J. Child Lang. **29** (2002), 301–326. © 2002 Cambridge University Press
DOI: 10.1017/S0305000902005056 Printed in the United Kingdom

Grammatical and situational aspect in French: a developmental study*

MARIE LABELLE, LUCIE GODARD AND CATHERINE-MARIE LONGTIN
Université du Québec à Montréal

(*Received* 21 *November* 1999. *Revised* 13 *March* 2001)

ABSTRACT

We study the ability of children to provide an appropriate continuation for a stimulus sentence, taking into account the joint demands of situational aspect and grammatical aspect. We hypothesize that the aspectual transitions required by some aspectual combinations play a role in the difficulty of providing an appropriate continuation for them. We tested 130 French-speaking children of 5;06 to 9;0. In general, the data are consistent with the idea that the ability of children to construe an appropriate continuation for a stimulus clause is a function of both the situational aspect of the clause and the grammatical aspect provided by the verbal morpheme. There is a significant tense × situational aspect interaction in the number of continuations that children are able to provide in answer to the stimuli. Contrary to our expectations, there is no significant tense × situational aspect in the number of appropriate continuations, this being perhaps due to the small number of continuations for each stimulus type, but there are trends in the expected direction, which further studies may be able to confirm.

INTRODUCTION

While it is well attested, for the early stages of acquisition, that situational aspect has an impact on the use of inflection (Antinucci & Miller, 1976, Bloom, Lifter & Hafitz, 1980, Meisel, 1985, Ferdinand, 1996), very few scientists have attempted to study in detail, from a developmental perspective, the relations of compatibility or incompatibility between situational aspect (aktionsart) and the various tense/aspect morphemes. The present study is an attempt to tackle the problem. We focus on the ability of children to construe an appropriate context when presented with a linguistic sentence. We have asked French-speaking children of 5;6 to 9 years of age to construct

[*] Address for correspondence: Département de linguistique et de didactique des langues, C.P. 8888 succ. Centre-Ville, Montréal, QC, Canada H3C 3P8. e-mail: labelle.marie@uqam.ca

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

a story incorporating a sentence containing one of various tense/aktionsart combinations. We hypothesize that the aspectual transitions required to construe the meaning of some combinations will play a role in the difficulty of placing these combinations in an appropriate context.

This paper is structured as follows. In the next section, we describe the results of previous research on the acquisition of aspect. In section 2, we present the basic linguistic theory underlying this study. Section 3 presents our hypotheses. Section 4 describes our methodology. Section 5 contains the results, which are discussed in section 6.

PREVIOUS STUDIES ON THE ACQUISITION OF ASPECT

In this section, we briefly review some of the most relevant studies on the acquisition of grammatical aspect and situational aspect by children. We use the term 'grammatical aspect' (also referred to in the literature as 'viewpoint aspect') to refer to the inflectional morphology used to signal some perspective taken on the process described, for example whether it is presented as accomplished (perfective morpheme) or in progress (progressive or imperfective morphemes). The term 'situational aspect' or 'aktionsart' (also known as 'lexical aspect') refers to the aspectual type of the situation described in the clause independently of particular tense or grammatical aspect morphemes: situations may be inherently stative or eventive, telic (having an intrinsic final point) or atelic (without an intrinsic final point).

For young children, two recent studies focus on the aspectual knowledge children have. Concerning situational aspect, van Hout (1997) shows that four- and five-year-old Dutch-speaking children have the concepts of telicity and atelicity; they have acquired the semantics of overt markers of telicity like the resultative particle, but they have not yet mastered the differences in telicity brought about by the presence and definiteness of the object. Concerning grammatical aspect, Wagner (1996, 1997) shows that five-year-old English-speaking children understand its basic semantics although they do not seem to have complete command of its pragmatics in a narrative.

As for the relation between grammatical tense or aspect and situational aspect, researchers have noted that English-speaking children add tense/aspect inflections first to just those verbs whose inherent semantics is most compatible with the meaning of that inflection; for example, they use *-ed* with telic verbs and *-ing* with atelic verbs (e.g. Bloom *et al.*, 1980, Clark, 1996). For French-speaking children, after the seminal work of Bronckart & Sinclair (1973), the topic has been extensively studied by Fayol and his colleagues. We summarize below the main results of these studies.

Bronckart & Sinclair (1973; cf. also Ferreiro, 1971, Bronckart, 1976) asked three- to nine-year-old children to describe situations that were acted out by an experimenter. They found a tendency to describe situations with a clear endpoint with the *passé composé* (a past perfective form similar to the simple

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

past) and situations without clear endpoints in the *présent* (present). They explained these results by hypothesizing that until six years of age, children use inflection to code aspectual rather than temporal relations. This 'defective tense hypothesis' has been put into question by various researchers (among others Harner, 1981, Weist, Wysocka, Witkowska-Stadnik, Buczowska & Konieczna, 1984). Neither McShane, Whittaker & Dockrell (1986: 291 ff., McShane & Whittaker, 1988) nor Smith (1980: 272–73) found a clear relation between situation types and choice of inflection with English-speaking children.

Fayol, Gombert & Abdi (1988, cf. also Fayol, Abdi & Gombert, 1989) asked children (mean ages 7;6 to 13;1) and adults to use the appropriate past form of verbs inserted in sentences. There were five different classes of verbs according to process duration; the sentences were introduced with five different time adverbials (*soudain* 'suddenly', *il y a longtemps* 'a long time ago', *hier* 'yesterday', *souvent* 'often', *deux jours avant* 'two days earlier'). The results showed that the probability of answering with an *imparfait* (a past imperfective form) was higher for certain atelic events (*jouer* 'play'; *danser* 'danse') than with verbs denoting telic instantaneous events (*exploser* 'explode', *tomber* 'fall'); this probability increased with schooling. The other event classes were not clearly associated with one form or another. The adverbial context also had a strong effect on choice of inflection. More than half of the seven-year-olds (12/20) used the same form for every sentence; the adverbs started being taken into consideration from nine years of age; and the event class had an impact on choice of inflection only with eleven-year-olds. These results were replicated in Bonnotte & Fayol (1992), and in Fayol, Hickman, Bonnotte & Gombert (1993). In these studies, the context and type of process effects are weak in young children and increase with age. Children are less sensitive than adults to some predicate properties; in particular, they do not differentiate perfective aspect from imperfective aspect consistently, and they overgeneralize the *imparfait* to punctual resultative predicates. Bonnotte & Fayol (1997) discuss two possible explanations for these results. (1) Children do not represent process types in the same manner as adults; in particular, they cannot take into account the two dimensions of durativity and resultativity. As they seem to behave like the adults with respect to durativity, the hypothesis would be that they do not take into account the resultativity of processes. (2) Children have more or less the same representation as adults, but they have not yet built regular associations between characteristics of processes and the various past inflectional forms.

In recent work, Bonnotte & Fayol (1997), following on Bonnotte, Fayol & Gombert (1991), explored the possibility that children do not apprehend situations in the same way as adults. They asked ten-year-old children and adults to represent graphically the properties (durativity and resultativity) of verbs presented in isolation. The results show (1) that children and adults

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

seemed to have different cognitive representations of processes when it came to resultativity: children represented activity and accomplishment verbs as resultative more often than did adults; and (2) that the adults varied their graphic representation according to verbal form, but not the children. A confusing factor in this experiment is that it is difficult to know whether the subjects were encoding the properties of the verbs, or the typical real world situation suggested by the verbs. A second experiment shows that the characteristics of processes constitute good predictors only of adults' selection of past forms of verbs in sentences. Bonnotte & Fayol hypothesize (p. 97) that, with children, the cognitive units coding the characteristics of events are more weakly connected to those coding viewpoint aspect (i.e. grammatical aspect) than to those coding tense; said differently, there would exist strong links between aktionsart and tense, but weak links between aktionsart and grammatical aspect.

