

# KNOWLEDGE OF TENSE SEMANTICS IN EARLY CHILD ROMANIAN

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**Abstract:** Previous research on the acquisition of tense semantics in child Romanian has demonstrated that typically developing Romanian-speaking three-year-old children have difficulties in the comprehension and production of the imperfect (an imperfective past), and the future (Stoicescu 2013). The present study investigates whether Romanian children have difficulties with the contrasts between the present, the *perfect compus* (a periphrastic past), and the future. The children obtained high scores for the present in both comprehension and production. In the comprehension of the *perfect compus* the children performed above chance. In the comprehension and production of the future, the results were significantly lower than chance. The study provides evidence that children have an understanding of the present-past contrasts at this early age, although not at the adult level.

**Keywords:** acquisition of tense, Romanian, periphrastic past, present, future

## 1. Introduction

Using tense-aspect morphology in order to express the temporal location and (in)completion of events is a complex task. It entails assessing the temporal structure of the eventuality, placing it before/at/after the speech event, and selecting the verb phrase that best describes it, while also being aware of the aspectual properties of the respective predicate. According to some researchers, the difficulty of this task is compounded by the child's initial cognitive underdevelopment. Piaget (1962) argued for the theory of cognitive determinism, according to which children acquire language only if they are at the appropriate stage of their conceptual development. He believed that the beginning of language acquisition was conditioned by the parallel or prior development of various relevant cognitive structures. Early studies of the acquisition of tense and aspect were based on the assumptions of cognitive determinism (Antinucci and Miller 1976, Bronckart and Sinclair 1973, Bloom et al. 1980, Shirai and Andersen 1995). The acquisition of tense was expected to depend on the development of the ability to temporally locate events before, at or after the speech event, an ability which, it was thought, the child did not possess when he started using language. At the onset of acquisition the child was considered to have an ego-centric perspective on the world, not being capable of thinking about situations other than those perceivable in the present. This type of reasoning led to the Aspect First Hypothesis, according to which children start off with a non-adult interpretation of tense morphology, the latter being used to encode aspectual notions such as (a)telicity or (in)completion. According to this hypothesis, past tense inflections are, for instance, markers of telicity (Antinucci and Miller 1976) or completion, i.e. grammatical aspect (Wagner 2001). However, there is now evidence from research on child memory and play patterns that children do not start

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learning about the meaning of tense forms in a vacuum. They are already equipped with an elementary understanding of event ordering and with the capacity to remember past events (Bahrick and Pickens 1995, Bauer and Mandler 1989).

An alternative to cognitive determinism is the “transactional model” (Nelson 1991), according to which conceptual development and language acquisition are mutually dependent and in constant interaction: “language cannot be acquired without a cognitive/conceptual base, but as soon as first language forms appear the conceptual base becomes transformed” (Nelson 1991: 280). What are the implications of the transactional model for the development of the tense-aspect system? The acquisition of the functions of tense/aspect morphology in the target language is facilitated by the children’s initial awareness of temporality, and it also refines their temporal understanding. Thus if aspect is indeed learnt before tense, children use what they know about aspect to clarify and speed up their acquisition of tense.

As a reaction to the Aspect First Hypothesis there emerged a model which might be called the Aspect and Tense Hypothesis. Smith (1980), Weist et al. (1984, 1991, 2004) argue that the children’s grammar of tense is in continuity with the adult grammar, although it is not as complex as the adult system. According to this model, the early tense system incorporates only two temporal parameters (Event Time and Speech Time) (Reichenbach 1947), which are sufficient for children to build representations of past and future events. Child tense morphology plays the same role it has in adult grammar, namely that of marking temporal location.

## 2. Aim

Previous research on the acquisition of tenses in Romanian demonstrated five- and four-year-old children’s robust competence with respect to the present, the imperfect and the future (Stoicescu 2013). However, the experimental results were not conclusive in what concerns earlier stages of acquisition. The aim of this paper is to further investigate Romanian-speaking children’s knowledge of tense contrasts in comprehension and production at the age of three. The research questions investigated were the following:

- (i) Do Romanian-speaking children comprehend the temporal semantics of the present, *perfect compus* and future tenses?
- (ii) Are Romanian-speaking children able to produce the present, the *perfect compus* and the future contrastively?

