CHILD NOMINAL DERIVATION AND PARENTAL INPUT: EVIDENCE FROM MORPHOLOGY-RICH RUSSIAN

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ABSTRACT

The purpose of current article is to describe the early phases of first language acquisition of nominal derivatives in morphology-rich Russian approaching an ideal inflecting-fusional language type. The results are based on the naturalistic longitudinal observations of two typically developing monolingual children (1;5–3;0) growing up in middle socio-economic status families (33 hours of recorded spontaneous speech). It has been revealed that derivation morphology, viz. affixation, starts to develop early and precedes compounding. Within nouns, suffixation is the main method of word-formation. Prefixation and mixed methods are rare. Although nouns can be formed from almost any grammatical classes, they are mainly formed from nouns in child speech. Early compounds can be described as right-headed endocentric ones where their main component is a noun or a verb. The preference for certain patterns and models rarely differs in child speech corpora. Both children have similar development of semantic categories and only a few innovations. The morpheme and semantic (cognitive) complexity of nominal derivatives in child speech increase by the end of the observation period. The influence of parental input is significant for the mechanisms of derivation morphology acquisition. This is confirmed by the presence of a positive correlation for both lemmas and tokens of nominal derivatives. The most frequent patterns in parental input are acquired by a child earlier.

1. INTRODUCTION

Derivatives have a more complex morphemic structure, compared with simplexes – non-derived lexemes. Their acquisition is connected with parental input (child-directed speech, CDS) and with cognitive development of children. However, to date, normative (i.e. regular) derivatives in the speech of children (child speech, CS) and their main caregivers have not yet been studied either from diary observations, nor from spontaneous speech data. The observations of Gvozdev A. N. (2007) are based on his diary of his own son's speech development where he pays attention to the features of the first derivative words, the semantics of derivational mor-phemes and even the intonation of their pronunciation. But once their number increases in the speech of the boy (at 2;8), Gvozdev A. N. begins to focus on innovations (i.e. occasionalistic novel derivatives) that he identifies as "formations by analogy" (ibid). Our knowledge of the cognitive bases of regular derivational morphology is based on a few experiments with older children (e.g., Jurjeva 2006 for Russian, Vainio et al. 2018 for Finnish which is also a synthetic language, rich both in derivation and inflection). This determines the purpose of the current work: the study of derivational processes in the sphere of nouns in the early stages of speech ontogenesis.

Through the material of the Russian language, which is considered to be morphologically and morphemically rich language approaching an ideal inflecting-fusional language type (Dressler 2007: 4), we have a unique opportunity to employ this kind of analysis and to advance in solving a number of debatable issues facing modern psycholinguistics. In particular, the main controversial theoretical claims when discussing the acquisition of derivatives are a) that derivatives may be acquired as one item (Berko 1958: 176,

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Nagy et al. 1993: 45) or b) children acquire derivatives while mastering them via affixation (Clark 2014: 425–439; see also Smolka et al. 2018). The presence of a relevant innovation in the speech of a child has long been considered to be an acquired criterion for a child of a particular pattern as well as the way of word-formation or an affix. But even A. N. Gvozdev underlined that not all the derivatives that "coincide with standard language" were borrowed by a child as a "whole, ready-made" from surrounding speech (Gvozdev 2007: 460, 465; Jurjeva 2006: 177).

The problem is that this is difficult to prove. In our opinion, one proof lies in the expansion of the criteria base and in the involvement of the representative data of the spontaneous speech, not only of children, but also of the parental input that they receive. The amount of input and the quality of mother–child interactions in mothers who differ in socio-economic status (SES), as well as in education, has been widely discussed in recent decades (e.g., Schwab and Lew-Williams 2016 for a review, Vanormelingen and Gillis 2016, Cadime et al. 2018, Richards et al. 2018, Tal and Arnon 2018).

After we have characterized the language material, methods, and have described the structure of the study, we will present the results and answer the questions that we faced. In particular, how does the number of derivatives change by the end of the observation period? What is the ratio of derivatives and non-derived words in the speech of both partners in "adult (caregiver) – child" dialogue? How do derivation processes develop? How do qualitative and quantitative features of the derivational aspect of parental input (implying patterns, models, methods of word-formation, affixes, semantic categories of derived words, their diversity and frequency) affect the development of this component of the system-language competence of a child?

