

Verbal inflection and verb placement in first and second language acquisition

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1.0 Introduction

Studies of language development suggest that child learners nearly always reach an error-free stage in the acquisition of grammar whereas adult learners who reach an error-free proficiency level are rare. Moreover, children achieve this “perfect” stage seemingly effortlessly and quickly unlike adults. One explanation for these differences comes from an idea of an innate language device which is bound to a critical period and that is only available during infancy and childhood (Lenneberg 1967, Johnson & Newport 1989, Mayberry & Eichen 1991). In this contribution, we present new data from an explorative study, which bear on the issue of critical age effects. We address the following question: *is there support for the claim that adult acquisition of grammar differs from child acquisition of grammar?*

Our study includes child L2 learners. In previous work on critical age effects child L1 learners have been compared to adult L2 learners (e.g., Patkowski 1982). Such a comparison may lead to a possible confounding of effects of type of acquisition (L1 vs. L2) and age. Inclusion of child L2 learners may help to overcome this confusion. A second point is the fact that we take a snapshot of the development of learners; we do not compare end-states of learners. The focus will be on qualitative differences between groups with the underlying assumption that different types of errors reflect different learning strategies.

Adopting the critical period theory as an initial working hypothesis, we predict that variation in the population of learners of Dutch is systematic in the following way: child L2 patterns like child L1 and differs from adult L2.

$$(1) \quad \boxed{\text{child L2} = \text{child L1} \neq \text{adult L2}}$$

Schwartz (2003) observes that there is a difference between children and adults in the acquisition of (inflectional) morphology but not in syntax. On the basis of this asymmetry, she claims that critical period effects are domain-specific. Thus, our next question is: *is there support for domain-specific age effects in the acquisition of grammar?*

According to Schwartz (2003), (1) is correct for morphology. In contrast, she claims that child L2 resembles adult L2 in syntax. Transfer may cause child L2 and adult L2 to differ from child L1.

2.0 Linguistic variables and predictions

We investigated three linguistic variables. Verb placement and verbal inflection may be good candidates for age effects since children acquire them quickly and without many errors. Wexler (1998), for instance, argues that children know verb placement and verbal inflection already in the earliest observable stage of grammatical development, i.e., the two word stage, around the age of 1;6. As a third variable we included the use of dummy auxiliaries. Dummy auxiliaries do not contribute to the meaning of the utterance; they are present to make the sentence finite. Use of dummy auxiliaries represents a stage in the development of Verb Second. Children use them before they productively move the lexical verb (Jordens 1990, Van Kampen 1997,

Zuckerman 2001, Blom 2003). Dutch children use *doen* ‘do’ or, more often, *gaan* ‘go’ as dummies, as illustrated in (2) and (3):

- (2) Koe **gaat rijden** (Matthijs 2;04.24)
cow goes drive
‘*Cow is driving*’
- (3) hij **doe huilen** (Jasmijn 2;5.3)
he do cry
‘*He is crying*’

In standard Dutch the auxiliary *gaan* ‘go’ has a future meaning. Do-insertion is not allowed in standard Dutch, only in some (southern) dialects. Thus, with their dummy auxiliaries, Dutch children do something that only marginally exists in standard Dutch.

Given our working hypothesis, we expect (i) that child L2 learners behave like child L1 learners, that is, they place the verb correctly, use dummy auxiliaries and make few agreement errors and (ii) that adult L2 learners do not necessarily place the verb correctly, do not necessarily use dummy auxiliaries and do not necessarily make few agreement errors. Moreover, the agreement errors from the adult learners may differ from the errors children make. Domain-specificity, as proposed by Schwartz (2003), predicts furthermore (iii) that there is no difference between the groups with regard to verb placement and (iv) that adult L2 differs from both child groups with respect to verbal inflection.

3.0 Method

We compared data from 3 different groups: child L1, child L2 and adult L2: *Child L1* learners are 2- to 4-year-old Dutch monolinguals with typical development. *Child L2* learners are represented by two populations: they have either a Turkish or Moroccan (mainly Berber and some Moroccan-Arabic) background.¹ A child L2 learner has started to learn Dutch at school age (4 years). At this age, he/she has already acquired the basic grammatical properties of the L1. Hence, Dutch is for this child the L2. The child L2 learners are tested at age 6-7. Thus, their learning period of Dutch is comparable to the L1 children, namely 2-3 years. *Adult L2* learners represent the same L1 populations as child L2 learners in our sample. An adult L2 learner has started to learn Dutch after puberty (after 15). All L2 learners receive explicit training in Dutch, either at school or at a “Dutch as a second language” course. The socio-economic status of the L2 learners is generally low. The adults mostly have a low education level. There are differences among the amount of (active and passive) contact that the L2 learners have with Dutch (apart from lessons). The adult sample shows in this respect more variation than the child sample. For the child L1 data we rely on previous research. The data for the variables “verb placement” and “dummy auxiliaries” come from experiments conducted by Zuckerman (2001). We take the data from his youngest age group (3-4 years) in order to make a comparison with the child L2 group. The L1 data on verbal inflection come from CHILDES corpora (spontaneous speech) and are based on selections made by