The prediction that can be made according to the Aspect and Tense Hypothesis is that, around the age of three, Romanian-speaking children distinguish between Event Time and Speech Time, and understand the distinctions between the present, the past, and the future. For this prediction to be confirmed, the children’s scores should be significantly above-chance in the comprehension of the three tenses. However, the children’s tense system is less developed than the adult system; hence we expect the children’s scores not to be adult-like.

The paper has the following structure: Section 3 presents the tenses under investigation. Section 4 is dedicated to a review of the previous findings on the acquisition of tense and aspect at the age of three. Section 5 contains the presentation of

the experiment. Section 6 outlines the main results, followed by discussion in Section 7. Section 8 concludes the paper.

### 3. The Romanian tenses tested

The experiment tests the comprehension and production of three Romanian tenses: the present, the *perfect compus*, and the colloquial future. The Romanian *present* is a synthetic tense, which expresses both present tense and imperfective aspect. It may also have habitual and generic readings. In addition, it constitutes a frequently used alternative to the periphrastic colloquial future.

- (1) Măine      ajung                  acasă.  
 tomorrow arrive.PRES.1SG home  
 ‘Tomorrow I am arriving home.’

Spoken Romanian uses a perfective past (the *perfect compus*) and an imperfective past (the imperfect). From a semantic point of view, the *perfect compus* is less complex than the imperfect because, unlike the latter, it lacks a modal dimension. The imperfect describes past processes ongoing in the real world, but it may also refer to irrealis situations (for instance, in adverbial clauses of condition, it can be connected to an unfulfilled condition, see Manea 2005: 431). The *perfect compus* was chosen over the imperfect for investigation in this study due to its simpler semantics. The *perfect compus* is a periphrastic tense consisting of an auxiliary (the reduced form of *avea* ‘have’) and the past participle:

- (2) A    ajuns    acasă (ieri).  
 has arrived home yesterday  
 ‘He arrived home (yesterday).’

The colloquial future is also a periphrastic tense built with the invariable morpheme *o* and a subjunctive configuration:

- (3) O    să    ajungă                  acasă.  
 o    SĂ arrive.SUBJ 3SG home  
 ‘He will arrive home.’

In adult Romanian the colloquial future is frequently replaced by the *present*, as in (1).

### 4. Previous research

There are two trends in the literature on the acquisition of tense and aspect. Numerous studies focus on the relation between situation-type aspect (Smith 1991) and tense at the onset of acquisition (Bronckart and Sinclair 1973, Antinucci and Miller 1976,

Bloom et al. 1980, Shirai and Andersen 1995). As mentioned before, this type of research concludes that tense morphemes are markers of aspect in early child language. This conclusion is based on frequency analyses of longitudinal data which show that children do not use tense morphology equally with all situation types but rather favour certain combinations between tense morphemes and lexical aspect classes (past tense – telic predicates, present tense-atelic predicates, etc.).

