Tense acquisition in French 5 year olds

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1 Introduction

In this paper, we will present and discuss the results of a study on the comprehension and production of tense by French 5 year olds carried out for COST Action A33, of which the main objective was to discover new methods to diagnose language problems in children in all European languages.[1] By finding out where the baseline is for certain linguistic items, the COST Action A33 tries to establish early diagnosis methods for language problems. Because the research is carried out in 17 European languages, it enables us to compare the obtained data cross-linguistically, which means that it gives a better insight into language properties and with that the diagnosis of language problems.

One of the focal points of Action A33 was the acquisition of tense by children when they had reached school-entry age (5 or 6 years old). The goal of the research was to find out whether children of that age were capable of anchoring events in time. In other words, could they combine the correct form to the related meaning? Additionally, we also wanted to find out which forms were easy for children and how this is related to form-meaning mapping? In this study participants were tested on the *Tense Test* (Hollebrandse, 2010 and Hollebrandse, Arosio and Dressler, 2011), which consisted of a comprehension part and a production part.

Most European tense systems are not quite a one-to-one in their form-meaning mapping. When producing a tense form a French child can choose between an analytical and a syntactic form. For example, the French child who wants to convey a past tense meaning can either opt for a present perfect construction, *j'ai dormi* ('I have slept"), or a past imperfective form, *je dormais* ('I slept'). The same can be done for the present tense meaning, where the child can choose a simple present tense form, *je dors* ('I sleep') or a periphrastic present tense construction, *je suis en train de dormer* ('I am sleeping'). The one-to-more mapping also holds for the future tense meaning, where one can opt for a simple future form, *je dormirai* ('I will sleep') or a periphrastic future construction, *je vais dormir* ('I will go sleep'). This is summarized in Table 1.

TENSE	ANALYTICAL	SYNTACTIC
Past	*J'ai dormi* (I have slept)	*Je dormais* (I slept)
Present	*Je suis en train de dormir* (I am sleeping)	*Je dors* (I sleep)
Future	*Je vais dormir* (I go sleep)	*Je dormirai* (I shall sleep)

Table 1: Distribution of French tense types among analytical and syntactic forms.

The forms making use of an auxiliary or a modal are morphologically more complex, however it is conceivable that they are easier to learn because they are more frequent in the child's input. One of the two simple pasts, the *passé simple* (*je dormis),* is mostly reserved to written contexts in French and the verb *aller* (to go), which is used in the periphrastic future tense, being one of the most frequent verbs in general.

On the other hand, Hollebrandse and Roeper (1995), Hollebrandse, Arosio and Dressler (2011) and Van Koert, Hollebrandse and Van Hout (this volume) argue, among others, that the periphrastic forms are semantically simplex and therefore easier to learn. They might not involve rule-learning, but just the acquisition of a single form. Wagner (2001) shows that the English analytics forms are learnt. Consequently, we predicted the following:

(1) The analytic periphrastic tense forms will be preferred to the synthetic simple tense forms. There are two reasons for that 1. the periphrastic form surfaces a lot more in the child's input that the synthetic form. 2. the analytic forms are semantically simplex and therefore easier to learn.
(2) The children will "fall back" to the present tense to express actions taking place in the past or future if they had not yet acquired these tense forms.

2 Method

2.1 Research Design

As mentioned before, the *Tense Test* carried out in this study consisted of two sections: a comprehension part and a production part, both of which consisted of 18 items. In both cases the children were asked to watch a video clip, which featured an actor travelling down a road along which three objects (a bike, a plant and a table) are placed at three different locations. These locations represented past, present and future moments. An actor performed the same action at each of those three locations and at a predetermined moment, the researcher asks the child a question related to placing the performed action in the correct moment in time. The actions, the order in which the actor visited the three locations and the target tense forms varied. To ensure that the actions performed were aspect neutral, the verbs representing the actions were all intransitive and atelic. Regular verbs were used, in order to make sure that the child would have no trouble understanding the situation or finding the correct conjugation. The verbs used for French were: *danser* (to dance), *ronfler* (to snore), *éternuer* (to sneeze), *tousser* (to cough), *pêcher* (to fish) and *pleurer* (to cry). The aspect was imperfective in all tense types, so the target tense forms in French were: the durative simple past, or *imparfait (je dormais),* the simple present, or *présent* (*je dors)* and the simple future, or *futur simple* (*je dormirai).*

In the comprehension test, the researcher asked the child *Where will the pirate cry?* The child could then either point to a location on the screen or say something like *next to the bike* demonstrating whether they successfully mapped the use of the past tense form to the corresponding location and therefore time. In the first three items of each of the two sessions an adverb (*avant/*before*, après/*after and *maintenant/*now) was added to point the child in the right direction. In the production test, the same video clips were shown, but this time the researcher, by means of a hand puppet, asked the child to finish the sentence in (3).

