

Title: Adopted children and Dutch gender

Abstract

In this paper we argue that internationally adopted children can play a fruitful role in deciding what the cause is for differences between monolingual and child L2 acquisition. It is shown that referring to qualitative and quantitative differences in the input that monolingual and child L2 acquirers receive may not be enough to account for the attested differences in the acquisition of the Dutch gender system. International adoptees receive a language input that is similar to that of monolinguals. Nevertheless, we find that children that are adopted at a younger age outperform children adopted at a later age, even if the length of exposure is kept constant. This age effect, we propose, is best accounted for by referring to a critical age within which the gender system must be successfully acquired by language learners.

Keywords

Adopted children, lexical gender, adjectival inflection, critical age, quality and quantity of the input

1. Introduction

Adjectival gender inflection in Dutch has a lexical as well as a rule-based side. In order to know which inflectional ending must appear on an adjective in attributive position, one must first know the gender of the modified noun. Since the gender of nouns is arbitrary in Dutch, the gender properties of nouns have to be learnt on a noun-by-noun basis. This constitutes the lexical side. However, which inflectional ending appears on

the adjective also depends on whether the noun occurs in a definite or indefinite context. Since this difference is expressed by the determiner system, the syntactic context in which the adjective appears must be consulted. This constitutes the rule-based side.

The dichotomy within the gender system between a lexical and a rule-based component (which will be illustrated in more detail in section 2) is reflected in the acquisition of Dutch gender. The lexical part, that is the gender on nouns, takes children a long time to master. At the age of six, children still make mistakes in gender attribution. This is in sharp contrast to the relatively short period that takes children to acquire the gender rules for adjectives. If we take into account their knowledge of the gender of nouns, they hardly make mistakes in the inflectional endings from age 3 onwards (cf. Blom, Poliřenská & Weerman 2008).

The acquisition pattern of monolinguals shows clear differences with that of Turkish and Moroccan children that start acquiring Dutch at a later age (usually around age four). Here, Blom et al find that inflection mistakes are very persistent up to age 7. There are indications that these errors may in fact fossilize (cf. Laloi et al 2005; Cornips & Hulk 2006).

To account for the differences between L1 and child-L2 (henceforth: cL2) acquisition, two main hypotheses play a central role in the literature. Blom et al entertain what may be called the Critical Age Hypothesis, arguing that cL2 acquirers have insufficient time until they reach the critical age to fully acquire the rule-based side of the Dutch gender system. Cornips & Hulk (2006), on the other hand, adopt what one may call the Input Hypothesis, arguing that the observed difference follows from the fact that there is a significant difference in the input that cL2 acquirers receive. Since they grow up in an ethnic environment with a great number of people that speak Dutch

as a second language, the input already contains the mistakes that they themselves will produce. Apart from the qualitative difference with respect to the input that monolingual children receive, Turkish and Moroccan children never stop speaking their native language. Therefore, the quantity of Dutch input that they receive is also different from the quantity of input received by monolinguals.

The Critical Age Hypothesis and Input Hypothesis are of course not mutually exclusive and may in fact both account for part of the difficulties that L2 children face. One would like to be sure, however, that both hypotheses are actually necessary to account for the data. Since we can directly observe that cL2 acquirers receive a more degenerate input and we cannot directly observe a critical age boundary, one may wonder if we need to refer to the latter at all.

In order to find out, we turn to internationally adopted children. This learner group shares with the Turkish and Moroccan learners the fact that they start acquiring Dutch at a later age. In contrast to Turkish and Moroccan learners, however, the input that these adopted children receive is not degenerate, as it is received from native Dutch speakers. This, then, allows us to test whether the critical age hypothesis is a necessary ingredient in the following way. If it turns out that the adopted children do not make the same mistakes as their Turkish and Moroccan peers, the quantitative and qualitative differences in the input may be sufficient to explain the difference. If, on the other hand, we find that children adopted at a relatively young age are doing better than children that are adopted at a later age, the Input Hypothesis no longer suffices to account these data, opening the way for the Critical Age Hypothesis.

In this paper, we present data from two pilot tests in which we explore the possibilities of using adopted children to settle the theoretical debate sketched above.

Our results so far suggest that the Critical Age Hypothesis cannot be abandoned yet to account for the acquisition of Dutch gender by different learner groups. As expected under the Critical Age Hypothesis, we find that children adopted at a younger age outperform children adopted at a later age, at least on the rule-based side of the Dutch gender system. This result corroborates a recent study by Hylthenstam et al (2009), who make a similar claim about international adoptees.

This article is organized as follows. In section 2, we will provide the necessary information about the Dutch gender system. Section 3 shortly describes the methodology used. Section 4 provides the characteristics of the learners that participated in two test rounds. The results are presented in section 5 and analyzed in section 6. Section 7 concludes.