However, the other line of study, which is based on the experimental investigation of the comprehension of tenses, presents a different picture. Richard Weist's research showed that children manage to build an elementary tense system with the appropriate semantics mapped to the relevant morphology before the age of three (Weist et. al. 1984, 1991, 2004). Other studies focused on the interaction between grammatical aspect and tense in acquisition. Wagner (2001) investigated whether 2- and 3-year-old English-speaking children understood the temporal semantics of the present continuous, past continuous, and *gonna* future using an act-out task. The scenario was the following: a toy cat carried out the same action at three locations along a road. When the toy reached the second location, and while she was in the middle of the activity, the children were told: *Show me where the kitty was V-ing/is V-ing/is gonna V* (was resting/is resting/is gonna rest). The children were expected to point to the first location for the past, to the second location for the present, and to the third location for the future. The two-year-old children's comprehension of the past was above chance (48%), while the future mean score did not reach significance (43%). The scores of the three-year-old children were significantly above chance for the past and the future. The present was not problematic for any of the children. There was no effect of lexical aspect although both telic and atelic predicates were tested. In a second experiment, using a similar methodology, Wagner demonstrated that the (in)completion of the event plays an important part in tense comprehension. In one condition, the toy completed a resultative task (i.e. *fill a puzzle*) at the first location, while, in the other condition, the toy left the task unfinished. The child participants correctly associated the past with the first location only when the event at the first location was completed. Wagner argues that children initially associate past tense morphology with completion or perfectivity and this indicates that the acquisition of viewpoint aspect features supports the acquisition of tense.

Delidaki and Varlokosta (2003) tested a group of Greek-speaking two and three-year-old children using a replica of the experiment designed by Wagner (2001). They reported that the average scores for the comprehension of the past tense were not significantly above chance. On this condition the youngest children (2-year-olds) had a mean percentage of correct responses of about 40%, while the older children were on target over 50% of the time. The choice of telic versus atelic predicates in the test questions did not improve performance in this condition. This is evidence against the Aspect First Hypothesis, which would predict that, since the past tense morpheme is a marker of telicity, telic past predicates would be easier to understand than atelic past predicates. Similarly, the use of the imperfective past versus the perfective past did not make a significant difference for the comprehension of the past. Nevertheless, despite the children's poor performance on the comprehension of the past, the results for the comprehension of the future were above chance levels. The two-year-olds were on target

in over 50% of cases, while the three-year-olds gave correct responses over 60% of the time.

Van der Feest and van Hout (2002) used a similar task to the one used by Wagner (2001). However, they incorporated the event completion or lack thereof in the experimental scenario. They tested two hypotheses: the Aspectuality Hypothesis, according to which the past tense stands for completion, while the present tense stands for ongoingness, and the Temporality Hypothesis, according to which the past tense is a marker of pastness, while the present stands for present time. The participants were three-year-old Dutch-speaking children. In this experiment, a puppet walked along the road and tried to do a puzzle. At the first location the puppet didn't finish the puzzle (incomplete – past situation). At the second situation she finished the puzzle (complete – past situation), and at the third she started working on it again (ongoing-present situation). The Dutch tenses tested were the present (describing present, ongoing situations), the present perfect (past, complete situations) and the past simple (which may elicit both incomplete and complete readings). The children were asked to indicate the relevant location in response to a *where*-question containing one of the three tenses. The results showed that the children matched the past tense with complete situations. They did not associate the past tense with incomplete situations, even if the incomplete event was past with respect to the time when the question was asked. Thus the experiment supported the conclusion that the past tense stands for completion for Dutch-speaking three-year-old children. However, they did not associate the present only with ongoing situations but also with complete situations. Hence the present cannot be said to stand only for ongoingness. In addition, the children did not distinguish between incompleteness and ongoingness for the present perfect.

An initial exploration of the acquisition of the Romanian tense system was carried out by Stoicescu (2013), using the same task as the one that will be presented in 5.1 below, with the only difference that the *imperfect* was tested instead of the *perfect compus*. Three age groups (mean ages: 3;4, 4;5, 5;4) and an adult control group were compared. The results showed that five-year-old children had an adult-like comprehension of the present, imperfect, and future. The four-year-old group also performed well in comprehension, the results being significantly above chance for all three tenses, but not so in production. However, the three-year-olds only performed at chance level on the imperfect and future conditions in both comprehension and production. The question raised was whether one of the causes for the poor performance of the youngest children was the complex semantics of the imperfect, which poses problems for acquisition cross-linguistically (van Hout 2008). The present study investigates whether evidence might be found for the early comprehension of the past by three-year-old children by replacing the imperfect with the *perfect compus*. Stoicescu (2013) also analysed data coming from the longitudinal corpora of two Romanian-speaking children: child B. (Avram 2001) and child I. (Stoicescu 2012). She showed that 2-year-old children use the *perfect compus* appropriately to describe past events. This suggests that children are aware of the temporal interpretation of this morphology. In addition, the *perfect compus* has simpler semantics than the imperfect, because it does not have a modal dimension and it encodes temporal and aspectual features that are in semantic alignment (pastness and