2. MATERIALS AND METHODS

The results discussed are based on the analysis of so-called ecologically pure language material, i.e. naturalistic longitudinal observations of "adult (parent) – child" communicative interaction (1;5–3;0). This is the data of typically developing Russian-speaking monolingual boys (Kirill and Filipp) from Saint Petersburg (Russia) families with middle SES. The main caregivers are their young mothers, who are students of humanitarian faculties of state universities.

The overall size of the audio and video recordings of spontaneous speech is more than 30 hours with about 74 500 tokens. Table 1 presents the characteristics of each CS subcorpus.

Table 1. Data: Child speech

Subjects	Length of recordings (hours)	Age (year; month)	Total tokens	Noun tokens	The proportion of nouns in the total number of tokens (%)
Kirill	5	1;8–3;0	5769	1518	26
Filipp	28	1;5–2;8	16486	3803	23
Total	33		22255	5321	

For future discussions it is important that despite the difference in the total duration of recordings and the number of tokens in each of the corpora, the percentage of nouns in the speech of both children is comparable.

The recordings used were decoded, transcribed and morphologically marked in accordance with the rules of the Child Language Exchange Data System (CHILDES) conducted by B. MacWhinney (2014). Next, these subcorpora – CS and CDS – were analyzed from the following aspects: 1) the ratio of derivatives and non-derived nominal tokens throughout the observation period; 2) the sequence of the emergence of derivatives and their models; 3) derivational features of basic patterns, in particular, the part-of-speech characteristics of the producing (motivating) stem and the semantics of the means.

Additionally, both lexical (lemmas) and grammatical (types) diversity of derivatives, as well as their frequency (tokens) in speech were taken into account. The proportion of new (that is, first used by a child, first-appearing) derivatives and their subsequent repetitions was intentionally fixed. Finally, the productivity of patterns and morphemes in the modern Russian language (Švedova 2005) was taken into consideration. It must be emphasized that the parental input (hereinafter referred to as its

derivational component) received by a child and its correlation with CS (input vs. output) are analyzed for the first time.

The criteria for derivative acquisition (patterns, models, tools) – in addition to existing in CS innovations mentioned above – are considered to be a) productivity, which involves the use of a working morpheme with more than one producing stem, the presence of the derivational pair "non-derived lexeme ➜ derived lexeme", a derivational chain and – wider – a family; b) a variety of affixes expressing certain semantics; c) the degree of cognitive complexity (Kazakovskaya 2018). In turn, in order to determine the degree of productive use of the compounds, the use of derivational morphemes with one-root derivatives is essential, as well as the use of stems (i.e. components, or members of the compounds)

as separate words (Dressler et al. 2017a).

3. RESULTS

The size of nominal derivatives (in tokens) in the speech of Kirill was about 12% and in the speech of Filipp this number was 31% (see Table 2). The marked difference does not seem significant in comparison with the total prevalence of simplexes in the speech of both children. The proportion of new nominal derivatives in the total number of nouns in the speech of the boys was comparable (8% and 12%), but differed in the ratio of the volume of derivative words: in the speech of Kirill, the number of new derivatives exceeded their repeats.

Table 2. Nominal derivatives in child speech (lemmas / tokens)

	Nouns	Derivatives	% derivatives	New derivatives	% of new derivatives of the total number of derivatives	% of new derivatives of the total number of nouns
Kirill	580/1518	89/176	15/12	70/128	79/73	12/8
Filipp	874/3803	575/1168	66/31	280/456	49/39	32/12

The volume of nominal derivatives in CS increased as expected by the end of the observation period. The development of derivational processes and thereby the development of affixation was accompanied by so-called peaks, or spurts, in the use of the derived nouns, which is clearly demonstrated by Figure 1.
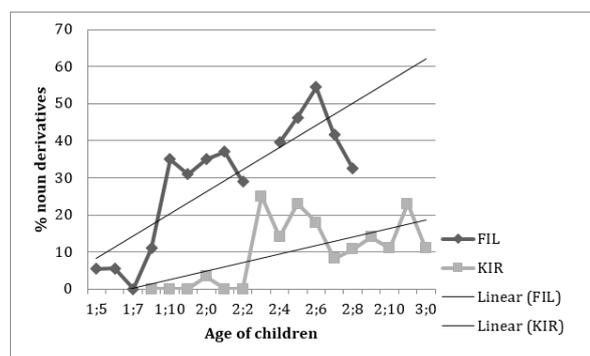

Figure 1. Distribution of derivative nominals in CS (% of all nominal tokens)

The very fact that different derivatives did not appear at the same time (despite the fact that all the models and means were already present in the earliest records in the input, see below), but gradually, in our view, there is evidence of gradual development (and, accordingly, child acquisition) of derivational morphology mechanisms, rather than blind copying of the speech of adults or imitation, although its role in the process of language ac-

quisition (in this case its derivational aspect) should not be underestimated.

