from 18; 0 to 33; 0 years (M=24; 4, SD=4; 6), and the age at the moment of examination ranged from 22; 2 to 41; 0 (M=32; 9, SD=4; 6). The length of stay varied between 1; 5 to 20; 0 years (M=8; 4, SD=4; 7).

Both groups are fairly large and have speakers with a wide range of proficiency in Dutch from low to high, a range that seems to be present in the adult deaf group as well. In addition, the groups have a range of comparable educational levels. A third argument in favour of the two immigrant groups is their language background. Their home languages belong to two different language families (Turkish: Turkic, Moroccan Arabic: Afro-Asiatic) which are in turn different from the language family Dutch belongs to (Indo-European).

Assessment of general language proficiency (C-test)

The pre-assessment tool of the *Instaptoets Anderstalige Volwassenen* (IAV; placement test adult L2 learners) (a standardized C-test; [24]) was used to arrive at an assessment of the general Dutch language proficiency of the participants. We have selected this test, because it is one of the few available standardized tests in written format. Participants have 20 minutes to perform the test, but in

practice they needed no more than 10 minutes. The test consists of 60 items. Each correctly filled in item gives a score of 1, with a maximum score of 60. On the basis of the results of the C-test, the participants were divided in three levels: low, semi-advanced and high. Learners with low language proficiency had a score up to a level of 40, half-advanced learners had a score between 40 and 51, and learners with high language proficiency had a score of 51 or more. In Table 6 the different test groups are presented on the basis of L1 and language proficiency level in Dutch.

The application of tests measuring general or global proficiency levels has increased over the last years, for instance supported by the Common European Framework of Reference for Languages: Learning, Teaching, and Assessment (CEFR). This standard is nowadays generally accepted as defining global, communicative oriented levels of L2 proficiency in Europe, but is increasingly used in other countries.

Level IAV Dutch Group	n	Low	Semi-advanced	High
Deaf:	46	6 (25.00%)	12 (50.00%)	6 (25.00%)
Late DL1	24	2 (28.57%)	1 (14.29%)	4 (57.14%)
Late DL1-Early SL2	7	0 (0.00%)	5 (33.33%)	10 (66.67%)
Early DL2-Early SL1	15			
Turkish	39	27 (69.23%)	10 (25.64%)	2 (5.13%)
Moroccan	24	9 (37.50%)	11 (45.83%)	4 (16.67%)

Table 6: Distribution of the deaf Dutch participants and the hearing Turkish and Moroccan participants over the three Dutch proficiency levels of the IAV test.

The distribution of part of the deaf adults is different from the other two groups in that more than half of the deaf *Late DL1-Early SL2* and *Early DL2-Early SL1* learners is highly proficient in Dutch. In the case of the Turks and Moroccans and in a less marked way the deaf *Late DL1* group the highest level is attained least.

Writing task *The Frog Story*

Semi-spontaneous written language production was elicited with the use of the well-known picture book *Frog, where are you?* [23], as an instrument to elicit (semi-) spontaneous, naturalistic, written data. The story consists of 24 pictures without a text.

Our selection of this story is based on the following considerations: (i) the story consists of 24 pictures, which means that we can elicit minimally 24 responses per participant, (ii) using the same booklet leads to stories comparable in content, (iii) the story is frequently used in cross-linguistic research [28] but also by deaf sign language users, normally developing children and in populations with an atypical development [29-31].

All participants had to write *The Frog Story* in words on a computer. The computer programme ScriptLog[5] [32] was installed on a laptop for the registration of the writing products. Before the start of the writing task the booklet was made available to the participants. They were allowed to review the whole story first and were told that they should write down the story on the computer. The participants did not need to remember all pictures, because all illustrations appeared on the screen one by one. The screen looked like a normal text editor. The picture out of the booklet was shown every time in the middle on top of the computer screen with the text editor below. When the button 'next' was pushed, the next picture appeared and the previous written text was made invisible. The participants were allowed to return to the previous picture and corresponding text.

