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**VOCABULARY AND MORPHOLOGY DEVELOPMENT IN  
INFANT TRILINGUALS: CASE STUDY**

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*Abstract*

The paper presents a case study exploring a trilingual family with parents speaking two different languages and living in a third language country and their children — heterogeneous twins acquiring three languages: English and Russian since the birth and German starting from the age of 1;11. From the very beginning, the ‘one parent — one language principle’ has been applied.

The types of bilingualism in relation to the multilingual situation, the family background, the status of the languages in the family, the differences of English, Russian and German grammatical systems, and the order of morpheme acquisition in the three languages are considered.

The morphological development of trilingual children exhibits similarities in the order of acquisition of certain morphological forms with both monolingual and bilingual children together with variation in the pace of development of the grammatical categories. The first productive morpheme to appear in the speech of the twins was the English plural -s. In the development of morphology, a cross-linguistic effect was at work with interaction of the three languages observed during the developmental process. The occurrence of cross-linguistic influence in trilingual language development is determined by both language-external and language-internal factors.

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**Keywords:** Trilingualism, vocabulary, morphology development, heterogeneous twins.



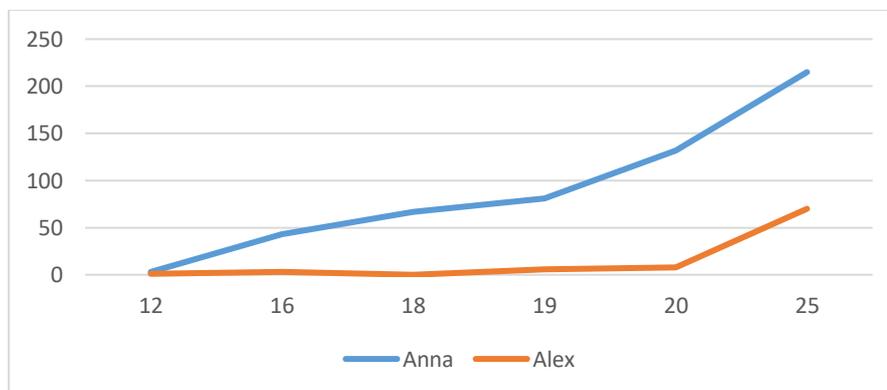
## 1. Introduction

For last two decades, the interest in multilingualism has increased considerably giving growth to the research in the field of a third or additional language acquisition. Studies of children acquiring more than two languages cover different periods, but many of them start their analysis around at the age of two when children begin using multiword utterances. The majority of such studies are longitudinal case studies on a range of different participants and languages, which employ different methods of data collection and analysis.

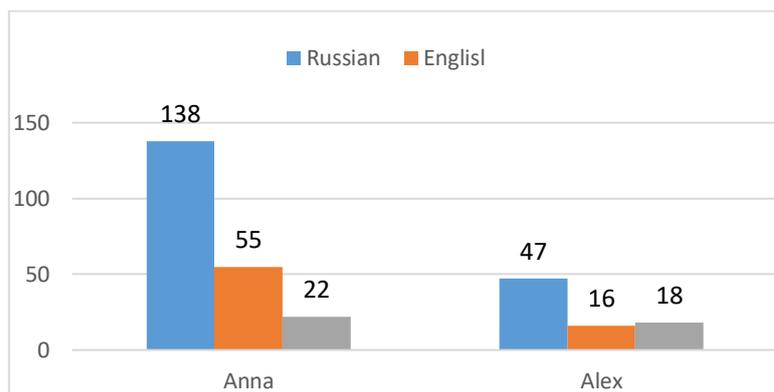
Grammatical development is inextricably linked to the expansion and qualitative changes in the lexicon. Any language learning starts with attaining its vocabulary, a set of words that are the basic building blocks used in the generation and understanding of sentences. The growth of vocabulary is one of the essential prerequisites for language acquisition.

In this context, the aim of the paper is to present a study on the vocabulary and morphology acquisition of early trilingual twins simultaneously exposed to English, Russian from birth and German since the age of 1;11.