In the speech of our young informants nominal affixation began to develop very early. First nominal derivatives were recorded when Filipp was in the middle of his second year (e.g., *dyr-k(a)* 'hole-SM' from (hereinafter >) *dyr(a)* 'hole'), and for Kirill – when he was 2;0 (e.g., *prjan-ik* 'gingerbread, cake' > *prjan(yj)* 'gingery.ADJ'). In both cases, their proportion in the total number of lemmas and their usage (in the analyzed recorded session) was low. It was, respectively, 7 and 3% in the speech of Kirill and 11 and 5.5% – in the speech of Filipp. Inflection of derivatives, i.e. the presence of at least one other grammatical form of derivative, was absent. Hereinafter the sign '(…)' will be used for marking the endings of feminine and neuter nouns to distinguish them from suffixes. Most masculine endings are zero.

Compared to Filipp, Kirill was, metaphorically speaking, late in using nominal derivatives. He actively used childish naming units (cf. child-specific forms, CSF). There were, in particular, so-called protowords, including reduplications (see, e.g., Ota and Skarabela 2018) to denote different kinds of vehicles and the toys that represent them: e.g., *tsjata* 'car.CSF' (1;8), *djun'-djun'* 'BMW.CSF' (1;10), *fu-fun* 'horse.CSF' (1;8). At the same time there were more compounds in Kirill's lexicon, which are also first used in the form

of reduplications, e.g., *kyn-kyn* 'camera.CSF' (1;9) (see more in Kazakovskaya 2017a). Both initial compounds and affix derivatives are often phonologically defective and opaque. According to recent studies focused on the acquisition of morphophonological alternations in Russian, children's sensitivity to morphophonological patterns increases with age, viz. after 4;0 (Tomas et al. 2017: 453).

The development of nominal derivation started with productive language-system models and it was supported by input (see below). Such basic models were "noun (N) / adjective (ADJ) + affix(es)": e.g., *zub-ok* 'tooth-DIM' (1;8) > *zub* 'tooth.N', *kniž-k(a)* 'book-SM' (2;3) > *knig(a)* 'book.N', *pra-ded* 'great-grandfather' (2;4) > *ded* 'grandfather.N'; *čern-ik(a)* 'blueberry' (2;7) > *čern(yj)* 'black.ADJ' and "verb (V) + suffix": e.g., *po/dar-ok* 'present' (2;4) > *po/dar/i(t')* 'present.INF' (a gift)', *br/i-tv(a)* 'razor' (2;5) > *br/i(t')* 'razor. INF, shave.INF'.

Table 3. Early nominal derivational patterns and models in CS (*lemmas / types / tokens*)

Patterns and models	Kirill	Filipp
1. N + affix	34 / 40 / 72	244 / 288 / 408
a. N + suffix	32 / 38 / 70	244 / 288 / 408
b. prefix + N	1 / 1 / 1	0
c. prefix + N + suffix	1 / 1 / 1	0
2. V + suffix	19 / 20 / 33	29 / 30 / 35
3. ADJ + affix	3 / 3 / 3	7 / 7 / 13
a. ADJ + suffix	3 / 3 / 3	5 / 5 / 10
b. prefix + ADJ + suffix	0	2 / 2 / 3
Total number	56 / 63 / 108	280 / 325 / 456
"N + affix" (% of all noun derivatives)	61 / 63.5 / 67	87 / 89 / 89.5

As shown in Table 3, the denominal model "N+suffix" turned out to be the most frequent.

In this case it is important that the derivational morphology mechanisms began to develop within the same lexico-grammatical class of words, cf. (Gvozdev 2007: 399). It must also be emphasized that the producing bases for the first derivatives were already present in the speech of children: e.g., *Filj-k(a)* 'proper name-SM' (1;6) > *Filj(a)* (1;5); *noč-nik* 'night light' (2;4) > *noč* 'night' (2;2), and the working morpheme – viz. suffix – was used by Filipp with several stems. However, recent studies (Kazakovskaya 2017b, 2018, Argus R. and Kazakovskaya, V. V., 2018) indicated that simplex can occur simultaneously with derivative: e.g., *kot-enok* 'kitten' (1;8) > *kot* 'cat' (1;8) or even later, e.g., *ptič-k(a)* 'bird-DIM' (1;6) > *ptic(a)* 'bird' (1;8).

