

THE ACQUISITION OF VERBAL ASPECT IN FIRST LANGUAGE

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RESUMO

Uma das áreas de investigação em estudos sobre a aquisição da linguagem tem sido a existência de padrões de desenvolvimento na aquisição da morfologia verbal. Mais especificamente, tais estudos têm examinado se os indivíduos seguem certos princípios universais na marcação do aspecto verbal tanto em contextos de primeira como de segunda língua (Andersen & Shirai, 1994, 1996; Robison, 1990, entre outros). De acordo com os defensores da chamada "Primacy of Aspect Hypothesis", os indivíduos são inicialmente influenciados pelo aspecto inerente dos verbos na aquisição de morfemas de tempo e aspecto. Neste artigo, discutirei a literatura que investiga o papel desempenhado pelo aspecto inerente dos verbos na aquisição da morfologia verbal e as evidências encontradas para a afirmação de que as crianças adquirem distinções aspectuais antes de adquirirem distinções de tempo.

Palavras-chave: Aspecto, tempo, morfologia verbal, aquisição de primeira língua.

ABSTRACT

An ongoing debate in language acquisition research involves the investigation of consistent patterns of development in the acquisition of tense-aspect morphology. In particular, many studies have examined whether learners follow certain universal principles in marking verbal aspect in both first and second language contexts (Andersen & Shirai, 1994, 1996; Robison, 1990, among others). The advocates of the so-called "Primacy of Aspect Hypothesis" argue

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that learners are initially influenced by the inherent semantic aspect of verbs in the acquisition of tense and aspect markers. In this article, I shall discuss the literature that investigates whether the inherent aspectual class of a verb plays a role in its acquisition and whether children acquire aspectual distinctions prior to tense features.

Keywords: Aspect tense, verb morphology, first language acquisition

INTRODUCTION

In this article, I will initially discuss the notions of tense and aspect. Next, I shall provide a comprehensive review of the studies that have investigated the acquisition of tense-aspect morphology in the case of first language learners. The strengths and weaknesses of the studies as well as the main conclusions presented by the authors will be critically discussed. The major explanations for aspect phenomena that are found in the literature will also be reviewed.

1.1 Aspect vs. Tense

Both tense and aspect are notions that refer to the temporality of events, but from different perspectives. **Tense** is the grammatical category that relates the time of a given situation with some other time, a reference time, usually the time of speech. It locates events in a time line with respect to a deictic center: the situations described by the speaker may be anterior (past), simultaneous (present) or posterior to (future) a reference time. **Aspect**, on the other hand, is a non-deictic category that refers to a way of looking at the internal time of a situation. It marks the duration of a given event and/or its phases (cf. Andersen, 1989, 1991; Comrie, 1976). For instance, the difference between sentences (1a) and (1b) is that of tense, whereas (2a) and (2b) show a difference in aspect.

- (1) a. Peter is eating an apple.
b. Peter was eating an apple.
- (2) a. Peter ate an apple.
b. Peter was eating an apple.

In the first group, 'is' and 'was' are used to contrast the difference between the two events in relation to a deictic center: present and past. By contrast, the difference between the sentences in (2) has to do with the way the

speaker views the internal structure of the event: in (2a) he/she refers to a situation viewed as a complete event, whereas in (2b) he/she views the situation as consisting of internal phases.

1.2 Grammatical aspect vs. inherent lexical aspect

There are two types of aspect: **inherent lexical aspect** and **grammatical aspect**. The two are independent but interact in a language. **Grammatical aspect** involves semantic distinctions which are encoded through the use of explicit linguistic devices, such as verbal auxiliaries and inflectional morphemes (cf. Andersen, 1989, 1991; Comrie, 1976). The perfective/ non-perfective distinction in Portuguese and the progressive/ non-progressive distinction in English are examples of grammatical aspect. **Inherent lexical aspect** refers to the inherent aspectual properties of verb stems and other lexical items employed by the speakers to describe a given situation. It is seen as independent of time reference and any morphological marking. For instance, *walk* is inherently **durative**, whereas *believe* is inherently **stative**. I will next discuss Vendler's (1957) verb classification.

1.3 Inherent lexical aspect: Vendler's fourfold schema

Based on the analysis of the aspectual phenomena in English, Vendler (1957) proposed four semantic categories: **statives**, **activities**, **accomplishments** and **achievements**. His terminology is the most widely adopted nowadays. The four categories are presented in Table 1 below.

Stative verbs describe events that cannot be classified as actions, in the sense that they do not have internal dynamics. They have indefinite duration and no clear endpoint. The use of a stative verb in a sentence implies that no change has occurred for the state to obtain. For that reason, it has been said that states hold effortlessly, i.e., no energy input needs to be applied for it to hold.