The study focuses on exploring the trilingual family — parents, who speak two different languages and live in a third language country and their children — to explore the question how children acquire the three languages involved. In order to understand the process of early trilingual acquisition it is necessary to consider the following issues: the types of bilingualism in relation to a multilingual situation, the family background, the status of the languages in the family, the differences of English, Russian and German grammatical systems, the order of morpheme acquisition.



**Figure 01.** The general vocabulary development of trilingual twins



**Figure 02.** The ratio of Russian, English and German words in the twin's vocabulary

## 2. Problem Statement

In order to understand trilingualism, it is necessary to imagine what is going on inside a brain where the three languages coexist. In the view of Cook (Cook, 1995, p. 94) “a single mind with more than one language has a totality that is very different from a mind with a single language” and Cook characterizes the language capacities of such mind as “multi-competence”. The languages in a multi-competent individual may develop as separate systems, but the common features between them cannot be overlooked, and Cook suggests that such minds may have a flexible grammar rather than the single fixed grammar suggested by the Universal grammar approach to language acquisition.

Due to lack of research findings, the phenomena of trilingual and multilingual language acquisition are often explained from the point of view of what is known about the early bilingual acquisition. In many cases, trilingualism is described as an extension of bilingualism (Hoffmann, 1985; Hoffmann, 2001).

The most notable of the early studies on early bilingual development are those of Ronjat (Ronjat, 1913) and Leopold (Leopold, 1939–1949). The authors wrote critical works about their children who acquired two languages simultaneously from the very beginning of their speech. The study of Ronjat (Ronjat, 1913) covers the period of language development of his French/German bilingual son up to the age of 4 - 10 and deals with the case of complete bilingualism. Ronjat was the first to apply the “*one person — one language*” method. His son learned German from his mother and French from his father. Summarizing the results, Ronjat concluded that bilingualism did not lead to backwardness in speech. His son's pronunciation from the very beginning was similar to that of a monolingual child in both languages. The parallel development of phonetics, morphology, and syntax took place in both languages.

The most thorough research on early bilingual development was conducted by professional linguist Leopold (1939–1949). The great advantages of this work are that it was written with the systematic use of a phonetic transcription and took into account the fact that the child forgot many words. The diary for Leopold's daughter Hildegard goes to the age of 15; 7 but the first two years were paid the most attention. The two languages learned by the girl were English (the family lived in America) and German (the father's language). In comparison with Ronjat's case, the bilingualism was not complete because the position of Hildegard's German was much weaker than that of her English. As Leopold reported, in the first two years of his daughter's life bilingualism was prominent in vocabulary, in which German and English words were mixed. After the age of two, the girl began to separate the languages from each other according to the person

in the conversation. Later on, due to much influence of one language on the other in vocabulary, idioms, and syntax; very little interference was observed in sounds, morphology, and word formation. The girl's German was strongly handicapped.

In 1978, Volterra and Taeschner published a study on two Italian/German bilingual girls in which it was claimed that initially the two languages formed one system before eventually becoming differentiated. This issue dominated research in the field of bilingualism throughout the 1980s and into the 1990s as researchers sought evidence of either single or differentiated systems in bilingual subjects. It coincided with a relation that cases of the bilingual acquisition were not uncommon, and the study of these cases could provide insights into a language not found in monolingual research. Nowadays research into bilingual acquisition is a flourishing field, primarily focused on how cross-linguistic evidence can contribute to understanding of the language acquisition process.

Very recently, there has been some growth in studies on the acquisition of a third language (usually English), in relation to educational context, as English and multilingualism have become increasingly important as a result of globalization (Cenoz, Hefeseisen, & Jessner, 2000; Cenoz, 2001). However there is little published work on the increasing number of children who are growing up multilingual at home as a result of increased mobility between countries and more mixed marriages.

## 2.1. Types of multilingualism

Researchers make a distinction between simultaneous and successive acquisition of two languages. Simultaneous acquisition occurs when a child has been exposed to two languages before the age of three, and successive acquisition occurs when exposure to the second language has taken place after the age of three.

