A Proposal for Analysis of Tense and Aspect Acquisition Data: the Child Speech Time[1]

Uma Proposta de Análise de Dados de Aquisição de Tempo e Aspecto: o Tempo de Fala da Criança

Denise Miotto Mazocco[2]

denisemazocco@hotmail.com

RESUMO: Este trabalho apresenta uma proposta de investigação de aquisição de tempo e aspecto no português brasileiro. Para tanto, parte da abordagem sintático-semântica da estrutura de eventos e de categorias funcionais, elaborada em Ramchand (2008) e Ramchand e Svenonius (2014). Essa perspectiva possibilita uma redefinição do tempo de evento, tempo de referência e tempo de fala. Com análise de dados de produção longitudinal e de compreensão, propõe-se a definição do tempo de fala da criança, articulado ao tempo de evento e correspondente à realidade imediata da criança.
PALAVRAS-CHAVE: evento; tempo; aspecto; aquisição.

ABSTRACT: This work presents a proposal for the investigation of tense and aspect acquisition in Brazilian Portuguese. It starts from the syntactic-semantic approach to the structure of events and functional categories, elaborated in Ramchand (2008) and Ramchand and Svenonius (2014). This perspective allows for a redefinition of event time, reference time and speech time. With the analyses of comprehension and longitudinal production data, I propose a definition for child speech time, which is articulated with event time and correspond to the child's immediate reality.
KEYWORDS: events; tense; aspect; acquisition.

---

[1] This work was based on my PhD dissertation (MAZOCCO, 2020).
[2] PhD in Linguistics from Universidade Federal do Paraná (UFPR).

This paper presents a proposal for the analysis of tense and aspect acquisition data in Brazilian Portuguese from a syntactic-semantic theoretical perspective. Based on First Phase Syntax (Ramchand, 2008) and the representation of functional categories from Ramchand and Svenonious (2014), we elaborated a redefinition of speech time (ST), event time (ET) and reference time (RT).

The approach of tense and aspect based on Reichenbach (1947), which had its consequences in linguistics (SMITH, 1997; PARSONS, 1990), considers ST, ET and RT as points or intervals in time related to succession, anteriority or concurrency. The reference time can explain differences in tenses in the past. Here are Smith's examples (2004):

a) Mary arrived	b) Mary has arrived	c) On Sunday, Mary had (already) arrived
ET,RT ST	ET ST RT	ET RT SF
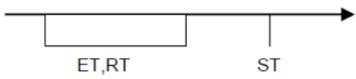
Table 1: Temporal representation

In a) the reference time coincides with the time of the event, because it is simple tense; in b) RT extends from the time of the event to the speech time, which would explain tenses like the Present Perfect; in c) the RT is specified by the expression *On Sunday*.

This linear relation among the three points/time intervals, however, does not open a way for us to differentiate time in adult speech and children speech in the process of acquiring tense and aspect categories. It makes us hold onto hypotheses such as: the acquisition of the present time precedes that of the past and that of the future; or that of the past precedes that of the present and the future; or even the children do not process time relations, only aspectual (Grammatical Aspect Hypothesis First - GAFH). In Ramchand and Svenonius (2014), ET, RT and ST are hierarchical in the sentence representation structure. We will see that they are connected to operations at different levels.

This leads us to consider another hypothesis, that the difference between adults and children is in speech time, as we will see. In other words, we need a theoretical support that provides an account of differences, such as that of the child in the initial years of acquisition, only to refer to their immediate reality, while adults can refer to longer temporalities; for example, children use a period of the future, as in "I will take", to manifest an action, an immediate desire, whereas adults manage to project the event in a more distant temporal reference, as in "I will travel next week"; similarly, the use of the perfective past, for children, refers to an event that has just happened, or its final stage. When it says "fell", for example, the reference is the final result of an object that she has observed falling, while the adult projects the event at a point in the past that may be more distant, as in "a tree fell in São Paulo last year". This relationship between speech time and the event in question is the one that demands an explanation other than that provided by the theory of points/intervals. Another theoretical starting point that we discuss concerns the structure of events.

The classes proposed by Vendler (1967) frame verbs in *achievements*, *accomplishments*, *activities* and *states*. In new readings and developments of this proposal, Dowty (1979), for example, divides verbs according to operators that compose them (DO, CAUSE, ACT, BECOME). Rothsthein (2004), in turn, argues that the classification is made by the entire VP, not just by the verb itself.

The telicity of achievements and accomplishments is considered a determining characteristic for the acquisition of tense and aspect. Because they have *telos*, events such as *kicking the ball* and *eating the noodles* would condition the acquisition of the perfective past, while states and activities, such as *having a book* and *running*, being atelic, would condition the present. This hypothesis is called the Lexical Aspect First Hypothesis (LAFH) [3]. However, we can question it. With First Phase Syntax (RAMCHAND, 2008), we observed in the composition of events a greater similarity between achievements and activities, than between achievements and achievements. We take that into the analysis of the acquisition data.