Activity predicates describe processes that involve some kind of mental or physical activity. Events such as *walk in the park*, *swim*, *read the paper*, and *ride a bike* occur over indefinite periods of time. Unlike stative events, they are dynamic and require some kind of energy input in order to keep going. Activities are also viewed as events that take time; that is, they last for a while.

Table 1: aspectual classes of verbs²

States	activities	accomplishments	achievements
Have	walk	make a cake	find
Love	study	draw a picture	open
Believe	pull something	read a book	lose
Know	play	run a marathon	bring
Want	swim	build a house	start

Accomplishment and achievement predicates are both telic. Telic verbs describe events that have a natural endpoint, a culmination point, which represents the completion of the process. Accomplishment and achievement situations result in a change of state, a new state (for example, *drink a glass of wine*, *make a cake*, *recognize someone*, *reach the top*). There is, however, an important difference between these two types of verbs. While accomplishments have intrinsic duration and are processes composed of successive stages, achievements are instantaneous events.

1.4 The acquisition of tense and aspect: the aspect hypothesis

The first studies that investigated tense-aspect morphology in language acquisition processes did so incidentally. The so-called **morpheme studies** of the 1970s and 1980s aimed at investigating whether the acquisition of grammatical morphemes complies with some kind of definite/pre-determined order. Following the pioneer longitudinal study developed by Roger Brown (1973) that concluded that fourteen English morphemes were acquired in a similar sequence by three children (Adam, Eve and Sarah), many others revealed that there seems to be a sequence of acquisition of particular grammatical structures for L1 acquisition (e.g., de Villiers & de Villiers, 1973). In the case of second language research, stages of acquisition for specific grammatical features – in particular, verbal morphology – were also found in studies with English learners from different first language backgrounds and of different ages (see Dulay & Burt, 1974; Bailey, Madden & Krashen, 1974; and Krashen, 1985). Very strong patterns of similarity across learners were thought to suggest that second language learners acquire particular grammatical morphemes in accordance with universal stages of development.

² Most examples were taken from Vendler (1957: 150).

These findings have recently led to a series of studies laid out to investigate the existence of a consistent pattern of development in the acquisition of tense-aspect morphology. In other words, these studies have attempted to examine whether there is a set of universal principles that language learners use to mark verbal aspect in both first and second language contexts. Many authors have argued lately that the inherent aspectual class of a verb plays a role in its acquisition and that both L1 and L2 learners acquire aspectual distinctions prior to tense features. The **Primacy of Aspect Hypothesis** (or the POA hypothesis), presented below in its most recent formulation (Andersen & Shirai, 1996), was initially developed by Bloom et al. (1980) and Andersen (1989, 1991). Its descriptive claims are:

1. Children first use past marking (e.g., English) or perfective marking (Chinese, Spanish, etc.) on achievement and accomplishment verbs, eventually extending its use to activity and stative verbs. This roughly corresponds to Bickerton's (1981) punctual-non-punctual distinction (PNPD).
2. In languages that encode the perfective-imperfective distinction, imperfect past appears later than perfective past, and imperfect past marking begins with stative verbs and activity verbs, then extending to accomplishments and achievement verbs.
3. In languages that have progressive aspect, progressive marking begins with activity verbs, then extends to accomplishment and achievement verbs.
4. Progressive markings are not incorrectly overextended to stative verbs. This corresponds to Bickerton's (1981) state-process distinction (SPD).

(Andersen & Shirai, 1996: 533)

In this article, I will focus on the discussion of the Primacy of Aspect Hypothesis claims regarding first language acquisition. It is important to point out that most studies to be reported here do not focus on the aspect hypothesis in its totality. Rather, they normally focus on one or two of its claims. In the next section, the L1 studies will be introduced, followed by a summary of the explanations for the phenomena provided in the literature.

1.5 First language studies on the acquisition of tense and aspect

Two groups of results will be reported in this section. Initially, I will present

the L1 studies consistent with the Primacy of Aspect Hypothesis, discussing the evidence that has been used to give support to one or more of the claims stated above. Next, possible counter-examples will be introduced. Some reanalyses of the counter-evidence to the POA will also be given. In what follows, I will deal with the descriptive claims derived from the evidence as well as with the explanatory issues brought up by the authors of each study. The main approaches developed in the literature to account for the data will be reviewed and discussed under 1.6 below. For a full review of the L1 studies, see Table 2.