In this study, we tackle the problem from a perspective slightly different from that used by the authors mentioned above. We focus on the connections between situational aspect and grammatical aspect. We study the capacity of children to construe an appropriate continuation if presented with a tense–aspect–aktionsart combination, where some of the combinations require an aspectual transition. The next section describes the theoretical assumptions underlying our research.

GRAMMATICAL AND SITUATIONAL ASPECT

Situational aspect (*aktionsart*)

Following work by Vendler (1957) and Dowty (1979), it is customary to distinguish four classes of situations: states, activities, accomplishments, and achievements, of which examples are given in (1).

(1) a. State: Jean aime les pommes. ('Jean likes apples.')
b. Activity: Jean marche. ('Jean is walking.')
c. Accomplishment: Jean dessine un cercle. ('Jean is drawing a circle.')
d. Achievement: Jean gagne la course. ('Jean is winning the race.')

These classes contrast along three axes: dynamicity, telicity, and durativity, as shown the middle columns in Table 1. As should be clear, the four aktionsarten form a kind of hierarchy, each aspectual class differing from the preceding one by one feature, the first and last row being maximally distinct. States are non-dynamic while events are dynamic. A state (e.g. *like apples*, *be sick*) is a durative, non telic, non-dynamic situation. An activity is a durative non-telic event (e.g. *to walk* describes a durative dynamic situation with no definite end-point). An achievement is a 'pure' (punctual) event, that is, a simple instantaneous transition from the non-existence of a state or situation to the existence of that state or situation (e.g. *to win the race*

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

TABLE 1. *Aspectual situations*

Situation types		Dynamicity	Telicity	Durativity	Internal composition
State		−dynamic	−telic	+durative	$[\ \dots\ ]_s$
Event	Activity	+dynamic	−telic	+durative	$[\ \dots\ ]_e$
Event	Accomplishment	+dynamic	+telic	+durative	$[\ [\ \dots\ ]_e\ [t]\ ]_e$
Event	Achievement	+dynamic	+telic	−durative	$[t]_e$

describes the instantaneous transition from *not-winning* to *winning*). An accomplishment is best considered as an activity ending in an achievement (e.g. *to draw a circle* is a combination of the durative activity of *drawing* ending in the achievement of there *coming to be a circle*). The last column of Table 1 schematizes the internal structure of the four aspectual classes of situations; *s* indicates 'state', and *e* 'event'.; durativity is represented with dots '…'; and simple transitions with 't'.

It is important to stress that situational aspect, or aktionsart, refers to the properties of a particular situation AS DESCRIBED IN A CLAUSE. When attributing a situation to an aspectual class, we do not code the properties of the world, but those of the linguistic means used to describe the world.[1] (2a) and (2b) can describe the same objective situation, but aspectually, (2a) is an activity and (2b) is an accomplishment. These examples also show that aspectual class is determined by the joint combination of the verb and other elements of the clause.

(2) a. John is drawing.
b. John is drawing a castle.

Tense and grammatical aspect

In this section, we first introduce the basic notions involved in the representation of temporal information. Then we turn to a discussion of tense and grammatical aspect as encoded in the verbal morphemes of French which we have tested, specifically the following: the *imparfait* (IMP), the *passé simple* (PS), the *passé composé* (PC), the *plus-que-parfait* (PQP), the *futur simple* (FUTS) and the *futur antérieur* (FUTA):

(3) a. Jean dessinait. ('John was drawing.') (IMP)
b. Jean dessina. ('John drew.') (PS)
c. Jean a dessiné. ('John drew.'/'John has drawn') (PC)
d. Jean avait dessiné. ('John had drawn,') (PQP)
e. Jean dessinera. ('John will draw.') (FUTS)
f. Jean aura dessiné. ('John will have drawn.') (FUTA)

[1] Some studies, for example Bronckart & Sinclair (1973), do not distinguish the objective situation from its linguistic encoding.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

It is customary to assume that tense morphemes can be described by means of two pairs of relations (Reichenbach, 1947, Comrie, 1985):

(1) A temporal relation between the time of speech (S), or main time of orientation, and a time of reference (R) relative to which the situation described in the clause is considered. For example, the *présent* (Present) has present reference time (R = S) while the *imparfait* and the *passé simple* both have past reference time (R < S).

(2) An aspectual relation between the reference time R and the time of the situation described (standardly labelled E for 'event time', the term 'event' covering in this case any situation type, including states; in this paper we restrict the use of this term to non-stative situations). This grammatical aspect corresponds to the grammatical means by which a speaker expresses a perspective with respect to a situation. For example, the *imparfait* describes a situation overlapping with the reference time (E = R) while the *plus-que-parfait* presents a situation as anterior to the reference time (E < R). The relation E < R corresponds to perfective aspect; what is described at R is the CONSEQUENT STATE of the event, the state which follows the completion of the event.

In French, grammatical tense and grammatical aspect are not encoded as independent morphemes. For example, the *imparfait* corresponds to past tense as well as imperfective aspect, and the *passé composé* corresponds to past time as well as perfective aspect (in one of its uses). In the remainder of this paper, we will use the term 'tense (morpheme)' to refer to the inflectional forms of the verbs combining tense and grammatical aspect information.

The temporal and aspectual relations holding for the tense morphemes considered in this experiment are given in Table 2. Three different aspectual

TABLE 2. *Temporal and aspectual specifications for the verbal morphemes considered*

	Past: R < S	Present R = S	Future: S < R
Global: E = R	PS/PC1		FUTS
Imperfective: E = R	IMP		FUTS
Perfective: E < R	PQP	PC2	FUTA

S = speech time; R = reference time; E = time of the situation described.

types are distinguished: PERFECTIVE, IMPERFECTIVE, and GLOBAL aspect. What is called GLOBAL ASPECT presents the whole situation as contained in the time of reference (E = R); it must be distinguished from imperfective aspect, presenting the situation as 'under way' at the time of reference, as well as from perfective aspect, presenting the situation as terminated at the time of reference (E < R). The term 'global aspect' corresponds to what Comrie

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

(1985) calls 'perfective aspect'. In section 2.3 we adopt Kamp's analysis according to which the distinction between global aspect and imperfective aspect is a distinction between discursive event and discursive state.

Notice also the presence of two *passé composé*s (PC1 & PC2) in the table. The *passé composé* is probably the most widely used past tense in French. Its treatment is complicated by the fact that it can be used as a past tense (PC1), introducing a past event in the discourse (4a), and as a present perfect (PC2), which describes a present perfective state (4b), that is, the state resulting from a past event.

(4) a. La bombe a explosé à trois heures. ('The bomb exploded at 3 o'clock')
b. Jean est sorti en ce moment. ('Jean has gone out now')

This being said, Table 2 shows that, in the past, different morphemes encode the different aspectual types. Global aspect is expressed in the *passé simple* (PS) in written narratives, in the *passé composé* (PC1) in oral narratives. Imperfective aspect is expressed in the *imparfait* (IMP). Perfective aspect is expressed in the *plus-que-parfait* (PQP). As just mentioned, the *passé composé* may also express a present perfective (PC2). In the future, the *futur simple* (FUTS: simple future) is neutral with respect to global or imperfective aspect. Perfective aspect is expressed in the *futur antérieur* (FUTA). The present tense would fill the remaining two cells. It was not tested as it is compatible with all situation types. It was felt that it would not yield anything of interest and would unduly make the test longer.

Aspectual transition

Recent work on aspect makes it clear that there are close links between grammatical aspect and situational aspect. Grammatical aspect markers may be viewed as functions from one situation type into another. For example, an imperfective morpheme like the English Progressive (5a), which combines with events, but not easily with states (#'He was being intelligent'), is analysed as a function taking an *event* as argument to yield a *state* of being engaged in some activity. A perfective morpheme, like the English Perfect (5b), applies to the period following the completion of some event. It may be considered as a function taking a TELIC EVENT as argument to yield the CONSEQUENT STATE of that event being completed. The English Simple Past is a tense morpheme, not an aspect morpheme. It is aspectually neutral; it may combine with states as well as with events, and it yields the same type of process (5c, 5d).