¹ Even though the current study does not deal directly with the problem of language transfer, the L1 groups (native Turkish and Moroccan speakers) are selected in order to determine L1 effects.

De Haan (1996) who investigated errors in early child Dutch with regard to finite verbal inflection.

The L2 data for verb placement and dummy auxiliaries are collected via a sentence-completion task comparable to Zuckerman's design (see examples below). This enables a valid comparison between the data from the L1 and L2 learners. Data on the placement of finite lexical verbs and the placement of finite dummy auxiliaries have been collected in three experimental conditions. These conditions differ in the (relative) position of the verb. A combination of the responses in the three conditions reveals if a subject knows that Dutch is SOV with Verb Second in main clauses. Subjects had to describe a contrast between two pictures that represent a character that performs an activity (4), (5) and (6). The experimenter triggered the sentence by pronouncing the underlined words and the task of the subject was to complete the task (the correct subject responses are in bold).

- main clause/ no inversion (VO)

(4) Deze man **leest** de **krant**
 This man read-fin the newspaper
en die man **leest** **een boek**
 and that man read-fin a book
'This man is reading the newspaper and that man is reading a book'

- embedded clause (OV)

(5) Dit is de man die **de** **krant** **leest**
 this is the man that the newspaper read-fin
en dat is de man die **een boek** **leest**
 and that is the man that a book read-fin
'This is the man that is reading the newspaper and that is the man that is reading a book'

- main clause/ inversion (INV)

(6) Hier **leest** **het meisje** en daar **lees** **jij**
 Here read-fin the girl and there read-fin you
'Here the girl is reading and there you are reading'

For the variable “verbal inflection”, more specifically for the items of 3SG, 3SG–inverted, 3PL and 2SG–inverted, we used data collected in the elicitation task described above. We designed an additional test to elicit 1SG, 2SG and 1PL forms. The test we used consisted of a game in which the experimenter as well as the subject had to pick up a card (from a strictly ordered pile) and turn it around. The card depicted an ongoing action (e.g., reading a book or drawing a picture). After seeing the action, both subject and experimenter had to perform the action and the task of the subject was to describe the situation. It could be that both performed the same action (1PL) or that both performed a different action (1SG vs. 2SG). The task also contained novel verbs for testing productivity.

4.0 Results

4.1 Verb placement

Early child Dutch hardly shows any finite verb forms in sentence-final position (Wijnen & Verrips 1998). At the same time, children use finite forms in sentence-initial position, in subject-verb (non-inverted) and verb-subject (inverted) order:

- (7) Daan **ligt** in de wieg (Daan 2;04.14)
Daan lie-fin in the crib
- (8) **zit** vuilniswagen in (Peter 2;0.7)
sit-fin garbagetruck in

The few available corpus data on embedded clauses indicate that children hardly make any errors with embedded sentences (De Houwer 1987). Experimental data (Zuckerman 2001) confirm this observation. Since we based our method on Zuckerman's experiment with L1 learners (with the single difference that we added the condition with subject-verb inversion), his data are highly comparable to our data. For each condition (see also 3.0) the elicited answers are divided into correct and incorrect realisations. The results are presented in Table 1.

TABLE 1: the percentages of finite sentences with correct word order

Sample	VO % correct	OV % correct	INV % correct
Child L1 (n = 10)	94 % (n = 145)	98 % (n = 141)	-
Child L2 (n = 27)	90 % (n = 403)	87 % (n = 410)	77 % (n = 399)
Adult L2 (n = 11)	78 % (n = 167)	29 % (n = 167)	20 % (n = 166)

The Turkish and Moroccan children pattern like the child L1 learners and hardly make any errors. Child L2 learners seem to have slightly more problems with inverted sentences than with non-inverted sentences, but the difference is not statistically significant ($\chi^2 = 2.4$). Adult learners do not pattern like child L1 or child L2 learners in the sense that they show bad performance in the OV and INV condition. This generally reflects an overuse of SVO order.