Table 2: Empirical L1 studies on the acquisition of aspect and tense

Target language	Author	N	Age ³	Type of data
Chinese	Erbaugh (1978)	4	2;0 to 3;0	Spontaneous interaction
	Li (1989)	135	3;11 to 6;4	Experimental elicitation
English	Antinucci & Miller (1976)	1	1;9 - 2;2	Spontaneous interaction
	Bloom et al. (1980)	4	1;10 - 2;6	Longitudinal, spontaneous interaction
	Brown (1973)	3	1;6 - 3;8	Longitudinal, spontaneous interaction
	Harner (1981)	100	3;0 to 7;11	Experimental elicitation
	Kuczaj (1976, 1978)	1	2;4 - 5;0	Longitudinal, spontaneous interaction
	Kuczaj (1976, 1978)	14	2;0 to 5;1	Spontaneous interaction
	McShane & Whittaker (1988)	45	3;0 to 5;9	Experimental elicitation
	Osser & Dillon (1969)	35	2;6 to 5;11	Experimental elicitation
	Shirai (1994), Shirai & Andersen (1995)	3	1;6 - 4;10	Longitudinal, spontaneous interaction
	Smith (1980)	17	2;5 to 5;8	Spontaneous interaction
Finnish		28	4;7 to 6;6	Experimental elicitation
	Toivainen (1980)	25	1;0 - 4;4	Longitudinal, spontaneous interaction

Continua

³ Age: ages of children studied. 1;9 - 2;6 indicates the child(ren) was/were studied over time, whereas 3;0 to 6;4 indicates the study included a number of children ranging from 3;0 to 6;4.

Conclusão

Target language	Author	N	Age	Type of data
French	Bronckart & Sinclair (1973)	74	2;11 to 8;7	Experimental elicitation
	Champaud (1993)	1	1;9 - 2;5	Longitudinal, spontaneous interaction
German	Behrens (1993)	4	1;9 - 4;0	Longitudinal, spontaneous interaction
Greek	Stephany (1981)	4	1;8	Spontaneous interaction
Hebrew	Berman (1983)	Hundreds	One-word stage to 4+	Spontaneous interaction
Italian	Antinucci & Miller (1976)	7	1;6 - 2;6	Longitudinal, spontaneous interaction
Japanese	Cziko & Koda (1987)	1	1;0 - 4;11	Longitudinal, spontaneous interaction
	Rispoli (1981)	1	1;6 - 2;1	Longitudinal, spontaneous interaction
	Shirai (1993)	1	0;11 - 2;2	Longitudinal, spontaneous interaction
Polish	Weist (1983)	20	2;6 & 3;6	Experimental elicitation (comprehension)
	Weist et al. (1984)	6	1;7 - 2;5	Longitudinal, spontaneous interaction
	Weist et al. (1984)	18	2;6 & 3;6	Experimental elicitation
Portuguese	De Lemos (1981)	3	1;0 - 2;5	Longitudinal, spontaneous interaction
	Simões & Stoel-Gammon (1979)	4	1;8 - 3;0	Longitudinal, spontaneous interaction
Spanish	Eisenberg (1982)	2	1;4 - 2;4 & 1;10 - 3;0	Longitudinal, spontaneous interaction
	T. Jacobsen (1986)	1	2;3 - 3;5	Longitudinal, spontaneous interaction
Turkish	Aksu-Koc (1988)	3	1;9 - 2;6	Longitudinal, spontaneous interaction
	Aksu-Koc (1988)	60	3;0 to 6;4	Experimental elicitation

(adapted from Andersen & Shirai, 1996: 534)

1.5.1 Evidence for the Primacy of Aspect Hypothesis

Bronckart & Sinclair's (1973) paper reports on the use of verbal morphology by 74 French-speaking children between the ages of 2;11 and 8;7, divided into five age groups. Data was elicited by asking subjects to describe actions that the researchers performed using toys. Three aspects were tested: type of result, duration and frequency of actions. It was found that children primarily use the present forms of verbs for atelic, inherently durative actions (activity verbs) and the past forms to report actions with clear end results (that is, the use of perfective was associated with telic verbs: accomplishments and achievements). Bronckart & Sinclair also noted that these trends diminished as the children grew older: the two oldest groups (over 6) were found to employ correct forms for all verbs, regardless of aspectual distinctions, resembling adult usage in which the grammatical morphemes are mainly used to express temporal relations.

Antinucci & Miller (1976) investigated the speech of 7 Italian-speaking children (age ranging from 1;6 to 2;6), and 1 English-speaking child (1;9 – 2;2) longitudinally. They found that all subjects first used past tense morphology to encode events described by telic verbs. Past states and activities were referred to by the use of imperfective marking in the case of the Italian subjects. In the case of the English subject, regular and irregular forms of the past tense were employed for telic verbs, while the Italian children used past participle forms for such verbs that present situations with clear-end results. These findings are similar to what was reported by Bronckart & Sinclair (1973).