2. The Dutch gender system and its acquisition

Dutch lexical nouns have either of two genders, common or neuter, arbitrarily assigned across nouns. This means that the distinction between masculine and feminine has disappeared, although it is still retained in the domain of pronouns. The gender of lexical nouns only becomes visible in definite contexts, where the determiners *de* and *het* mark common and neuter gender respectively: The determiner *de* also appears in definite plural contexts, irrespective of the gender of the plural noun. This means that *de* functions as a default definite determiner, appearing in all definite contexts. The rules for the use of determiners can be represented as in (1):

- (1) a. *het* → [definite, neuter, singular]
 b. *de* → [definite]

Adjectives in attributive position are also marked for gender and here the system is a bit more complicated. There is a choice between two inflectional endings: a null inflection, $-\emptyset$ or $-e$. The $-\emptyset$ appears on an adjective that modifies a singular neuter noun in an indefinite context. The $-e$ inflection is used in all other contexts, making it an elsewhere form. The rules can be formulated as in (2):

- (2) a. $-\emptyset$ → [indefinite, neuter, singular]
 b. $-e$ → elsewhere

Examples illustrating this pattern are given in (3) and (4), where (3a) provides the restricted context required for $-\emptyset$ to appear. Note, by the way, that in indefinite singular contexts *een* is used for both neuter and common nouns, whereas no (overt) determiner is used in plural contexts.

- (3) a. *een mooi- \emptyset huis* [neuter, singular, indefinite]
 a nice house
 b. *het mooi-e huis* [neuter, singular, definite]
 the nice house
 c. *mooi-e huizen* [neuter, plural, indefinite]
 nice houses

- d. de mooi-e huizen [neuter, plural, definite]
the nice houses
- (4) a. een mooi-e tuin [common, singular, indefinite]
a nice garden
- b. de mooi-e tuin [common, singular, definite]
the nice garden
- c. mooi-e tuinen [common, plural, indefinite]
nice gardens
- d. de mooi-e tuinen [common, plural, definite]
the nice garden

So far we have only discussed adjectives that are used attributively, that is in pronominal position. Adjectives in predicative position, on the other hand, exceptionlessly appear without an inflectional ending, strongly suggesting that they are not marked for gender at all:

- (5) a. De fiets is mooi/*mooie.
the bicycle is nice

This means that the input will contain a lot of examples of adjectives without an inflectional ending. This makes the acquisition task even harder, as learners have to distinguish between predicative and attributive use of adjectives. It also means that the

rules in (2) must be complicated, since the feature [+attributive] must be added to both rules.

To sum up, nouns come in two genders and at least for morphological simplex words there are no reliable phonological cues revealing the gender. This means that gender features are arbitrarily distributed across nouns and have to be learnt for each noun individually as part of its lexical make-up. Acquiring the gender of nouns, therefore, involves a lexical learning task. Adjectival gender, on the other hand, is rule-based. Once the gender of a noun is known and the context has been identified as either definite or indefinite, the rules in (2) are applied to adjectives attributively modifying the noun.

We now have a better idea about the learning tasks involved, so let us return to the acquisitional patterns observed in the literature. What is acquired effortlessly and at a young age is the fact that predicative adjectives remain uninflected (cf. Weerman, Bishop & Punt 2006). What about adjectives in attributive position? Since the context that requires the $-\emptyset$ inflection has to be specified by at least three features, this rule (which we will refer to as “the special rule”) is a relatively hard one, especially since $-\emptyset$ only appears in indefinite contexts, where gender is not overtly marked by the determiner. Nevertheless, monolingual Dutch children seem to master the adjectival rule already at the age of 3. Whereas they overgeneralize determiners *de* to neuter contexts for a significantly longer time, reflecting the fact that lexical gender has to be learnt on a noun-by-noun basis, they hardly overgeneralize the $-\emptyset$ inflection (cf. Blom et al 2008). When they know that a particular noun is neuter, they know that in indefinite singular contexts no $-e$ appears on the adjective.

L2 acquirers of Dutch, including children who start acquiring Dutch at the age of four, struggle as hard as Dutch monolinguals in acquiring the gender of individual nouns and also overgeneralize the *de*-determiner to neuter nouns for a long time. In contrast to L1 children, however, cL2's also struggle with the adjectival rules in (2) even to the extent that many, if not most, speakers never master (2a). This means that they make mistakes of the following type:

- (6) *een mooi-e huis
a nice.INFL house

They make this mistake even if they know that *huis* 'house' is a neuter noun.