(3) Mmm, I think that near the table/bike/plant, the Pirate….

2.2 Participants

Two groups participate in the *Tense Test*: an experimental group, consisting of 20 monolingual French children without any known language problems (10 male, 10 female, aged between 5:0 and 6:0) and a control group, which consisted of 10 monolingual adults without any language deficiency (5 male, 5 female, mean age: 22:4). Since it became clear during testing that the adult control group might be primed by the tense forms given in the comprehension part, we also tested 5 adults exclusively on the production part (5 females, mean age: 19:8) in order to see whether they would produce the same tense forms without receiving any input prior to the test. Furthermore, the children were tested in two sessions a week apart, while the adults performed the entire test in one session. During the first session the children made the first half of the comprehension test and the production test and in the second session, that took place one week later, they performed the second half of both parts.

3 Results

In this section, we will first present the French comprehension data, followed by the French production data, comparing the scores of the children with those of the adults. Then, we will compare the French data to the data obtained from other Romance languages.

3.1 The French data

Before turning to the production data, we will first discuss the comprehension results.

3.1.1 Comprehension data

Starting with the comprehension part, the data show that French 5-year olds generally are capable of mapping a verb form onto the correct tense. Overall, 84,4% of all the answers given by the children was correct. When an adverb of time (before, now or later) was added all children performed at ceiling. This means that they are definitely able to place events in time and it shows that the test works as it should.
    The present tense proved to be the easiest for the children, followed by the past tense and the future tense, as can be seen in Table 2 and Figure 1. This was to be expected because the present tense is the tense that occurs most in the children's input. The past imperfective is used quite frequently as well, but the simple future tense is more formal and therefore less often used when talking to a child. The adults

did not make any mistakes in the comprehension task and therefore had a score of 100% on all tenses.

TENSE TYPE	TARGET ANSWER	NON-TARGET ANSWER	TOTAL
Past	98/**81,7%**	22/18,3%	120/100%
Present	115/**95,8%**	5/4,2%	120/100%
Future	91/**75,8%**	29/24,2%	120/100%

Table 2: Distribution of comprehension target answers in child data according to tense type (in %)
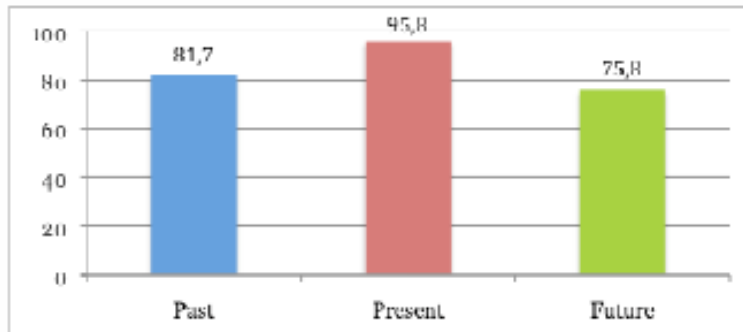

Figure 1: Target answers in child tense comprehension (in %)

We will now turn to the types of mistakes made by the children. We expected that when children make mistakes, they will opt for using a present tense instead of the required past or future tense. This expectation turns out to be true (see figure 2 and Table 3). Children mostly opt for the present tense when they are not capable of naming the right tense (both when the target form is a past tense or a future tense).

TARGET ANSWER	GIVEN ANSWER		
	PAST	PRESENT	FUTURE
Past	81,7%	**17,5%**	0,8%
Present	3,4%	**95,8%**	0,0%
Future	4,9	**18,4%**	75,8%

