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# SUMMARY IN ENGLISH

## **The acquisition of gender and case in Polish and Russian. A study of monolingual and bilingual children.**

Polish and Russian are typologically closely related Slavic languages that have highly comparable nominal morphology within their gender and case systems in their written form. In their spoken form, however, they show crucial differences, specifically in the phonetic realisation of unstressed vowels. They thus form an ideal combination for testing language-specific phonetic factors that might influence the acquisition of gender and case systems. It is also the case that no comparative research has been done on the acquisition of gender and case in Polish and Russian in monolingual and bilingual children.

This study focuses on the acquisition of the gender and case systems in Polish and Russian children aged 3;6-6;6 in order to establish the impact of language-specific factors, in particular the phonetic realisation of unstressed vowels, on the acquisition of these systems. It is the first study that uses a research paradigm comparing two closely related languages, both on the production and comprehension of gender and case in monolinguals and bilinguals (with L2 Dutch), using the same method and highly similar test materials.

When acquiring their mother tongue, young children have to deduce the basic features implicitly from the input they receive. Generally spoken, the more transparent the features of a linguistic system, the easier it is for children to deduce these features from the input and the higher their learnability (Slobin, 1973, 1985, 1997; MacWhinney & Bates, 1989; MacWhinney, 2005; Peters, 1997). The transparency of a system, and of grammatical features in particular, is positively influenced by four interrelated factors: morphological analysability (non-syncretic and non-homophonous morphemes), morphophonetic clarity (perceptual salience), morphophonological regularity (no allomorphy), and pattern frequency.

Furthermore, to deduce the form-meaning mapping from the input and to interpret gender and case endings correctly, monolingual and bilingual children use comprehension strategies. For each language, there are specific strategies that can support correct interpretation. For Polish and Russian monolinguals and bilinguals, three strategies are relevant: a case cue strategy (paying attention to case endings), a semantic-pragmatic strategy (using semantics and world knowledge rather than forms to interpret a sentence), and a word order strategy (assigning syntactic roles in a linear way regardless of other information).

The linguistic factors and strategies are relevant for the acquisition of features within languages. For bilingual learners, several factors have been reported to affect the success of acquisition in each of the languages: the age of onset of each of the two languages, language status, quality and quantity of the input, and the effect of interference between the languages.

Monolingual and bilingual children who acquire Polish or Russian have to learn – alongside other features – a rich and complex nominal morphology. Polish has seven grammatical cases (nominative, genitive, dative, accusative, instrumental, locative and vocative) and Russian has six (no vocative). Both the case inflections and the syntactic functions expressed by the cases are very similar in the two languages. Both in Polish and Russian, gender is, usually, expressed in a clear way: nouns ending in a hard consonant are morphologically masculine; most nouns ending in {-a} are of the feminine gender, and nouns ending in {-o} and {-e} quite consistently follow the neuter gender pattern. In Polish and Russian, gender, case and number are marked morphologically on the noun by means of a suffix; this suffix can also have a zero form. On suffixes, the information pertaining to these categories (gender, case and number) is fused and expressed in one ending: gender cannot be separated from case and number, and case cannot be separated from gender and number. Both Polish and Russian are known for the amount of homophony of endings, and have a broad array of different paradigms.

Despite these similarities, there is a difference between Polish and Russian in the phonetic realisation of unstressed vowels, which could influence the acquisition of nominal morphology. First of all, Polish has a fixed stress position with stress on the penultimate syllable, whereas Russian has a flexible stress pattern (both across paradigms and within lexical items there are stem-stressed

and end-stressed words). Polish does not reduce unstressed vowels. In Russian, on the other hand, all unstressed vowels are phonetically reduced. Inflectional endings in Polish are mainly unstressed but, since the vowels are not reduced, they are all phonetically transparent (i.e., the endings keep their distinctive features). In Russian, stressed vowels are all transparent, whereas unstressed vowels may be non-transparent, depending on the vowel and the position relative to the stress. In Russian stem-stressed noun endings are after the stressed syllable and therefore reduced, so that the phonetic distinction between feminine nouns in {-a} and neuter nouns in {-o} is lost under qualitative vowel reduction and reduced to a schwa ([ə]), which makes them sound identical. As a result, it is impossible to hear the difference between many morphologically feminine and neuter nouns (although in the written form the distinction remains clear). For example, the final <o> in the Polish noun *piwo* ‘beer’, and the final <a> in the Polish *tęcza* ‘rainbow’ are distinctive, but in Russian, the pronunciation of the unstressed final <o> and <a> is the same, as for example in *piwo* [pivə] ‘beer’ and *kukla* [kúklə] ‘doll’.

