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## **Adjectival definiteness marking in the speech of Latvian children: experimental study**

### Summary

Adjectival definiteness marking in the speech of Latvian children: experimental study

This paper reports the results of the experimental study investigating the use of adjectival definiteness marking in monolingual Latvian-speaking pre-school children. The study uses the adapted version of the picture-naming procedure previously used with Norwegian-speaking children. We find that while approximately 50% of our participants use definite/indefinite contrast as expected, some children exhibit a very strong tendency to use either definite or indefinite forms across the board. We attribute this tendency to possible self-priming effects.

*Keywords: definiteness, first language acquisition, priming, adjectives, frequency*

### Kopsavilkums

Īpašības vārdu noteiktības kategorijas izpausme latviešu bērnu runā: empīriskais pētījums

Šajā rakstā ir analizēti rezultāti, kas iegūti, pētot adjektīvu noteiktības un nenoteiktības marķieru lietojumu monolingvālu pirmsskolas vecuma latviešu bērnu runā. Lai veiktu empīrisko pētījumu, tika adaptēta Norvēģijā izstrādātā attēlos balstīta dialoga metodika, ko izmantoja pirmsskolas vecuma norvēģu bērnu runas attīstības izpētē. Analizējot pētījuma rezultātus, tika noskaidrots, ka aptuveni 50% no pētījumā iesaistītajiem bērniem runā izmantoja adjektīvus ar noteikto un nenoteikto galotni, kā tas sākotnēji arī tika prognozēts. Dažu bērnu runā prevalēja adjektīvi ar noteikto vai ar nenoteikto galotni, kas norāda uz to, ka viņu izvēlē dominē viena forma. Šo tendenci, iespējams, var skaidrot ar indivīda vēlmi atkārtot iepriekš lietoto gramatisko formu, nepievēršot uzmanību situācijas maiņai.

Atsēlgas vārdi: *noteiktības gramatiskā kategorija, dzimtās valodas apguve, nosacījumi, īpašības vārdi, lietojuma biežums*

## Introduction

In its most prototypical function, grammatical definiteness signals identifiability of the referent, i.e. “whether or not a referent is familiar or already established in the discourse” [Kibort 2010, see also Lyons 1999: 278]. In Latvian, grammatical definiteness also functions as the expression of identifiability, although it has a number of other uses as well [for a detailed description, refer to Sokols et al. 1959: 434-456; Ceplīte 1970; Auziņa et al. 2015; also see Lyons 1999:82-85]. It is only overtly marked on adjectives and certain attributive participles, so a noun phrase can be marked as definite or indefinite only in the presence of an attributive element. Latvian has a rather complex morphological system, and distinguishes between five cases and two genders (masculine and feminine) in adjectival declension. Definiteness marking comes in addition to that, such that every adjective has a definite and an indefinite paradigm in each gender [see Stolz 2010: 237-238 for further discussion and a diachronic overview]. In the nominative singular, definiteness is marked by means of the inflection [-ai-] in masculine forms, and as a lengthening of a theme vowel in feminine forms, as shown below:

(1)

- |    |                       |                 |
|----|-----------------------|-----------------|
| a. | Meln-Ø-s              | kaķ-i-s         |
|    | Black-Nom.sg.masc     | cat-Nom.sg.masc |
|    | ‘A black cat’         |                 |
| b. | Meln-a-Ø              | krūz-e-Ø        |
|    | Black-Nom.sg.fem      | cup-Nom.sg.fem  |
|    | ‘A black cup’         |                 |
| c. | Meln-ai-s             | kaķ-i-s         |
|    | Black-DEF-Nom.sg.masc | cat-Nom.sg.masc |
|    | ‘The black cat’       |                 |
| d. | Meln-ā-Ø              | krūz-e-Ø        |
|    | Black-DEF-Nom.sg.fem  | cup-Nom.sg.fem  |
|    | ‘The black cup’       |                 |

Normative use of definite and indefinite adjective forms expected from the point of view of the literary standard is well-described in Latvian grammars [e.g. Sokols et al. 1959:434-456; Ceplīte 1970; LVG 2015]. The available descriptions, however, do not necessarily accurately reflect their use in casual speech. At the same time, studies

specifically focusing on the actual use of definite/indefinite contrast by adult speakers of Modern Latvian are still lacking. In other words, to the best of our knowledge up to now no attempt has been made to investigate the synchronic competence of the adult Latvian speaker with respect to the definiteness category. The same is true for the child language: the two available diary studies following Latvian-learning children up to the age of five years [Rūķe-Draviņa 1992; Rūķe-Draviņa 1993] do not specifically mention the acquisition of definite/indefinite distinction or the appearance of definite/indefinite adjectival forms. The reason for that might be that a relatively low frequency of adjectives in child speech coupled with non-target-like phonology (especially truncation processes cross-linguistically characteristic of developing grammars) [Johnson & Reimers 2010] also significantly complicate the task of tracking the development of definite/indefinite distinction in early child language.