The question that guides this work is: in the acquisition of tense and aspect, what does the child do? When we previously observed longitudinal data of children aged around two and three years, we have already found morphological marks of

---

[3] Delidaki (2006) discusses both hypotheses (GAFH and LAFH) and presents comprehension and production experiments to test both based on acquisition data in Greek.

perfective past, simple and progressive present and future with periphrasis. In view of this, I ask: what are these marks for children? What temporal relations do they know? To what extent they differ from those made by adults?

The answers come from the analysis of data from an experiment of comprehension and longitudinal production data. We take as a basis the hypothesis from Bertinetto (2009), that the child first acquires a syncretic category, the ATAM system (Lexical Aspect, Tense, Grammatical Aspect and Mode) and then specifies the categories. I propose that initially the child recognizes the event, as well as that their speaking time differs from that of adults.

1 THEORETICAL PATH

To account for the data on tense and aspect acquisition in Brazilian Portuguese, I assume a theoretical path that combines semantics and syntax. Ramchand and Svenonious (2014) propose a representation of functional categories, in which there is mastery of events (e), situations (s) and propositions (p). In the field of events, I turn to Ramchand's (2008) proposal of First-Phase Syntax.
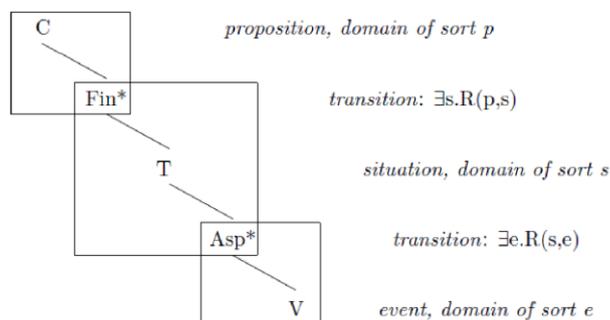
Figure 1: Hierarchy of event (e), situation (s) and proposition (p) domains (RAMCHAND e SVENONIUS, 2014, p. 21).

1.1 EVENTS AND SUBEVENTS

Ramchand (2008) proposes a syntactic-semantic structure for the domain of events, composed of subevents: init (initiaton), proc (process) and res (result). These subevents are organized by a hierarchical sintactic structure and are interpreted by a semantic system. The structure below shows the hierarchy of projections:
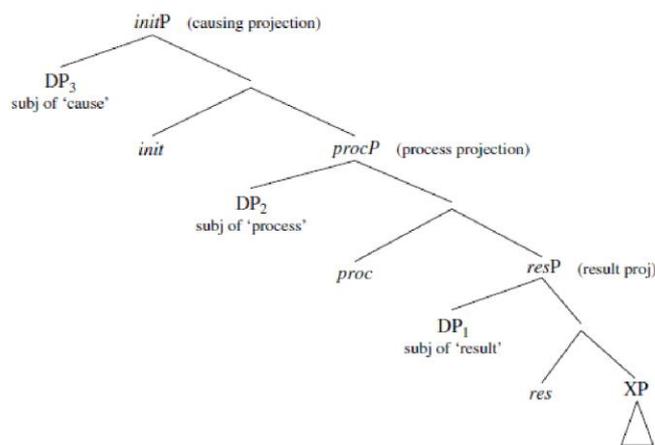
Figure 2: Projections initP, procP and resP (RAMCHAND, 2008, p. 40).

InitP (Initiaton Phrase) introduces the external argument; that is, something that "causes" or makes the event happen, a triggering state that leads to the process. The subject of the cause is the INITIATOR. ProcP (Process Phrase) is the projection for the process, present regardless of its duration. It specifies the nature of the change or process and licenses the entity that goes through it. The subject is the UNDERGOER. And resP (Result Phrase) is the projection of the result, which is present in the structure when a resulting state is explicitly expressed by the lexical predicate. It guarantees the *telos* or the resulting state of the event, and it licenses the entity that passes through the result. The subject is the RESULTEE.

It is important for this work to highlight that the result projection does not equate telicity. The *telos* can rather be given by predicates with resP, but also by predicates with path argument, as is the case of accomplishment events. In addition, the result expression can be modified by auxiliaries, by PPs, within the syntax of first phase, creating atelic events (RAMCHAND, 2008, p. 40).

Considering aspectual classes, you can define them according to the structure of the first-phase syntax. The activities contain the projections [init, proc]. Accomplishments do too, but, in the complement position of the *proc* head, they receive PATH, which gives the time limit. Achievements are verbs [init, proc, res] and states show only [init].

Semantic interpretation is given by an event composition rule. Based on Hale and Keyser (1993), Ramchand (2008) uses the relation *leads to*. So: e=e1→e2. Here,

e consists of two subevents *e1*, *e2* such that *e1* causally implies *e2*. In this system, there are two primitive predicates about events, namely the subevents:

State(e): *e* is a state.