Coding procedure

All written transcripts were coded for gender. The texts were analysed on the occurrence of definite articles and demonstratives in combination with nouns, independent of the question whether the context allowed a definite marker. Other elements that carry gender information, like relative pronouns and attributive adjectives, were not considered in the analyses, as the frequency of relevant occurrences was too low to do a systematic analysis. Every instance or occurrence was coded for:

- determiner, target form: DE (article), DIE (demonstrative, distal), DEZE (demonstrative, proximal) for a common noun or HET (article), DAT (demonstrative, distal), DIT (demonstrative, proximal) for a neuter noun;
- determiner, actual form as written by the participant: DE/DIE/DEZE (common form) or HET/DAT/DIT (neuter form);
- determiner, class: definite article or demonstrative;
- noun, number: singular or plural;
- noun, category: diminutive or not

The non-target absence of articles or demonstratives was not coded, because we specifically aim at the acquisition of gender and not at the acquisition of definite articles or demonstratives. The frequency of definite variants (articles and demonstratives) varied not only strongly per participant, but also between the groups. The deaf people produced 2958 tokens, with an average of 64.3 per person, the Turkish people produced 1389 tokens, with an average of 35.6, the Moroccans produced 975 tokens, with an average of 40.6 per person, and the control group produced 532 tokens, with an average of 53.2 per person.

Analysis

Starting point in the analyses was the percentage target realizations in both gender categories on the participant level. The plurals were excluded from further analysis as no errors were found, reducing the data set from 5322 to 4945 occurrences. The group averages are calculated on the basis of the percentages target realizations per participant. The package SPSS was used to carry out the Analyses of Variance (ANOVAs) and the Tukey test that we applied for post hoc comparisons between the participant groups.

First the group results will be discussed. Next we look at the individual patterns in which we present the different answers and look at how the results correlate with the language proficiency level and developmental stages.

Results

Group results

In Table 7 an overview is given of the results for all learner groups and the control group.

For all groups it was found that more than 90% of the words with *de* were correctly realized, while 50% or less of the neuter words were correctly realized with *het* by the learner groups. The lowest score is

for the *Late DL1-Early SL2* group (12.6%). Apparently, overgeneralization goes in one direction: most learners for example wrote *de hond* correctly, but in the case of neuter nouns they used primarily *de glas* instead of *het glas*. The results also show that the Dutch control group in 10.7% of the neuter words realized *de* instead of *het*. This concerns 11 appearances and is mainly caused by the incorrect specification of one noun: *hert* ('deer'). Nine times *hert* was combined with *de* instead of *het*. This can be explained by the regional -southern- background of the Dutch informants. The Dictionary of the Dutch Language indicates that in the southern Dutch dialects *hert* is male.

Percentage correct Learner groups	n	Common nouns (de)	Neuter nouns (het)
Deaf:	46	93.9%	46.6%
Late DL1	24	97.1%	12.6%
Late DL1-Early SL2	7	98.6%	45.9%
Early DL2-Early SL1	15		
Turkish	39	92.6%	35.9%
Moroccan	24	96.6%	50.1%
Control group	10	100%	89.3%

Table 7: Group results all learners: average percentage correct of gender with common and neuter nouns.

Several learners produced only a few tokens, one learner producing no token at all in the category of neuter nouns. We only included learners in our analyses at the group level that produced minimally five tokens for both neuter and common nouns. As a result, nine learners were excluded: two deaf (one *Late DL1*, one *Late DL1-Early SL2*), six Turkish, and one Moroccan.

The box plots in Figure 1 and Figure 2 present the results for all research groups except the control group. Figure 1 on the common nouns shows that most learners had high correct scores for *de* words. All three deaf groups have outliers, but not as extremely as the Turkish DL2 group, where three learners have a score of less than 60% correct.
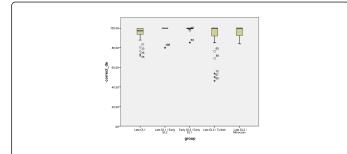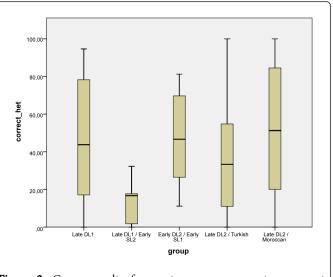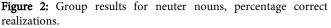
Figure 1: Group results for common nouns, percentage correct realizations?: outliers, values that do not fall in the inner fences; ?: extreme outliers, values more than three times the height of the boxes.

Figure 2 contains the results for the neuter nouns which clearly show lower percentages with a much larger range. The scores for the *Late DL1-Early SL2* are the lowest and have the smallest range.

Figure 2: Group results for neuter nouns, percentage correct realizations.

An ANOVA of the correct scores of the common nouns was carried out with learner groups and Dutch proficiency (three levels) as independent variables. Proficiency level was not significant ($F_{(2,86)}=1.437$, p=.243). The learner groups returned a significant result ($F_{(4,86)}=2.531$, p=.048). The interaction between learner groups and proficiency level was not significant (F<1). A post-hoc analysis (Tukey) of the learner groups did not produce any significant difference, indicating that differences, if they exist, are negligible or small.