Table 3: Distribution of target and non-target answers in child comprehension (in %)
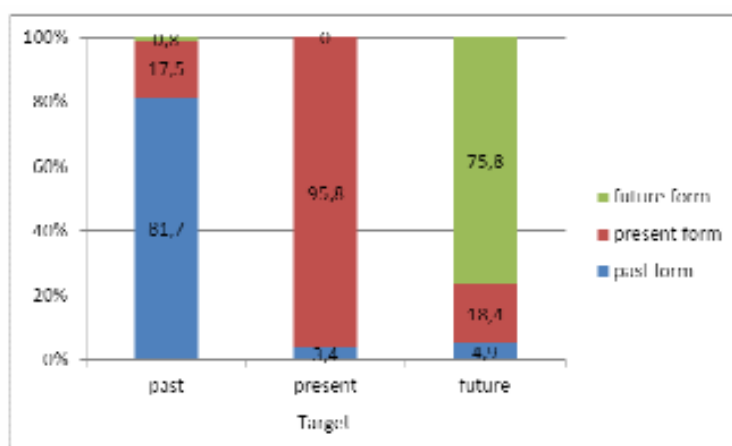

Figure 2: Distribution of target and non-target answers in child comprehension (in %)

As noted above French is a language in which a speaker has several options when he or she wants to express a certain tense meaning. In Table 7, these mapping options are given. The present time can be expressed by two different tense forms, but there are many different forms to express an action in a past or future time.

PAST	PRESENT	FUTURE
Imparfait: Je dansais (I danced)	*Présent*: Je danse (I dance)	*Future simple:* Je danserai (I will dance)
Passé simple: Je dansai (I danced)	*Periphrastic present:* Je suis en train de danser (I am dancing)	*Future proche:* Je vais danser (I am going to dance)
Passé composé: J'ai dancé (I have danced)		*Présent*: Je danse (I dance)
Plus-que-parfait: J'avais dansé (I had danced)		*Conditionnel:* Je danserai (I would dance)
Présent: Je danse (I dance)		*Other periphrastic combinations:* J'allais danser (I was going to dance) J'irai danser (I was going to dance) etc.

Table 7: Tense mapping in French

In contexts where a past tense is required, the tense mapping is far from one-to-one in French and also the future tense presents a many-to-many mapping situation as well. This might explain why the children found past and future tenses harder to produce correctly than present tenses, since they only have to choose between two tense forms in a present tense context, one of which is clearly preferable, instead of having to eliminate 4 or more competitors to arrive at the target answer in a past or future situation (cf. Hollebrandse, Arosio and Dressler, 2010 for more on the Competitors Analysis).

3.1.2. Production data

Turning to the production data, the adults in the control group scored 100% on all tense types. The child data show that in general they were considerably less adept at producing target tense forms (the expected target form was the imperfective) than they were at comprehending them: only 55% of all the produced tense types was correct, vs. 84,4% in the comprehension part. As is shown in Table 4 and Figure 3, the children had the least trouble with the present and future tense, but in the past tense the majority of them did not produce the target form.

TENSE TYPE	TARGET ANSWER	NON-TARGET ANSWER	TOTAL
Past	45/37,5%	75/**62,5%**	120/100%
Present	78/**65,0%**	42/35,0%	120/100%
Future	75/**62,5%**	45/37,5%	120/100%

Table 4: Distribution of production target answers in child data according to tense type (in %)
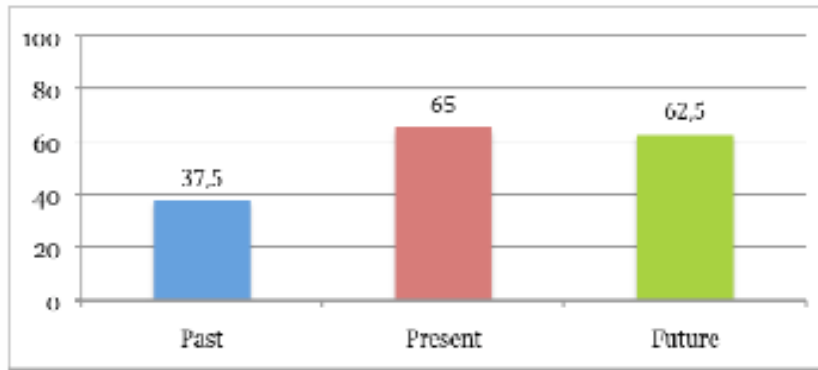
Figure 3: Target answers in child tense production (in %)

Interestingly, it can be deduced from these data that in production the order of difficulty is 'past > future > present', which is unexpected, since there are more competitors to eliminate in a future tense context than in a past tense situation.

When looking at the errors the children made, it becomes clear that the present tense form is still the preferred one. They also revert to other strategies, such as infinitives, as shown in Table 5 and Figure 4.