perfectivity). Consequently, by testing the *perfect compus* instead of the *imperfect* we expected to see an improvement in performance in both production and comprehension. Above chance performance would provide evidence against the Aspect First Hypothesis, demonstrating that children do operate a simple tense system even at an early age, and do not only have access to aspectual notions.

What's more, the longitudinal data allow us to make some predictions regarding production. Stoicescu (2013) found that, before 3;0, Romanian children systematically produce four tenses of the indicative: the present, the *perfect compus*, the imperfect and the colloquial future. Two-year-old children use these tenses contrastively, as they are able to inflect the same verbs both for the present, the *perfect compus* or the future, sometimes in the same recording. In the longitudinal data, the contrast between the present and the *perfect compus* is better represented than future-related contrasts. The colloquial future was produced only seldom, as both children and adults preferred to use the present instead, which is a legitimate option in Romanian (1). Consequently, we expected that the participants in the present study would use the relevant tenses contrastively in the production section of the experiment, but the present and the past would be produced more frequently than the future.

## 5. The experiment

### 5.1 Method

The experiment used in this study is the Tense Test, created by Bart Hollebrandse within the COST A33 group (Hollebrandse et al. 2010) by modifying the procedure in Wagner (2001). The experiment was adapted to Romanian by Larisa Avram. The experiment investigates the comprehension and production of the most frequent Romanian tenses: the present, *perfect compus*, and the colloquial future. In both comprehension and production the participants were shown short films in which a character performed the same activity at three locations on a road. The locations were marked with three objects (a bicycle, a plant and a table). The children were told that they would see a clown, a king or a pirate, and that this character would do the same thing near the bike, the plant and the table. For the comprehension conditions, when the character reached the second location, the experimenter asked the child a *where*-question using the present, the *perfect compus* or the future. The child had to point to or name the location corresponding to the tense of the question (the first location for the past tense, the second location for the present, and the third location for the future). In production, the child heard the location and had to describe the event which she/he had witnessed there (for the present and the past) or which she/he expected to happen there (for the future). The questions contained only atelic predicates in order to avoid any influence of situation type aspect: *a tuși* 'cough', *a strănuta* 'sneeze', *a dansa* 'dance', *a se juca cu mingea* 'play with the ball', *a sforăi* 'snore', *a sta în genunchi* 'lay on knees'. The test questions for comprehension and production are given in (4a) and (4b) respectively.

- (4) a. Unde tușește/a tușit/o să tușească clovnul?  
‘Where is the clown coughing/did the clown cough/will the clown cough?’
- b. La plantă/bicicletă/masă clovnul...  
‘At the plant/bike/table the clownul...’

The experiment had six conditions (comprehension – present, comprehension – *perfect compus*, comprehension – future; production – present, production – past, production – future). Each condition was tested with six test items (18 trials in comprehension and 18 in production). Given the length of the experiment, it was administered in two sessions. During each session, the experimental questions were preceded by three practice items, in which the tense cue was reinforced by the use of an adverbial (*unde strănută clovnul acum?* ‘where is the clown sneezing now?’, *unde o să strănute clovnul după asta?* ‘where will the clown sneeze after this?’, *unde a strănutat clovnul înainte?* ‘where did the clown sneeze before?’). The test question was carefully timed so as to be asked when the clown was in the middle of doing the activity at the second location. The direction in which the character went on the road was randomized. The comprehension section preceded the production section. The move from one section to the other was signalled to the child as a change in the ‘game’.