4.2 Dummy auxiliaries

Table 2 shows the difference between child L2 and adult L2 learners: adults hardly use dummy auxiliaries whereas child L2 Dutch shows substantial use of dummy auxiliaries.

TABLE 2: percentages of use of dummy auxiliaries

	% dummy aux
Child L2	32 % (n = 1031)*
Adult L2	1 % (n = 213)*

* elicited sentences in VO, OV and INV condition with correct verb placement

If we now zoom in on the comparison between child L1 and L2 Dutch and compare the data provided by Zuckerman (2001) with our data, it can be concluded that child

L2 learners pattern like child L1 learners of Dutch with respect to the use of dummy auxiliaries in main clauses as opposed to embedded clauses (see Table 3).

TABLE 3: percentages of dummy aux in main and embedded clauses

Sample	VO % dummy aux	OV % dummy aux
Child L1 (n = 10)	23 % (n = 145)	3 % (n = 141)
Child L2 (n = 27)	39 % (n = 366)	8 % (n = 357)

Child L2 learners use more dummy auxiliaries than child L1 learners. This could indicate that the L2 data represent an earlier developmental stage than the L1 data. A developmental comparison between Zuckerman's data and ours confirms this explanation: both show a similar developmental trend, namely a decrease of dummy auxiliaries (see Table 4).

TABLE 4: percentages of the use of dummy auxiliaries in child L1 and child L2 developmental stages

Sample	VO % dummy aux	OV % dummy aux
Child L1 3-3;11 (n = 10)	23 % (n = 145)	3 % (n = 141)
Child L1 4;8-5 (n = 14)	3 % (n = 210)	0 % (n = 210)
Child L2 6 (n = 11)	57 % (n = 133)	13 % (n = 136)
Child L2 7 (n = 16)	28 % (n = 233)	4 % (n = 221)

The results in Table 4 allow us to be even more precise: the child L2 learners of age 7, having learned Dutch for approximately three years, are comparable to the child L1 learners between ages 3 and 4. This suggests that it takes child L1 and child L2 learners a similar time span to reach the dummy auxiliary stage.

4.3 Verbal inflection

In this section, two different analyses are presented. First, we calculate correct-scores. Verb agreement forms—restricted to lexical verbs in order to ensure a valid comparison between L1 spontaneous speech data and L2 experimental data—are divided into correct and incorrect realisations. For the L1 children, there were only complete datasets of 3rd person number agreement forms available. Therefore, we included only these contexts in the L2 data. 3rd person number agreement errors comprise (irrespective of word order):

- | | |
|---|---|
| <p>(9) Hij speel gitaar
He play guitar</p> | <p>(11) Zij speel gitaar
They play guitar</p> |
| <p>(10) Hij spelen gitaar
He play guitar</p> | <p>(12) Zij speelt gitaar
They play guitar</p> |

The results in Table 5 show a difference among all 3 groups. Clearly, adult L2 learners make the most errors in 3rd person number agreement. But the difference between the child L2 and the child L1 turns out to be statistically significant as well ($\chi^2 = 5.4$). Thus, L2 children correctly realize number agreement in 3rd person more often than the L1 children.

TABLE 5: percentages of incorrect 3rd person number agreement forms

Sample	% incorrect
Child L1 (n = 5)	29 % (n = 145)
Child L2 (n = 27)	18 % (n = 847)
Adult L2 (n = 11)	55 % (n = 272)

Second, we performed a more fine-grained analysis of error types for the incorrect verb agreement forms. The analysis includes both person and number agreement forms. We compared the forms that are used to substitute target-like forms. In Table 6, ‘n’ stands for the number of possible contexts where a given substitute could have been used. Thus, for the substitute *-en* these are all singular contexts, for the substitute *-t* these are 1st singular and all plural contexts and for the substitute *-ø* these are 2nd and 3rd singular and all plural contexts.

TABLE 6: Substitution of the suffixes *-en*, *-t* and *-ø*

	Substitute <i>-en</i> (<i>SG context</i>)	Substitute <i>-t</i> (<i>1SG, PL context</i>)	Substitute <i>-ø</i> (<i>2,3SG, PL context</i>)
Child L1	8 % (n = 180)	74 % (n = 77)	76 % (n = 169)
Child L2	33 % (n = 143)	75 % (n = 36)	60 % (n = 151)
Adult L2	48 % (n = 196)	49 % (n = 41)	53 % (n = 198)

The child groups show a similar tendency, that is, *-t* and *-ø* are preferred as substitutes. The adults have no preferred substitute. Hence, the difference can be reduced to use of *-en* as a substitute (see Prévost & White (2000) for similar results). There is in this respect not only a difference between the two child groups on the one hand and the adult learners on the other but also between the two child groups: the child L1 learners hardly use *-en* as a substitute whereas it is an option for the child L2 learners.

