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INITIAL SYNTAX DEVELOPMENT:
ONTOGENESIS OF SPATIAL SYNTAX STRUCTURES
(BASED ON THE LANGUAGE OF RUSSIAN-SPEAKING CHILDREN)¹

We are going to consider some aspect of the Russian-speaking children aged 2-3 years acquire the semantic category of space and the ways they linguistically represent it in speech. More specifically we will consider the substantive and adverbial syntax structures of spatial semantics in general and the ways children acquire them.

Introduction

It is generally known that the notion of 'place' belongs to the basic concepts children acquire at the earliest stages of language acquisition. We call it basic, because, according to some researchers (Kubryakova, 1996; Kravchenko, 1997), it is one of a set of concept primitives along with the concepts 'subject' and 'object'. The system of all other concepts is structured on this set.

Spatial semantic variants are quite diverse. They are differentiated according to the parameters *static* vs *dynamic* and also to the ways two objects are located in space. In addition, the set of Russian syntax structures expressing spatial semantics is correspondingly diverse. There are more than 25 substantive syntax structures, according to the dictionary of elementary syntax components by Zolotova (Zolotova, 1988), to say nothing of the adverbial ones.

So children acquire semantic varieties of syntax structures, based on differences in cognitive sphere, and also on the varied forms of their linguistic expression.

Data and method

In our studies we analyzed the longitudinal video and diary records of adults communicating with children aged from 8 to 36 months (using data from the Language Foundation of Russian-speaking Children). We analyzed everything the mother said to the child spon-

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taneously *where* the spatial markers we consider were used. We also studied the child's language.

Subject

We tried to analyze the 2 main types of spatial situations: location of an object (static) and direction of its movements (dynamic). Accordingly, we discriminate the spatial syntax structures proper and the directive ones. They are included in the functional-semantic spatial field, based on the comprehensive categories of space.

The cognitive essence of spatial relationships seems quite simple at first (due to its perceptual basis) in comparison, say, with the temporal relationships (Gahk, 1996). In the easiest variant, spatial semantic categories are acquired at the earliest stages of language development. However, there are some subtle and quite complicated points, affecting the features of its ontogenesis acquisition (Ceytlin, 1997).

Research problem

We believe that a child acquires not only lexical forms as an element of a declination paradigm, but also acquires syntactically loaded forms – that is, a syntax structure, connected with a certain lexical structure. That means that a child acquires a certain form of a given word for a definite semantic function (Kazakovskaya & Ceytlin, 2000).

Our conclusions are based on the following: the repertory and the sequence of certain syntax structures in a child's language evidences the development of cognitive structures. Originally, they are undifferentiated units dissociated and specialized only later with the complication of 'cognitive scenarios', reflected in the utterance.

The choice of a semantically more complicated syntactic structure displays a higher level of cognitive development and a skilful usage of morphological variability (including the ways of pronominal and non-pronominal syntactic structure presentation) shows a high level of linguistic competence.

There is a characteristic pattern of progress in spatial relationships: from static *where* to dynamic *where to* (directed movement in space from one place to another) and finally to *where from* (directed movement from the outside and from one place to another).

It's significant that originally most children don't discriminate the meanings of statics and dynamics; spatial markers are mostly used in the directive function:

- (1) a) *I'll go **on the hill*** (instead of 'to the hill') (Maksim E., 21 m.);
 b) *I want [to go] **on the table*** (instead of [to go] to the table) (Maksim E., 21 m.).

It is reminiscent of an earlier expansion of the deictical *here* and *over there* forcing out *that way*. The same applies to English-speaking children. They don't tell apart *here* and *there* (Bowerman, 1993).

Such syncretism in conceiving cognitive space indicates an insufficiently formed cognitive base, namely, a lack of static-dynamic opposition in spatial relationships in the child's way of thinking. Such generalization of spatial meanings disappears at approximately the age of 30 months when cognitive potentialities allow the child to structure the situation in a more complicated way.