As stated in the introduction, Blom et al account for the contrast by referring to a critical age boundary. Whereas the gender of nouns is learnt in more or less the same way on a noun-by-noun basis, acquisition of the rule in (2a) requires a significant amount of input within the critical period. It is in this phase that learners can still access innate knowledge and the abstract feature system that are needed to formulate (2a). Under the assumption that maturational changes take place around the age of 6 (cf. Johnson & Newport 1989; Newport 1990), making access to abstract features impossible, the adjectival inflection rules have to be learnt by using more general cognitive capacities. These are not ideally equipped for the task at hand. For this reason, (2b) is overgeneralized and is for many speakers the only rule that is ever used.

If this hypothesis is on the right track, we expect that the success with which internationally adopted children will acquire the rule in (2a) can be predicted on the basis of their adoption age (which always coincides with the age of onset/first exposure).

If the age of first exposure is relative early, the adopted child will have enough time within the critical period to get to the rule in (2a). If the child is adopted relatively late, however, it is expected to behave on a par with its Turkish and Moroccan colleagues in not mastering (2a). Whereas the Critical Age Hypothesis expects this contrast to arise, the Input Hypothesis does not necessarily do so. If success of acquiring (2a) basically depends on the input and if the input is full-time perfect Dutch, as is the case with the input that adopted children receive, then we only expect an effect of exposure length: the longer a child is exposed to Dutch, the better it will perform. Suppose now that we make sure that the length of exposure to Dutch is kept more or less constant between the two groups of adopted children. Then we expect a different success rate between the two groups under the Critical Age Hypothesis, but not under the Input Hypothesis.

There is a second prediction that we make. If we turn to the lexical side of the Dutch gender system, i.e. the gender on nouns, then here we may expect children that are adopted late to outperform children that were adopted earlier. Since children in the first group are older than the ones in the first group, and therefore cognitively more developed, they will have less trouble with lexical learning, hence with the learning of the gender of nouns.

To sum up, whereas we expect early adoptees to outperform late adoptees on the rule-based side of the Dutch gender system, no such prediction is made for the lexical side of Dutch gender, where the role could in fact be reversed. In order to test these predictions, we use the same experimental method as the one used by Blom et al. Some details of this are described in the next section.

3. Methodology

To test the adopted children's knowledge of the Dutch gender system in a way that allows us to compare the results to those obtained in Blom et al for monolingual and L2 acquirers of Dutch, we used the same test, the so-called FlexiT-test (Blom, Orgassa & Polišenská 2008). This is a sentence completion task, in which children had to describe differences between pictures.

Since the choice of adjectival inflection partly depends on the gender of the noun that is modified, the gender of nouns has to be elicited. An equal number of common and neuter nouns were used that were are fairly basic and frequent. They were targeted three times in a definite context, so that it could be established if the participant consistently assigned the same gender to a particular noun. Only nouns that were consistently assigned the same gender were taken into consideration, where 'consistent' means that either the same definite article was used three times, or the same article was used twice and no article was used in the other instance. To test the adjectival inflection, adjectives were used that straightforwardly describe a particular contrast between two pictures, such as color or size adjectives. These adjectives were elicited in both indefinite and definite contexts, with the indefinite context preceding the definite context, so that the noun could be introduced naturally. Adjectival inflection in the indefinite context (i.e. the context in which the special rule (2a) applies) was tested three times so as to test for consistency (where 'consistent' means using the same inflection three times).

4. Participants

Two pilot tests were conducted. In the first test, 9 adoptees participated. Table 1 gives an overview of their language background, their present age, the age of adoption and the length of exposure to Dutch.

Participant	First Language	Age	Adoption age	Length of exposure (In years)
Participant 1	Korean	25	3;0	22
Participant 2	Korean	35	3;6	32
Participant 3	Portuguese	14	3;10	10
Participant 4	Korean	26	3;11	22
Participant 5	Korean	35	4;7	30
Participant 6	Portuguese	16	5;5	11
Participant 7	Korean	39	6;10	32
Participant 8	Portuguese	18	7;0	11
Participant 9	Ewe /French	23	8;4	15

Table 1: Overview of the participants in the first test.

The participants are ordered with respect to adoption age, which ranges from 3;0 to 8;4. As can be seen, the length of exposure for these participants is rather long and the range is big, varying from 11 to 32 years. In order to test the predictions of the Critical Age Hypothesis, the group is cut in half. We take participants 1-4 to represent learners adopted at a younger age (before the age of 4) and will refer to this group as “early adoptees”, not to be confused with young adoptees (you can be adopted at an earlier age but be older at the time of testing than a participant adopted at a later age). Participants 5-9 to represent learners adopted at a later age and will be referred to as “late adoptees”, not to be confused with older adoptees. The average length of exposure for these two groups is more or less similar: 21;6 for the younger group and 19,9 for the older group. The Critical Age Hypothesis, therefore, predicts that the younger group will outperform the older group on the use of adjectival inflection rules.