Process(e): *e* is an eventuality that contains internal change.

For example, an event such as *eating* can be decomposed by two subevents: *e1* is causation/initiation and *e2* is the event of something being consumed. Ramchand (2008, p.42) makes the following representation:

eating (e), where e = (e1 →e2: [cause-eat(e1) & process-eat(e2)])

An example of a structure with result is the predicate *defuse the bomb*. According to Ramchand (2008, p. 43), there are three subevents: *e1* is the beginning, *e2* is the bomb being deactivated and *e3* the bomb deactivated; *e2* leads to *e3*; and *e1* leads to the result of the relation between *e2* and *e3*. According to the representation:

'defuse-the-bomb'(e), where e=e1→(e2→e3) :[initiate-defuse(e1) & process-defuse(e2) & result-of-defusing(e3)]

According to Mazocco (2020), the relationship between events and subevents helps us to think about the temporal composition of sentences. There is no time variable at this level, according to Ramchand (2008). However, Mazocco (2020) notes that there is a relationship of precedence, succession and overlap between subevents. The temporal anchorage itself is given in the domain of situations. This is what Ramchand and Svenonious (2014) propose.

1.2 TENSE AND ASPECT FUNCIONAL CATEGORIES

For Ramchand and Svenonius (2014), situations are elaborations of eventualities. The Asp head is responsible for making the transition between domains of events and situations. In the figure below, it is possible to observe that the head Asp* (denotation: $\lambda P\lambda e\lambda s\exists e.Asp(s,e)\wedge P(e)$) selects a description of eventuality ($\lambda e.$

V(e,x)) and builds a description of the situation that has time and world parameters ($\lambda s \exists e.Asp(s,e) \wedge V(e,x)$). The T head takes one situation and returns another: T (denotation: $\lambda P \lambda s \lambda s' \exists s.T(s's) \wedge P(s)$) selects the situation description $\lambda s \exists e.Asp(s,e) \wedge V(e,x)$ and generates another description $\lambda s' \exists s.T(s) \wedge Asp(s,e) \wedge V(e,x)$.
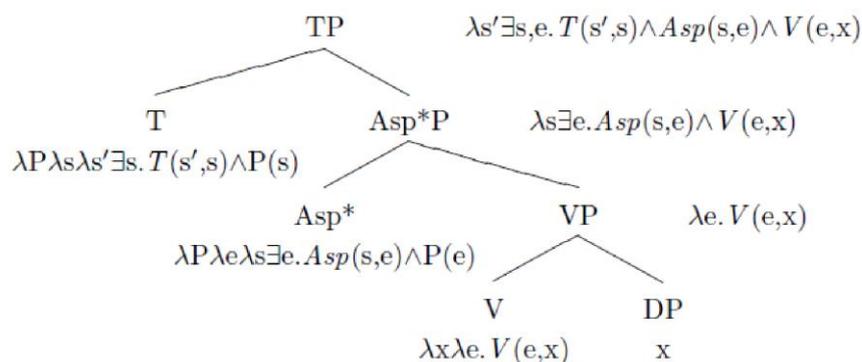

Figure 3: Tense and grammatical aspect projections (RAMCHAND e SVENONIUS, 2014, p.19)

In this structure of situations domain, Ramchand and Svenonius (2014) place the relationships between Event Time (ET), Speech Time (ST) and Reference Time (RT). Following a Reichenbachian tradition, these constitute points or intervals in time that, in relation to concurrency, anteriority or succession, configure grammatical time. Here, we consider them in terms of relationships. TE becomes an event variable and TR is an interval given by TE. When TR includes the whole event, we have the perfective aspect, and when the TR is in TE or part of it, we have the imperfective aspect.

In Mazocco's proposal (2020), the definition of ET is articulated with the subevents from the domain of events; ET is thus a relationship of concurrency, succession or anteriority between *e1* and *e2* or *e1, e2* and *e3*. The relationship between RT and ET occurs between the VP (or EventP) and AspP projections. The relationship between RT and ST occurs between the AspP and TP projections. When the T head takes the situation generated by Asp, it returns another situation description now anchored to a ST. The relationship between RT and ST is hence between time intervals. We will see that the difference between adults and children happens at this point.