4. DISCUSSIONS

According to our investigation, the earliest and most common method of derivation in the speech of children is suffixation. By the end of the observation period their morpheme repertoire looked very impressive and contained an average of about 50 suffixes, as well as some prefixes (*pra-, pod-*).

Distribution of suffixes within each pattern and model, along with the order of their emergence in CS, is shown in Table 4.

Table 4. Affixes in early nominal derivatives (cumulatively)

Patterns and models	Number of affixes	General order of their emergence
1. N + affix	30	
a. N + suffix	27	*k, an', ok, ik, uš, ux, nik, ut, čik, ek, ic, en(')k, ušk, yšk, očk/ečk, c, ix, ul', ess, n', ink, av, ovn, ič, aljon, ovin*
b. prefix + N	1	*pra*
c. prefix + N + suffix	1 & 1	*pod & nik*
2. V + suffix	19	*k, ak, onok, ø,(e)n(i)j, d, l, unok, ux, lk, šk, v, nic, un, ščik, ok, tel', (a)nk, tv*
3. ADJ + affix	8	
a. ADJ + suffix	6	*ak, yš, ic, ost', ik, atin*
b. prefix + ADJ + suffix	1 & 1	*pod & ik*

A number of semantic categories of noun are formed with the help of suffixes within the framework of the above mentioned most frequent denominal pattern 'N+affix'. In particular, during the second year of life and from the beginning of the third, diminutives were noted: e.g., *tet-en'k(a)* 'aunt-DIM, auntie' (1;11),

korov-ušk(a) 'cow-DIM' (2;0); cf. *det-ik** 'child-DIM' (1;10), nomination of females including animals: e.g., *vnuč-k(a)* 'granddaughter' (2;3), *ež-ix(a)* 'hedgehog-FEM' (2;2), young animals: e.g., *myš-onok* 'mousekin' (1;10), singulatives: e.g., *morkov-k(a)* 'carrot-SG (one item)' (2;2), as well as stylistic (i.e. colloquial) modifications of nouns: e.g., *mam-k(a)* 'mother-SM' (1;6), *kartoš-k(a)* 'potato-SM' (2;1). Following the academic grammar (Švedova 2005), we distinguish between diminutives and stylistic modifications of nouns: compare, e.g., *kolen(o)* 'knee' – *kolen-k(a)* 'knee-SM' – *kolen/oč-k(a)* 'knee-DIM'.

According to the data of spontaneous speech under investigation, the occasionalistic novel derivatives (which are marked with an asterisk, see above *detik**) are singular in the sphere of affix derivatives (4 lemmas for more than 20 thousand words) and are absent in the field of compounds (Argus and Kazakovskaya 2013, Kazakovskaya 2017a), cf. (Tsejtlin 2013 among her other works, Xarčenko and Ozerova 1999). The nominal innovations documented are produced according to the productive models (viz. diminutive and agentive) of varying degrees of frequency, both in CS and in CDS.

Subsequently, these semantic groups are replenished with new derivative lexemes and the variety of morphemes is increased: e.g., *kopyt-c(e)* 'hoof-DIM' (2;8), *princ-ess(a)* 'princess-FEM' (2;6), *medved-ic(a)* 'bear-FEM' (2;8), *izjum-ink(a)* 'one raizin' (2;7), *štuk-ovin(a)* '~gismo, one item' (2;8), *babbl-ik** 'bubble-DIM' (2;9). Within the framework of this model it is clear that diminutives have the greatest variety of suffixes, and the most extensive opportunities for expressing of semantics.

Deverbal derivatives "V+suffix", recorded mostly after 2;6, denoted an action or its result: e.g., *lep-k(a)* 'molding' (2;6), *ot/raž-enij(e)* 'reflexion' (2;6), *vnim/a-nij(e)* 'attention' (2;8), *rabot(a)* 'work' (3;0), referred to the agent: e.g., *past-ux* 'shepherd' (2;4), *gon-ščik* 'racer' (2;4), *isk/a-tel'* 'finder, seeker' (2;10), instrument: e.g., *evaku-ator* 'evacuator' (2;11), *mig/a-lk(a)* 'flasher' (3;0) and location: e.g., *mel'-nic(a)* 'mill' (2;7), *o/stan/ov-k(a)* 'stop' (2;8).