(5) a. John was running.
b. (At 3 o'clock), John had run.
c. John knew the answer.
d. John won the race.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

For French, Kamp (1981) proposes that the *passé simple* (PS) (and the PC1) introduces an event in the discourse, while the *imparfait* (IMP) introduce a state in the discourse (see also Kamp & Reyle, 1983, Smith, 1991).[2] In this perspective, the *passé simple* has global aspect because it introduces a whole event, including the end, in the discourse. This treatment accounts nicely for the fact that stative situations tend to be expressed in the *imparfait* and events in the *passé simple*.[3]

(6) a. À trois heures, il sortit. ('At 3 o'clock, he went out') (PS)
b. À trois heures, il était au lit. ('At 3 o'clock, he was in bed') (IMP)

However, there is obviously more to say, since activities, accomplishments, and achievements, although they are events, are found in the *imparfait* (7). Conversely, stative sentences may be found in the *passé simple* (8).

(7) a. Activity: Jean marchait. ('Jean was walking') (IMP)
b. Accomplishment: Jean dessinait un cercle. ('Jean was drawing a circle') (IMP)
c. Achievement: Il gagnait la course. ('He was winning the race') (IMP)
(8) State: Il fut malade. ('He was sick') (PS)

Speakers of French have the clear intuition that the use of the imparfait with achievement verbs (7c) and the use of the passé simple with states (8) require some extra work to yield a coherent interpretation. This leads us to the notion of ASPECTUAL TRANSITION, discussed in detail in Moens (1987). The general idea of an aspectual transition is that the felicitous use of a grammatical aspectual morpheme with a particular aspectual situation can require the situation to be conceived of in terms of another aspectual situation (coerced into another aspectual class) (Moens, 1987: 45).

Consider first the *imparfait*, and assume that it combines with any situation type to yield a state. If it is combined with a stative situation, no aspectual transition is required. But an aspectual transition is required to combine it with an event, as it requires coercing this event into a state. A very natural transition is that leading from the (durative) activity portion of the event, if it has one, to the PROGRESSIVE STATE of being engaged in that activity (cf. Dowty, 1986; Moens, 1987: 56; de Swart, 1998). This is what happens in

[2] The proposal put forward by Kamp (1981) and adopted in Discourse Representation Theory is, informally, as follows:
(a) A sentence in the *imparfait* introduces a new discourse state *s* which lies before the speech point; *s* overlaps with the last reference time, which is either the last event *e* mentioned or some other contextually salient reference time.
(b) A sentence in the *passé simple* introduces a new event *e* at a past reference time. In the unmarked case, this event is interpreted as following the last event mentioned; it in turn sets the reference time to the last moment of the event introduced.

[3] Notice that in this respect, the *imparfait* differs from the English progressive.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

(7a) and (7b). This transition is not possible if the event is an achievement, which does not have a durative activity part (cf. Table 1). In that case, the achievement must first be coerced into an accomplishment. One way of doing that is to consider as part of the event the action which precedes the punctual transition. For example in (7c′), *gagnait la course* ('was winning the race') does not describe the (punctual) winning event itself, but characterizes some stage of the race preceding this winning event.

(7c′) Jusqu'à la toute dernière minute, il gagnait la course.
'Until the last minute, he was winning the race.' (IMP)

Consider next the *passé simple*, and assume that it introduces an event in the discourse. Again, there is no serious difficulty if it combines with an eventive situation. But the combination *passé simple* + state requires an aspectual transition. Somehow the stative clause must be interpreted as an event. The eventive interpretation can be obtained by focusing on the inchoative aspect of the state (the event defining the change from the non-existence of the state to the existence of the state) (Kamp & Reyle, 1983: 259). This interpretation is found in (8′):

(8′) Soudain, il fut malade. ('Suddenly, he was sick.') (PS)

Another strategy is to consider the whole duration of the state as a change with respect to a background in which this state is absent. This is shown in (8″), where the period of sickness may function as an episode in a narrative.[4]

(8″) Il fut malade pendant trois mois. ('He was sick for three months.')

Finally, consider the *plus-que-parfait*, illustrated in (9). This morpheme has perfective aspect. As such, it operates on telic events (i.e. having a final endpoint) to yield the consequent state of that event (cf. Moens, 1987: 70). For example, in (9) the *plus-que-parfait* describes the perfective state initiated by the winning event, this state being true at 3 o'clock.

(9) À trois heures, il avait (déjà) gagné. ('At 3 o'clock, he had (already) won') (PQP)

To combine this morpheme with atelic situations, and in particular with a stative situation (*À trois heures*, *il avait été malade* 'At 3 o'clock, he had been sick'), requires aspectual transitions.

In sum, the combination of a tense/grammatical aspect morpheme with a situation pertaining to one of the four situation types may require an aspectual transition to be felicitous. The various tense/aktionsart combinations do not require aspectual transitions to the same degree. Some combinations do not require any aspectual transition; others require a

[4] In Moens's terms, temporally bound states 'support the transition to processes' (Moens 1987: 45).

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

minimal transition, like that going from activity to progressive state; the most marked transitions are those going from state to achievement or conversely, as these two aspectual classes have no common characteristic.

HYPOTHESES

We hypothesize that it should be more difficult to construct a felicitous context for the combinations of a situational aspect and a grammatical aspect requiring an aspectual transition, than it would be where no such transition is required. Also, considering Table 1, it should be easier to make a transition from one situation type to another differing by only one feature than it would be for situation types maximally distinct.

With the *imparfait*, which we assume introduces a state in the discourse, the most accessible situation type should be 'state', since no aspectual transition is required (cf. 6b). Situations of type 'activity' (7a) and ' accomplishment' (7b) should come next, as they include a durative component from which a progressive state can be immediately accessed. Coercing an achievement into a state (7c) should be most difficult because this situation type is the antagonist of a state: achievements are dynamic, telic and non durative, while states are non-dynamic, non-telic and durative (cf. Table 1).

Conversely, the *passé simple* introduces a complete event at a past reference time. Because it is presented as complete, this event must include a past final moment. The passé simple then moves the reference time to the last moment of this event (see note 2). Here, telic events like achievements (6a) and accomplishments should be easiest because they include in their representation the existence of a final moment. Next should come activities. These are eventive but lack an intrinsic final point, which has to be inferred. Finally, states (8) should be most difficult, as they are both non-eventive and non-telic.

While aspectually different from the *passé simple*, the *plus-que-parfait*, as a perfective morpheme, also operates on telic events, yielding the state following the completion of these events, this state being true of a past reference time. We predict the same hierarchy of difficulty with this morpheme as with the *passé simple*. This tense should require additional computation if the situations considered are not telic, and particularly so if the situation is a state.

The *passé composé* should pattern like the *passé simple* in its global interpretation and like the *plus-que-parfait* in its perfective interpretation.

We have also included in the design two future tenses, the *futur simple* and the *futur antérieur*. Because the *futur simple* can have both global aspect and imperfective aspect (see Table 2), we predict that it should combine equally well with all four situation types.

The *futur antérieur* is perfective, and should therefore be sensitive to the aspectual type of the predicate, just like the *plus-que-parfait*.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

The inclusion of these future morphemes in the design allowed us to check whether it would be more difficult for the children to construct a context with a future tense than with a past tense.[5]

Also, by including the *plus-que-parfait* and the *futur antérieur* in the experimental design, we wanted to see whether children were able to consider an event as past from a viewpoint which is distinct from the present. It has been proposed by Weist (1986) (see also C. Smith, 1980 and, for French, Labelle, 1994), that the development of temporal reference in children progresses from total overlap of the three Reichenbachian points S,R,E to a total dissociation between them, with intermediate stages where the reference point R could either coincide with S or with E. The *imparfait*, the *passé simple*, the *passé composé* (PC1 and PC2) and the *futur simple* all imply some coincidence between the reference point of the sentence and either S or E. The *plus-que-parfait* and the *futur antérieur* require a dissociation of the three points, the *plus-que-parfait* being E < R and R < S, and the *futur antérieur* being S < R and E < R. Therefore, these two tenses should be more difficult for the children than the other tenses mentioned. Fayol (1982) and Labelle (1994), among others, observed that the children of six or seven years of age do not seem to master the proper use of the *plus-que-parfait*, but no data is available for the *futur antérieur*.