In the second pilot test, the length of exposure was deliberately kept lower, to allow a more fair comparison to the monolingual and bilingual learners tested in Blom et al. An overview of the participants is provided in Table 2. As can be observed, the length of exposure ranges from 3;7 to 7;1.

<i>Participant:</i>	<i>First language</i>	<i>Age</i>	<i>Age of adoption/ exposure</i>	<i>Length of exposure</i>
1	Portuguese	5;10	1;0	4;10
2	Spanish	6;2	1;8	4;5
3	French-creole	5;5	1;10	3;7
4	Mandarin/Wenzhon	8;2	2;3	5;11
5	French-creole	8;10	2;4	6;6
6	Chinese	7;10	2;7	5;3
7	Portuguese	7;6	2;8	4;10
8	Spanish	8;7	4;2	4;5
9	Portuguese	9;2	4;4	4;10
10	Spanish	9;3	4;5	4;10
11	Chinese	11;8	4;7	7;1
12	Portuguese	10;3	5;5	4;10
13	Spanish	10;1	5;8	4;5
14	Hindi	10;1	5;9	4;4

Table 2: Overview of the participants in the second test.

We again divide the participants in two groups. Participants 1-7 are the “early adoptees” who all started learning Dutch before the age of 4. Participants 8-14 represent the “late adoptees”, i.e. learners with a relatively late adoption age. The length of exposure between these groups is again limited; 5;0 for the younger group and 5;6 for the older group.

5. Results

5.1 Test 1

Let us first look at the results from the first test, starting with the results for gender on nouns. As can be seen in table 3, the scores for use of the correct determiner are high. This is unsurprising for common gender, as determiner *de* functions as the default form in Dutch. However, with the exception of participant 9, all participants score 90% or higher, even on the use of neuter determiners.

	Common <i>De appel</i> 'The apple'			Neuter <i>Het paard</i> 'The horse'		
	N	de (in %)	*het (in %)	N	*de (in %)	het (in %)
Part. 1	15	100	0	29	0	100
Part. 2	14	100	0	29	0	100
Part. 3	15	100	0	30	0	100
Part. 4	15	100	0	30	0	100
Part. 5	15	100	0	30	0	100
Part. 6	15	100	0	30	0	100
Part. 7	15	93	7	31	3	97
Part. 8	15	100	0	30	10	90
Part. 9	14	79	21	29	21	79

Table 3: The scores for nominal gender (first test).

If we make a comparison between the two groups, then we see that both groups perform above 90%:

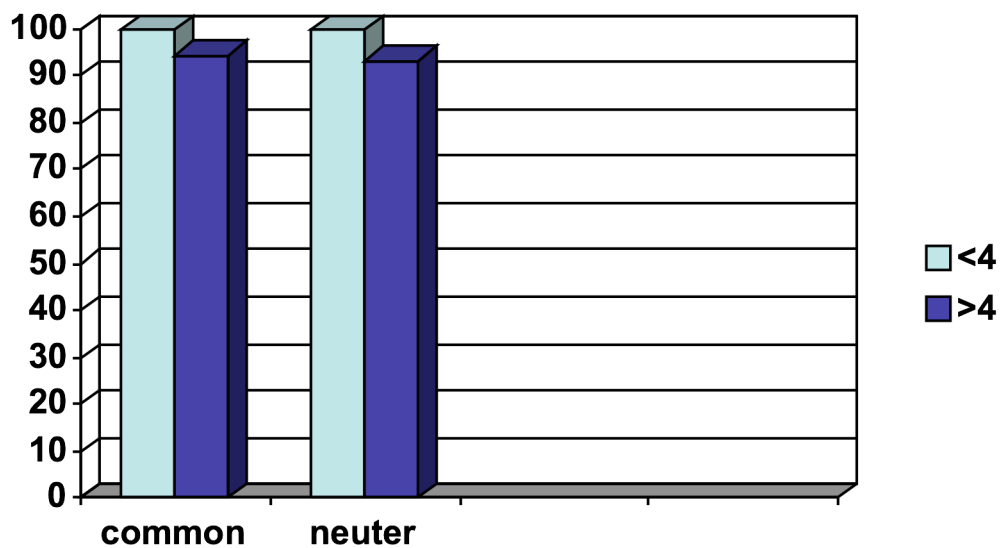


Figure 1: Group results for nominal gender (first test).

The high level of accuracy on the noun tests is hardly surprising if one takes into account that all participants have a length of exposure for more than ten years. Hence, these results merely reflect that lexical learning remains possible at later stages in life.