A few deadjectival derivatives "ADJ+affix(es)" represented by two models – viz. suffixal and prefixal-suffixal ones – expressed qualitative semantics. They are abstract nouns, such as *glup-ost'* 'foolish' (2;8) or names of the people, objects or locations that possessed it: e.g., *grjaz/n-ulj(a)* '~untidy per-son' (2;1), *pod-orex/ov-ik* 'mushroom growing under the hazels' (2;1), *gruz/ov-ik* 'truck' (2;4), *čern-ik(a)* 'blueberry' (2;7), *pod-guzn-ik* 'diaper' (2;9), *bol'n-ic(a)* 'hospital' (2;9).

A comparative analysis of the semantic categories of early derivatives revealed some sequence of their occurrence in CS (the time of the first fixation of the derivative in the speech of each child is presented below). So, after diminutives and stylistic modifications (1;5–2;3) there are nominations of females (1;6–2;3), young animals (1;8), actions (1;7–2;0), agents (1;8–2;0), singulatives (2;1–2;5), the results of actions (2;4), instruments (2;4–2;5). Derived nouns denoting males (2;4), occupations and/or activities (2;4–2;6), as well as derivatives with locative (2;6) and qualitative (2;8–2;9) semantics complete the list of semantic categories documented in CS up to 3 years.

The frequency of derivatives belonging to different semantic categories differs. In the sphere of the so-called early semantic categories (1;5–2;5), there are denominal diminutives, stylistic modifications of nouns, names of females and young animals. Singulatives and names of males, as well as deverbal nouns are used with a lower frequency. Among the latter are nominations of a process and/or its result, of an agent, of an instrument. "Late" semantic categories (2;6–3;0) are represented by the deverbal names of professions and/or activities, locations and deadjectival nominations of qualities.

When using other classification approaches, it is possible to say that the following order is observed in the sphere of derivative names of inanimate objects (covering nominations of different kinds of objects): from the derivatives with semantics of objectivity, in the broadest sense, to the derivatives which are more specific, viz. to singulatives and/or instruments. In the sphere of animate nouns young animals occur after females, then there are agents and, finally, male individuals. Thus objects and subjects precede actions/processes (along with their results, instruments or locations), and concrete nouns precede abstract ones. Children begin with nominal derivatives that denote people and objects. Nominations of processes and qualities appear later. This is justified, in turn, by the degree of cognitive complexity of the derivative, which has at least one more semantic element of the corresponding simplex. For example, denominal suffixal derivatives with diminutive and/or caressing semantics can be used by a child from the middle of the second year, regardless of the morphemic complexity of their derived

stem: e.g., *avtobus-ik* 'bus-DIM' (1;8); cf. *parovoz-ik* 'locomotive-DIM' (1;9) from the compound *par+o+voz-ø* 'locomotive' < *par* 'steam.N' +INTERF+ *voz/i(t')* 'carry.INF', *žučoč-ek* 'bittle-DIM' (1;10) from the diminutive *žuč/ok*, whereas nominations of qualities and/or their owners begin to appear sporadically only by the end of the third year: e.g., *glup-ost'* 'foolish' (2;8).

The development of the productivity of nominal derivatives takes place together with the appearance of the first grammatical forms of number and case. In particular, by 1;10 the speech of Filipp was marked by the first derivative chains (the pairs existed earlier), an occasionalistic diminutive and a new kind of suffixation (viz. zero suffixation, ø).

When briefly describing less frequent nominal compounds, it should be mentioned that regarding this sphere the models that are not only productive for the language system but also transparent morphosemantically (see more in Kazakovskaya 2017a) are the first to appear in CS, cf. with compound rich languages like Finno-Ugric, Germanic etc. (Argus and Kazakovskaya 2013, Dressler et al. 2017b). Early Russian nominal compounds can be described as complex endocentric words where their main component is a noun: e.g., *foto+apparat* 'camera' (2;1) > *foto/grafičesk(ij)* 'photographic.ADJ' + *apparat* 'apparatus.N', *zoo+park* 'zoo' (2;3) > *zoo/logičesk(ij)* 'zoological.ADJ' + *park* 'park.N' (a final vowel of undeclinable and "international" modifiers and an interfix overlap (Švedova 2005: 451)) or a verb: e.g., *vert+o+let-ø* 'helicopter' (1;8) > *vert/e(t')* 'turn.INF' +INTERF+ *let/e(t')* 'fly.INF'-ø, *par+o+voz-ø* 'locomotive' (2;2) (see above its morphemic structure). These main components occupy the final position in a compound and are connected to the modifier by interfixes *-o-* or *-e-* (the latter is rare).

