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WHAT CAN CHILD LANGUAGE TELL US ABOUT PREPOSITIONS?

ALIYAH MORGENSTERN, MARTINE SEKALI

Abstract. Based on the spatial value of children's first prepositions in English, parallels have been drawn between the acquisition of prepositions by children and the grammaticalization of prepositions in diachrony (Tyler & Evans, 2003). Indeed, studies show that semantically charged prepositions are used by children several months before more functional (or more "grammaticalized") ones. Yet, other studies stress the fact that ontogeny does not parallel phylogeny (Slobin, 2004). The factors determining the acquisition of prepositions would be linguistic rather than cognitive, and linked to language use and frequency of input (Rice, 1999). In order to tackle these questions, we conduct a contrastive corpus-based study of French/English acquisition of prepositions. Our findings support the claim that some aspects of children's discourse are influenced by the particular structure of the language the child is acquiring (Talmy, 2003, Hickman & Robert, 2006), together with other parameters such as discursive organization and context. Ultimately, "grammatical words" can express and organize social interaction, and are acquired by children thanks to the mediation of adults.

Introduction

Prepositions represent a problematic category for theories of syntax. Recent syntactic theory suggests a classification of prepositions according to either lexical or functional features: lexical prepositions contribute semantic content while functional prepositions merely assign case.

Yet the same preposition can exhibit both features, and its classification will therefore depend on its use (the same preposition *to* in English can thus be used as a lexical spatial preposition: *I'm going to London*, or as a functional preposition assigning dative case: *Give it to him!*).

Language acquisition, which is necessarily studied in spontaneous dialogical contexts, may give new insight on prepositions as a grammatical category. Which prepositions are used by children first? How are they used? In what order do they appear and why? Do French and English children use the same first sets of prepositions? In order to tackle these

questions, we analyse the emergence of prepositions in spontaneous verbal interactions between children age 1;08 to 2;04 and their parents, and try to determine the function of their first uses in context.

We can observe that prepositions are used by children as soon as they elaborate two word utterances, at the end of the second year. The literature on the acquisition of English insists on the fact that prepositions appear quite early in children's language: they are part of the first twenty items learnt by English speaking children according to Brown (1973), and are primarily spatial localizers.

These results have enabled researchers to compare the evolution of language in acquisition and the history of languages (Traugot 1992, Lakoff 1987, Ziegeler 1997), since prepositions in the diachrony of the English language were spatial before being functional, which fits perfectly into the grammaticalization process underlined by cognitive linguists.

But if this order of emergence in acquisition is true of English, we may wonder whether this is a general process, which is not language dependent. First prepositions in English are semantically rich (they are called coloured prepositions), but are these features specific to English, in which so-called prepositions can be used as adverbials in isolation as in *down* or *up*? Is it the case in French? We were interested in testing these claims and comparing first uses in English to first uses in French. We first conducted a quantitative analysis of the emergence of prepositions on two English and two French-speaking children, based on the syntactic opposition between lexical and functional features. We then focus on two French children for a qualitative analysis of their use of prepositions in context.

Quantitative analyses

In order to check the claims found in the literature on English data, we ran a morpho-syntactic analyser through Peter's data (taken from the CHILDES database collected by Lois Bloom). It must be said that the analyser extracts morphemes according to their form and not their function, which, unfortunately, amalgamates prepositions and particles. The results for Peter can be viewed in table 1 showing the percentages of Peter's first prepositions according to his age. We notice that the morphemes related to spatial orientation *up*, *on* and *in* in particular are quite frequent.