The more interesting question, therefore, is whether knowing the correct gender for a noun implies knowing what the inflectional rule is for adjective modifying this noun. Before we turn to the results of the adjectival test, there is one issue we must address first. If a learner uses a wrong inflection, there can be two causes: (i) the learner has not fully acquired the adjectival rule system or (ii) the learner has assigned the wrong gender to a noun and consequently applies the correct rule for that gender. Since in the adjectival test we are primarily interested in knowledge of the adjectival rule system, we are only interested in real mistakes: the wrong rule is applied for the wrong gender. Hence, if a learner has used the wrong adjectival inflection as a consequence of

wrong gender assignment, this will not be counted as a mistake. The results on adjectival inflection presented below are therefore corrected for wrong gender assignment.

Table 4 gives the result for the adjectival test on the condition we are interested in, i.e. neuter indefinite contexts. This table only includes results for adjectives that modify nouns that were consistently treated as neuter.

	Neuter indefinite condition		
	<i>Het ADJECTIVE paard</i>		
	‘The ADJECTIVE horse’		
	Neuter indefinite condition		
	N	*-e (in %)	-∅ (in %)
Participant 1:	14	0	100
Participant 2:	14	29	71
Participant 3:	20	0	100
Participant 4:	20	0	100
Participant 5:	20	0	100
Participant 6:	20	10	90
Participant 7:	20	22	78
Participant 8:	14	57	43
Participant 9:	10	100	0

Table 4: Adjectival inflection in the neuter indefinite context (test 1).

With the exception of the score from participant 2, we see a decrease in correct use of the $-\emptyset$ inflection as the adoption age increases. If we compare the two groups, on all results, it becomes clear that the indefinite neuter condition is the only condition that reveals a difference between the learner groups:

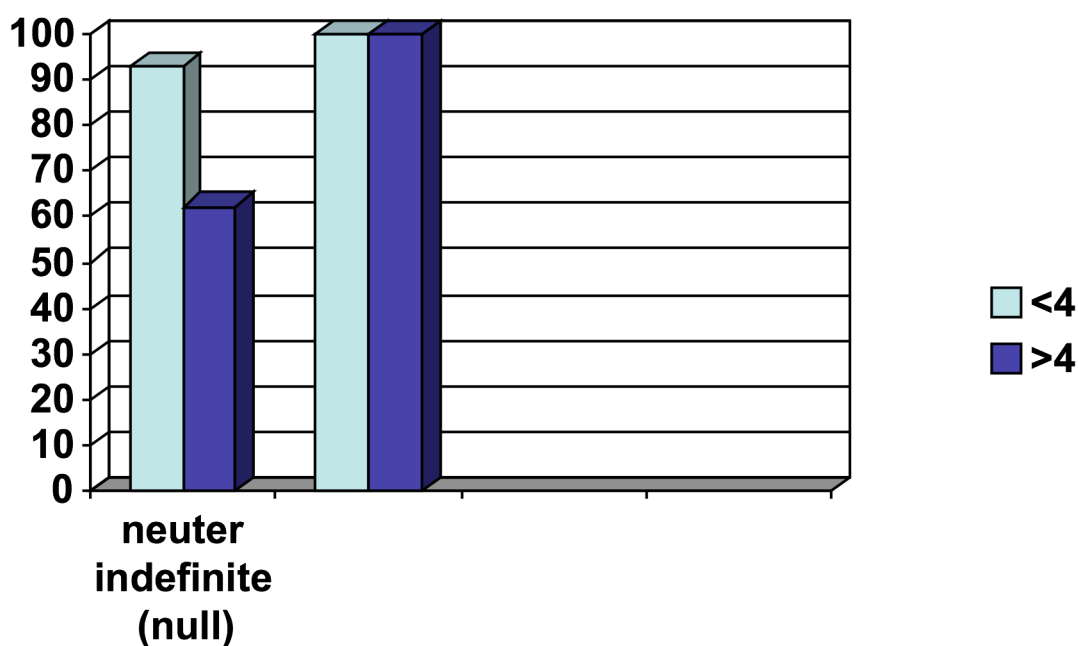


Figure 2: Group results for adjectival inflection in percentages (test 1).

In contexts that require the $-e$ ending, both groups reach a perfect score. This is not very surprising, as the $-e$ ending functions as the default in Dutch. More interesting, therefore, is to see to what extent this default gets overgeneralized to the context that does not require $-e$, that is the neuter indefinite context. Here, Figure 2 shows, there is a 30 percent difference in overgeneralizations. They are rather limited for the early adoptees, as they apply the special rule (rule (2a)) correctly in 90% of the contexts that

obligatorily require the null ending. The late adoptees, however, only use the special rule in 60% of the contexts that require it.