We should note that a noun (as the head stem) is also in the lead in affixation. In most cases, the process of adding stems (one of which, the head one, is a verb) is accompanied by zero suffixation: e.g., *sam+o+let-ø* 'airplane' (2;0) > *sam* 'oneself.PRON' +INTERF+ *let/a(t')* 'fly.INF'-ø, *mux+o+mor-ø* 'amanita' (lit. a mushroom killed flies) (2;2) > *mux(a)* 'fly.N' +INTERF+ *mor/i(t')* 'kill.INF'-ø (cross-linguistic study of synthetic compounding in L1 see in Dressler et al. 2019).

Among the main semantic groups, represented by early child compounds, are agents, instruments and locations. They are mainly nominations of inanimate objects (most often vehicles and/or similar toys): e.g., *par+o+xod-ø* 'steamship' (2;0), *beton+o+meš/a-lk(a)* 'concrete mixer' (2;5), *sam+o+s/val-ø* 'tipper' (2;5).

Thus the peculiarities of nominal derivation in the early stages of Russian language acquisition include: a) the precedence of affixation to compounding, b) the precedence and dominance of suffixation, c) the predominance of derivation that does not change the part-of-speech characteristics of the derivatives, d) the precedence of simple derivatives to complex ones (namely, formed with the help of two morphemes or from other derivatives including compounds).

The analysis of parental input (based on Kirill's data) showed that the number of nominal derivatives is significantly less than the number of non-derived nouns. So, in the CDS corpus it amounted to a third of all nouns, but it turned out to be twice as many in the speech of a child.

The distributive analysis revealed a consistent increase in the proportion of nominal derivatives in CDS which correlated with the data of CS (see above). At the same time peaks of derivatives usage were found: simultaneous at 2;3 and sequential at 2;10–2;11. It was symptomatic that the same process affected the functioning of compounds, with both peaks (at 2;5 and at 2;11) in the speech of a mother and a child coinciding in time. Such periods of a significant increase in the frequency of using a specific language tool not only indicate the influence of input, but also shed light on the mechanisms of fine-tuning (Snow 1995 among others). Currently, these processes are little studied, but very significant for language acquisition.

In general, Kirill's mother uses about 70 different affixes. The semantic categories of nominal derivatives in her speech are very diverse. For example, there were already 12 semantic groups in the first record (1;8), and their number did not subsequently increase later. This prevents us from tracing any progressive dynamics of their occurrence in the speech of the mother. However, the analysis of the frequency of derivatives can explain their sequence of acquisition by the child. We found that the frequency of use by an adult of a specific model and morpheme affects the speed of their acquisition by a child: the most frequent ones have a higher chance of getting into the child speech (Table 5).

Table 5. Availability of nominal derivatives and their acquisition

Patterns	Models in order of frequency in CDS (*lemmas / tokens*)	Models in order of emergence in CS: total number (*lemmas / tokens*); age
Noun + suffix	e.g., DIM **-k**: *golov-k(a)* 'head-DIM' (42/73), non-DIM **-k**: *koš-k(a)* 'cat-FEM' (23/48)	34/72; e.g., *myš-**k**(a)* 'mouse-DIM' (2;3), *vnuč-**k**(a)* 'granddaughter-FEM'(2;3), *kolen-**k**(a)* 'knee-SM'(2;3)
Verb + suffix	e.g., **ø**: *pri/cep-ø* 'trailer' (22/35), **-nij**: *max/a-nij(e)* 'waiving' (19/34), **-k**: *ras/čes-k(a)* 'comb' (10/20)	16/29; e.g., *gon-**ščik*** 'racer' (2;4), *pri/cep-**ø*** 'trailer' (2;5), *sid/e-**nij**(e)* 'seat'(2;6)
Adjective + suffix	e.g., **-ost'**: *vnešn-ost'* 'appearance' (5/5), **-k**: *ovsj/an-k(a)* 'oatmeal' (4/7), **-ic**: *um/n-ic(a)* '~clever person' (4/6)	4/4; e.g., *gruz/ov-**ik*** 'truck' (2;4), *bol'/n-**ic**(a)* 'hospital' (2;10)