Peter	1:08	1:09	1:10	1:11	2:00	2:01	2:02	2:03	2:04
about	0,0	0,0	4,2	2,5	6,9	0,5	0,0	0,8	0,0
around	0,0	0,0	0,0	0,0	0,0	1,6	0,9	0,0	0,0
at	0,0	0,0	0,0	2,5	2,9	2,7	8,3	7,6	3,5
behind	0,0	0,0	1,4	0,0	0,0	0,5	0,0	0,0	0,4
by	0,0	0,0	0,0	0,0	0,0	0,0	0,0	4,2	0,8
for	0,0	0,0	0,0	0,0	0,0	0,0	5,0	0,0	6,2
from	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	3,9
in	0,0	0,0	55,6	15,0	24,9	35,5	33,0	25,4	33,2
inside	0,0	0,0	0,0	0,0	0,0	0,0	0,5	0,0	0,0
like	0,0	0,0	0,0	0,0	2,3	1,6	1,8	0,0	1,2
of	0,0	0,0	0,0	0,0	1,2	0,0	1,4	0,8	3,9
off	0,0	50,0	8,3	5,0	5,8	23,0	5,0	10,2	5,4
on	0,0	0,0	19,4	37,5	23,7	15,3	15,6	20,3	15,4
out	0,0	0,0	1,4	10,0	16,2	6,0	5,0	9,3	1,9
over	0,0	0,0	0,0	0,0	0,0	0,0	0,0	8,5	1,5
through	0,0	0,0	0,0	0,0	0,0	3,3	0,5	0,0	0,4
to	0,0	0,0	0,0	0,0	2,3	1,1	6,4	0,0	7,3
under	0,0	0,0	2,8	10,0	0,6	1,1	0,9	0,8	0,8
up	100	50,0	6,9	15,0	12,7	5,5	15,1	8,5	8,1
with	0,0	0,0	0,0	2,5	0,6	2,2	0,5	3,4	6,2

Table 1. Percentage of prepositions per age

The detail of the distribution of Peter's prepositions according to functional and spatial uses can be observed on the following graph, showing a vast majority of prepositions related to space.

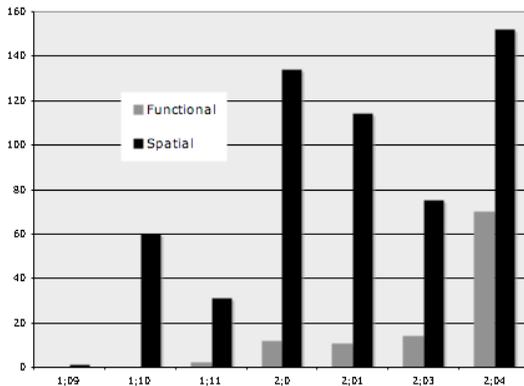


Figure 1. Peter's functional and spatial prepositions

The same analyses conducted on another child, Will, recorded by Katherine Demuth's team at Brown University, yield similar results, the proportion of « spatial » prepositions being significant as opposed to the proportion of « functional » prepositions.

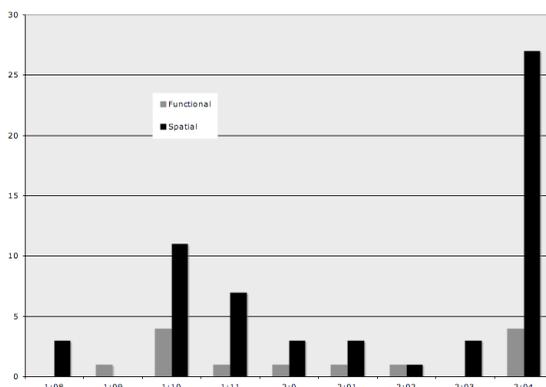


Figure 2. Will's functional and spatial prepositions

These results confirm previous research on English data. In order to compare these results to French data, we conducted the same analyses on Léonard and Madeleine, two French children living in Paris. Léonard's data was collected by the first author before the beginning of the current research and is complete¹. The transcription is aligned with the video thanks to CLAN provided by the CHILDES project supervised by Brian McWhinney (1995).