4.2 Test 2

In order to see if a group difference persists if the length of exposure is drastically reduced and kept stable among participants, a second test was conducted with 14 adoptees. They had been exposed to Dutch for a much shorter time and for whom the range of exposure time was much smaller, roughly five years. Let us again start with looking at the results for nominal gender. Table 5 presents the group results.

context⇒ adoption age ⇓	<i>common</i>	<i>neuter</i>
<4	103/105 =98%	130/198 =66%
>4	79/86 =91%	174/207 =84%

Table 5: The group scores for nominal gender (second test).

As can be observed, the scores for correct use of common determiners are higher than 90% for both groups, similar to the results in the first test. However, a striking difference can be observed between the scores for the correct use of neuter determiners. The late adoptees have a much higher score (84%) than the early adoptees (66%). The first group has an advanced knowledge when it comes to the gender of the elicited nouns. This is in contrast with the scores from participants in the first test, who had been exposed to Dutch for at least ten years. There, both early and late adoptees performed more or less similar (with the early adoptees outperforming the late adoptees by a margin). It seems, then, that a shorter exposure time brings out a difference that is neutralized after an extended exposure time.

Again, the next question is whether advanced knowledge of nominal gender implies an advanced knowledge of the adjectival inflection rules. The results for adjectival inflection, provided in Table 6, suggest a negative answer.

context⇒ age↓	<i>definite</i> <i>common</i>	<i>definite</i> <i>neuter</i>	<i>indefinite</i> <i>common</i>	<i>indefinite</i> <i>neuter</i>
<4	38/38 =100%	18/21 =85%	76/76 =100%	50/52 =97%
>4	30/30 =100%	30/35 =86%	58/60 =96%	48/72 =67%

Table 6: The group scores for adjectival inflection (test 2).

As can be observed, both groups score more or less similarly in common and definite contexts, i.e. in the contexts that require the default affix –e. However, there is a group difference of 30% for the scores in the indefinite neuter condition, where the special rule applies. Early adoptees use the special rule correctly 97% of the time, whereas late adoptees do this 67% of the time. For late adoptees, then, knowing the correct gender does not entail knowing when to apply the special rule.

6. Analysis

Section 1 discussed two hypotheses that potentially account for observed differences between monolingual acquisition and child L2 acquisition, the Critical Age H(ypothesis) and the Input Hypothesis. The first hypothesis argues that L1 acquirers generally

outperform cL2 acquirers because they have more time within the critical period to fully master the rule system. The second hypothesis argues that this difference is due to the fact that monolingual children receive more and better input. We argued that international adoptees can be of help in this discussion, as they crucially receive input that is in all relevant respects similar to the input received by monolingual children. The Input Hypothesis therefore expects that international adoptees will outperform cL2 acquirers of Dutch that grow up in an ethnic environment. The Critical Age Hypothesis, on the other hand, expects that there is a correlation between adoption age and performance on the adjectival inflection test. If a child is adopted at a relatively young age, it stands a better chance of acquiring the Dutch gender system.

The two tests that we conducted can be said to provide some initial support for the Critical Age Hypothesis. This hypothesis predicts that access to innate knowledge, and more particularly access to the abstract feature system needed to form abstract rules, becomes impossible after a critical age. It is therefore predicted that the early adoptees will be more successful in applying the rules for adjectival inflection than the late adoptees. This prediction was confirmed in two test rounds. The main difference between the participants in the first and second test is that the former group is much older and had been exposed to Dutch for minimally 11 years and maximally 33 years. The fact that the special rule still causes a problem after such long exposure times suggests that it may never be fully acquired by at least part of the learners.

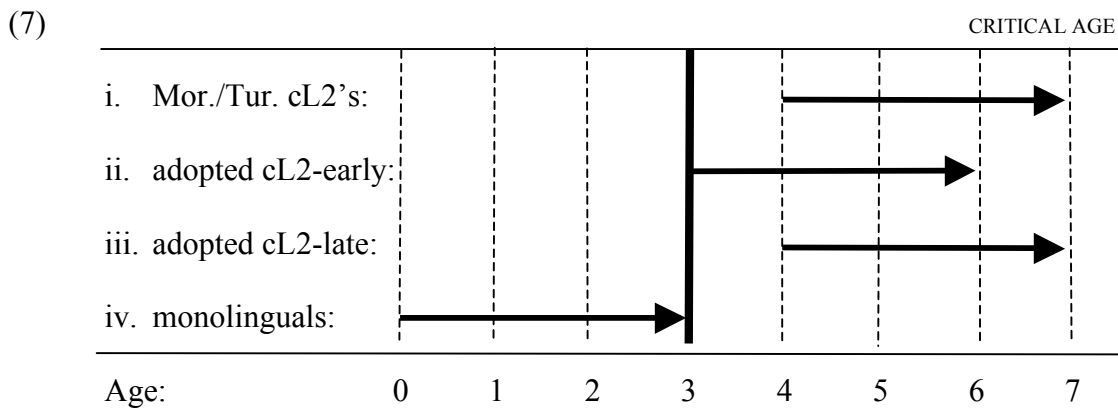
The difficulty with the special rule for the late adoptees cannot be blamed on the input, which is similar to the input that monolingual children receive. Neither can the difficulty be blamed on exposure length. First of all, the difference between the early and late adoptees can be observed when the exposure time is relatively long (test 1), as