The initial models of the nominative derivatives "ADJ+suffix" and "V+suffix" presented at 2;0 only by 1 lemma /1 type /1 token, respectively, as well as their suffixes -*ik* and -*un* do not become dominant in the speech of this child. There is a prevalence of denominal models and the sequence in the occurrence of affixes is as follows: -*k, -oček* (2;3) ➔ *·nik, -ušk, -ščik, -ok, pra-* (2;4) ➔ -*lk, ø* (2;5) ➔ -*aljon,* -*tel', -nij* (2;6) ➔ -*ovin* (2;8) ➔ *pod-&-nik,* -*atin* (2;9) ➔ -*ic* (2;10) ➔ -*(a)nk* (3;0).

Finally, the positive correlation between CDS and CS is also noted regarding the frequency of semantic categories occurrence, represented by derivatives (Table 6): both with respect to the diversity of lexemes (*lemmas*, p=0.01), and the frequency of their usage (*tokens*, p=0.001).

Table 6. Frequency of semantic categories of derivatives (% of new derivatives)

	CDS		CS	
	lemmas	*tokens*	*lemmas*	*tokens*
Diminutives	32	31	19	34
Activities/Results	18	15	16	13
Instruments	12	12	19	14.5
Abstract names	8	5	1	1
Stylistic modifications	5	6	9	6
Agents	4.5	5	10	9
Locatives	4	7	9	8
Singulatives	4	4	4	5
Females	3	3	3	1.5
Young animals	2	2		
Males	0.4	0.2	1	1
Objects (other)	7	10	9	7

5. CONCLUSIONS

The analysis of the longitudinal corpus of the spontaneous speech of children and their main caregivers showed that when acquiring a morphology-rich language, derivation processes develop ("switch on") very early. Although the class of nouns can be formed from almost any grammatical classes, most of them are formed from nouns (~70–90%). In terms of nouns, affixation precedes compounding, and material suffixation precedes zero one.

For nominal derivatives the dominant pattern is the denominative one ('N+suffix') with the biggest repertoire of suffixes: up to 3 years children use from 30 to 60 different suffixes of nouns. Within this pattern the following semantic categories are represented in nouns: females, young animals, singulatives, stylistic modifications (viz. colloquial speech variants), instruments, agents and diminutives. Despite the generally high frequency of diminutives in nouns, their proportion is different in the speech of both children (44–65%). Deadjectival nouns are represented by two models 'ADJ+suffix' and 'prefix+ADJ+suffix' expressing the semantics of concrete objects or subjects having these defined qualities, as well as location/place and abstract qualities. Thus, in children's nominal derivatives suffixation is the main method of word-formation; whereas prefixation and so-called mixed ways are rare. Here we can see the conditionality of the system-language productivity of both the

method of word-formation and the pattern.

Although the percentage of nominal derivatives to all noun tokens in the speech of both boys differs significantly, the percentage of first-appearing derivatives to all noun derivatives is quite a similar. Filipp starts to use derivatives earlier, has a bigger inventory of noun suffixes and diminutives and the development of derivation appears more intensive in his case, at least with occasionalistic novel noun tokens being more frequent. Kirill has more nominal compounds and his new nominal derivatives increase to the end of the observation. These differences may be explained by the input properties including the communicative strategies of the caregivers and also by the developmental strategies of the children.

The influence of language input is significant in the mechanisms of derivation acquisition. This is confirmed by the presence of a correlation "input – output" and is particularly visible in the fact that the most frequent patterns, models and morphemes in CDS are acquired by a child in the first place. The degree of cognitive and morphemic complexity of nominal derivatives in CS increases by the end of the observation period.

Thus, the preference for certain patterns is the same for both subjects and reflects the CDS and adult-directed speech. Both children have the similar percentage of new derivatives to all nouns (in tokens). The number of innovations is scarce for nouns. Children demonstrated the similar development of semantic categories.

ABBREVIATIONS

ADJ – adjective
CS – child speech
CDS – child-directed speech
CSF – child-specific form
DIM – diminutive
INF – infinitive
INTERF – interfix
FEM – female
PRON – pronoun
SG – singulative (one item)
SM – stylistic modification (colloquial speech variant)
N – noun
V – verb

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Conflict of interests

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