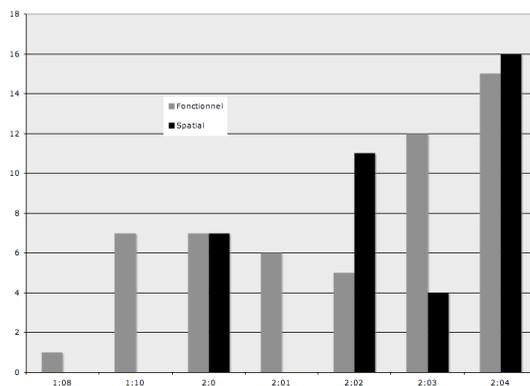


Figure 3. Léonard's functional and spatial prepositions

Leonard's data yield significantly different results, with a greater number of functional rather than spatial prepositions. In addition to that,

¹ Léonard's data is a longitudinal follow-up from 1:08 to 3:03. For the purpose of this study, we analyzed his use of prepositions up to 2:04.

the ‘spatial’ prepositions found mostly correspond to Leonard’s use of *dans*/(‘in’) in set expressions such as “dans le bain” (‘in the bath’) and in some utterances where the form *dans* stands for the adverb *dedans*, which shows us that quantitative analysis on forms counted as prepositions by the morpho-syntactic analyser have their limits.

The same analysis was made on Madeleine’s data, which is part of the new French data we are currently recording and transcribing in a large research program financed by the French National Research Agency (*Projet Léonard*, 2005-2008). Madeleine was filmed by the second author, and we found her to be quite a precocious little girl, her linguistic development being very quick. At 2;02, she already had a large variety of prepositions in her repertoire.

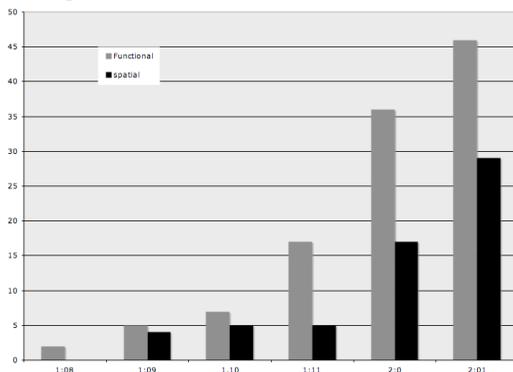


Figure 4. Madeleine’s functional and spatial prepositions

The distribution of functional and spatial prepositions in Madeleine’s data is quite similar to Léonard’s, but Madeleine has more types and more tokens at a younger age.

The results for the four children are quite interesting to compare: the English children confirm previous researches and show a predominantly spatial use of first prepositions. But the French children tend to use mostly functional prepositions in their first usage of the category. These findings support the idea that what was presented as a general trend in child language might in fact be specific to English and should be reconsidered as far as other languages are concerned. Furthermore, a finer analysis of the data leads us to add several remarks.

- The English-speaking children use prepositions such as *in*, *on*, or *up* very early, but in a ‘verb-like’ manner and often in isolation. Interestingly enough, where the English-speaking children say ‘up!’ or ‘down!’ the

French-speaking children use verbs such as “monter!” (‘go up’) or “descendre!” (‘go down’).

- The French-speaking children first use prepositions such as *pour*, *à* and *de* around 1;10 only (François 1977 ; Morgenstern & Sekali 1997). These mostly correspond to the possessive case in English. Where the French child says “les jambes de maman”, or “à moi la poupée!” the English-speaking child will say ‘Mummy’s legs’ and ‘My doll!’ Yet Peter’s data shows the presence of possessive adjectives from the very first recordings (‘my turn’) and the genitive morpheme appears as soon as the age of 1;10 (‘Patsy’s pencil’). This remark tends to argue against the temptation to transfer observations made on English data on the acquisition of French.

- Around the age of 2;04, the four children use a larger variety of prepositions, semantically charged as well as more functional ones. We find *pour*, *à*, *de*, *dans*, *sur*, *avec*, *en* in French. In English at the same age, the variety of prepositions used is even more important, with *at*, *by*, *for*, *from*, *in*, *of*, *off*, *on*, *out*, *over*, *to*, *under*, *up*, and *with*.

The quantitative analysis of prepositions in our data thus shows significant differences between English and French. Yet it is not sufficient to reveal the type of function that the children assign to this emergent category. Investigating early functions of morphemes can only be done through a qualitative analysis of utterances in context.