The current article reports the results of the experimental study focusing on the use of definite and indefinite adjective forms in monolingual Latvian-speaking preschool children aged between 4 and 6 years. Given a broad range of pragmatic and syntactic contexts calling for either definite or indefinite adjective form in Latvian, the question of the acquisition of the definiteness category as such cannot be addressed here. Instead, we will limit ourselves to the discussion of the use of definiteness marking that signals identifiability. The results discussed here are a part of a larger study looking at the acquisition of definiteness and gender marking in monolingual and bilingual learners of Latvian (for a more detailed discussion of methods and results, as well as for bilingual data, please refer to [Urek, Tauriņa et al.] (in preparation)).

## **Participants**

Participants in the experiment were 19 typically-developing monolingual Latvian-speaking children. One participant had to be excluded from the analysis due to the low intelligibility of utterances, resulting in the final sample of 8 boys and 10 girls. Mean age of participants was 4.8 years ( $SD = 0.48$ ). All participants were recruited in kindergartens in Riga, with Latvian as the only language of instruction, and come from families where both parents are native speakers of Latvian. We did not control for exposure to languages other than Latvian. Given the linguistic situation in Latvia, however, it is reasonable to assume at least some exposure to Russian.

It goes without saying that any study aimed at describing the acquisition of a given linguistic phenomenon by children must first ascertain what the acquisition target is – i.e. what exactly the adult language behavior is that the child is trying to acquire. For this reason, the study also includes a control group of 10 adult native speakers of Latvian resident in Riga, whose linguistic behavior allows us to establish a baseline. Adult participants followed exactly the same experimental procedure the children did. All participants were oblivious to the fact that the experiment is aimed at investigating their use of definite and indefinite adjectives.

## Experimental procedure

All participants were tested individually in a quiet room by the first author (a native speaker of Latvian). The participants' responses were audio-recorded and later orthographically transcribed.

The procedure used in this experiment is an adapted version of the procedure described in Rodina & Westergaard [Rodina & Westergaard 2015 a,b] for Norwegian and Russian. Unlike Rodina & Westergaard, who used a laptop to present their stimuli, we used laminated cut-out pictures placed on the improvised stage. In addition, two dolls – Ilze and Jānis - were introduced (please refer to Urek, Tauriņa et al. (in preparation) for the comparison of the results obtained with the two procedures) [Urek, Tauriņa et al.].

Before the experiment, the participant was introduced to the experimental setup:

### () Introductory script

“We are going to look at some objects and play theater. Here we have a stage, and we will put different objects on the stage together. Here are two dolls that will help us: here is Ilze, and here is Jānis”.

At the beginning of each trial, the participant was introduced to the stimuli – a set of two identical objects of different colors. The experimenter named the objects (but not their colors) and introduced their possessor. After that, the child was encouraged to name the objects along with their colors (the indefinite condition). Once the child named both objects, one of them was removed from the stage by the experimenter. The child was then asked to identify the object that disappeared, along with its color and its possessor (the definite condition).

### () Experimental procedure

*Experimenter:*

Jānim ir burkāns. Te burkāns, te arī burkāns.

Jānis-DAT is carrot-NOM Here carrot-NOM here also carrot-NOM

‘Jānis has a carrot. Here is a carrot, here also is a carrot’.

*Experimenter:*

Salīdzini pēc krāsas! Turpini, Jānim ir.....

‘Compare them by color! Continue, Jānis has...’

*Participant:*

Jānim ir **brūns** burkān-s un **sarkan-s** burkāns.

Jānis-DAT is **brown-indef** carrot-NOM and **red-indef** carrot-NOM

‘Jānis has a brown carrot and a red carrot’

*Experimenter (removing one object):*

Kas pazuda? Pazuda Jāņa...