Some examples of the questions and expected target answers in comprehension and production are presented in (5) and (6) respectively:

- (5) a. Present  
A(dult): Unde se joacă clovnul cu mingea?  
‘Where is the clown playing with the ball?’  
C(hild): La plantă.  
‘At the plant.’
- b. *Perfect compus*  
A: Unde s-a jucat clovnul cu mingea?  
‘Where did the clown play with the ball?’  
C: La masă.  
‘At the table.’
- c. Future  
A: Unde o să se joace clovnul cu mingea?  
‘Where will the clown play with the ball?’  
C: La bicicletă.  
‘At the bike.’
- (6) a. Present  
A(dult): La plantă clovnul...  
‘At the plant the clown...’  
C(hild): ...se joacă cu mingea.  
‘... is playing with the ball.’

b. *Perfect compus*

A: La bicicletă clovnul...  
'At the bike the clown...'

C: ...s-a jucat cu mingea.  
'played with the ball.'

c. Future

A: La masă clovnul...  
'At the table the clown...'

C: ...o să se joace cu mingea.  
'will play with the ball.'

## 5.2 Participants

The participants in the experiment were twenty-nine typically developing Romanian-speaking children (age range 2;11-4;0, mean age 3;4), from a nursery school in Bucharest. The performance of the child participants was compared to the results of a control group made up of ten adults.

## 6. Results

The results for the comprehension section of the experiment are presented in Table 1, which shows the mean percentage of on-target answers for each tense, in the first and second sessions, and then as an average of the scores from both sessions.

**Table 1**  
**Comprehension results (%)**

Age	Session 1			Session 2			Sessions 1 & 2		
	PR	PC	FT	PR	PC	FT	PR	PC	FT
Child	93*	33	16	92*	59*	23	93*	46*	20
Adult	100	87	100	100	90*	90*	100	88*	95*

\*,  $p < 0.05$  compared to chance = 33%, PR = present, PC = *perfect compus*, FT = future

The participants had to select one of the three locations presented in the experiment, hence the chance level for this task had to be set at 33% (instead of the usual 50%) (following Wagner 2001: 669). The child participants performed well with respect to the present tense in comprehension, responding correctly in 93% of the cases, on a par with the adult group. However, the comprehension of the *perfect compus* reached only 46% (versus 88% for the control group), while the scores for the future lagged behind at only 20% (versus 95% for adults).

The results for production are shown in Table 2, which, to a certain extent, mirror the results in comprehension: the children scored high on the production of the present

(75%), yet below the adult mean (92%); they had a poorer performance for the production of the *perfect compus* (39%), and barely produced the future (10%). Adults were at ceiling on the production of the *perfect compus* and the future.

**Table 2**  
**Production results (%)**

	Session 1			Session 2			Sessions 1&2		
Age	PR	PT	FT	PR	PT	FT	PR	PT	FT
Child	78*	39	9	71*	39	13	75*	39	10
Adult	97*	100	100	87*	100	100	92**	100	100

\*,  $p < 0.05$ ; compared to chance = 33%, PR = present, PT = past tense, FT = future

Further analysis showed that the children's performance on the comprehension of the present and the *perfect compus*, as well as the production of the *present*, exceeds chance levels. Using the one-sample t-test it was determined that the children's scores were significantly higher than chance, defined as a score of 2.0, on the comprehension of the present tense condition ( $t = 15.403$ ,  $df = 28$ ,  $p < 0.001$ ), and on the comprehension of the *perfect compus* ( $t = 2.397$ ,  $df = 28$ ,  $p = 0.023$ ) respectively. For the comprehension of the future, the results were very poor, being significantly lower than chance ( $t = -2.357$ ,  $df = 28$ ,  $p = 0.026$ ). For the production of the present, the children's scores were significantly higher than chance ( $t = 7.574$ ,  $df = 28$ ,  $p < 0.001$ ); however, there was no difference from chance for the production of the *perfect compus* ( $t = 0.761$ ,  $df = 28$ ,  $p = 0.453$ ), while the production scores for the future were significantly lower than chance ( $t = -4.544$ ,  $df = 28$ ,  $p < 0.001$ ). The one-sample t-test for the adult scores revealed that they were above chance on all conditions on which it could be computed ( $p < 0.001$ ).