Before we go to the acquisition data, let us look at the time relationships redefined here in four events, one of each aspectual class:

    a. The boy kicking the ball

        e1 trigger; e2 the ball being kicked; and e3 the ball kicked

        kick (e), where e = e1 → (e2→e3) : initiate-kick(e1) & process-

           kick(e2) & result-of-kick(e3)]

|	
Perfective past: The boy kicked the ball.	ET is contained in RT and precedes ST. ET: e1 →(e2→e3) RT ST
Perfective past with adverbial: The boy kicked the ball yesterday.	ET is contained in RT and precedes ST. *Yesterday* specifies RT. RT ET: e1 →(e2→e3) ST
Progressive present: The boy is kicking the ball.	RT is contained in ET, including only subevent *e2* in ET. ST RT ET e1 → (e2 → e3)
Future with periphrasis: The boy will kick the ball.	RT is contained in ET, or RT may be equivalent to ET, since the event duration is limited by the result, subevent *e3*. ST ET: e1 →(e2→e3) RT
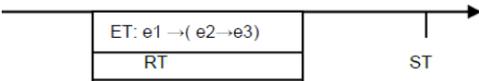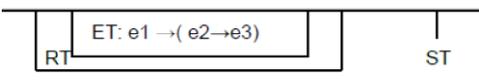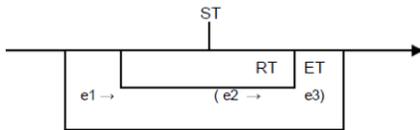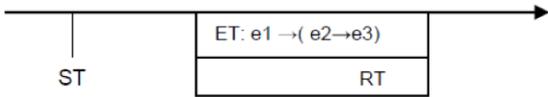
Table 2: Temporal representation of the event *the boy kicking the ball*.

    d. The boy having a book

        e1 trigger

   have (e), where e = e1 [initiate-have (e1)]

Imperfective past: The boy used to have a book	RT is contained in ET; RT delimits a duration of ET. Both precede ST.
Simple Present The boy has a book	RT is contained in ET. ST is simultaneous to them.
Future with periphrasis The boy will have a book	RT is contained in ET; both succeed ST
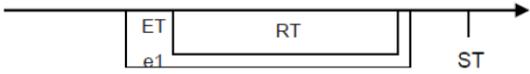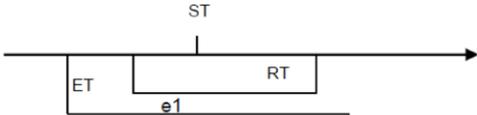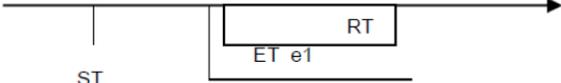
Table 3: Temporal representation of the event *The boy having a book*.

c. The boy playing

e1 trigger; e2 playing process

play (e), where e = (e1 →e2: [cause-play(e1) & process-
play(e2)))

d. The boy eating noodles

e1 trigger; e2 the noodles being eaten; path noodles

eat (e), where e = (e1 →e2: [cause-eat(e1) & process-
eat(e2)])

Play and *eat the noodles* present the same subevent structure e1 →e2, with the difference that *noodles* is the path argument of *eat*, which makes ET in *eating the noodles* a closed interval, while ET in *play* is an open interval:

|	Play	Eat the noodles
Perfective Past	The boy played ET: e1 →e2 RT ST	The boy ate the noodles ET: e1 →e2 RT ST
Progressive Present	The boy is playing ST ET RT e1→ e2	The boy is eating the noodles ST ET RT e1→ e2
Future with periphrasis	The boy will play RT ET e1 → e2 ST	The boy will eat the noodles RT ET e1 → e2 ST
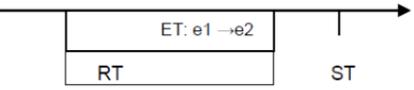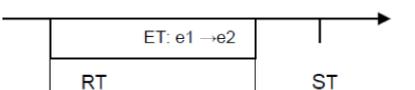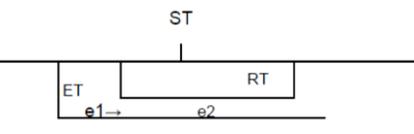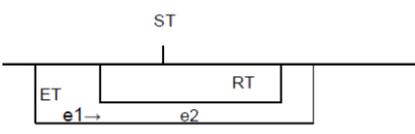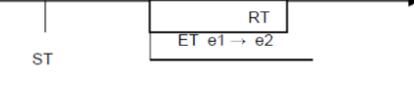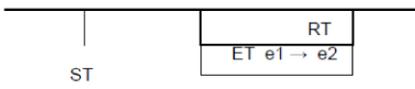
Table 4: Temporal representation of the events O menino brincar and O menino comer o macarrão.

This redefinition of ET, RT and ST serves as a basis for analyzing the acquisition data and postulating the child speech time.

2. COMPREHENSION AND PRODUCTION OF TENSE BY CHILDREN

Ramchand (2008) and Ramchand and Svenonious (2014) give us a syntactic-semantic perspective to analyze tense and aspect acquisition data. We start from the idea that these categories are not part of an exclusively syntactic or exclusively semantic phenomenon. Therefore, in the search for a theoretical support that allows us to analyze both the understanding and production of these categories by children, we opted for the first phase syntax and the projections of the functional categories presented in the previous section.