What disappeared? Disappeared Jānis-GEN...

‘What disappeared? It is Jānis’...’

*Participant:*

Pazuda Jāņa **sarkan-ai-s** burkāns

Disappeared Jānis-GEN **red-def** carrot-NOM

‘Jānis’ red carrot disappeared’

Each experimental session included 31 test trials, and was preceded by two practice trials to make sure that the participant understands the procedure. Practice trials involved plural objects to minimize priming effects.

Stimuli for this experiment were 31 objects familiar to the children. Nouns denoting the objects were selected to represent five declension classes of Latvian. Six nouns of each declension class were used, except for Declension VI, which was represented by seven nouns. Because all objects were named by the experimenter, we did not control for noun frequency.

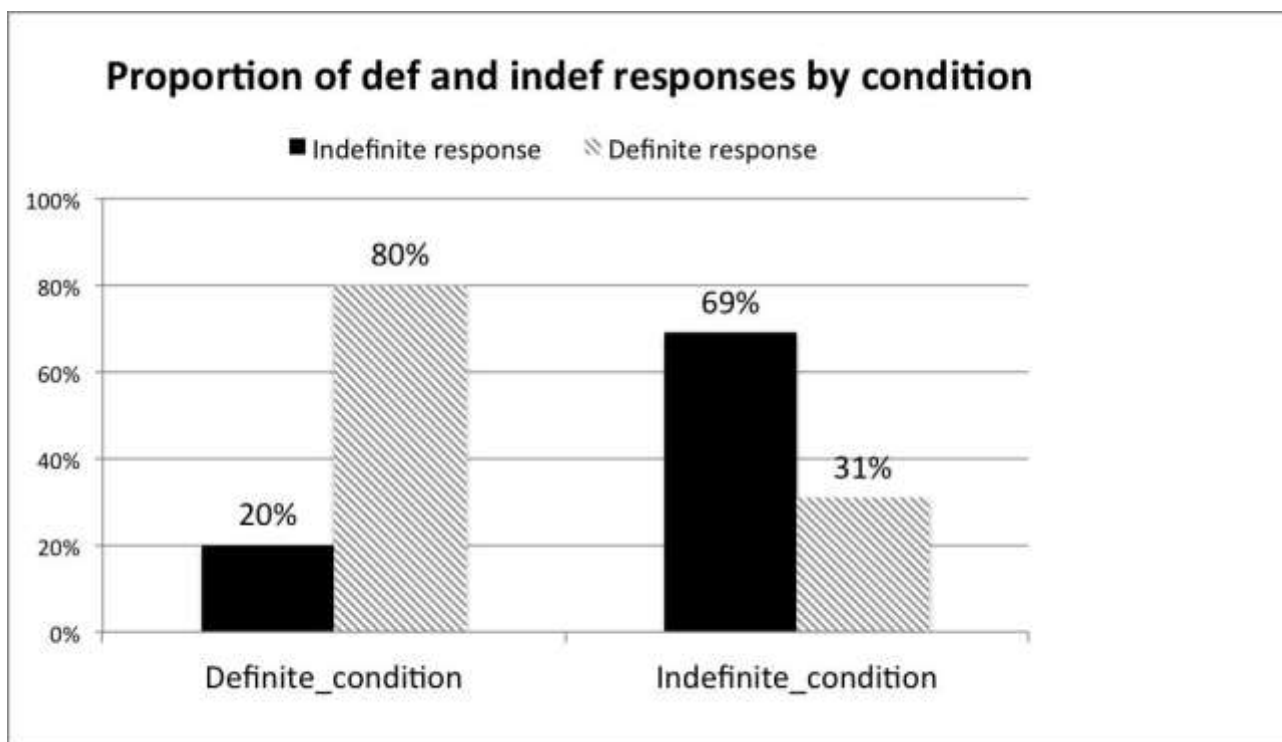
## **Results and discussion**

Transcription revealed that some children in our sample still struggle with maintaining the contrast between [a:] and [a] in the word-final position. Since it is this contrast that also marks the distinction between definite and indefinite feminine adjectives in the nominative singular, incomplete mastery of length contrast in vowels obscures the presence of definite/indefinite contrast in feminine forms. For this reason, feminine nouns were excluded from the final analysis. Thus, in the final dataset we expected to have 24 responses in the indefinite condition and 12 responses in the definite condition from each participant.