Some children are exposed to three or more languages from birth, even though this does not occur as often as early bilingualism. Early multilingualism is not uncommon in some parts of the world (such as Asia and Africa), and is becoming increasingly frequent in Europe as a result of greater population mobility and international communications (Cenoz, 2000). In early multilingualism, different patterns of language input and use can affect a child's developing languages. Cenoz (Cenoz, 2000, p. 40) describes the acquisition order of languages in early trilingualism in a formula  $Lx+Ly+Lz$ , in which contact with the different languages takes places simultaneously but in different situations. Numerous situational variations are possible, but a common one is when each parent speaks just one language to the child following the principle 'one-parent-one-language' and a third or fourth language is used in the community or schooling. The language that the parents choose to speak to each other is also crucial in determining the child's language pattern. Other acquisition orders are possible if the child is exposed to the different languages at different times. A child might simultaneously acquire two languages at home with a third added later, for example on entering kindergarten; this can be represented by the following formula  $Lx/Ly \rightarrow Lz$  (Cenoz, 2000, p. 40).

The notion of trilingualism as distinct from bilingualism was only defined at the beginning of the present century. Until this time, children's acquisition of three languages from birth was treated as a form of bilingualism, as it was thought that there was no substantial difference between acquiring two and

acquiring more than two languages. That is why “most studies involving trilingualism have been carried out within the theoretical framework of bilingualism research” (Hoffmann, 2001, p. 1).

Cenoz stresses “multilingual acquisition presents more diversity than second language acquisition, and its study presents greater complexity” (Cenoz, 2000, p. 47–48). This is due in part to the interactions that are possible among the multiple languages being learned and the processes of learning them. For example, the acquisition of Spanish, Catalan and English is likely to be different from the attainment of Spanish, Japanese and English. Spanish and Catalan are very close to each other and like English belong to the Indo-European family. Japanese is an East Asian language unlike English and Spanish, which in turn are relatively distant from each other. Studies in multilingual acquisition found that the typological similarity of the languages is the primary factor in code-switching and cross-linguistic influence (Cenoz, 2001).

One of the important factors in considering the processing of multilingual acquisition is the typology of the languages involved and their linguistic distance. The next section gives a brief description of differences in the three languages acquired by the children.

## **2.2. Cross-linguistic differences**

English and German are historically related; both languages are in the Western branch of the Germanic family of Indo-European group. Despite the close historical relation, the languages differ significantly in the richness of their inflectional morphologies. Both languages make a three-way distinction in the degrees of adjectives and adverbs. In nominal inflections, however, English makes only a two-way distinction in number (singular vs. plural) whereas German makes a two-way distinction in number (singular and plural), a four-way distinction in grammatical case (nominative, accusative, genitive and dative) and a three-way distinction in lexical gender (masculine, feminine, neuter). The nominal case is realized in the German noun phrase on the noun, the determiner and/or pre-nominal modifiers adjectives.

English and German have similar systems of tense, mood and aspect. Verbal inflection distinguishes past versus non-past. The most notable difference between the two languages occurs in the morphological marking of person and number of the verb. Aside from the irregular verb *be* English distinguishes only third-person singular versus non-third-person singular. German, on the other hand, distinguishes first, second and third person by means of inflectional suffixes realized on the verb.

In the sphere of syntax, German like English is chiefly a SVO language with verb second in main clauses, but it allows for word order variation, which is disambiguated by case morphology and subject–verb agreement.

Russian also belongs to the Indo-European group, but it is very distant from both English and German. Russian is a highly inflecting language; it distinguishes six cases (nominative, accusative, dative, genitive, instrumental and prepositional). Case marking interacts with the number (singular–plural) and the gender distinctions (masculine, feminine and neuter). Case marking in Russian follows different declension types that do not entirely conform to gender distinctions. There is one declension class for masculine and neuter nouns each, but two declension classes for feminine nouns. The Case is marked by nominal suffixes in Russian. Table 02 displays the most common declension types in Russian. Syntactically Russian being a base SVO language allows for free word order. The example (3) shows possible word orders in Russian.

As in German, both the case marking, and subject–verb agreement are necessary for determining the syntactic function of noun phrases.