Analyses and results

Our research indicates that the dissociation mentioned above can move in 2 directions – exterior and interior:

- exterior – in primary spatial relationships: between static *where* and dynamic *where to* and *where from*;
- interior – in particular meanings, inside each spatial field: *where* proper, *where to* and *where from* (according to Gahk, these are spatial relationships of a point, a line and a sphere (Gahk, 1996)).

This can be seen clearly with the dissociation, or splitting of protosyntax structures *where* which first serves as a spatial and directive marker. That is, it includes *where to* and also units of primary and particular functional meanings ‘at what’, ‘inside what’, ‘around what’, ‘near what’, and so on. We can see similar processes in acquiring the other spatial protosyntax structures *where to* and *where from*.

To put it differently, primary inner dissociation in every type of question word looks as follows: ***where*** – *inside what* – *at what place* – *at whose place*; ***where to*** – *into what*, *to whom*; ***where from*** – *out of what* – *from under what* – *from what place*, and so on.

The fact that every spatial field can be linguistically presented as having a 3-unit structure, for instance: *where* – *here/over there* – *somewhere* – *nowhere*; *where to* – *that way/this way* – *somewhere* – *nowhere*, and so on, should be taken into consideration.

It is extremely significant that psychologists’ research (Chuprikova, 1994) also proves the existence of the process of cognitive differentiation which is originally indivisible. A subtle linguistic differentiation becomes possible due to acquisition of a more detailed expression for spatial relationships and the formation of special cognitive structures, detailed to a certain degree.

It is well known that different types of spatial relationships are acquired at different points in time. For instance, such notions as *under* and *over* are beyond a child’s comprehension for a long time (according to experiments by Sokhin, 1955).

Apparently, a child acquires syntax components surrounding (syntactic context) every predicate selectively and gradually. This supports Tomasello’s ‘island hypothesis’ (Tomasello, 1992).

The very first markers of spatial relationships are used in nonverbal sentences (maybe because spatial acquisition starts with statics, mentioned above). *Where to* questions appear immediately after the verb. And the first predicates in this type of questions are verbs of movement *go*, *crawl*, and so on.

The main stages of spatial relationship acquisition

We believe that the main stages of spatial relationship acquisition and their main operators correspond with the ontogenetic stages of later syntax components (possessive, deliberative, mediative, qualitative, and others (Zolotova, 1988)). They may be introduced and characterized in the following way:

1. Comprehension and adequate response to the adult’s utterance – a component of the question-answer minimal dialogue unit, which has the required syntax components. General questions play a significant role in a child’s language development. Spatial and directive syntax components are intonationally stressed:

- (2) *The car went **to Tanya**, right?* (Maksim G., 20 m.).

2. The child's usage of syntax components in response to cues and also in his own declaratives and imperatives.

3. Usage of spatial syntax components in question construction on his own initiative.

The role of question-answer complexes in dialogue communication

The role of question-answer complexes in dialogue communication 'child – adult' is quite significant (Kazakovskaya & Ceytlin, 2000).

We believe adult questions to be the means of forming semantic relationships, and, correspondingly, child's questions indicate his cognitive and linguistic competence as well as the level of development of his communicative skills (Bloom, 1991).

By communicative skills of the child we mean his ability to be a partner in the dialogue: to follow the order of cues, respond to them using different language means, to initiate questions and to reply to them appropriately.

We proceed from the assumption that the child's mother intuitively makes it easier for the child to categorize language phenomena and that it is her questions that play the most important role in this process. She places them like stepping stones in cognitive and language development, taking into consideration the so-called 'closest development zone' (according to Vygotsky, 1996).

That's why we believe mother's questions to be means which helps the child to be aware of and to use the corresponding syntax components as well as an indicator of the child's syntactic competence.

The main ontogenetic stages of spatial syntax components

Let us give a short characterization of the main stages of the ontogenesis of spatial syntax components. Here we'll discriminate spatial meanings proper and directive meanings.

Spatial meaning proper – WHERE

Comprehension is possible from the age of 8-9 months. The repertory of primary adverbial syntax structures is formed by here, there, home, far away:

(3) *It hurts there* (Anya S., 20 m.).