As expected, all adults in the control group performed at ceiling: that is, they all gave indefinite responses in the indefinite condition and definite responses in the definite condition. This allows us to conclude that a) adult speakers of Latvian use definite/indefinite contrast in given contexts; and b) the experimental procedure described above works as intended. Let us now consider the results obtained from the children. Diagram 1 below illustrates the proportion of definite and indefinite responses in each condition averaged across children. As we can see, the children in our sample are quite far from having the full mastery of definite/indefinite contrast, with overall accuracy in the definite condition reaching 80% and that in the indefinite condition being only 69%. Nevertheless, the overall proportion of target-like responses in each condition is significant, which allows us to conclude that, as a

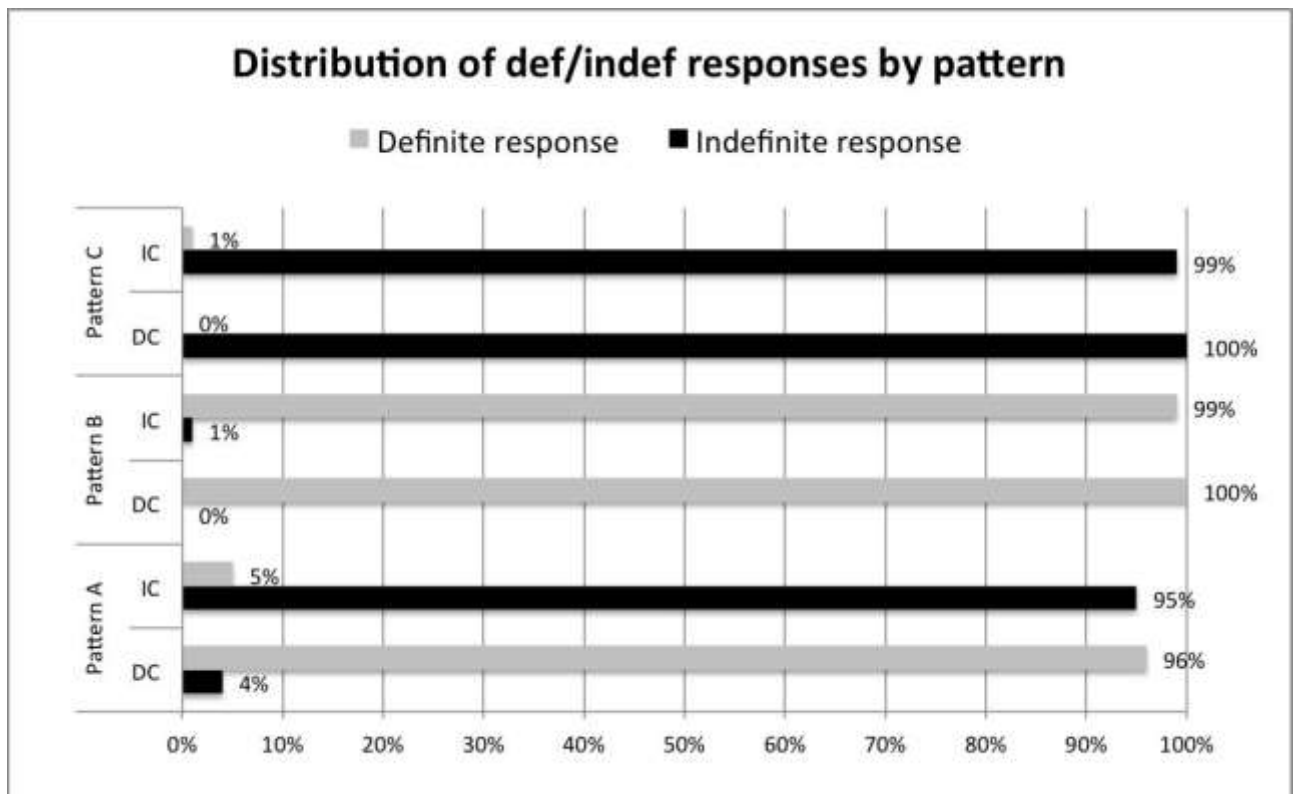
group, monolingual children of this age do use definite/indefinite contrast in relevant contexts.