In short, the present experiment explores the ability of children to master the linguistic means of describing situations, focussing on the relations between tense, grammatical aspect, and aktionsart. Our hypotheses are summarized in Table 3.

TABLE 3. *Hypotheses*

1.	If one considers the aktionsart of the clause, the hierarchy of difficulty for the *imparfait* should be: state < activity = accomplishment < achievement
2.	The predicted hierarchy of difficulty for perfective and global morphemes (*passé simple, plus-que-parfait, passé composé,* and *futur antérieur*) is: achievement = accomplishment < activity < state
3.	The *futur simple* should not be sensitive to the aktionsart of the clause.
4.	The past and future perfect morphemes (*plus-que-parfait* and *futur anterieur*) should be more difficult than the others.
5.	The future tenses (*futur simple* and *futur antérieur*) may be more difficult than the corresponding past tenses.

[5] Rodriguez & Bariaud (1987) hypothesize that children find it more difficult to project themselves in the future than to remember the past. But our research shows that when asked about an important event like Christmas or their birthday, children are better at estimating a duration in the future than in the past (Godard & Labelle, 1998). The context of the experiment discussed in the present paper is different: the children were asked to construct a continuation for a hypothetical future event or state.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

METHODOLOGY

Subjects

The test was administered to 130 children of two socioeconomic backgrounds (SES) from kindergarten to third grade. In each grade we selected children with no learning disability (as determined by their teacher) and whose age fell within a 6-month range, that is for kindergarten, children of 5;6 to 6;0; for 1st grade, children of 6;6 to 7;0; for 2nd grade, children of 7;6 to 8;0; and for 3rd grade, children of 8;6 to 9;0. The distribution of subjects is given in Table 4.[6]

TABLE 4. *Subjects*

	Mid–high SES		Low SES		Total
Level	Number	Mean age	Number	Mean age	Number
Kindergarten	19	5;8	15	5;8	34
1st grade	20	6;9	15	6;9	35
2nd grade	15	7;8	15	7;9	30
3rd grade	17	8;9	14	8;9	31
Total	71		59		130

Procedure

Two sets of verb phrases illustrating the four aspectual types (achievement, accomplishment, activity and state) were created, keeping the subject and the object as identical as possible, as shown in Table 5. These basic sentence

TABLE 5. *Basic sentence types*

1st (set):
achievement: *Je gagne la partie de Nintendo*. 'I win the game of Nintendo.'
accomplishment: *Je fais une partie de Nintendo*. 'I play a game of Nintendo.'
activity: *Je joue au Nintendo*. 'I play Nintendo.'
state: *J'aime jouer au Nintendo*. 'I like playing Nintendo.'

2nd set:
achievement: *Je trouve la réponse*. 'I find the answer.'
accomplishment: *J'écris la réponse*. 'I write the answer.'
activity: *Je cherche la réponse*. 'I look for the answer.'
state: *Je sais la réponse*. 'I know the answer.'

[6] No adult controls were tested on this particular task as we felt that for adults, it would be more interesting to have a more sophisticated psycholinguistic test. Adult data would provide a measure of how far our oldest children were from adult competence, but we do not feel that they would reveal anything new regarding the child language data that we discuss, which, we think, are interesting in their own right.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

types were then inflected for the six tenses discussed above, namely *imparfait* (IMP), *passé composé* (PC), *plus-que-parfait* (PQP), *futur simple* (FUTS), *futur antérieur* (FUTA) and *passé simple* (PS).

Using the 48 sentences obtained, we created 15 different orders of 8 sentences, yielding 15 different tests. The children were then assigned randomly one of these 15 tests.

The child was read a test sentence; his or her task was to create a story containing this sentence. Familiarization with the task was done using sentences of about the same length.

In total, 112 children gave an answer to the eight test sentences; eleven children provided an answer to seven test sentences; one child gave six answers; two children could answer only two of the eight sentences; and four children refused to participate.

All answers were tape-recorded. They were then transcribed, and the written versions were checked. Further checkings were made during the coding process. The computerized text analysis software SATO (*Système d'analyse de texte par ordinateur*; Daoust, 1996) was used for coding. Each answer was codified according to three criteria: information on the subjects (school year and socioeconomic status),[7] sentence type submitted, and answer given. The coding procedure is given in Table 6.

TABLE 6. *Coding procedure*

Step 1: Type of answer:
Same Tense: the child repeats the stimulus sentence keeping the same tense.
Other Tense: the child changes the tense of the stimulus verb.
Implicit Stimulus: the child simply goes on with the story, without repeating the stimulus sentence (we don't know whether he would have kept the same tense or not).
No Verb: the child produces an utterance without taking into account the stimulus verb.
No response: the child refuses to answer.
Step 2: Coding of the Same Tense answers:
Continuation: the child provides a continuation to the stimulus clause.
No continuation: the child does not provide a continuation. She may add a complement or a modifier (eventually a relative clause) to the stimulus, produce a sentence disconnected from the stimulus, or produce a metalinguistic comment.
Step 3: Coding of the Continuation:
The (first) verb that the child produces in the continuation is coded for:
(a) Form: Tense/Grammatical aspect inflection
(b) Situational aspect: aktionsart of the clause
(c) Concordance: acceptability of the inflection used, given the test sentence and the situation described.

[7] In this paper, we do not discuss the effect of the socio-economic status. Let us simply mention here that the children of high SES give significantly more Same Tense answers ($388 = 72\%$ vs $262 = 59\%$; $\chi^2_{(4)} = 37{\cdot}760$, $p = 0{\cdot}000$). There is no effect of SES on the rate of Concordance.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

In all, we analysed 983 answers. Of these, 650 correctly incorporated the test sentence with the same stimulus tense (Same Tense answers), and of those 403 contained a second verb in the same sentence as the stimulus verb (Continuations). These 403 sentences were analysed according to the tense and aspect of the second verb, and coded for acceptability of the continuation in the context of the stimulus sentence (Concordance, or Good Continuation).

Concordance may be difficult to judge. The question that one has to answer is the following: is the tense/grammatical aspect of the verb in the continuation semantically compatible with the context provided by the stimulus sentence? The answer depends on the situation that the child has chosen to provide as a continuation. A continuation may be inappropriate because it is temporally incompatible with the stimulus clause; for example the child continues with a past tense where the context requires a future tense. It may also be inappropriate because it is aspectually incompatible with the stimulus clause; for example the child continues with an accomplishment in the *imparfait*, yielding an interpretation of habitual events, where the context makes clear that there is only one event implied. Below are examples of answers judged as non concording; in the first two cases, there is aspectual incompabilitity between the continuation and the first clause; in the last three, there is temporal incompability between the two clauses (the stimulus clause is in italics):

(9) a. *Il trouvait la réponse* parce que il a vu la réponse de la feuille du professeur. (#77) ('*He was finding the answer* because he saw the answer on the teacher's sheet.')
b. *Il avait joué au nintendo avec ses amis* parce que j'ai été dans ma chambre jouer avec mes barbies. (#57) ('*He had played nintendo with his friends* because I went in my room to play with my barbies.')
c. *Tu chercheras la réponse* quand mon père est arrivé. (#70) (' *You will look for the answer* when my father came in.')
d. *Luc aura gagné la partie de nintendo avec ses amis* si son père voudrait. (#28) ('*Luc will have won the game of nintendo with his friends* if his father would agree.')
e. *Il aima jouer au nintendo avec ses amis* quand le soir il va faire ses devoirs après. (#93) ('*He liked playing nintendo with his friends* when at night he writes his homework later.')