Note that children can tell apart *here* and *there* by the age of 24 months; before that they are unable to do this and most children extend the functions of *there*. This fact gives us evidence that such a notion as 'ego' as starting point hasn't formed yet. It allows differentiation of the cases of inclusion-non-inclusion into a common spatial sphere from 'ego' (the same may be said about English-speaking children with *here* and *there*) (Bowerman, 1993).

By the age of 30 months there is a specification of spatial reference:

- (4) a) *There, in the street* (Anya S., 30 m.); later
 b) *Here, in the street* (Anya S., 34 m.); and also there are indefinite spatial markers:
 c) *Somewhere there* (the flowers are growing) (Anya S., 34 m.).

Considerable changes in spatial relation acquisition is connected with the beginning of the functioning of totally new adverbial syntax components – of non-flat-space (according to Gahk, these are particular spatial relationships) up there, down there:

(5) *A lady lives up there, a man sleeps down there* (Maksim E., 48 m.).

The first substantial syntax components appear when the child answers spatial questions. These are

- on-Prepositional case ('on something', and at the some territory): *on the sofa* (to lie), *at the market*;
- in-Prepositional case ('inside', and then 'behind something') which appears somewhat later – first without any preposition: *(in) the bathroom*, and after 30 m. – with a preposition: *in a house* (Anya S., 30 m.);
- along-Dative prepositional ('along something flat'): *along the road* (Anya S., 34 m.) and
- spatial-possessive at-genitive case: *at Granny's* (I stayed).

The first substantial syntax components appear in the period when there are no prepositions carrying spatial meaning in children's grammar. When prepositions do appear in spatial semantics, there are just several cases of preposition *on* instead of *at/in* (the same may be said about directive meanings).

At the age of 36 m. in the language of most children there is no exterior dissociation of 'statics-dynamics' yet, and statics markers are used in the function of dynamics markers and vice versa, but not so frequently:

(6) *I'm lying **to bed*** (instead of *in bed*) (Anya S., 30 m.).

It's also possible to use protocomponents in all spatial (general sense) meanings: **ere* (from *here*) – in the meaning of *where*, later *where to*, still later *here* (come) and finally *here* (Roma F., 14 m.).

We may observe a syncretism of spatial protocomponents at the final stage of their ontogenesis in the child's questions:

(7) Ch.: *And there did the man go?* (in the meaning of *where*)
 Ad.: *He went somewhere.*
 Ch.: *To the street* (Roma F., 28 m.).

The division between spatial and directive markers at this stage of ontogenesis begins approximately from the age of 36 m. which coincides with the considerable expansion of question repertory (question spurt): there appear possessive, qualitative, mediative and other types of questions:

(8) Ch.: *And where is the parrot?*
 Ad.: *It's not here.*
 Ch.: *And where did the parrot go?* (Anya S., 30 m.).

The number of *where to*-questions grows steadily:

(9) a) *Where did Mom go?*
 b) *Where did you go?* (Roma F., 31 m.).

And the number of *where*-questions decreases. There are no *where from* questions at this stage (Kazakovskaya, 2000).

In spatial questions of the child (first – particular, then – general), except the question component *where*, adverbials here, over there, home, far away are used:

- (10) a) *Shall I put it **there**?*
 b) *Are you **home**?*, including syntax components of specifying reference:
 c) *What is there **in the field**?* (Roma F., 31 m.).

And substantive on-Prepositional case, in-Prepositional case, at-genitive case:

- (11) a) *Those cars, they were bought **at the market**, weren't they?*
 b) *Does the girl sit **on the train**?*
 c) *Where did you buy it, **at Nadya's**?* (Roma F., 31 m.).

Our research shows that lexical representation of spatial markers is more varied in the spontaneous language of the child (by spontaneous we mean not question-provoked). They are different from question-answer minimal dialogue units, but their semantic repertory isn't considerably expanded.

Directive meanings – WHERE TO and WHERE FROM

From a semantic point of view this category looks like a 3-part unit, denoting movements: 1) out of something, 2) into something, 3) from one place to another, which is expressed in different ways at the stages of 'certainty – uncertainty – absence'.