On the one hand, this phonetic reduction reduces the number of distinct case suffixes within the ‘unstressed’ paradigm and blurs the formal gender marking. On the other hand, due to allomorphy phonetic reduction for the system as a whole creates a higher number of case endings in the spoken language. This in turn leads to more homophony and lower morphophonetic analysability in the gender and case morphology. Therefore, the nominal inflection system in Polish without reduction and with a fixed stress pattern is more transparent than in Russian.

From the above description it is clear that a learner of Polish or Russian encounters an enormous variety of gender and case suffixes in the input. The fact that stem-stressed nouns in Russian contribute to an even greater number of homophonous endings as well as the fact that end-stressed nouns in Russian are infrequent could make the acquisition of the gender and case system even more challenging compared to Polish. Russian children hear approximately 87% stem-stressed forms (reduced), and 13% end-stressed forms (transparent).

From a few studies on monolingual children acquiring gender and case morphology in Polish or Russian, we know that both Polish and Russian children

learn the distinction between masculine and feminine before age 2;0, but the neuter later on. In contrast, bilingual children at age 7 still make agreement mistakes. Phonologically opaque noun forms in Russian cause difficulties for both younger monolinguals and bilingual children, and bilingual children have significantly more problems, especially with opaque neuter. For case acquisition, both Polish and Russian children start acquiring the case system before age 2;0, and the accusative, genitive, and dative inflections and core functions before age 3;6. The full paradigm for neuter is acquired later than that for masculine and feminine. From the available research on Russian-Dutch bilinguals we know that for bilinguals with Russian as the weaker language the case system has not been (fully) acquired by age 7. It seems that gender and case acquisition is especially challenging for bilinguals who acquire Russian in combination with a language that has no or a very restricted gender and case marking.

Because of the reduction of unstressed gender and case suffixes in Russian, Smoczyńska (1985) and Slobin (1973) argued that gender and case inflections are not easy to determine for Russian children. This should then lead to a substantial delay in their proficiency with gender marking and case inflections. Although plausible, this claim has never been tested cross-linguistically. The goal of this study is therefore to establish whether or not these differences in the phonetic realisation of unstressed vowels and their transparency can explain the abovementioned divergence.

The main research question this study has addressed is: How does the acquisition of gender and case differ between Polish and Russian in monolingual children in Poland and Russia, and bilingual Polish-Dutch and Russian-Dutch children growing up in the Netherlands?

The main hypothesis was that, due to specific characteristics of the linguistic systems of Polish and Russian, gender and case markers would be acquired faster in Polish than in Russian. We, moreover, expected that, within Russian, end-stressed nouns would be acquired faster than stem-stressed nouns, for they are transparent and salient. We also extended this claim to bilingual acquisition and hypothesised that Polish bilinguals would be faster in the acquisition of gender and case morphology than Russian bilingual children. It goes without saying that

only equivalent tests with highly comparable groups of participants would make a reliable comparison possible.

For this study, 158 typically developing children (aged 3;6-6;6) were recruited and divided into four experimental groups: monolingual Polish children, bilingual Polish-Dutch children, monolingual Russian children and bilingual Russian-Dutch children. In addition to these four groups, two monolingual adult control groups (Polish and Russian, 10 in each group) were formed.

A series of test materials was used: background materials, production tasks and comprehension tasks. The background materials consisted of a language background questionnaire (COST action) filled out by a parent, a non-verbal memory task (a computerised version of Henry's (2001) Odd-One-Out), and a sentence repetition task (SRT) for Russian, Polish and Dutch. The Russian version of the SRT was an adaptation from the Russian SRT by Meir and Armon Lotem (2015); the Polish SRT was adapted from the Russian version. The Dutch SRT was a part of an already existing SRT for Dutch.