The same ANOVA analysis was done for the correct scores on neuter nouns. Proficiency level was significant ($F_{(2,86)}=7.117$, p=.001), as well as learner groups ($F_{(4,86)}=2.588$, p=.042). The interaction effect was not significant ($F_{(7,86)}=1.305$, p=.258). No significant group effects were found in the post-hoc analysis of the learner groups. The conclusion is again that group differences are small or negligible.

Individual patterns

So far the results show the following picture: deaf people as well as the Turkish and Moroccan learners in general do not succeed in correctly realizing *het* in the case of neuter nouns. On the other hand, the production of *de* goes well. The question is if the group results indeed are representative for each learner individually, especially in relation to the stages we discerned in Table 3. The individual answer patterns for the selection of gender were analysed with the same type of analysis as was applied in Unsworth [10] and Keij et al. [9]. We applied as boundary values correct scores of 10% or less or 90% or more. Stage 0 simply means no determiners. Stage 1 means a correct score of more than 90% for common nouns and a correct score of less than 10% for the neuter nouns. Stage 2 still has high correct scores for common nouns (more than 90%), but higher correct scores for neuter nouns (correct scores higher than 10%). Stage 4 implies nearly perfect scores (both common and neuter nouns with correct scores larger than 90%). The remaining patterns belong to stage 3. The classification of the different groups of learners can be found in Table 8. Four of the 109 learners could not be classified because of too few data.

Stage	Deaf			Turks	Moroccans
	Late DL1	Late DL1 - Early SL2	Early DL2 - Early SL1		
n=2	1	0	0	1	0
n=18	5	3	0	8	2
n=65	13	3	14	20	15
n=17	5	1	1	8	2
n=3	0	0	0	0	3

Table 8: Individual answer patterns according to the five stages (0-4) in relation to the learner groups.

The results in Table 8 show that the stages with the least and best scores, stages 0 and 4, apply to only two and three informants respectively, but these extremes seem to support the existence of a relationship between developmental stages and increasing second language proficiency. It is remarkable that the three informants in stage 4 all belong to the Moroccan group. The large majority of the learner groups can be found in stage 2, where correct scores for common nouns are higher than 90% and for neuter nouns higher than 10%, but less than 90%. It is the most frequent stage in all learner groups. The other respondents are spread over stages 1 and 3.

In Table 9 the results on the C-test are cross-tabulated with the developmental stages from Table 3 to establish answer patterns.

level_C test * stage Cross tabulation						
Count						
		Stages					Total
		,00	1,00	2,00	3,00	4,00	
level_Ctest	1	2	11	22	5	0	40
	2	0	6	25	7	1	39
	3	0	1	18	5	2	26
Total		2	18	65	17	3	105

Table 9: Dutch language proficiency levels and developmental stages (Table 3).

Table 9 makes clear that for all three language proficiency levels (low, semi-advanced, high) most learners belong to stage 2. Stages 0 and 1 contain more informants with low Dutch language proficiency than semi-advanced and high performers. Stage 4 does include only three informants (Moroccans), but no learner from the low Dutch proficiency level. Stage 3 does not show a distinctive pattern.

Is it possible to deduct a developmental order for the acquisition of gender in combination with the division into Dutch language proficiency levels? The patterns that occur in low language proficiency learners are more indicative of an earlier acquisition stage than the patterns found for the semi-advanced and high language proficiency learners. The two higher C test levels contain learners of stage 3 and no learners of stage 0. The overall tendency is that a higher C test level

associates with a higher acquisition stage, but the relationship is far from strong. Learners with a high C test level may still be in the stage of applying the article *de* as default. Similar results were found in Hulk and Cornips [17,18] with bilingual children and in Unsworth [10] with English speaking learners of Dutch.

Conclusions and Discussion

In this study the acquisition of Dutch nominal gender by deaf Dutch adults and hearing Turkish and Moroccan L2 learners of Dutch is investigated. We distinguished three groups of deaf adults, all late L1 or early (child) L2 learners of Dutch, and a hearing second language group of Turks and Moroccans, all late (adult) L2 learners of Dutch. On the basis of previous research we departed from the assumption that the acquisition of Dutch nominal gender is a hard problem for all our learner groups, including even L1 learners of Dutch who turn out to be fairly late (nine to ten years of age) in fully mastering the covert Dutch nominal gender system. The opaqueness of the gender system may have the consequence that all e learner groups, except the early L1 learners, have the same persistent problems in mastering the arbitrary gender distinctions and have to pass similar stages of acquisition. Passing similar stages by later learners of Dutch would imply that nor different early L1s (Moroccan Arabic, Turkish, or SLN) nor different types of input (auditory vs. visual) has a direct impact on learning the Dutch nominal gender paradigm.