5.0 Transfer

The issue of transfer may interfere with our research question in two respects. First, L1 transfer may predict that patterns in child L2 and adult L2 resemble each other and differ from child L1 patterns. Secondly, it may be that observed differences between the adult and child learners all can be related to transfer and hence do not reflect age effects. In order to control for the effects of transfer, we selected L2 learners from two different L1 backgrounds that differ significantly from each other and from Dutch: Turkish and Moroccan.

For the variable “verb placement”, we found effects of transfer in the two adult L2 samples, but not in the two child L2 samples. Haznedar (1997) reports that there is transfer in child L2 acquisition but observes this only in the first couple of months of child L2 acquisition. Given this observation, it may be that our child L2 sample represents a stage beyond L1 transfer.

The Turkish adults outperform the Moroccan adults in the OV condition whereas the reverse holds for the VO condition. Both findings point to L1 transfer. However, not all differences in verb placement between children and adults can be attributed to transfer. In this respect there are two key observations: the absence of dummy auxiliaries and the overuse of SVO order in both adult samples. The use of dummies

seems to be a prototypical child “error” that hardly occurs in adult acquisition of verb placement in Dutch (irrespective of L1) whereas the overuse of SVO order is a prototypical adult “error” (irrespective of L1) that hardly occurs in child Dutch.

6.0 Conclusion

For most variables in this study, the critical period hypothesis has been confirmed. With respect to verb placement and the use of dummy auxiliaries, child L2 patterns with child L1 and differs from adult L2. Moreover, child L1 and child L2 learners show a similar drop of dummy auxiliaries over time. As for the variable “verbal inflection”, the hypothesis was partially confirmed. Child L2 learners show the same error pattern as child L1 learners whereas adult L2 learners make other mistakes: the adults produce significantly more *-en* substitutions than the children do. The analysis of 3rd person number agreement forms revealed quantitative differences between all three groups. Therefore, the hypothesis was not confirmed on this condition. With respect to domain-specificity we did not find support for Schwartz’s (2003) hypothesis: we found differences between both child groups on the one hand and the adult group on the other in syntactic (verb placement) as well as morphological (verbal inflection) variables. Since we found differences between children and adults that cannot be attributed to L1 transfer, we conclude that our findings support the critical period hypothesis.

7.0 Discussion

In the introduction, we referred to the recent work of Schwartz (2003) on domain-specific age effects. Our study only partially confirms the hypothesis that there are age effects in morphology but not in syntax since adults do not perform well on verb placement tasks. SVO overuse and absence of dummy auxiliaries in the adult results suggest that the adult learning strategy for verb placement differs from the child learning strategy. This outcome may even suggest that adults do not learn to move the verb: a prototypical developmental step (i.e., dummies) is absent, and they show bad performance on subject-verb inversion. It may be that the adults simply use a linear SVO template in Dutch. There is other evidence that domain-specificity in terms of syntax and morphology does not make a satisfying dichotomy: the *-s* suffix for 3rd person singular verbs in L2 English is difficult to learn for late learners as opposed to the progressive *-ing* suffix (Johnson & Newport 1989, Lardiere 1998, MacDonald 2003). Thus, it is not simply morphology but rather morphological subclasses. Moreover, verb placement in English poses no problem for late L2 learners (Lardiere 1998) whereas verb placement in Dutch (and German, which is also OV and V2) is problematic for these groups of learners. This distinction shows that certain subclasses of syntax may be problematic for late learners in contrast with children. For the correct use of 3rd person number agreement, we found differences between all three groups. Recall that child L2 learners outperformed child L1 learners here. This finding may be explained by the interaction of cognitive and grammatical development. The relatively old age of the child L2 learners may be an advantage: child L1 learners may produce pluralized subjects without understanding the concept of number yet. In other words, in very early child language a pluralized form of the subject does not necessarily reflect a plural meaning (e.g. **autootjes rijdt (cars goes)*: a child produces the noun in the plural but physically points to only one car). However, in order to conclude that this explanation holds, we would have to be

familiar with the precise context. The data presented here do not allow us to test this hypothesis, and we leave this issue for future study.

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