well as when the exposure time is short (test 2). Second, in test 2 the exposure length was kept more or less stable between early and late adoptees (5;0 versus 5;6 respectively) and we nevertheless found the early adoptees outperforming the late adoptees. Since neither the quality nor the quantity of the input can be held responsible in any direct way, the Input Hypothesis has little to say about the observed differences.

Note that the Critical Age Hypothesis does not make any predictions for the acquisition of nominal gender. Since the gender of a noun has to be learnt as part of its lexical make-up, it constitutes a case of lexical learning. Since one can learn new words throughout a lifetime, no critical age effect seems to play a role here. Hence, it is not unexpected that on the first test, in which all participants had been exposed to Dutch for a long time, all reached a high score on correct (common and neuter) determiner use. In the second test we saw that the late adoptees outperformed the early adoptees on correct use of the neuter determiner. Put differently, the early adoptees overgeneralize the default determiner *de* to neuter nouns more than late adoptees do. We believe that this effect arises because, in the relatively short period of exposure to Dutch (five years), the late adoptees learned their vocabulary at a cognitively more mature age than did the younger earlier adoptees. Hence, they were quicker and more accurate. The idea that bilingual learners are able to “catch up” with their monolingual peers, which means that they can do the same job in less time, also seems to be relevant for acquisition by adoptees. Roberts, Krakow & Pollock (2003) for instance found that, on a battery of standardized tests including two vocabulary tests (Peabody Picture Vocabulary Test and the Expressive One Word Picture Vocabulary Test), 95% of the adoptees of Chinese origin that they tested were within or above normal range within two or more years (see also Krakow, Tao & Roberts 2005). Tan & Yang (2005) report that it takes Chinese

adoptees approximately 16 months to catch up with native-speaking children when it comes to vocabulary size. Geren, Shafto & Snedeker (2009) report that older adoptees learn English vocabulary more quickly than younger adoptees.

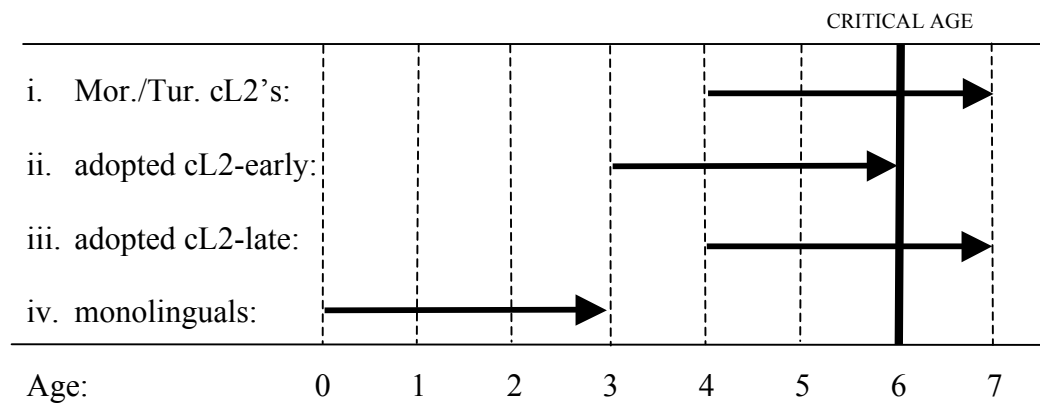
If reference to a critical age is needed in order to understand the differences between the early and late adoptees, an additional question is where this critical age lies. There is some discussion about this issue in the literature. For the present purposes, two proposals are particularly relevant. Johnson & Newport (1989) and Newport (1990) argue that the critical age must lie somewhere around the age of six. Meisel (2006), however, has argued that there may in fact be different critical ages for different language phenomena. For some morpho-syntactic phenomena, he argues, the critical boundary may be as early as the age of three. On the basis on the results obtained in our two tests, we conclude that for the acquisition of the Dutch adjectival rule system Newport's proposal seems more correct. We know from Blom et al that monolinguals know the rule system at age three. Let us assume, simplifying a bit for the sake of the discussion, that it takes three years to master it. If the critical age boundary lies at age three, we predict that there would hardly be a difference between the Turkish and Moroccan children tested by Blom et al and children that are adopted around age three. In other words, since all cL2's start to learn Dutch at or after the hypothetical critical age, we expect no differences between Turkish and Moroccan cL2's and adopted cL2's, and no difference between the two adopted groups. All cL2's are predicted to have difficulties with the rules for adjectival inflection and behave distinct from the monolinguals. This is illustrated in (7):