The dynamic situation is more difficult (in comparison with the static one) and it is fulfilled in those utterances which have, at least, 3 syntax components *what/who – moves – where*.

Directive syntax components and *where to* questions appear in a child's language after spatial syntax components and *where* questions. They concern the situation 'not here' and 'not now' (unlike the latter, concerning 'here' and 'now').

Speaking about the main stages of directive syntax component appearance in the input and the inner dissociation direction, we note the first adverbial directive syntax components in the mother's language – *where, here, over there*:

- (12) *Where did the car go? Over there?*

and also substantive: in-Accusative ('inside'), on-Accusative (on something), through-Accusative, directive-possessive to-Dative, directive-purposeful behind-Instrumental:

- (13) a) *What are you pouring **into the pail**?* (Maksim G., 20 m.)
 b) *Shall I put the matreshka **on the block**?* (Anya S., 22 m.)
 c) *The car went **to Daddy**, didn't it? Will we go **to buy presents**?* (Dima S., 20 m.)
 d) Ch.: *Where is the big dog?*
 Ad.: *Over there, look **across the road*** (Anya S., 31 m.).

We are interested in the directive pseudo-*where-to*-questions, indirect speech acts. Actually the adult's utterance was meant as a reproach, not a question:

(14) *Where did Mitya climb?* (meaning ‘don’t climb there’) (Dima S., 23 m.).

They are understood literally by the child, as seen by his ‘sincere’ answers: there.

The first directive adverbial syntax components of the child are here, over there; substantive in-Accusative, on-Accusative, to-Dative:

- (15) a) *to Petersburg* (Daddy went) (Dima S., 21 m.),
 b) *up the hill* (up) (Maksim G., 22 m.),
 c) *I’ll fall on the floor* (down) (Maksim E., 25 m.),
 d) *to Tanya* (the car is going) (Maksim G., 20 m.),
 e) *to the cows for milk* (we went) (Maksim G., 22 m.), and so on.

Directive *where from* syntax components and *where to* questions with the meaning of moving ‘out of something’, ‘from one place to another’ appear in the child’s language by the end of the third year, and, in the language addressed to him, from the second year, but they are not frequent:

- (16) a) *Where did we come from? **From what city?*** (Dima S., 23 m.)
 b) *What are you taking **from under the table?*** (Dima S., 17 m.).

The child’s first syntax components are substantive – genitive case: out of-genitive, from under-genitive:

(17) *This is going out of chimney* (smoke) (Maksim E., 25 m.).

It’s an interesting fact that there’s no adverbial core component *where from* in our records.

Conclusions

1. There is a characteristic pattern of advancement for spatial relationships: from static *where* to dynamic *where to* and finally to *where from*.
2. The dissociation of the protosyntax spatial components can move in 2 directions: exterior – in primary spatial relationships: between static *where* and dynamic *where to* and *where from*; and interior – in particular meanings, inside each spatial field: *where proper*, *where to* and *where from*.
3. The main stages of spatial relationship acquisition and their main operators correspond with the stages of ontogenesis of later syntax components (possessive, deliberative, mediative, qualitative and others).
4. Ontogenetic features of spatial syntax components in ‘adult-child’ communication:
 - spatial syntax components appear in a child’s language soon after their appearance in the input. The delay is about 2-3 months;
 - adverbial (here, over there, home, far away) appear before the substantive (on – prepositional case ‘on something’, in – prepositional case ‘inside’);
 - syntax components of 2-dimensional semantics appear before the 3-dimensional ones (up there, down there);

- first, children acquire primary functions of spatial relationships, and later their particular meanings. Spatial meanings of certainty appear before spatial meanings of uncertainty and absence.
5. The role of question-answer complexes in dialogue communication ‘child – adult’ is quite significant.
 6. All these changes happen with the ‘world view’ expansion, that is, cognitive development, creating and practicing new concepts and developing categorization of phenomena. On the whole, the sequence of syntax component emergence reflects the development of the child’s cognitive structures.

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