Given the fact that the experiment was administered in two sessions, the occurrence of practice effects was also investigated, by running the paired-sample t-test. Table 1 in the Annex presents the statistical data, and indicates that the only condition for which the results improved significantly in the second session was the comprehension of the *perfect compus* ( $t = -3.363$ ,  $p = 0.002$ ). On all other conditions, the differences did not reach significance.

In order to evaluate whether the performance in comprehension was mirrored by production scores, the Pearson correlation coefficients were calculated. There were only two significant correlations: a) between the comprehension of the past and the comprehension of the future ( $r = 0.52$ ,  $p < 0.05$ ) and b) between the production of the past and the production of the future ( $r = 0.50$ ,  $p < 0.05$ ). This shows that a better understanding of the *perfect compus* was associated with an improved understanding of the future. Similarly, children who produced the *perfect compus* more frequently were also more likely to produce future forms.

The last statistical analysis conducted was a comparison between the mean results of the child and adult groups. The independent samples t-test indicated that the adult and child scores on the *present* comprehension condition did not differ significantly ( $t = -1.944$ ,  $df = 28$ ,  $ns$ ). There were differences between the two groups on the other conditions: production of the present ( $t = -2.564$ ,  $df = 35.9$ ,  $p < 0.05$ ) comprehension of the past tense ( $t = -4.106$ ,  $df = 37$ ,  $p < 0.001$ ), production of the past tense ( $t = -8.071$ ,  $df = 28$ ,  $p < 0.001$ ), comprehension of the future ( $t = -9.803$ ,  $df = 31.5$ ,  $p < 0.001$ ), production of the future ( $t = -17.720$ ,  $df = 28$ ,  $p < 0.001$ ).

## 7. Discussion

The experiment provides evidence that, at the age of three, Romanian-speaking children understand the temporal difference between the present and the periphrastic past. They are able to locate an event prior to Speech Time, a sign that they have built a rudimentary tense system with only two temporal variables (Speech Time and Event Time). The present study thus confirms the proposal presented by Smith (1980) and Weist et al. (1991) according to which children go through a stage in their temporal development in which they can make temporal distinctions between the present and the past, selecting the speech event as their point of temporal orientation. A Reference Time distinct from Speech Time is a later addition to the system. However, the children's awareness of past temporality was not as robust as that displayed by the adult group.

As for the future, our study does not provide evidence that children comprehend this tense, as the scores were very poor, below chance level. The availability of the present for both future and present time reference in Romanian might delay the acquisition of the future tense. If the future morphology were a unique option, it would be more salient for the child in the input, and this would speed up acquisition. In addition, if it is true that language acquisition supports conceptual development (according to the transactional model proposed by Nelson 1991), then a single morpheme-time mapping would facilitate the representation of future time reference and the results in comprehension would have been better.

The production scores were around chance for the past, and significantly below chance for the future. However, these results should be treated with caution for at least two reasons. Firstly, the longitudinal corpora of child Romanian contain numerous examples of *perfect compus* sentences. Stoicescu (2013) found 460 child utterances containing the *perfect compus* in the corpus of child B. (1;5-2;11) and 481 child utterances marked with the *perfect compus* in the corpus of child I. (1;10-3;1). Thus it is certain that Romanian-speaking children are able to produce this tense, even before the age tested in this experiment. As for the future, the longitudinal corpora contain only few examples. Children are not frequently exposed to the colloquial future in the adult input, which might delay the acquisition and production of this tense. Stoicescu (2013) pointed out that the present was produced instead of the future by both children and adults in the longitudinal corpora. Thus it is possible that, in this experiment, many of the responses

that contained the present instead of the future were, in fact, on target (if the children intended for them to have a future interpretation). In production, the experimenter's prompt did not contain the future tense, only an indication of the relevant location, which means that the present was not an inappropriate choice. In fact, two participants (aged 3;7), who were almost at ceiling in the comprehension of the future, resorted uniquely to the present in production. They may have assigned a future reading to these present tokens. However, it cannot be claimed that all the present responses in the future production condition have a future interpretation, because some of them might have been caused by the fact that the children were influenced by the fact that the character did the same thing in all locations.