We have gathered here results from a comprehension experiment and longitudinal production data, which will be observed considering the domain of events and situations, as well as the redefinition of the relationships between ET, RT and ST proposed above.

The starting point is the observation that children understand the event, and throughout the acquisition process they specify the categories of tense and aspect.

Mazocco and Wachowicz (2018) had already found, in a Truth Value Judgment test, that children understand the event, though struggling to associate a morphological mark of time and aspect to the corresponding stage (finalized event or event in process, for example).

Based on this observation, Mazocco (2020) also carried out a Truth Value Judgment experiment with two groups of children. The first consisted of 22 children ranging from 2;4.25 to 3;11.24 years old and the second of 26 children ranging from 4;00.28 to 5;10.27 years old. The experiment was carried out in two elementary schools schools. The experimenter stayed in a separate room and an assistant teacher brought the children, one at a time, to participate. The test was about four events (*run*, *eat the noodles*, *kick the ball* and *have a book*) and three images corresponding to each event: in its initial stage, in process and finalized, according to the description:

1. Event *run*: 1st - the boy initiating the running movement; 2nd - the boy running; 3rd - the boy at the end of the race, looking tired.

2. Event *eat the noodles*: 1st - the boy in front of the plate full of noodles, holding a fork; 2nd - the boy in front of a plate half full of noodles, carrying a fork with noodles towards the mouth; 3rd - the boy in front of the empty plate, with a satisfied expression.

3. event *kick the ball*: - 1st - the boy in front of a ball and a goal post; 2nd - the boy with his foot against the ball; 3rd - the boy still and the ball inside the goal.

4. event *have a book*: 1st - the boy receiving a book from the hands of the mother; 2nd - the boy reading the same book; 3rd - the grandmother receiving the same book from the boy's hands.

The images were printed on A3 sized paper and arranged in sequence on a panel, so the children, sitting in front of the panel, could see the three images at the same time. The child saw the three images in sequence of an event and the researcher

asked a question such as: Show me the figure in which the boy ate the noodles. For the next event, the question varied the verbal tense: Show me the figure in which the boy is kicking the ball. In responses, children should point out the corresponding image. Each participating child answered a question about each of the four events.

The results show that the children pointed more to the image that most represented the event, regardless of verbal tense: in the event *kick the ball*, the predominant response was scene 3 (the boy still and the ball inside the goal); in the event *run*, the predominant response was scene 2 (the boy running); in the event *eat the noodles*, it was also scene 2 (the boy in front of a plate half full of noodles, carrying a fork with noodles to the mouth); and in *have a book*, most of the answers also referred to scene 2 (the boy reading the book).

These are the results in tables corresponding to each event.[4] In bold is the scene corresponding to the expected response. [5]

	Scene 1 (initial stage)	Scene 2 (event in process)	**Scene 3 (final stage)**	Total answers
2 and 3 yo	1 (14,28%)	1 (14,28%)	5 (71,42%)	7 (100%)
4 and 5 yo	1 (10%)	1 (10%)	8 (80%)	10 (100%)

Table 5 – Responses to the event The boy kicked the ball

	Scene 1 (initial stage)	**Scene 2 (event in process)**	Scene 3 (final stage)	Total answers
2 and 3 yo	3 (37,5%)	1 (12,5%)	4 (50%)	8 (100%)
4 and 5 yo	2 (25%)	1 (12,5%)	5 (62,5%)	8 (100%)

Table 6 – Responses to the event The boy is kicking the ball

	Scene 1 (initial stage)	Scene 2 (event in process)	Scene 3 (final stage)	Total answers
2 and 3 yo	1 (14,28%)	1 (14,28%)	5 (71,42%)	7 (100%)
4 and 5 yo	2 (25%)	3 (37,5%)	3 (37,5%)	8 (100%)

Table 7 – Responses to the event *The boy will kick the ball*

---

[4] Tables are in Mazocco (2020, pp. 96-100).
[5] Mazocco (2020) performed the same test with adults. All participants answered as expected: they associated the grammatical form of time and aspect present in the question with the corresponding image.

	Scene 1 (initial stage)	Scene 2 (event in process)	**Scene 3 (final stage)**	Total answers
2 and 3 yo		7 (100%)		7 (100%)
4 and 5 yo	2 (25%)	6 (75%)		8 (100%)

Table 8 – Responses to the event *The boy ran*

	Scene 1 (initial stage)	**Scene 2 (event in process)**	Scene 3 (final stage)	Total answers
2 and 3 yo		7 (100%)		7 (100%)
4 and 5 yo	1 (10%)	8 (80%)	1 (10%)	10 (100%)

Table 9 – Responses to the event *The boy is running*

	Scene 1 (initial stage)	Scene 2 (event in process)	Scene 3 (final stage)	Not considered	Total answers
2 and 3 yo		7 (87,5%)		1 (12,5%)	8 (100%)
4 and 5 yo	1 (12,5%)	6 (75%)	1 (12,5%)		8 (100%)