The qualitative analysis of the French children’s first uses of the ‘functional’ preposition *pour* in context will now show interesting recurrent patterns, suggesting that the acquisition of grammatical paradigms could be made through a series of transitory subsystems.

Qualitative analyses

The in-depth examination of Léonard and Madeleine’s data required considering parallel and interacting linguistic processes in their development. In order to study the emergence of prepositions in the framework of the child’s development, we established an overview of salient features, first syntactic features, first grammatical markers in parallel with the use of prepositions for each month from 1;08 to 2;04. This overview shows that, at 1;08, Leonard starts using two-word utterances and has his first tries at nominal determination. *Pour* is the first preposition used by Leonard in our data. It is first associated with a nominal element (“pour papa” / ‘for daddy’, “pour moi” / ‘for me’) and is then very quickly used with a verbal element (“pour sauter” / ‘to jump’, “pour dessiner” / ‘to draw’).

The following example illustrates how Leonard uses the preposition *pour* in order to disambiguate a previous utterance.

- (1) Father: Les belles saucisses!
'What beautiful sausages!'
Léonard: Donne!
'Give!'
Mother: J'te l'ai donnée!
'I gave it to you'
Léonard: Pour papa.
'For Daddy.'

In the situation, Leonard's parents do not understand who is to be the 'recipient' of the sausage; thanks to the use of *pour* in "pour papa", Léonard clarifies the target and thereby makes the argument of the verb give ("donne") explicit. The preposition is thus used in the context of a misunderstanding with an argumentative value.

The same argumentative feature appears in Léonard's use of *pour* with infinitives. At the age of 2;02, Léonard is naked on his bed:

- (2) Léonard: Maman, où est le petit lit?
'Mummy, where's the little bed?'
: Le petit lit?
'The little bed?'
Léonard: **Pour** sauter.
'**To** jump' (= '**For** jumping')

In this exchange, the preposition *pour* helps Léonard add an argument in order to elaborate his request of a bed. Here again, he is giving his reason for that request when faced to his mother's incomprehension, explaining that he wants the bed because he wants to jump (on it and use it as a trampoline).

Strikingly enough, during this period, whenever Léonard uses [pour+ verb], he is adding arguments in order to justify, explain, clarify the intentions he has previously expressed, but which his co-speaker did not understand: he wants his towel **TO** hide himself ("pour cacher"), he used chalks in school **TO** draw ("pour dessiner"). This argumentative function of the preposition *pour* goes along with its appearance as an emergent category. The French preposition *à* also figures among Léonard's early prepositions, but is used with another function, as exemplified below.

Léonard (2;02) is in his bath. Arianne, a friend of his parents comes into the bathroom to say goodbye. As soon as he sees her, he splashes and screams:

- (3) Léonard: Pas beau.
'Not you!'
Mother: Non, non Léonard arrête!
'No Léonard stop that!'
Léonard: C'est **à moi** le bain!
'That's **my** bath!'
Mother: Mais oui, c'est à toi, ne t'inquiète pas. Ariane elle va pas aller dans ton bain.
'But of course it's yours, don't worry. Ariane is not going into your bath.'
(A little later)
Arianne: Et qu'est-ce que je vois sur tes fesses? Je vois quelque chose qui va ravir
'And what do I see on this buttock? Wow! I see something that ...'
Mother: C'est un grain de beauté.
'It's a beauty mark.'
Arianne: ...qui va ravir les filles un peu plus tard Léonard.
'...that girls are going to love Léonard...'
Léonard: C'est **à moi** les fesses!
'That's **my** bottom!'
Ariane: Oui les fesses sont à toi et le grain de beauté est à toi et ça va beaucoup plaire plus tard, beaucoup.
'Yes the bottom is yours, and the beauty mark is yours, and girls are going to love that, really love it.'