No doubt, simultaneous acquisition of languages, which vary considerably in the inflectional system complexity, is likely to affect the process of trilingual development. The environment does affect language acquisition in some way, but how does the multilingual child go about gaining language, and more basically, vocabulary and morphemes?

There are many theories attempting to explain the acquisition of morphemes, especially the order of acquisition.

### **2.3. The order of morphology acquisition in English, German and Russian**

The order of acquisition is a concept describing the specific terms in which language learners acquire the grammatical features of their first language. This concept is based on the observation that all children acquire their first language in a particular, universal order, regardless of the specific grammatical structure of the language they learn. Linguistic research has largely confirmed that this phenomenon is true for first-language learners. The order of acquisition for second-language learners is less consistent.

In morphological development, one can distinguish between the timing and path of acquisition. Timing refers to the chronology of the emergence and productive use of certain morphological categories as well as to various developmental time intervals. For example, after the emergence of first verbs, the whole range of basic inflectional forms will be acquired by Turkish-speaking children within about 1 month, by Russian-speaking children within 3 to 4 months, and by German-speaking children within about 7 months.

English-speaking children need nine months, from the onset of verb production, to learn to use the third-person marker *-s*, as in *reads*. Some explanations of variability in morphological development are discussed below. The issue of timing can be related to other, more general questions, namely, when and in what order do children acquire morphology? The issue of the path is related to another, more general question: How do children acquire morphology? The latter question is answered differently depending on the theoretical approach to morphological development.

The stages of bilingual children development are identified on the basis of different criteria. Linguistic indicators proposed by R. Brown to characterize the stages of development of monolingual children are of greatest interest. The longitudinal study of the acquisition of grammar in three American children, Adam, Eve and Sarah was carried out. Researcher took as a basis the average length of utterance (Mean Length of Utterance — MLU) in morphemes, highlighting the stages of one-morpheme, two-morpheme utterances and so on together with other grammatical features. He concluded that between the ages of two and four years, children gradually included a variety of different morphemes in their speech.

The first grammatical morpheme to emerge in English monolinguals is present progressive tense of verbs ("*-ing*" suffix) that shows something is happening temporarily. Next come the prepositions "*in*" and "*on*," followed by the indication of possession, past irregulars such "*broke*," and articles ("*a*" or "*the*"). Some of the later grammatical morphemes learned are contractions of "*to be*" such as "*That's a book*" or "*I'm walking*." Using those morphemes, 2-to-6-year-olds can create more and more complex sentences that follow grammatical rules.

A.N. Gvozdev (1961) studied the morphology acquisition of Russian monolingual infants and determined the following periods of formation of the grammatical structure of speech:

Period I (from the age of 1;3 to 1;10) is characterized by utterances consisting of amorphous root-words.

Period II (1;10–3) deals with mastering the grammatical structure of the sentence and includes three stages:

Period III (3–7) deals with the further development of morphological system when children systematize grammatical forms by type of declension and conjugation learning many individual forms and exceptions (Gvozdev, 1961).

There is no much empirical evidence about the order of morphology acquisition by German monolingual children. Some sources briefly describe six basic stages of language development starting from with appearance of one-word utterances (only nouns) at the age of 1–1.5 (Knetfeder, 2015). According to German psychologists, children begin using pronouns and plurals at 1.5–2 and can produce sentences with correct declination and conjugation by the age of three.

The research data show that starting late in the second year of life, and speeding up in the third through fifth years, children undergo considerable changes in their use of language, moving from single word holophrases and paired words to actual grammatical morphemes and the application of morphological rules. The order of acquisition of these rules seems to vary little between languages and follows very similar patterns. The speed of morphological development may also vary across languages and structures.

### **3. Research Questions**

Moving to the study, we plan to answer the following questions:

- Do the terms of language acquisition in trilingual children differ from monolingual children speaking the same languages?
- How does trilingual vocabulary develop?
- Does the language with rich inflection system affect the acquisition of less inflected languages?

Can the order of morphemes acquisition be determined?

### **4. Purpose of the Study**

The purpose of the study is to investigate and describe the peculiarities of simultaneous acquisition of three languages by heterosexual twins.