Table 10 – Responses to the event *The boy will run*

	Scene 1 (initial stage)	Scene 2 (event in process)	**Scene 3 (final stage)**	Not considered	Total answers
2 and 3 yo		4 (50%)	3 (37,5%)	1 (12,5%)	8 (100%)
4 and 5 yo		7 (87,5%)	1 (12,5%)		8 (100%)

Table 11 – Responses to the event *The boy ate the noodles*

	Scene 1 (initial stage)	**Scene 2 (event in process)**	Scene 3 (final stage)	Total answers
2 and 3 yo	1 (14,28%)	6 (85,71%)		7 (100%)
4 and 5 yo		7 (87,5%)	1 (12,5%)	8 (100%)

Table 12 – Responses to the event *The boy is eating the noodles*

	Scene 1 (initial stage)	Scene 2 (event in process)	Scene 3 (final stage)	Not considered	Total answers
2 and 3 yo	2 (25%)	3 (37,5%)	2 (25%)	1 (12,5%)	8 (100%)
4 and 5 yo	2 (20%)	8 (80%)			10 (100%)

Table 13 – Responses to the event *The boy will eat the noodles*

	Scene 1 (initial stage)	Scene 2 (event in process)	**Scene 3 (final stage)**	Total answers
2 and 3 yo	1 (12,5%)	5 (62,5%)	2 (25%)	8 (100%)
4 and 5 yo	3 (30%)	7 (70%)		10 (100%)

Table 14 – Responses to the event *The boy used to have a book*.

	Scene 1 (initial stage)	**Scene 2 (event in process)**	Scene 3 (final stage)	Total answers
2 and 3 yo		8 (100%)		8 (100%)
4 and 5 yo	3 (37,5%)	4 (50%)	1 (12,5%)	8 (100%)

Table 15 – Responses to the event *The boy has a book*.

	Scene 1 (initial stage)	Scene 2 (event in process)	Scene 3 (final stage)	Not considered	Total answers
2 and 3 yo	1 (14,28%)	4 (57,14%)	1 (14,28%)	1 (14,28%)	1 (14,28%)
4 and 5 yo	6 (75%)	2 (25%)			8 (100%)

Table 16 – Responses to the event *The boy will have a book*.

The following table gathers all the answers and sums up the scenes pointed at in the responses of each event.

	Scene 1	Scene 2	Scene 3
Kick the ball	22,72%	13,63%	63,63%
Eat the noodles	13,63%	59,09%	22,27%
Run		95,45%	
Have a book	9.09%	77,27%	13,63%

Table 17 – Scenes chosen as answers

What we observe here is that in the event *kick the ball* the scene that was most pointed at as an answer is scene 3, corresponding to the end of the event, or the result. In the other events, the scene most selected was 2, referring to the event being held. This may be related to the fact that kicking the ball, as an achievement event, has the projection *result*, while the others do not. The event with the highest distribution of responses is *eat the noodles*, of the accomplishment kind. Note that its structure is the same as that of running (init, proc), with the difference that telicity is given by the path argument *noodles*. As a hypothesis, we understand that the child who chooses scene 3 reads this *telos*, while the one who chooses scene 2 considers this event as similar to running. Therefore, we cannot say that it is telicity that conditions acquisition of tense and aspect. If so, *kick the ball* and *eat the noodles* would have much more similar results.

This work does not attempt to explain what would condition the acquisition of tense and aspect, but rather to claim that children perform time relationships differently from adults. These differences can be observed in longitudinal production data. Here, what we observe is that the understanding of tense marks and production is related to the immediate reality of the child. Children from 2 to 3 years old show difficulty to understand and do not produce expressions that refer to a longer temporality.

As for the past, we have two examples that show: (1) the non-understanding of the adverb "yesterday", when the father asks *Whose birthday was yesterday?* and (2) the perception of an event that has just happened: after the mother knocks the book to the ground, the child looks and says *a-iu* (fell). We also have a third example in which the child understands the question asked in the perfective past *Who broke?* and responds also with the perfective past *I broke*. Unlike the data in (1), (2) and (3) we have the immediate context of the child being referred to.

(1) Bi. (2;00.24)

    p. Whose birthday was it last night?

    Bi. Yes, baby.

    Q. Is it baby?

    Bi. Look.

    Q. And whose birthday was it yesterday? Luma's?

    Bi. Not, baby.

    p. Wasn't it Luma's?

    Bi, Not, baby.

    Q. The baby? Henrique's?

    Bi. No, no, no, no, no, no

    Q. Gustavo?

    Bi. No, no, no, no, no, no

    p. Whose was it?

    Bi. It's mine.

(2) B. (1;8.16)

  M. end of the story?... whoops

     Be. fell

(3) A.L. (2;1.28)

t. Doesn't it work anymore? Who messed it up? Who broke it?