The experimental tasks for both the production and comprehension tasks were designed for this study. For Russian, half of the items was stem-stressed and the other half was end-stressed. There were three production tasks: a gender production task in which gender was tested through agreement with the possessive pronoun *mój/moj* 'my', a genitive production task which prompted a genitive of negation, and an accusative production task in which the children were asked to say what they saw – which requires an accusative case in Polish and Russian. Furthermore, there were two computerised comprehension tasks: the gender comprehension task used agreement with an adjective that was marked for gender, and the participants had to find the noun (one out of three) that matched the gender of the adjective, and a case comprehension task in which children heard a fully reversible simple transitive sentence in SVO or OVS word order, and saw two pictures that were either a match or a mismatch to the sentence. The only difference between the pictures was the syntactic roles assigned to the nouns: in one of the pictures noun *a* was the subject, and in the other the object. In all experimental tasks, the accuracy per gender (M, F, N) was taken into account for analysis for Polish and Russian. Additionally, for Russian, the accuracy per stress condition was taken into account for analysis. The following measures were taken

into account as covariates in the analyses of the experimental tasks (if applicable): language proficiency in Polish/Russian and Dutch, age, age of onset of Dutch, and the amount of input in Polish/Russian.

Results of the background measures showed that the monolingual groups were very comparable in terms of age, gender and parental education. The bilingual groups were highly comparable in terms of age, gender, age of onset and length of exposure to Dutch, and amount of input, as well as in distribution over dominancy groups and in preferred language of the children. In monolinguals, language proficiency correlated with age. In the bilingual groups, there was no correlation with age in the proficiency in Polish and Russian, but there was a correlation with age for the Dutch SRT.

The results of the experimental tasks showed that gender production was more difficult in Russian than in Polish. There were some indications that this was also true for case production, where, due to some instances of homophony in the oblique cases, differences were not always observable (to the advantage of Russian stem-stressed nouns). The advantage of Polish over Russian was not clearly found for case comprehension; this was possibly due to a greater role of learner strategies compared to the role of the proficiency level.

Contrary to the expectations, there were no differences between the Russian stem-stressed and end-stressed items. Thus, it can be concluded that the observed differences between the languages were not directly due to the diminished phonetic clarity within Russian. The combination of three factors (larger number of forms, increased homophony in Russian, and low pattern frequency of Russian end stress) can explain why we did not observe an advantage of end-stressed Russian forms, but only a general advantage of Polish over Russian, especially in the neuter gender. Despite the fact that in Polish the neuter gender is also infrequent, and was performed worse than the other two genders, transparency of the neuter ending favoured a higher accuracy in gender production of the Polish children.

The developmental patterns in acquisition of gender and case appeared to differ between monolinguals and bilinguals. From our analysis, it was clear that bilinguals made different types of errors than monolinguals: where monolinguals provided an ending from another oblique case, bilinguals often did not change

case endings at all. That is, they used the nominative form where another case form was appropriate.

The expected learner strategies were observed in both monolingual (case strategy) and bilingual (word order strategy) participants. The expectation of the Polish children relying more heavily on a case strategy than the Russian children was not clear from the results. More research is needed on this topic.

It was suggested that four extrinsic factors related to bilingualism cause individual variation in the acquisition of gender and case: language transfer, language status, quality and quantity of input, and age of onset. The linguistic situation and attitude to the languages were highly comparable among participants and therefore did not emerge as factors affecting the results. Against expectations, the amount of input was not a significant predictor for gender and case production/comprehension in bilingual participants. Although no contrast could be made with a different L2 in this study, the fact that Dutch has no case marking could contribute to the results through negative transfer.

In conclusion, this study has shown that the reduced amount of phonetic clarity, the lower morphophonological regularity (expressed by the larger number of endings in Russian compared to Polish), and the low frequency of the end-stressed pattern result in Russian children being slower in the acquisition of gender and case. In future studies, this paradigm can be applied to the study of other, also non-Slavic languages, by adding other cases, the plural or involving agreement with adjectives in the oblique cases and past tense verbs.