() Diagram 1: Proportion of definite and indefinite responses by condition



An interesting picture emerges, however, when we consider the proportion of definite and indefinite responses in each condition for every individual participant. It turns out that participants in our sample do not all behave in the uniform way: instead, we can clearly distinguish 3 response patterns. Children following Pattern A (N = 9) are fully or almost fully target-like: they give definite responses in the definite condition and indefinite responses in the indefinite condition. Children following Pattern B (N=5) use definite adjectival inflections across the board, i.e. they give only definite responses in both conditions. Finally, children following Pattern C (N = 3) give only indefinite responses in both conditions. In addition, one child is target-like in the definite condition, but uses both definite and indefinite inflections at a chance level in the indefinite condition. At the same time, we do not find either the cases where definite and indefinite forms are used at random in both conditions, or the reversals.

() Diagram 2: Distribution of definite and indefinite responses by response pattern



Since children following Pattern A are essentially target-like, the main challenge is to explain the behavior of children exhibiting Pattern B and Pattern C, and namely the factors that cause a) their choice of adjectival form b) their across-the-board use of either definite or indefinite.

As for the former, one possibility that might be considered is the effect of input frequency. It is an established fact that high-frequency forms are acquired earlier by children than forms of lower frequency [see Ambridge et al. 2015 and references therein]. The input frequency effect was demonstrated, *inter alia*, for inflections. For example, Dabrowska & Szczerbinkski [Dabrowska & Szczerbinkski 2006] found a positive correlation between children’s performance on certain nominal inflections and their frequency in child-directed speech. We might expect, therefore, that the order of emergence of definite and indefinite adjective forms in child language will reflect their relative frequency in the language that the child is exposed to. A search in the morphologically tagged Latvian text corpus Miljons-2.0m containing around 3.8 mil. word uses [Levāne-Petrova 2012] returned 84922 hits for definite and 121566 hits for indefinite adjectives (or approximately 40/60 distribution). As of now, there is no tagged corpus of child-directed speech available for Latvian, so we have no data that would allow us to better approximate the frequency of definite and indefinite forms in the input to these children. However, it seems unlikely that the differences between children would be so vast as to account for the existence of “mirror-image” patterns like B and C.

A possible explanation for the observed across-the-board use of definite or indefinite forms might lie in structural self-priming. Structural priming “refers to the tendency of speakers [...] to reuse structures from the (immediately) preceding

discourse” [Coleman & Bernolet 2012:88]. Self-priming, in turn, refers to the speaker’s tendency to reuse structures previously produced by the speaker herself. Structural priming effects have been observed for adults [e.g. Bock 1986] as well as children [e.g. Bencini & Valian 2008] for a variety of constructions [see Rowland et al. 2012, Kirjavainen et al. 2016 for an overview and discussion]. In addition, some studies suggest that children are more susceptible to priming than adults [e.g. Rowland et al. 2012].

If definite/indefinite forms can be primed, we might expect, for instance, that producing an indefinite adjective in the first utterance somewhat increases the chance of the next adjective produced being indefinite as well, with each further production of an indefinite form reinforcing the priming effect. If children showing Pattern B and C have not yet mastered the adult-like use of definite/indefinite distinction in this context, the choice of the adjective form for the first production might be either random or determined by some factors specific to a given child (e.g. frequency of use or age of acquisition). Due to self-priming effects, the further productions are in turn influenced by this initial choice, giving rise to either definite or indefinite bias.

Interestingly, no evidence of self-priming is found in the study by Rodina & Westergaard [Rodina & Westergaard 2015 a,b], who, as mentioned above, used a very similar experimental procedure to investigate gender agreement in Norwegian-speaking preschool children. Just like Latvian, Norwegian marks definiteness/indefiniteness distinction. In Norwegian, indefinite nouns are marked by an article preceding the noun, e.g. *en bil* ‘a car’, while definiteness is expressed by a suffix, e.g. *bilen* ‘the car’. Modified nouns require a double definite form with a definite determiner and a suffix, e.g. *den gule bilen* ‘the yellow car’ [Rodina & Westergaard 2013:47]. Rodina (personal communication) indicates that children in their sample did not exhibit the tendency to overuse either definite or indefinite forms, and were essentially target-like. It might be the case that definiteness/indefiniteness marking in Norwegian - being more salient - is acquired earlier than that in Latvian, and therefore children in Rodina & Westergaard’s sample, although being of the same age, are less susceptible to self-priming of definite/indefinite forms.

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