Because of the subjective aspect of this coding, we had two students rate the answers independently, then compare their scores and discuss the cases where they disagreed. This coding was checked independently by a third judge, and the remaining problematic cases were discussed and agreed on by two of the main authors. We did not code whether the incompatibility

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

between the continuation and the stimulus clause was temporal or aspectual because of the difficulty of making this judgement in every case.

Concordance indicates the appropriateness of the continuation, given the test sentence, and is taken as a sign of a proper understanding of the temporal and aspectual constraints imposed by the test sentence.

RESULTS

Type of answer

In this section, we are interested in the number of cases where the child produces a 'Same Tense' answer. Same Tense answers are answers which incorporate the stimulus sentence, preserving the tense of the stimulus verb. As mentioned above, 650 answers out of 983 were Same Tense answers (66·12 %). Globally, there is a significant increase in Same Tense answers with age; these make up 45 % of the answers in kindergarten, 63 % in 1st grade, 82 % in 2nd grade and 77 % in 3rd grade (F (3, 982) = 29·99, p = 0·0001). The older the children are, the more they are able to conform to the task and reproduce the exact tense of the stimulus sentence. A test of least significant differences shows that second grade and third grade are comparable; they differ significantly from first grade, which differs from kindergarten.

There is also a significant difference in the proportion of Same Tense answers according to the tense of the stimulus sentence, all subjects combined (see Table 7). The *imparfait*, *passé composé*, and *futur simple* give

TABLE 7. *Types of answers according to stimulus tense*

	Same tense	Other tense	Implicit stimulus	No verb	No answer	Totals
IMP	78·62 %	6·29 %	1·26 %	5·03 %	8·81 %	
	125	10	2	8	14	159
FUTS	74·6 %	5·56 %	0·79 %	9·52 %	9·52 %	
	94	7	1	12	12	126
PC	73·01 %	5·52 %	2·45 %	6·13 %	12·88 %	
	119	9	4	10	21	163
PQP	65·87 %	14·37 %	1·20 %	8·38 %	10·18 %	
	110	24	2	14	17	167
PS	55·94 %	24·26 %	0·99 %	8·42 %	10·4 %	
	113	49	2	17	21	202
FUTA	53·6 %	16·87 %	3·01 %	6·63 %	19·88 %	
	89	28	5	11	33	166
Totals	66·12 %	12·92 %	1·63 %	7·32 %	12·0 %	
	650	127	16	72	118	983

IMP = *imparfait*; FutS = *futur simple*; PC = *passé composé*; PQP = *plus-que-parfait*; PS = *passé simple*; FutA = *futur antérieur*.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

rise to significantly more Same Tense answers than the *futur antérieur* and the *passé simple*; the *plus-que-parfait* falls in the middle (F (5, 982) = 7·35, p = 0·0001). This provides some support for hypothesis 4: the *plus-que-parfait* and the *futur antérieur* are more difficult than the other tenses, with the exception of the *passé simple*, to which we will return.

The aspect of the stimulus sentence is not significant by itself in accounting for the number of Same tense answers. Among the answers which do not preserve the tense of the stimulus sentence, we notice, in Table 7, differences in the types of answers for the three most difficult tenses. With the *futur antérieur*, the child failed to provide an answer in 19·9% of the cases and answered with a different tense in another 16·9%; this can be taken as an indication of the difficulty of this tense. With the *passé simple*, the second most frequent tendency is to answer with a different tense (24·3% Other Tense), namely the passé composé; this shows that the children know this tense, as it figures in written narratives, but substitute it for another better known past tense. The *plus-que-parfait* falls in the middle, with 14·4% Other Tense answers, and 10·2% No Answer.

Presence of a continuation

Among the Same Tense answers, we have coded the cases where the child added a second clause to the stimulus clause. We call the second clause a CONTINUATION. In this section, we analyse the presence of a continuation, this presence being taken as an indication of syntactic complexity. An analysis of variance taking into account the grade level and the tense and aspect of the question shows significant effects (F (27, 649) = 2·96, p = 0·0001). This model explains 11% of the variance in the percentage of continuations.

The grade level explains 6·55% of the variance (F (3, 649) = 15·34, p = 0·0001). Two groups emerge from the LSD test (Least Significant Difference): second and third grade are significantly better than kindergarten and first grade.

The aktionsart of the question explains 1·16% of the variance (F (3, 649) = 2·72, p = 0·0436). Accomplishments give rise to significantly more continuations than the other aspectual types (cf. last line of Table 8).

The interaction tense × aktionsart explains 3·8% of the variance (F (15, 649) = 1·78, p = 0·0335). We notice in Table 8 that the *imparfait* gives rise to more continuations with states (75%) and less with achievements (55%); conversely, the *plus-que-parfait* gives rise to more continuations with achievements (79%) and less with states (43%). This is consistent with our analysis of the *imparfait* as less compatible with achievements and of the *plus-que-parfait* as less compatible with states. The *passé composé* gives rise to more continuations with accomplishments (85%), the other actionsarten yielding between 45% and 56% continuations. The difference between the

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

TABLE 8. *Percentage of continuations according to the tense and aktionsart of the stimulus*

	Acc. (124)	Ach. (167)	Act. (180)	State (156)	Global rate
IMP (125)	68	55	63	75	66
PC (119)	85	45	52	56	59
PQP (110)	69	79	62	43	65
FUTS (94)	61	52	60	67	58
FUTA (89)	76	59	55	63	62
PS (113)	67	66	69	51	62
Global rate	71	59	60	59	

IMP = *imparfait*; FutS = *futur simple*; PC = *passé composé*; PQP = *plus-que-parfait*; PS = *passé simple*; FutA = *futur antérieur*.

TABLE 9. *Rate of concordance according to the tense and aktionsart of the stimulus*

	Ach.	Acc.	Act.	State	Totals
PC %	93·33	91·30	85·71	94·44	91·43
	14/15	21/23	12/14	17/18	64/70
IMP %	52·94	86·96	86·67	77·78	76·83
	9/17	20/23	13/15	21/27	63/82
PS %	44·00	33·33	30·00	21·05	32·86
	11/25	2/6	6/20	4/19	23/70
PQP %	69·57	72·73	62·50	40·00	64·79
	16/23	16/22	10/16	4/10	46/71
FUTS %	64·29	70·59	77·78	66·67	70·91
	9/14	12/17	14/18	4/6	39/55
FUTA %	15·38	23·08	17·65	0·00	14·55
	2/13	3/13	3/17	0/12	8/55

IMP = *imparfait*; FutS = *futur simple*; PC = *passé composé*; PQP = *plus-que-parfait*; PS = *passé simple*; FutA = *futur antérieur*.

passé composé and the *plus-que-parfait* may be interpreted as following from the fact that achievements describe the coming about of an end-state, and the *plus-que-parfait*, as a perfective tense, focuses on the end-state. The most common use of the *passé composé*, on the other hand, is as a narrative tense; accomplishment verbs are perhaps the most unmarked representatives of narrative verbs. For the other tenses, the percentage of continuations do not vary very much according to the various aktionsarten.

Appropriateness of the continuation

We have checked the effects of the tense and aspect of the question on the rate of concordance or success rate, that is, the appropriateness of the verb form chosen by the child in the continuation of the stimulus clause. An analysis of

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

variance shows that age, socio-economic status, tense and aspect together explain 35 % of the variance (F (27, 375) = 7·54; $p < 0·0001$).