    (10 seconds, noise of a toy guitar)

    AL. [unint.] ... uncle...

    t. what?

    AL. Hmmm... Hm... I boke

       (...)

    AL. I got it. Aunt Lili's little flower... I put water...

    t. You put water on Aunt Lili's flower?

    AL. A little...

We also observe that the future appears in the longitudinal data of children from the age of 2. The use marks the projection of the event or the result of the event, after the immediate instant from the child's point of view. In (4), the child, who is in the bath, answers a question from the mother about taking the water out of the bathtub, that is, asks about finishing the bath. In (5) and (6), the child uses the future

in *Vamo bincá* (Let's play) and *Vamo pô barraquinha* (Let's put the stall), projecting the beginning of the event play and the process of putting the stall.

(4) B. 2;5.14

    m. Found it! Found it! Right?... Are we going to get the water out of the tub, Ber?

    Be.Noooo! (scream)

(5) A. L. (2;1.28)

  AL. [unint.] Let's play? Let's play?

    t. Let's go, what do you want to play with?

    AL. Thing?

    t. What do you want to play with?

    AL. Toy...

(6) A. L. (2;2.23)

    t. Let's do something else.

    AL. Let's stall?

    T. Go.

    AL. Let's put the stall... Corner...

Given the comprehension data, we consider that, in the acquisition period, the domain of events is acquired before the categories of tense and aspect. Adapting Bertinetto's proposal (2009), it seems that the child gradually specifies the syncretic category of time, mode and aspect. The production data show us the perfective past and the future associated with the temporal axis of the immediate reality of the child. Therefore, I argue here that the difference between adults and children in the process of acquisition is in speech time. Since children seem to recognize the events and the relationship between their subevents, it is possible to say that they already have the event time (ET). There is also a reference time (RT), since morphological marks of tense and aspect appear in longitudinal data, which reveals that the event is anchored in a temporal parameter.

When we turn to Figure (3), we observe that the difference is in the operation performed by the T head.
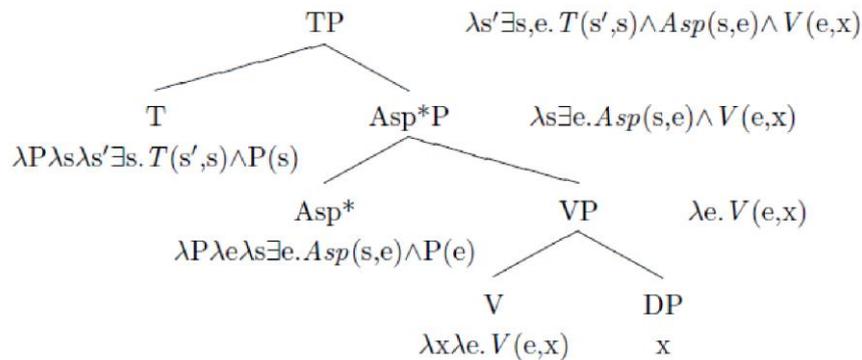
Figure 4: Projections of grammatical tense and aspect (RAMCHAND e SVENONIUS, 2014, p.19)

Considering that the relationship between ET and RT with ST is not the same for the child and for the adult, I propose that what the child does is a prototemporal relationship. Mazocco (2020, p. 175) explains this prototemporal relationship:

> The basis of this prototime is ET, redefined as the sequential relationship between subevents. As morphological marks appear in children's production, we can already say that there is the operation made by the Asp head that transforms the event into a situation; there is, therefore, a reference time. Thus the main difference between adults and children here will be in relation to speech time. In children, the T-head of the TP selects the description of situation that has time and world parameters $\lambda s \exists e.\ Asp(s,e) \wedge V(e,x)$, constructed by the Asp head, and places the situation in an immediate instant of the child that can correspond to all or part of the reference time and to a stage of the event time, which we can call the child speech time (CST). (MAZOCCO, 2020, p. 175).

We can consider, therefore, that the acquisition of tense and aspect is the acquisition of the transition between the domain of events and situations.

Thus another representation for the children data is proposed, taking into account the CST, based in Mazocco (2020). In achievement events, such as (7), CST is close to the result subevent. In the example, the child observes the book falling to the ground and, after the fallen book, says "fell". The child speech time corresponds to the outcome of the event.

(7)   M. end of the story?... whoops

Be. Fell (B. 1;8.16)

```
                    ┌─────┐
                    │ CST │
          ┌─────────┴─────┴──────┐
──────────│ ET: e1 → ( e2   →  e3)│────────────►
          ├──────────────────────┤
          │          RT          │
          └──────────────────────┘
```
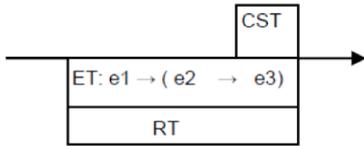
Regarding events in the progressive present, the child speech time corresponds to the time of the event in progress. The difference between both is that (8) is an event [init, proc, result] and (9) is [init, proc].