### **5. Research Methods**

#### **5.1. Case Study.**

The data for the study are based on six-year observations and diary records on language acquisition of twins: a girl, Anna, and a boy, Alex. The children were born in Berlin (Germany) from Russian mother and American father. The twins' father is a professional translator, who has been working in the German TV and film production industry for twenty years. Their mother is a specialist in literature and editorial work. Both parents are fluent in German and each other's native languages. From the very beginning, the

parents have applied the ‘one parent — one language principle’. The mother has spoken Russian and the father American English to the children. In the presence of the twins, the parents have communicated with each other in the language of the community (German). The parents have paid particular attention to the twins’ speech development. The children went to a nursery school at the age of 1;11, and the amount of German input increased. The data for analysis covers the period from the twins’ birth to the age of twenty-five months. After that time, the mother stopped making systematic recordings. The children’s word-forms and words were transcribed as Russian, English or German only if they could be traced to one of the languages. Only words being uttered permanently with understanding were taken into account. It should be noted that, in this case, the analysis of the morphology development presents certain difficulties. Russian, unlike English, is a stem-language; there is no possibility of having word-forms deprived of inflectional affixes even in the early stages of ontogeny. Affixes initially exist in every word that the child hears and begins to use. This circumstance does not allow for the assessment of the development of the child’s speech in Russian by measuring the mean length of utterance in morphemes. That is why, the size of the vocabulary in each language, the relationship of the three lexicons, and translation equivalents are analyzed.

## 6. Findings

Figure 01 shows the general vocabulary growth of the twins from the appearance of the first word to first phrases. The vertical axis shows the total number of acquired words; the horizontal axis indicates the age in months, when the growth of the children’s vocabulary was registered.

It is clearly seen that regardless the same environment and input the rate of the twins’ vocabulary development differs significantly. At the age of two, Anna’s total active vocabulary counted 215 words while Alex used only 70. The difference in the twins’ vocabulary acquisition was noticeable at the age of 1.5 and in a year the distance was considerable. Anna started to produce phrases (*Ja pojmyla juki (I washed hands); It’s icky*). Alex speech was telegraphic (*maljot itit (plane fly), no bed, all gone*). The boy was a lot slower in acquiring new words and rules than his sister. His vocabulary items were very short and worse articulated.

At the age of two, the boy almost stopped speaking for some time. He refused to learn new words and used the words he already knew. This phenomenon, “the period of silence” after the child’s entering kindergarten experts have described as a necessary transitional phase. The silence of the child does not mean that he/she is out of the language, ignores it, but is passively watching. In fact, at this time he/she is very active doing a massive inner work. The child collects experiences in the new language, checks, summarizes representations. Parents are concerned about the child’s silence at this time. In their view, a new language is always attained as a foreign language at school: perception — exercise — use. However, multilingual children, having met in the kindergarten with a second (third) language are in a different situation — “immersion”. The child meets a new language alone and should do all the work by himself (Gvozdev, 1961). It would be wrong to conclude that multilingualism caused Alex’s slow vocabulary development. Many studies on infant monolinguals and bilinguals report that either twins or boys develop their linguistic skills later than girls or an only child in the family do. Besides, brain hemisphere dominance (Alex turned out to be left-handed) and peculiarities of the boy’s temperament might affect the rate of vocabulary acquisition.

The ratio of the twin's languages demonstrates the amazing clear numerical superiority of more sophisticated Russian words. Alex could say more than 40 Russian words, only 16 English and 18 German words (Figure 02). Anna produced 138 Russian, 77 English and 22 German words. Her total vocabulary corresponds to that of a monolingual child. The dominance of Russian words can be explained by the "strength" of the mother's language during this period of life. For two years the mother took care of her children by herself without anybody's assistance, the amount of the Russian input was larger than English.

Before going to a kindergarten, the twins' vocabulary consisted mainly of Russian and English (the parents' languages) words. German words occasionally appeared because of communication with peers. The period of going to kindergarten checked with the beginning of rapid vocabulary growth.