The tense of the stimulus clause is the most important factor (25 %); it has a significant effect on the rate of concordance (F (5, 375) = 28·91, $p < 0·0001$). The *passé composé* gives rise to a concordance rate of 91·4 %; a second group comprises the *imparfait* (76·8 %), the *futur simple* (70·9 %) and the *plus-que-parfait* (64·8 %); the *passé simple* has a rate of concordance of 32·9 %; and finally, the *futur antérieur*, of 14·5 %. Here, we see that the *futur antérieur* is clearly more difficult than the *futur simple*, but the *plus-que-parfait* is not significantly harder than the imparfait, and is easier than the *passé simple*. Hypothesis 4 is thus confirmed for the future tenses, but not for the past tenses, although there is a trend in the right direction. The low concordance rate with the *passé simple* is due to the fact that children switch to the *passé composé*, a more usual and better known past tense.

The second factor is age (4 %). The third (68·2 %) and second (64·9 %) grades are significantly better than first grade (48·9 %) and kindergarten (48 %) in providing a good continuation for the stimulus clause (F (3, 375) = 7·76, $p < 0·0001$). Children of kindergarten and first grade produce appropriate continuations in less than one continuation out of two. This can be interpreted as showing that the temporal and aspectual constraints imposed by the stimulus sentences start being taken into account only from the second grade on, around 7;6 years of age.

The global effect of the aktionsart of the question is small (1 %). Accomplishments give rise to more good continuations (71·1 %) than the other aspects (activities 58 %; achievements 57 %; states 54·3 %) (F (3, 375) = 2·69, $p < 0·0459$). This effect can be explained by the fact that accomplishments have both a telic and a durative aspect which makes them easily compatible with perfective as well as imperfective tenses.

This analysis shows no significant tense × aktionsart interaction.

As expected, there is a significant effect of the stimulus tense on the tense of the following verb ($\chi^2_{(50)} = 211·238$; $p < 0·000$), but interestingly, the *passé composé* is the most frequent continuation across the board, even for stimulus sentences in a future tense (30·95 % of *passé composé* as a continuation for the *futur simple*, and 31·65 % of *passé composé* as a continuation for the *futur antérieur*). This suggests that the future is not well mastered by the children – who then rely on a well-mastered narrative tense – yielding some support for hypothesis 5.

Effect of aspectual class on success rate

As mentioned above, the analysis of variance on appropriate continuations shows no tense × aktionsart interaction. However, we will briefly discuss the detailed results for each tense and each aspectual class (see Table 8), as they show trends in the expected directions, which a more precise experiment may

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

be able to confirm. The fact that the trends do not reach significance is perhaps due to the small number of answers obtained for each type of stimulus.

The *passé composé* yields almost perfect scores for all aspectual classes. At first sight, this seems to show that this tense is perfectly mastered and that children are able to make the aspectual transitions required by combining this tense with the various aktionsarten, but this may be an illusion. As noted above, the *passé composé* is over-used: it is the preferred continuation even when the stimulus clause is in the future. This seems to show that the children rely on this form when they are not able to come up with an appropriate answer. Given that a sequence of two *passé composés* generally makes a coherent narrative discourse, we cannot discard the possibility that children succeed with this tense by pure luck. We therefore consider that, while the *form* of the *passé composé* is mastered, we have no indication that its aspectual restrictions are.

Next, we compare the rate of concordance for the other past tenses: the *passé simple*, the *plus-que-parfait* and the *imparfait*. Our prediction is that the hierarchy of difficulty for the *imparfait* will be the converse of that for the other two tenses. An analysis of variance taking into account only these three tenses shows no significant effect ($F(6, 222) = 1{\cdot}95, p = 0{\cdot}0745$), but Figure 1 shows trends in the expected direction. The *imparfait* has a lower success

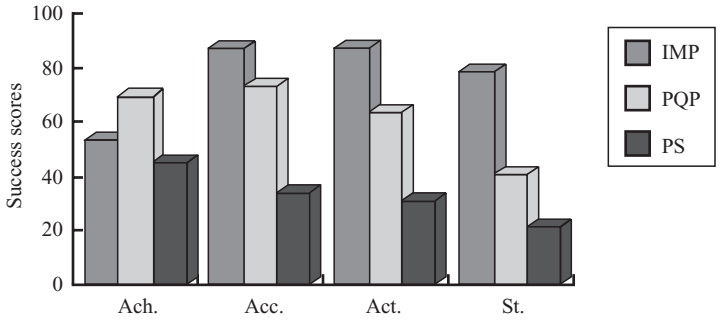


Fig. 1. Rate of concordance for the *imparfait* (IMP), *plus-que-parfait* (PQP) and *passé simple* (PS). Ach., achievement; Acc., accomplishment; Act., activity; St., state.

rate with achievements than with the other aspectual situations. By contrast, with the *passé simple* and the *plus-que-parfait*, states have a lower success rate than achievements. These differences are consistent with our analysis of the *imparfait* as less compatible with achievements and of the *plus-que-parfait* and the *passé simple* as less compatible with states.

Next, we compare the future tenses. Our predictions are that the *futur simple* should not be affected by situational aspect; but the *futur antérieur*, as a perfective tense, should be more compatible with achievements than with

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

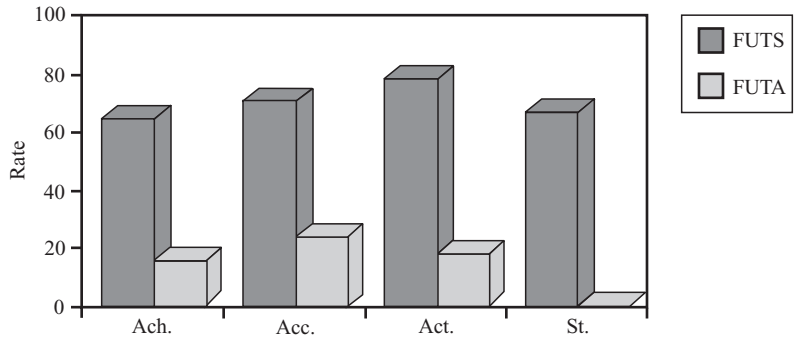


Fig. 2. Rate of concordance for the future tenses. FUTS, *futur simple*; FUTA, *futur antérieur*.

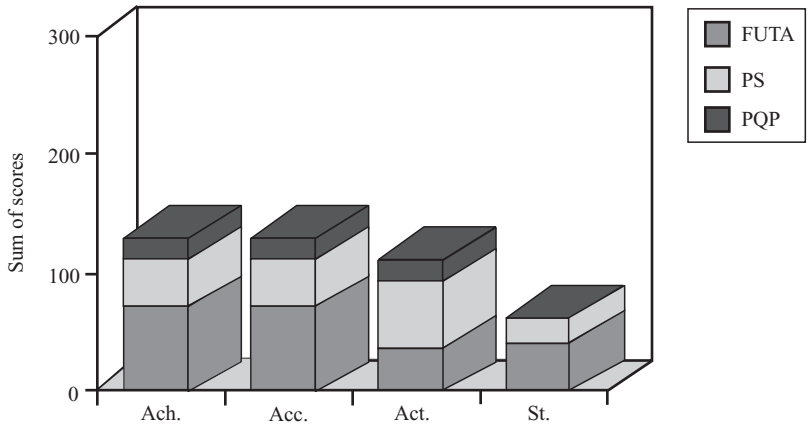


Fig. 3. Combined results for the *plus-que-parfait*, the *passé simple*, and the *futur antérieur*.

states. Here again, there are trends in the expected direction, as shown in Figure 2. The success rate with the *futur simple* is similar for all aspectual types. It varies from 64% for achievements to 78% for activities. With the *futur antérieur*, states have a lower success rate than the other aspectual classes (0%, vs 23% with accomplishments), as predicted, but the figures are too small to be statistically significant.

Notice also that, with the same number of sentences (55) having given rise to a continuation, the *futur antérieur* has a much lower success rate than the *futur simple*; the majority of continuations being inappropriate. The low success rate of the *futur antérieur* shows the difficulty of this tense for the children. The *futur antérieur* also has a lower success rate than the *plus-que-parfait*, its mirror image in the past (the *plus-que-parfait* gives rise to an appropriate continuation between 40% and 70% of the time). This,

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

combined with the fact that it gives rise to a smaller number of Same Tense answers, is consistent with our hypothesis 5.