TARGET ANSWER	GIVEN ANSWER			
	PAST	PRESENT	FUTURE	OTHER
Past	37,5	**27,5%**	16,7%	18,3%
Present	2,5%	**65,0%**	11,7%	20,8%
Future	3,3%	**19,2%**	62,5%	15,0%

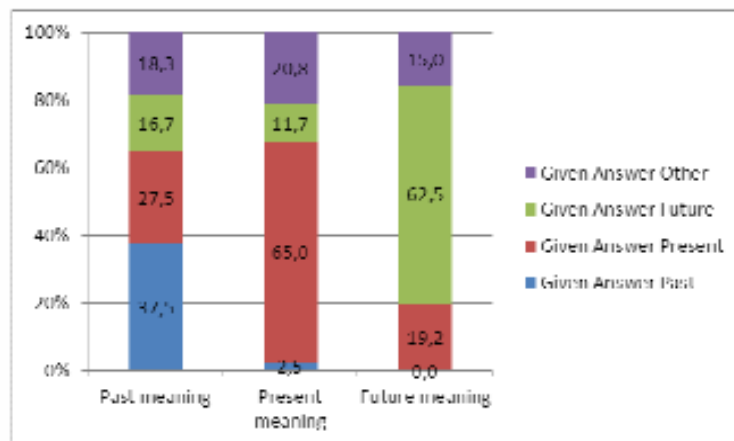*Table 5: Distribution of target and non-target answers in child production (in %)*

Figure 4: Distribution of target and non-target answers in child production (in %)

Figure 5 shows produced past tense forms in more detail. Children generally were not able to produce a past tense in the corresponding context. There are at least five tense forms that might be appropriate in a past tense context: the past imperfective, the simple past, the present and past perfect and the simple present tense. Hollebrandse, Arosio and Dressler, 2010 propose that the more competitors there are for a single tense type, the harder it is for a child to choose the tense form that corresponds to a certain context. When the children did produce a past tense, most of them also produced the target form the present imperfect. Aside from the past imperfective, they also produced present perfects and in one case even a past perfective.
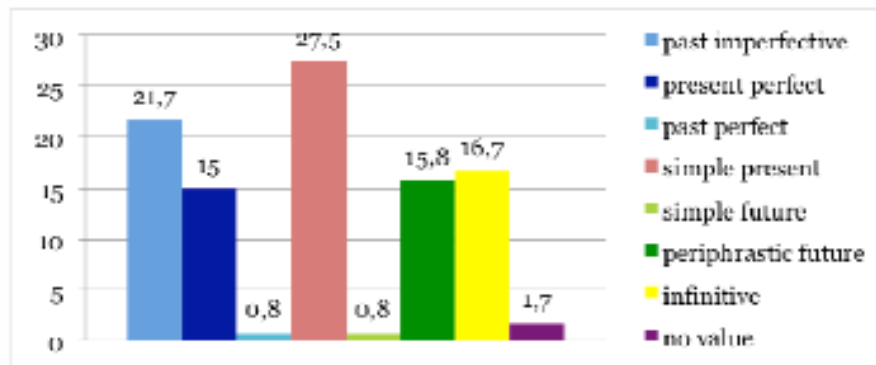
Figure 5: Produced tense forms by children in past tense contexts (in %)

As we predict the tense form that was used most often was the present tense. Children producing this might have thought that it is "safest" or best-fitting tense among the tense forms. Also worth noting is that French does allow for the use of a present tense in certain past tense contexts. It is, for example, a sentence like (4) is completely acceptable.

(4)   En 1643 Louis XIV   devient   roi   de France
       In 1643 Louis XIV   becomes king   of France
       'In 1643 Louis XIV becomes the king of France.'

When the target answer was a present tense form, the children were able to give the correct response 65% of the time. In Figure 6 the different tense forms used in their answers in depicted.
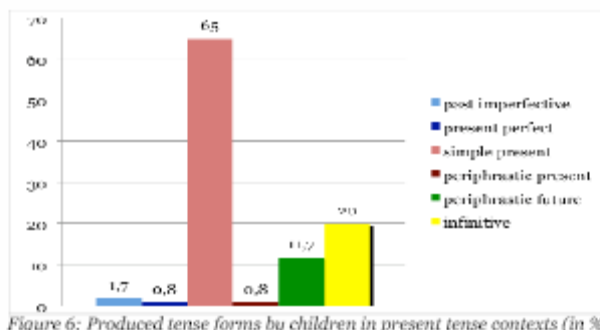

Figure 6: Produced tense forms by children in present tense contexts (in %)

When they were not able to produce the target simple present tense they most often used an infinitive or a periphrastic future, in which of course the present tense is incorporated (cf. *il va danser* vs. *va* = 3rd sing. present tense). Interestingly, they only produced a periphrastic present tense in 0,8% of the cases, this corroborates our expectation that even thought the periphrastic present is a competitor for the simple present tense in theory, children hardly even resort to this construction to refer to actions taking place in the present tense, assumingly because the periphrastic construction is much more complicated and doesn't occur nearly as often in a child's input as a simple present tense.