Anna's words denoting feelings, evaluations of others and relationships were multiple. Alex had a relatively high proportion of words meaning vehicles and actions with them. For example, a car, which shook the boy's imagination, named for the first time in Russian (*masina*) was deposited in the memory (although the word consists of three syllables) for a long time, not giving way to simpler English *car* and German *Auto*.

Researchers in the field of bilingualism discovered a scheme of the child's entering the languages (Volterra & Taeschner, 1978). In the first year or two of life, the child associates each object or action with a word in one or another language forming a mixed vocabulary of words in both languages that he uses in conversations with both parents. That is bilingual kids use two languages as one. The "father's" and "mother's" words are interchangeable. One could say they are perceived as monolingual synonyms. Only later children become aware of their bilingualism and language separation begins. Thus, bilingual children go through three stages: 1) the stage of mixed lexicon, 2) the stage of translation equivalents, when children begin to distinguish their parents' languages and 3) the stage of complete differentiation of the languages. Anna and Alex initially utilized "common language." Translation equivalents were very few. By the age of 25 months Anna attained more Russian-English translation equivalents, mostly nouns (*sobaka*=dog; *shar*=ballon; *lesepet*=tricycle), Alex — English-German (*mehr*=more, *meine*=my, *nicht*=no). The first word mixing was fixed at the age of 2.5 (*Anja-Kind* (Anna-child) *Teddy-Bar* (teddy bear)).

The grammatical forms observed in the speech of the twins are listed below:

(1)

Russian:

Plural forms	( <i>taminy</i> (vitamins), <i>staniki</i> (trousers))
Imperatives	( <i>Stavaj</i> (Get up!), <i>Zakoj!</i> (Close!))
Accusative case	( <i>Daj kuku!</i> (Give the doll!))
Past tense	( <i>ja nashaa, ja pojmyja</i> (I found, I washed))

English:

Plural -s	( <i>socks, undies, shoes</i> )
Contracted copula	( <i>It's icky!</i> )
Possessive case	( <i>Daddy's shoes on!</i> )

German:

Imperatives	( <i>Kom hier!</i> (Come here!))
Present tense 3 <sup>rd</sup> person singular	( <i>Mama arbeitet</i> (Mother works))

Numerals	( <i>eiit, zwei, drei</i> (one, two, three))
Adverbs	( <i>weg</i> (away), <i>mehr</i> (more), <i>auch</i> (also))

These grammatical forms coincide with certain stages of morphology development reported by researchers. It can be only concluded that the first productive morpheme to appear in the speech of the twins was the English plural -s, as it was often applied to different nouns in the obligatory contexts. Another interesting observation deals with the effect of the Russian rich morphology on the acquisition of English and German grammatical forms in the girl. Anna began producing correct Russian and English grammatical sentences early, which seem to facilitate German grammar attainment.

In general, the analysis has shown that multilingualism does not impair speech development at early stages. The morphological development of trilingual children exhibits similarities in the order of acquisition of certain morphological forms both with monolingual and bilingual children together with variation in the speed of development of the grammatical categories.

## 7. Conclusion

Early trilingual development is a complex process involving unique combinations of factors and situations. There are many types of trilinguals: children growing up in a trilingual environment, adults living in a trilingual or multilingual community, and fluent bilinguals who have learned a third language at school or for other reasons. Most of trilinguals do not have much choice of whether they wish to be trilingual; it is simply a fact of their particular circumstances. How they deal with three languages is interesting in that the three languages cannot be 'balanced' or equal, as they can be in a bilingual person. To be sure, some level of interference from one or two languages may be expected, but there is little research to indicate a distinct pattern of language selection or usage. Many theories on bilingualism simply cannot be transferred to trilingualism. A great deal of research has been carried out on bilinguals, but relatively little on trilinguals. This is because comparative testing or longitudinal studies are difficult to undertake in two languages, and it is even more difficult for three languages, as it is hard to find a sample of trilinguals who use the same three languages at the same competence levels and who have similar backgrounds. In this situation, researchers, on the one hand, should work at the unification of the conceptual apparatus, and on the other hand, present a comprehensive look at the problem of multilingualism describing internal and external factors affecting the process of language acquisition. .

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