Figure 3 shows the combined success rates for the *passé simple*, the *plus-que-parfait* and the *futur antérieur*, the three verbal forms predicted to pattern in a similar fashion according to the aktionsart of the clause. The figure shows perhaps more clearly than the individual results that the hierarchy of difficulty of the different aktionsarten goes in the direction predicted by hypothesis 2. Achievements have a global success rate of 57%, accomplishments of 51%, activities of 36%, and states of 20%.

DISCUSSION

Our results show that children between 5;6 and 7;0 do not master the fine-grained interactions between grammatical aspect and situational aspect (or aktionsart). From the second grade on (7;6), they start showing some ability to take into account the constraints imposed by the stimulus clause. This replicates but with slightly younger children, the results obtained by Fayol and his collaborators according to which children have not mastered the connections between grammatical aspect and aktionsart.

In addition, situational aspect and tense interact in the predicted fashion, but in the analysis of good continuations, the differences do not reach significance. The main observations are as follows:

(1) The *passé composé* has almost perfect scores for concordance on all stimulus sentences. This, we think, is probably NOT an indication that its aspectual requirements are mastered by the children since the *passé composé* is the preferred continuation for ALL tenses, and a verb in the *passé composé* normally makes an appropriate continuation for a stimulus in the same tense.

(2) Regarding the predicted hierarchy of difficulty for the imparfait (hypothesis 1), we observed that the *imparfait*, despite a high percentage of Same Tense answers, has a lower rate of continuations and of good continuations with achievements than with the other aktionsarten. Children find it more difficult to produce an appropriate continuation for an achievement in the imparfait than for durative processes. These results can be compared to the findings of Fayol *et al.* (1988, 1989) that telic instantaneous situations tend to 'reject' the imparfait while atelic situations tend to 'attract' it. In our case, since accomplishments do not pattern with achievements, but with activities and states, the telicity of the process is not the dominant factor, but rather the availability of a durative component in the process, out of which a progressive state can be accessed. The fact that accomplishments and activities in the imparfait are at least as easy for the children as states shows that their durative component is sufficiently strong to allow the transition to a progressive state. It also suggests that children have mastered this aspectual transition. On the other hand, the lower success rate for achievement sentences suggests that the transitions required to render achievement

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

sentences, i.e. pure instantaneous events, compatible with the *imparfait*, are not mastered by the children tested.

(3) All the tense morphemes which were analysed as combining with telic events yielded a better success rate when presented in eventive clauses, in conformity with hypothesis 2. The lower rate of success with states supports the idea that the aspectual transitions involved in transforming a state into a telic event are not yet mastered by the children. This is also supported by the fact that the *plus-que-parfait* gave rise to more continuations with achievements than with states, and that the *passé composé* gave rise to more continuations with accomplishments.

Figure 3 shows that, when all telic tenses are combined, achievements and accomplishments fare slightly better than activities and much better than states. The slightly lower success rate with activities is consistent with the hypothesis that children have some difficulty in making the aspectual transition required to construe an activity as a telic event, but the difference may be accidental. We are therefore not in a position to comment on Bonnotte & Fayol's hypothesis that children do not take into account the resultativity of processes (1997). Durativity does not play a role here as accomplishments and activities have a higher success rate than states.

(4) The success rate for the *futur simple* is similar for all aktionsarten. This was predicted (hypothesis 3) given that the *futur simple* is aspectually neutral.

(5) Regarding the hypothesis that the past and future perfect morphemes should be more difficult (hypothesis 4), this is confirmed for the *futur antérieur*, but less so for the *plus-que-parfait*. The *futur antérieur* (53·6 % Same Tense answers; 14·5 % Concordance) is clearly more difficult than the *futur simple* (74·6 % Same Tense answers; 70·9 % Concordance). The *plus-que-parfait* is only slightly more difficult than the *imparfait*. It gives rise to fewer Same Tense answers and its success rate is globally lower than that of the *imparfait* (64·8 % vs 76·8 % Concordance), but not significantly so. The success rate is actually higher for the *plus-que-parfait* when the stimulus sentence is an achievement (69·6 % vs 52·9 % Concordance; and 79 % vs 55 % Continuations), in conformity with our analysis of the aspectual characteristics of this tense compared to those of the *imparfait*. The results with the *futur antérieur* and the *plus-que-parfait* show that there could be an extra cognitive load in conceiving a situation from a reference point which coincides neither with the speech time nor with the situation time. This result is however not as clearcut as one would like as the global difference in success rate between the *plus-que-parfait* and the *imparfait* is minimal. Here one should mention, however, in favor of the hypothesis that the *plus-que-parfait* is more difficult than the *imparfait*, the fact that it gave rise to fewer Same Tense answers (65·9 % vs 78·6 %). Previous studies have shown that this tense is overused as a narrative tense (e.g. Fayol, 1982, Labelle, 1994, Léger, 2000). This suggests that the children correctly interpret it as

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

combining with a telic event, like the *passé simple*, but incorrectly assume that it has global aspect rather than perfective aspect. If the children interpret this tense as having global aspect, they do not use it to present the situation as anterior to a past situation. Our test did not allow us to tap this distinction.

(6) We were hypothesizing (hypothesis 5) that the future tenses might be more difficult than the past tenses. The fact that the *futur antérieur* is more difficult than the *plus-que-parfait* is consistent with this hypothesis, but, given the discussion of point 5) above, this result is not easy to interpret since the *plus-que-parfait* may not be the mirror image of the *futur antérieur* in the child's grammar. Similarly, the *futur simple* has a higher success rate than the *passé simple*, going, apparently, against hypothesis 5, but the contexts of use of these tenses are quite distinct. The *passé simple* is a marked tense in French. It is used mainly in written narratives. The children are exposed to this tense, which figures in children's narratives, and our studies show that many children use it productively. The data collected here show that they have not yet mastered its use, as it gives rise to errors of concordance in over 50% of the cases. The *futur simple*, while standard in writing, is also rather rare in spoken French, as it is generally replaced by the periphrastic future. Sociolinguistic studies of Canadian French show that its use tends to be restricted to negative, counterfactual or hypothetical contexts (Deshaies & Laforge, 1981: 31, Émirkanian & Sankoff, 1985, Poplack & Turpin, 1999), and this appears to be confirmed in our child language data.[8] The fact that its concordance rate is much higher than that of the *passé simple* may be related to the fact that it is equally compatible with events and states; it covers in the future a range of interpretations parallel to those of both the *passé simple/passé composé* and of the *imparfait* in the past.

CONCLUSION

We were hypothesizing that the aspectual transitions involved in transforming a non-durative event into a state or a state into a telic event would be reflected in the ability of children to construct appropriate continuations to sentences incorporating various combinations of grammatical and situational aspects.

Our hypotheses were generally supported by the data. There was a significant tense × aktionsart interaction in the number of continuations, but, contrary to our expectations, no significant tense × aktionsart interaction emerged from an analysis of the number of good continuations (concordance), perhaps due to the small number of answers for each type of stimulus. In

[8] One reviewer suggests that the difficulty of the *futur simple* lies in the hypothetical stance that it requires, by contrast with the periphrastic future (*il va manger* 'he will eat'), typically used when the future situation is already under way at the time of speech. We have not tested the periphrastic future.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

general, the data are consistent with the idea that the ability of the children to construe an appropriate continuation for a stimulus clause is a function of both the situational aspect of the clause and the grammatical aspect of the verbal morpheme. There are fewer continuations and fewer appropriate continuations for achievements in the *imparfait* than for durative processes in the *imparfait*; telicity is not the crucial factor here since accomplishments have a high success rate. Conversely, there are fewer appropriate continuations for states in the *passé simple* or in a perfective tense than for the other aspectual types. Durativity does not play a role here as accomplishments and activities have a relatively high success rate.