In this dialogue Léonard reacts to Ariane's intrusions as if she were taking away a beloved possession: not the objects themselves (the bath, the beauty mark), but his freedom to use them as he wishes. The bath is his kingdom, he asserts his freedom to refuse Ariane's admission to it; he also forbids Ariane to make comments on HIS birth mark and sees her remarks as a violation of his privacy. In the utterances with "à moi", the preposition *à* acts as a polemic re-enforcement of the property of objects described as being in the child's possession. In all the examples we find in our data, Léonard uses *à* to assert himself as a sort of stage director, an orchestra conductor. The same uses can be found with "à toi" meaning 'your' or 'your turn' according to the context.

In fact, the data shows that Léonard uses *à* and *pour* in complementary distribution. The following exchange is particularly interesting as to the alternating uses of *à* and *pour*: Léonard (2;01) has given Aliyah an imaginary piece of candy. His mother offers him a real piece candy, and a situation of conflict ensues as to who is to be its recipient.

- (4) Mother: Il m'en reste plus qu'un! Un seul bonbon c'est pour toi.
'I only have one left! Only one candy, it's for you.'
Aliyah: Euh, c'est pour moi le bonbon. C'est pour moi!
'Hey, the candy is for me, for me!'
Léonard: **à moi**.
'It's **mine**'
Aliyah: Ah!
'Oh!'
Léonard: C'est **pour** moi.
'It's **for** me.'
Aliyah: T'es sûr?
'You're sure?'
Léonard: C'est moi Léonard, c'est à moi!
'I'm Léonard, it's **mine**.'
Léonard: C'est **pour** moi.
'It's **for** me.'

In this dialogue, the mother intends to give the candy to Léonard ('it's FOR you'), but Aliyah wants it too ('the candy is for me'). Léonard makes an attempt at solving the conflict by alternating the use of *pour* and *à* in his discourse. He first uses *à* ("à moi"), thus redefining the candy as being his own (this property has been assigned to the candy by his mother and is set as inalienable). The functional preposition *à* here links the candy to its TRUE possessor, Léonard. However, *pour* is also used immediately afterwards ("pour moi"), this time in order to solve the conflict raised by Aliyah over the recipient of the candy. The preposition *pour* is used with an argumentative value so as to redefine the target. After Aliyah's incredulous reaction: "you're sure?" Léonard is forced to reassert his own identity ('Léonard') in order to reassess the property of the candy (of it being HIS) in order for this legitimate recipient of the candy to be re-established.

The two prepositions therefore have different bearings: *à* puts the focus on the object, with a polemic redefinition of one of its inherent properties, while *pour* focuses on the recipient of the object.

The syntactic level of analysis proves insufficient to understand the emergence of prepositions at this age; interpersonal relations as well as pragmatic speech-acts must be taken into account in the analysis of spontaneous children's discourse (as opposed to electronic data). The pragmatic explanatory function of *pour* in situations of conflict or misunderstanding, is confirmed in Madeleine's data.

At the age of 1;11, Madeleine uses the preposition *pour* several times during the same film session but in an unconventional way. While she is reading a book with her mother, she is moved by the story of a mother crying because her children have nothing to eat, and wants to give the mother her bunny to console her. Picking up her bunny, she says:

- (5) Le doudou **pour** Madeleine
'The bunny **for** Madeleine'

Our first reaction to Madeleine's use of the preposition *pour* here is that she's using it in the wrong way, or making a mistake, since her use of it seems to be the exact opposite of the function an adult would give to the preposition *pour*. In adult speech, *pour* before a noun indicates the destination, or target of an object, in a similar way to the English preposition *for*. "Le doudou **pour** Madeleine" would then mean 'the bunny **for** Madeleine.'