In future tense context the distribution of produced tense forms was as follows: in 62,5% of the time the children were able to produce a future tense and what is most striking is that only 2,5% of this percentage consisted of the target simple future tense, while 60% of those future tense types were of a periphrastic nature. This means that our prediction on the children's preference concerning future tense form (cf. (2)) was correct. When the children could not produce a future tense type they

most often fell back on either the simple present tense or the periphrastic (see Figure 7). The use of a present tense in future contexts is can be explained by the fact that, as in Dutch, a present tense can sometimes be used to express actions that will take place in the near future, such as the event presented in (5).

(5)   Demain   nous   allons   au marché
        Tomorrow   we   go to+the   market
        'Tomorrow we will go to the market'

This means that in fact 81,7% of all the produced answers are appropriate.
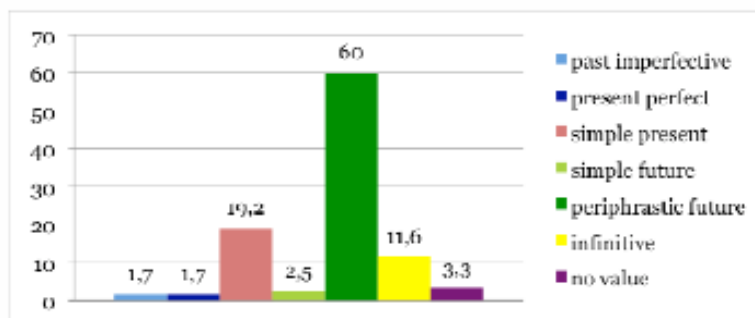

Figure 7: Produced tense forms by children in future tense contexts (in %)

All in all, this means that in the majority of all the contexts the children were able to access the target tense type and, with the exception of the future tense, they were also able to produce the correct tense form. When they did not, they most often reverted to the use of an infinitive or the simple present tense. This means that all the predictions made in the introduction were borne out. Furthermore, it turned out that children had more difficulties producing a past tense type than a future tense type, this might be caused be the fact that the future tense most often used by the children is a periphrastic one in which a combination of the present tense and an infinitive is used. Both of these forms appear to be easily accessible to them. Additionally, there are fewer competitors in the past tense than there are in a future tense situation, which would make tense mapping easier in the former contexts than in the latter.

When looking at the tense forms produced by the adults in the control group, it can be said that altough they always produced the correct tense type, some of them seem to prefer the analytical verb forms to the syntactic verb forms, as can be seen in Figure 8. Especially in past tense contexts (28,9%), the French adults in some cases appeared to prefer the present perfect to the past imperfective and in the future tense 14,5% preferred a periphrastic future to a simple one. We also felt that the adults who performed both the comprehension as well as the production test, were primed by the time they reached the production part. Some of them expressed that they normally might have used a periphrastic future. Five adults only performed the production part. Two of them categorically opted for present perfects and periphrastic futures instead of simple past and future tenses. One of them did only did so sometimes. There might have been an effect of the comprehension part on the production part.
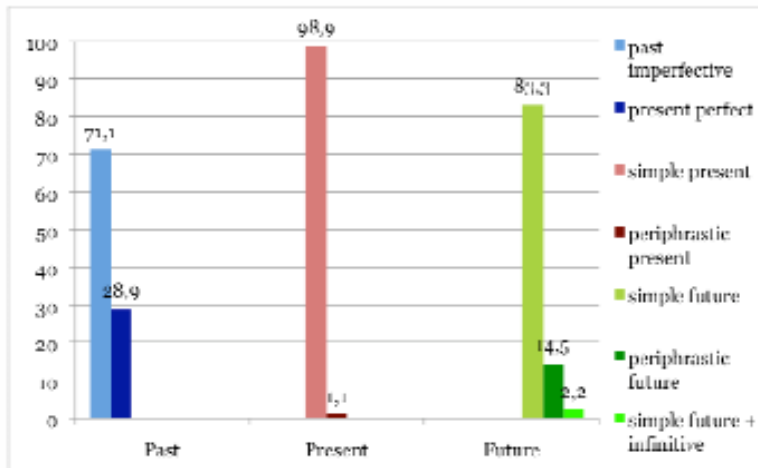
Figure 8: Produced tense forms by adults in all tense contexts (in %)

Concluding, it can be said that, where tense comprehension or production is concerned, children have not yet attained adult level at the age of 5 years old. In the next section the French data will be compared to the data of other Romance languages.