The present study highlighted an asymmetry between comprehension and production, since the comprehension and production of the same tense were not significantly correlated. Good performance with respect to the comprehension of the *perfect compus* did not involve an increase in the frequency with which this tense was produced. The same was true about the comprehension and production of the future. The subjects who had very good results on the comprehension of the future (there were four participants who were at least 80% correct in comprehension) did not necessarily achieve the same high scores in production. In fact, only one of them did. Another subject mentioned the second location systematically, as in (7), and two of them gave present tense answers systematically, as in (8):

- (7) A: La masă clovnul... (3rd location, target answer: future)  
 'At the table the clown...'  
 C: Nu, e lângă floriciă.  
 no is near little-flower  
 'No, it is near the little flower.' (607, 3;11)
- (8) A: La bicicletă regele... (3rd location, target answer: future)  
 'At the bike the king...'  
 C: dansează.  
 dances  
 'He dances.' (609, 3;7)

Analysing the frequencies of the non-target answers (see Table 3), we note that, in comprehension, children generally pointed towards the second location, where the relevant process was ongoing, regardless of the tense used in the test question. For both the *perfect compus* and the future, the non-target answers in which the children pointed to the second location were more frequent than the target answers. This means that the children paid more attention to the scene ongoing before them than to the tense in the question. If this is the case, the lower results in comprehension might be caused by the children's failure to pay attention rather than their ignorance about the tenses.

**Table 3**  
**Total percentages and number of times a location was selected for each tense in comprehension**

Tense in the question	2 <sup>nd</sup> Location	1 <sup>st</sup> Location	3 <sup>rd</sup> Location	Multiple Locations	Other
<b>Present</b>	93% (n = 161)	0.5% (n = 1)	0.5% (n = 1)	5% (n = 9)	1% (n = 2)
<i>Perfect compus</i>	52% (n = 91)	44% (n =76)	0.5% (n = 1)	2.5% (n =4)	1% (n = 2)
<b>Future</b>	73% (n = 128)	4% (n = 7)	20% (n = 34)	3% (n = 5)	

Similarly, in production, when giving non-target answers, children mostly resorted to the present when given the past and future cues (Table 4). In around 15% of the cases, however, they named the location where they saw the character doing something (i.e. the second location). In addition, they simply said ‘no’ or refused to answer altogether, which means that they found the cue misleading because it did not match the location where the action was ongoing. The children refused to speak about a location where they could not see anything happening (9)-(10):

- (9) A: La bicicletă regele... (3rd loc., target answer: future)  
‘At the bike the king...’  
C: Nu e.  
not is  
‘He is not there.’ (604, 3;1)
- (10) A: La bicicletă regele... (3rd loc., target answer: future)  
‘At the bike the king...’  
C: Nu, doarme acolo la floricea.  
no sleeps there at little-flower  
‘No, he is sleeping there at the little flower.’ (607, 3;11)

**Table 4**  
**Production: main tense forms produced**

	Present cue (2 <sup>nd</sup> Location)	Past cue (1 <sup>st</sup> Location)	Future cue (3 <sup>rd</sup> Location)
<b>Past</b>	<b>Imperfect</b>	1% (n=2)	4% (n=6)
	<i>Perfect compus</i>	5% (n=9)	36% (n=63)
<b>Present</b>		75% (n=130)	48% (n=84)
<b>Future</b>	<i>o să future</i>		0.5% (n=1)
	<i>va future</i>		10% (n=18)
<b>Multiple locations</b>		0.5% (n=1)	
<b>Second location (“at plant”), or rejection of the cue</b>		5% (n=8)	15% (n=26)
<b>Other answers</b>		14% (n=25)	20% (n=34)

This means that the children's low production scores cannot be attributed solely to their underdeveloped knowledge about the past or future, but are caused, at least in part, by their misinterpretation of the purpose of the task. Their answering strategy was to simply describe the event ongoing before them, as they would if they were asked to speak about the pictures in a storybook.