Our study also shows that children of 5;6 to 7;0 years old seem unable to take into account the requirements imposed by the tense and aktionsart of a stimulus sentence to construe an appropriate continuation for it. This ability emerges from the second grade on, that is, with children of about 7;6. What we do not know from these results is whether young children are less good than older ones at making the aspectual transitions required, less good a noticing that a transition is required, or less good at determining which transition is required. We hope that future experiments will be able to address these questions and to replicate our results, confirming the trends that have been observed in the rates of concordance.

REFERENCES

Antinucci, F. & Miller, R. (1976). How children talk about what happened. *Journal of Child Language* **3**, 167–89.

Bloom, L., Lifter, K. & Hafitz, J. (1980). Semantics of verbs and the development of verb inflection in child language. *Language* **56**(2), 386–412.

Bonnotte, I. & Fayol, M. (1992). Emploi des flexions verbales du passé dans des phrases isolées. Étude longitudinale chez l'enfant de 6 à 11 ans. *Glossa*, les Cahiers de l'Unadrio no. 29, 36–43.

Bonnotte, I. & Fayol, M. (1997). Cognitive representations of predicates and the use of past tenses in French: a developmental approach. *First Language* **17**, 75–101.

Bonnotte, I., Fayol, M. & Gombert, J.-E. (1991). La représentation cognitive des verbes. Approche descriptive et développementale. *Travaux de linguistique et de philologie XXIX*, 209–25.

Bronckart, J.-P. (1976). *Genèse et organisation des formes verbales chez l'enfant*. Bruxelles: Dessart & Mardaga.

Bronckart, J.-P. & Sinclair, H. (1973). Time, tense and aspect. *Cognition* **2**(1), 107–30.

Clark, E. V. (1996). Early verbs, event types and inflections. In C. E. Johnson & J. H. V. Gilbert (eds), *Children's language*, vol. 9. Mahwah, NJ: Erlbaum.

Comrie, B. (1985). *Tense*. Cambridge: C.U.P.

Daoust, F. (1996). Système d'analyse de texte par ordinateur (SATO). Service d'analyse de texte par ordinateur, UQAM.

Deshaies, D. & Laforge, E. (1981). Le futur simple et le futur proche dans le français parlé dans la ville de Québec. *Langues et Linguistique* **7**, 21–37.

Dowty, D. (1979). *Word meaning and Montague grammar*. Dordrecht: Reidel.

Dowty, D. (1986). The effects of aspectual class on the temporal structure of discourse: semantics or pragmatics? *Linguistics and Philosophy* **9**, 37–61.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

Emirkanian, L. & Sankoff, D. (1985). Le futur simple et le futur périphrastique. In M. Lemieux & H. J. Cedergren (eds), *Les tendances dynamiques du français parlé à Montréal*, vol. 1. Government of Quebec: Office de la langue française.
Fayol, M. (1982). Le plus que parfait. Étude génétique en compréhension et production chez l'enfant de 4 à 10 ans. *Archives de psychologie*, vol. 50, 261–83.
Fayol, M., Gombert, J.-E. & Abdi, H. (1988). Temps et type de procès: une étude descriptive et développementale. In Tersis, N. & A. Kihm (eds), *Temps et aspects* (Actes du colloque CNRS, paris 24–25 octobre 1985). Paris: Peeters/SELAF (NSP 19).
Fayol, M., Abdi, H. & Gombert, J.-E. (1989). Use of past tense verb inflections in French: Developmental study of the interaction between type of process and context. *Cahiers de psychologie cognitive* (*European Bulletin of Cognitive Psychology*) vol. 9(3), 279–95.
Fayol, M., Hickman, M., Bonnotte, I. & Gombert, J.-E. (1993). The effects of narrative context on French verbal inflections: a developmental perspective. *Journal of Psycholinguistic Research* **22**(4), 453–78.
Ferdinand, A. (1996). *The development of functional categories*. Holland Institute of Generative Linguistics. Dordrecht: ICG Printing.
Ferreiro, E. (1971). *Les relations temporelles dans le langage de l'enfant*. Paris: Droz.
Godard, L. & Labelle, M. (1998). Le développement de la localisation dans le temps chez des enfants de 5 à 9 ans de milieux socioéconomiques différents. *L'Année psychologique* (98), 233–70.
Harner, L. (1981). Children talk about the time and aspect of actions. *Child Development* **52**, 498–506.
van Hout, A. (1997). Learning telicity: acquiring argument structure and the syntax-semantics of direct objects in Dutch. In E. Hughes, M. Hughes & A. Greenhill (eds), *Proceedings of the 21st annual Boston University conference on language development*. Somerville, MA: Cascadilla Press. Vol. 2. 678–88.
Kamp, H. (1981). Événements, représentations discursives et référence temporelle. *Langages* **64**, 39–64.
Kamp, H. & Reyle, U. (1983). Tense in texts. In R. Bauerle, C. Schwarze & A. von Stechow (eds), *Meaning, use and interpretation of language*. Berlin: de Gruyter: 250–69.
Labelle, M. (1994). Acquisition de la valeur des temps du passé par les enfants francophones. *Revue québécoise de linguistique* **23**(1), 99–121.
Léger, C. (2000). Tense and aspect in French-speaking children's written and oral narratives. In E. C. Clark (ed.), *Proceedings of the 30th annual child language research forum*. Stanford: Center for the Study of Language and Information.
McShane, J., Whittaker, S. & Dockrell, J. (1986). Verbs and time. In S. A. Kuczaj II & M. D. Barrett (eds), *The development of word meaning. Progress in cognitive development research*. New York: Springer-Verlag.
McShane, J. & Whittaker, S. (1988). The encoding of tense and aspect by three- to five year old children. *Journal of Experimental Child Psychology* **45**(1), 52–70.
Meisel, J. (1985). Les phases initiales du développement de notions temporelles, aspectuelles et de mode d'action. Étude basée sur le langage d'enfants bilingues français-allemand. *Lingua* **66**, 321–74.
Moens, M. (1987). *Tense, aspect, and temporal reference*. Centre for Cognitive Science. University of Edinburgh.
Poplack, S. & Turpin, D. (1999). Does the FUTUR have a future in (Canadian) French? *Probus* **11**(1), 133–64.
Reichenbach, H. (1947). *Elements of symbolic logic*. London: Macmillan.
Rodriguez, T & Bariaud, F. (1987). *les perspectives temporelles á l'adolescence*. Paris: Presses universitaires de France.
Smith, C. S. (1980). The acquisition of time talk: relations between child and adult grammars. *Journal of Child Language* **7**, 263–78.
Smith, C. S. (1991). *The parameter of aspect*. Dordrecht: Kluwer.
de Swart, H. (1998). Aspect shift and coercion. *Natural Language and Linguistic Theory* **16**, 347–85.
Vendler, Z. (1957). Verbs and times. In Z. Vendler (ed.), (1967) *Linguistic in philosophy*. Ithaca, NY: Cornell University Press.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press

Wagner, L. (1996). The development of aspect. *Papers from the eighth student conference in linguistics*, *MIT working papers in linguistics* **31**, 479–89.
Wagner, L. (1997). Children's comprehension of viewpoint aspect. In E. Hughes, M. Hughes & A. Greenhill (eds), *Proceedings of the 21st Annual Boston University conference on language development*. Somerville, MA: Cascadilla Press. Vol. 2: 689–94.
Weist, R. M. (1986). Tense and aspect. In P. Fletcher & M. Garman (eds), *Language acquisition* (2nd edition). Cambridge & New York: Cambridge University Press.
Weist, R. M., Wysocka, H., Witkowska-Stadnik, K., Buczowska, E. & Konieczna, E. (1984). The defective tense hypothesis: on the emergence of tense and aspect in child Polish. *Journal of Child Language* **11**(2), 347–74.

https://doi.org/10.1017/S0305000902005056 Published online by Cambridge University Press