(8)   He is biting. (AL. 2;5.15)

```
              ┌─────┐
              │ CST │
        ┌─────┼─────┼──────┐
────────│ ET  │ RT  │      │────────────►
        │ e1  │ → e2 → │  e3│
        └────────────────────┘
```
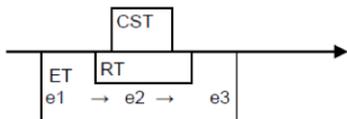
(9)   I am looking. (A.L. 2;2.23)

```
            ┌────┐
            │ CS │
            │ T  │
        ┌───┼────┼───┐
────────│ET │ RT │   │──────────►
        │e1 │ → e2   │
        └────────────┘
```
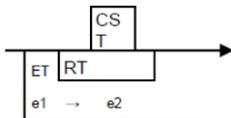
In the future, we can consider the projection of a subevent at an instant after the immediate instant of the child. In the case of (10), there is the projection of e2, the process of playing. In (11), the child projects the instant of e3, from the placed stall, at the next moment.

(10)   [unint.] Let's play? Let's play? (A.L. 2;1.28)
[unint.]

```
            ┌────┬─────┐
            │ CS │     │
            │ T  │ RT  │
        ┌───┼────┴─────┴─┐
────────│ ET e1  →    e2 │────────►
        └────────────────┘
```
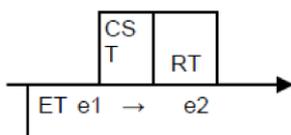
(11)   Let's put stall... corner... A. L. (2;2.23)
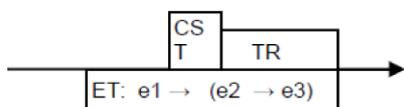
Therefore, we have a new representation of time relationships for the children data, which takes into account the relation between subevents and differences in speech time concerning adults.

CONCLUSION

To investigate the acquisition of time and aspect is to deal not only with data, but also with the definitions of these categories, which interfere in the analysis of results and in the confirmation of hypotheses such as the Lexical Aspect First Hypothesis and the Grammatical Aspect First Hypothesis. Here, we take this work from another perspective, following the question: when children produce sentences with tense and aspect marks, what do they do? In terms of temporality, what do they understand?

As we move towards the answers, important questions were left aside, such as: What conditions the acquisition of time? Which grammatical tense precedes the other? And why is that? What differences are there in acquiring these categories among speakers of different languages?

We know that other larger experiments are needed to investigate these issues. Here, however, I present a path, in which we can assume a syntactic-semantic theoretical perspective, since I do not see tense and aspect as exclusively syntactic or semantic categories. In this sense, I analyze both production and comprehension data, because I consider them complementary and part of the same phenomenon.

As a result, based on Ramchand and Svenonius (2014), we propose a redefinition in event times (ET), reference time (RT) and speech time (ST), which allow us to propose the child speech time (CST), from which we were able to suggest what differentiates the understanding and production of the forms of tense and aspect in children and adults.

It is, therefore, a theoretical and methodological path to be expanded with the development of theory and more experiments.

REFERENCES

BERTINETTO, P.M. Tense-Aspect acquisition meets typology. *Quaderni del Laboratório di Linguistica*, 2009.

DELIDAKI, S. The acquistion of tense and aspect in child greek. *Tese* (Doctor of Philosophy). University of Reading, 2006.

DOWTY, D. *Word meaning and montague grammar*. Dordrecht: Reidel, 1979.

MAZOCCO, D. Relações prototemporais na aquisição de tempo e aspecto no português brasileiro. *Tese* (Doutorado) apresentada ao Programa de Pós-Graduação em Letras, UFPR, 2020.

MAZOCCO, D. M.; WACHOWICZ, T. C. Estrutura de eventos e aquisição de tempo e aspecto no Português Brasileiro (PB). In: *Cadernos de Estudos Linguísticos*. 2018, n. 60.2, mai./ago. 2018, pp. 7-26.

PARSONS, T. *Events in semantics of English:* a study in subatomic semantics. Cambridge, Massachusetts/ London, England: The MIT Press, 1990.

RAMCHAND, G. *Verb meaning and the lexicon*. Cambridge, 2008.

RAMCHAND, G.; SVENONIUS, P. Deriving the functional hierarchy. In: *Language sciences*, v. 46, 2014.

REICHENBACH, H. *Elements of symbolic logic*. New York: Macmillan, 1947.

ROTHSTEIN, S. *Structuring Events*: a study in the semantics of lexical aspect. Malden, Mass.: Blackwell, 2004.

SMITH, C.S. *The parameter of aspect*. Dordrecht: Kluwer, 1997.

_____. The Domain of Tense. *The Syntax of Time*. Edited J. Gueròn & J. Lecarme. MIT Press. Presented at International Round Table `The Syntax of Tense and Aspect' Paris, November 2004.