The experimental design required the children to retrieve an event from memory for the past tense cue and to imagine that something might happen in the future at the third location while the children's attention was focused on the event at hand. While this was easier done for the past tense cue, since the children had witnessed the event, and only needed to access it in their short-term memory, for the future it was a lot more difficult. Probably, the initial clue that the experimenter gave - namely that the character is expected to do the same thing in all locations, hence in the third one as well, was not strong enough for the child to be able to envisage the future event as a real possibility.

In order to perform a more fine-grained analysis of the results, I looked for individual variation amongst the child participants to see whether any of them were able to respond in a systematically contrastive way. We investigated whether there were any children who managed to give at least 50% correct answers for all conditions in either production or comprehension. Seven children (24%) were at least 50% correct for each of the three tenses (either in comprehension or production) (mean age: 3;7). However, only two of them gave contrastive answers in both comprehension and production. The rest of them were either contrastive in comprehension (the majority) or in production. When we looked only at the present-past contrast, we found nine more children who were able to contrast the *perfect compus* and the present for at least 50% of the test items in either comprehension or production. These children were younger (mean age: 3;2). This indicates that the contrast between the present and the past is mastered before the future is consolidated in the system. The relative success of these children suggests that, although the tense system is not fully developed, it is not absent from child grammar at the stage of acquisition tested (contra the Aspect First Hypothesis).

Comparing the results obtained by this study with the results reported in Stoicescu (2013), it is clear that the use of the *perfect compus* instead of the imperfect in the test questions improved performance in both comprehension and production. This is not surprising since longitudinal data indicate that three-year-old children are more familiar with the *perfect compus* than with the imperfect. They hear this tense more frequently in the adult input and they produce it more often. As mentioned above, Stoicescu (2013) found several hundred child utterances containing the *perfect compus* in the longitudinal corpora which she examined. By comparison, the imperfect was used only seven times by B. and only 128 times by child I. In addition, the semantics of the *perfect compus* involves matching features (pastness and perfectivity). The imperfect encodes non-matching features (pastness and imperfectivity), and has an obvious modal dimension, which makes it more difficult to represent.

## 8. Conclusions

The study showed that, in the early stages of acquisition, Romanian-speaking children have an understanding of the distinction between the present and the periphrastic

past, as demonstrated by their above chance results in comprehension. However, their temporal knowledge is not adult-like at the age of 3;4 but is still developing. The experimental data do not support the idea that children fully understand the future. Children's competence with the future seemed very fragile, and was only evident for some of the subjects. This confirms previous results reported by Stoicescu (2013), which showed that, in Romanian, the knowledge of the future improves between 4;0-5;0 and becomes adult-like by the age of 5;9. However, an important finding is that the acquisition of the past tense prepares the ground for the comprehension and production of the future, as evidenced by the correlations found.

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## Appendix

### Practice effects

	Mean score (SD)		Mean difference	<i>T</i>	<i>p</i>
	Session 1	Session 2			
Comprehension present score	2.79 (0.62)	2.76 (0.69)	0.034	0.441	0.663
Comprehension perfect compus score	1.00 (0.89)	1.76 (1.19)	-0.759	-3.363	0.002
Comprehension future score	0.48 (0.87)	0.69 (1.17)	-0.207	-1.361	0.184
Production present score	2.34 (0.97)	2.14 (1.06)	0.207	1.099	0.281
Production perfect compus score	1.17 (1.28)	1.17 (1.31)	0	0.000	1
Production future score	0.28 (0.75)	0.38 (0.98)	-0.103	-0.902	0.375