3.2 The Romance data

Figure 9 and Table 6 give the data of the Romance languages Italian, Spanish and Romanian. French children behaved similarly where tense comprehension is concerned when compared to children of other Romance languages.[2] Three of the five languages knows a difficulty order of present > past > future (in Romanian, one of the two languages that know a different order, the difference between the tense types is rather small) and in general the target answer is given in more than 75% of all questions. From this it can be concluded that, by and large, 5 year old speakers of a Romance language are capable of comprehending tense. Since the production data of the other Romance languages has not yet been analysed, we cannot compare the French data to the data of the rest of its language family yet.
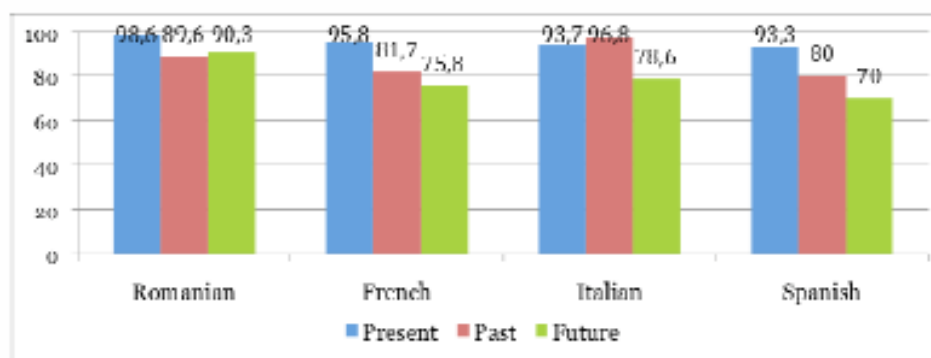

Figure 9: Target answers (in percentages) of child comprehension in Romance

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[2] The studies on tense in the other Romance languages have been carried out by other researchers, cf. Hollebrandse, Arosio and Dressler (2010).

LANGUAGE	PAST	PRESENT	FUTURE	TOTAL AVERAGE
Romanian	89,6	98,6	90,3	92,8
Italian	96,8	93,7	78,6	89,7
French	**81,7**	**95,8**	**75,8**	**84,4**
Spanish	80	93,3	70	81,1

Table 6: Target answers (in percentages) of child comprehension and total average

4. Discussion & conclusion

Concluding, it can be said that the predictions made in the introduction, and repeated here as (6)-(7), proved to be correct.

(6) The analytic periphrastic tense forms will be preferred to the synthetic simple tense forms. There are two reasons for that 1. the periphrastic form surfaces a lot more in the child's input that the synthetic form. 2. the analytic forms are semantically simplex and therefore easier to learn.

(7) The children will "fall back" to the present tense to express actions taking place in the past or future if they had not yet acquired these tense forms.

The children performed better at the comprehension test than they did at the production test (84,4% vs. 55%). In those contexts where children could not access the target tense forms, they mostly fell back onto the use of a present tense or an infinitive, which was as expected. The periphrastic future was indeed largely preferred to the simple future tense by the children (60% vs. 2,5%), and some adults appeared to prefer it too (14,5%). Probably testing the comprehension of tense with a periphrastic future would give more adult-like results.

The goal of the research was to find out whether children of that age were capable of anchoring events in time. In other words, could they combine the correct form to the related meaning? As the results of both the comprehension and the production part show, they generally can. Although they are still relatively far away from adult level.

Additionally, we also wanted to find out which forms were easy for children and therefore emerged in their production. Children at the age of 5 years produce many different verb forms. In the present tense contexts they prefer the simplex present tense, which is expected since the periphrastic present tense is less frequent in French child language. As predicted the children did prefer the periphrastic future tense to its simplex counterpart. This is expected because the periphrastic future tense consists of a simple past tense form combined with an infinitive, both easily accessible verb forms that frequently occur in a child's input. The simple future tense, however, is a lot less frequent in a child's input.

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