Yet in the context of use, it is absolutely obvious that she doesn't mean that the bunny is 'for' her, but that she wants to give her bunny to the mother in the story so as to comfort her. Rather than considering the child's use of the preposition as a mistake, especially since this particular use is recurrent, it is more interesting to find out what function she ascribes to it, in what must be seen as an 'emergent category' (Clark 2001) in her language. Quite striking too is the fact that that particular film session (1;11) showed a new surge of possessive determiners: *mon/ma, son, sa* ('my', 'her/his') so that she had the linguistic ability to use the possessive form "mon doudou" if she had wanted to point at herself as the possessor of the bunny (and she does use it later on in the situation):

- (6) Ne veux **mon** doudou.
I want **my** bunny'

In fact, it seems that Madeleine's use of the preposition *pour* is meant not to designate herself as the recipient or the possessor of the bunny, but

rather to point to herself (in the 3rd person) as the agent of an intended action to console the mother, so that her utterance could be paraphrased as: ‘the bunny **for Madeleine to console the mother.**’

The preposition *pour* is given a particular function by Madeleine when she first uses it: the category of prepositions as it emerges in her speech is used not so much to assign case, but to assign argument structure to an implicit verb, and to explain and justify her intentions. The category thus emerges with a pragmatic and argumentative function in the dialogue with her mother: the preposition *pour* directs the addressee to the agent rather than to the destination of her actions, so as to justify them. The destination of the bunny is then made obvious by a gesture: she puts the bunny on the picture of the mother and says “Tiens!”(‘Here!’).

The same use of the preposition *pour* occurs a second time in the same session, when Madeleine is eating her lunch. Martine had just been telling her how to use her fork to pick the ham and put it in her mouth, and she suddenly points to the inside of her mouth and says:

- (7) La bouche **pour** Madeleine’
‘The mouth for Madeleine’

In the context, Madeleine does not mean that the mouth is ‘for’ her: she does not consider her mouth as a separate object given to her, nor does she indicate herself as the possessor of the mouth. The preposition *pour* here again associates the mouth with its use, so that Madeleine’s utterance can be interpreted as ‘the mouth for Madeleine to eat.’ This recurrent function, which Madeleine, at this age (1.11), assigns to this emergent prepositional marker used before a noun is thus quite close to Léonard’s use of *pour* before an infinitive verb, except that Madeleine emphasizes herself as the agent of the process.

Conclusions

On the syntactic level of analysis, prepositions are classified as being either semantically coloured with a primary lexical and spatial value, or semantically weak and marking syntactic function within the prepositional phrase. In this opposition, quantitative observations of emerging prepositions show that French and English children do not behave in the same way, with a clear priority of spatial first prepositions for the English children while the French children use mainly functional ones first.

But a qualitative corpus-based analysis of the actual use of these emerging prepositions in context shows that this purely syntactic opposition is not entirely adequate and that another level of analysis would be more appropriate. In our corpus of French children, the category of prepositions emerges with a pragmatic rather than syntactic function: first prepositions are used to mark a relation between speakers, objects and the situation of utterance and not just to link parts of speech or phrases within the utterances.

In the acquisition of French, this particular grammatical category is first organised as a pragmatic paradigm, with prepositions used as tools for speech acts performed to justify action, disambiguate intentions or interpersonal positioning.

A closer look at English corpora shows that this spatial predominance should perhaps also be reconsidered. It appears that in quantitative morpho-syntactic analysis, the items that are gathered around the term 'preposition' are free preposition-like morphemes that do not always have a prepositional syntactic function in child speech. The first items appearing in English: *up* and *down*, which Tomasello (1987) considers as 'verb like', could well belong to the category of verbal particles and correspond to truncated phrasal verbs ('pick me up', 'put me down') used as requests for the addressee's actions in context. Those particles do not so much mark a spatial relation between objects or people but rather a request for action. In that case, particles would appear before prepositions (and not the opposite).

There again, it is interesting to note that syntactically, all these free preposition-like morphemes form a kind of morphological 'super-category' when they emerge, and that the items within this category will be subcategorized as particles and prepositions according to a functional and pragmatic discriminating feature.

First uses by children are therefore interesting to analyse, and show that parallels between language acquisition and language histories may not be so accurate either. A better parallel to draw would perhaps be the one between first uses in language acquisition and the core, basic or schematic operations to be found behind those grammatical markers.

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