The same prediction we make for a child that is adopted at age three and four, we probably make for a child that is adopted at age 2, as it is not realistic to expect acquisition of the rule system to be in place within the one year that is available before the critical age boundary is reached. The predictions following from a critical age boundary at age three, however, are not carried out by the data, as the early adoptees outperform the Turkish and Moroccan children who start at age four. In addition, there was a difference between the early and late adoptees, with the former outperforming the latter on the acquisition of the rule system.

If, on the other hand, we place the critical age boundary at age six, we are able to account for the observed distinction. Whereas the Turkish and Moroccan learners have maximally two years to master the rules, as they start learning Dutch around age four, adopted children have longer if they are adopted before the age of four. Hence, we expect an early adoptee to behave better than Turkish and Moroccan cL2's, whereas a late adoptee (adopted at the same age at which Turkish and Moroccan learners start acquiring Dutch, or even later) should perform similarly to the Turkish and Moroccan cL2's. This is illustrated in (8):

(8)



Recall that the early adoptees in both tests comprised children who were adopted before the age of four and it was these groups that reached a (higher than) 90% score on correct use of the special rule. Hence, a critical age boundary at age six more correctly describes the results from the different learner groups. Of course, the difference between monolinguals and Turkish and Moroccan children does not only boil down to the latter group having less time within the critical age boundary. This learner group also uses Dutch less than monolinguals do. This means that we do not take the input factor to be unimportant. The point that we make, however, is that this input factor alone is not enough. Although early and late adoptees use Dutch to the same extent as monolinguals do, only the late adoptees run into similar problems as the Turkish and Moroccan learners. It is this contrast with the early adoptees that is accounted for by reference to a critical age boundary around the age of six.

To conclude, although the calculations concerning the location of the critical age boundary are rather coarse and do not take into account all possible variables, our results suggest that a critical age as early as age three seems unlikely for the acquisition

of the adjectival rule system, as that would not predict the successful behavior of the early adoptees.

7. Conclusion

In this paper, we showed how language acquisition by international adoptees can be made to bear on a discussion about what causes differences between L1 and cL2 acquisition. We conclude that this population is not only interesting in its own right, but indeed has the potential of providing essential insights that directly affect this discussion. Initial results suggest that, to account for difficulties that Turkish and Moroccan cL2 learners have in acquiring the Dutch gender system, it may not be enough to refer to qualitative and quantitative properties of input that these learners receive. Since early adoptees show a better command of the Dutch adjectival rule system than late adoptees, and since the quality and quantity of the input and length of exposure between these two groups are constant, an age effect seems to be the most likely cause for the difference.

Interesting as they are, it should be noted that these results are of course suggestive rather than conclusive. The number of participants was relatively small, so that additional research will have to confirm the present findings and turn indications into robust findings. Moreover, taking the role of the mother tongue and social background into consideration seems rather premature at this stage, although these factors potentially influence L2 performance. Despite these reservations, we think that the present results neatly fits into the broader contexts of other research that has shown age effects for child L2 acquisition (cf. Hyltenstam and Abrahamsson (2003) for an

overview). In the realm of international adoptees, Hylthenstam et al (2009) have made a similar claim, reporting that the level of attainment in Korean adoptees on a standardized test battery reveals a clear age effect and arguing for a maturational interpretation of the data.

It should be noted that research into language development of international adoptees is still very much in development. The first phase has primarily focused on (i) the extent to which international adoptees show L1 attrition, or lose their L1 entirely and (ii) the extent to which they show a delay in the acquisition of their second language (cf. for instance the references about research into international adoptees provided in section 6). To these ends, a large standardized test battery is often used. The difference with the research reported on here is that we have focused on a single grammatical property (gender in Dutch) that has been studied in detail for a significant number of different learner groups, including monolingual children, adults, child and adult second language acquisition (cf. Blom et al 2006, 2008, Polišenská 2010) and children with SLI (cf. Orgassa 2009). We know from this research that age effects are attested and how exactly they translate into differentiating error patterns. It is the empirical and methodological focus of this line of research that makes the comparison with a new learner group, namely the adoptees, more precise and therefore more meaningful. It is therefore important that research along similar lines will be carried out on a larger scale, and is extended to other empirical domains.

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