Our first and second hypotheses comprised the absence of differences between learner groups in error frequencies or distribution over the stages, first of all with respect to the three deaf groups, and secondly between the deaf groups and the two adult L2 groups. The error frequencies were indeed the same for the different learner groups: there were little errors in the common nouns (less than 10%) and many errors in the neuter nouns (50-65%). The use of *de* instead of *het* is a characteristic error for all learners. The results match the findings in earlier acquisition studies [3,10,15,16]: the acquisition of *het* is delayed, and our results show that this applies to deaf learners as well. The analysis at the individual level did again show no differences between the learner groups: no single answer pattern was unique for deaf or for hearing learners.

The hypotheses 1 and 2 imply that there is no L1 influence, although there are differences in the languages involved in dealing with gender. The statistical analysis showed that language background did not have any effect on the correct realization of the definite article. This picture corresponds with the results of Hulk and Cornips [17,18], who did not find a significant difference between Turkish and Moroccan learners either. Nevertheless, Table 9 shows that the Moroccan Arabic learners achieved higher levels of gender proficiency (76% correct for the most advanced learners, compared to 55% for the Turkish learners and the deaf learners). The groups of high language proficiency learners were however small, too small, to trace less substantial differences statistically. As said before, the gender specification of Moroccan Arabic may give the Moroccan learners a head start. A Moroccan Arabic learner must notice that the gender feature [±female] from his/her L1 in Dutch is [±common]. Moreover, Moroccan Arabic has a reduced article system. The marking of gender and definiteness in Moroccan Arabic is much more transparent than in Dutch. At the same time, partial language similarities can also be confusing. An additional argument in favor of the Moroccan learners being more proficient is their multilingual background. The sizes of the learner groups are too small however to provide evidence on the benefits of multilingualism.

What is the role of global language proficiency? The third hypothesis states that general proficiency in Dutch is reflected in success of mastering nominal gender marking (specific gender proficiency). Although this hypothesis was supported by the results on a global level over all groups, it appeared from the individual results that success in the nominal gender distinction was correlated to a limited extent only to global proficiency. How are the learners distributed over the five stages distinguished? The distribution of the individual answer patterns over the different levels of Dutch language proficiency shows that one high proficiency learner stagnated at Stage 1, producing only *de* with common as well as neuter nouns. For all three proficiency levels Stage 2 is the most frequent one. The observation that Dutch language proficiency plays a role is also found in other studies. Unsworth [10] shows with a regression analysis that language proficiency is the best predictor for the correct use of *het* with neuter nouns. In Blom et al. [15] language proficiency in Dutch with Moroccan adult L2 learners appeared however to have no effect on the correct realization of *het* with neuter nouns. In this study the group adult L2 learners was divided on the basis of the sentence imitation task out of the *Taaltoets Alle Kinderen* [33] into two language levels (low: I, high: II). It appeared however that also group II had a fairly low Dutch language proficiency score which could explain according to Blom et al. [15] the absence of a significant effect for Dutch language proficiency. This confirms our conclusion that there is a weak correlation only between global proficiency and the acquisition of gender. Individual learners follow different tracks. High proficient learners may stagnate in lower stages of gender acquisition, whereas low proficient learners may arrive at intermediate stages. A lot of variation between learners shows up at all levels of proficiency.

It seems hard for our learners and learner groups to pass beyond Stage 3. A wrong gender choice is not hampering directly the informative value of a spoken message and it normally does not cause a communication breakdown, however non-native the message may sound. Such a communicative circumstance may add to a decrease in learning efforts to master the gender distinction on a native-like level. The disbalance between the efforts required learning a covert nominal gender distinction and the absence of any direct informative or communicative value in using the gender distinction properly seems to be strong enough to prevent non-early successes of acquiring Dutch gender. This particular state of affairs seems to prevent the emergence of structural differences between deaf learners of Dutch (late L1 and early L2) and (late) adult L2 learners of Dutch in acquiring Dutch nominal gender. This conclusion shifts the focus of research towards the importance to study in detail the relationship between acquiring specific linguistic constructions and global indices of language proficiency, particularly when local and global constraints have contrastive values.

Notes

[1]Dutch also has a plural 0-form (Ø), which is quite difficult to acquire.

[2]See Kolen[34] for a concise historical overview of deafness in the Netherlands.

[3]A Cochlear Implant (CI) is a hearing prosthesis which is surgically placed in the cochlea.

[4]This deaf person received input in SLN from early youth.

[5]*ScriptLog*[32] is a computer programme for registering online writing processes.

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