It is worth noting that the two studies reported above were conducted within the Piagetian framework. In both experiments, the authors contended that cognitive deficiency prevented the children from marking verbs with appropriate, adult-like verb inflections. The data was interpreted as evidence for the claim that the children tested did not have the concept of tense (i.e., the concept of temporal deixis), therefore employing verbal morphology to encode the semantic properties of events that were more relevant to them, for instance, events with clear-end results.

The explanatory power of these claims has been questioned in the literature. First of all, as Jabbari (1998) notes, if it is the case that children present a cognitive limitation that prevents them from using the appropriate verb inflections from the very beginning of the acquisition process, the question that arises relates to the criteria that children actually employ in classifying aspectual verb classes. In other words, on what basis do children decide, for instance, that certain verbs belong to the class of events with clear-end results while others do not? If what happens is that they use some set of innate **linguistic universals**

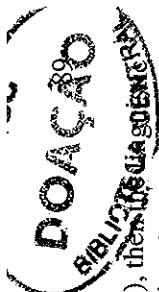
to encode aspectual classes – as argued by Bickerton (1981), then the deficit explanation is dispensable. In that case, the assumption that children are born with a set of linguistic universals which are responsible for the distribution of verb types according to aspectual features also provides an account for the data referred to above. Based on the facts introduced by Bronckart & Sinclair, and by Antinucci & Miller, as well as on his pidgin-creole studies, Bickerton (1981) contends that the ability of making distinctions such as state versus process, specific versus non-specific, and punctual versus non-punctual events is innately specified (his principles are similar to claims 1 and 4 of the POA hypothesis presented above).⁴

Bloom, Lifter & Hafitz (1980) examined the spontaneous speech of four American English-speaking children, ranging in age from 1;11 to 2;4, in a longitudinal study. They report that the verb inflections *-ing*, *-s*, and *IRREG* were first employed by the children around the same time, but were distributed selectively among verbs according to their aspectual features. They argued that the development of the early verb system seems to be guided by the distribution of semantic notions like durative versus non-durative and completive versus non-completive (telic versus atelic in the Vendler terminology adopted here). The cited authors found that the progressive *-ing* occurred almost exclusively with events that were durative and non-completive (our activity verbs), the past *-ed/IRREG* was more frequently associated with non-durative and completive events (our achievements) and the third person present *-s* was more frequently associated with durative and completive events (which have no direct correspondence within the Vendler schema). It is also interesting to note that state verbs were inflected less often than activity verbs by their children.

Bloom et al. (1980) interpreted their findings as evidence for what they called the **aspect before tense** principle, and suggested that “the semantics of the verbs that the children were learning was the major influence on their learning of verb inflections” (p. 404). To back up the aspect before tense principle, Bloom et al. (1980) also made use of the model introduced by Woisetschlaeger (1976, in Bloom et al. 1980: 407), and argued that aspectual markers were acquired first because they are closer to verb stems than tense markers.

It should also be mentioned that Bloom et al. (1980) conceive the aspect before tense principle as relative and not absolute. Even though it may be the case that children are strongly influenced by the inherent lexical aspect of verbs in the beginning of the language acquisition process, the authors argue that children are

⁴ Bickerton's ideas will be further detailed below.



indeed learning tense relations at the same time and not at a subsequent moment. In other words, it is not the case that children start learning time relations only after they have learned aspectual categories.

With regard to the acquisition of Brazilian Portuguese verbal morphology, two studies will be reported: Simões & Stoel-Gammon (1979) and de Lemos (1981). Simões & Stoel-Gammon (1979) investigated the development of inflectional markers in the speech of one Portuguese-speaking child, who was 2;1 at the beginning of the data collection and 3;0 at the end. Analyses of longitudinal data from three other young children (whose ages ranged from 1;8 – 2;1 at the beginning of the study to 2;2 – 3;0 at the end) were also presented as supplemental evidence for the claim that inflections marking tense were acquired earlier than those marking person. Even though the main focus of their study was to analyze the initial phases of the development of person markers on verbs, the cited authors maintain that their data indicated that the semantic features of verbs contribute to their distribution in early speech.⁵ Simões & Stoel-Gammon conclude by saying that “perfect tense inflections occur early in the child’s speech but only on verbs expressing a completed action in the immediate past” (1979: 66).

De Lemos (1981) analyzed two sets of data. The first set is composed of data from Tiago, who was audio-recorded in interaction with his mother, caretaker and sister on a weekly basis from the ages of 1;0 to 2;0 and was also video-taped 12 times during the same period; the other child (Richard) was video-taped 8 times interacting with his mother from 0;8 to 1;3. The second set of data comes from two children (non-identical twins) called Renata and Augusto, who were audio-recorded from 1;0 to 2;5 and videotaped from 1;3 until 1;6 and from 1;9 until 2;2 (8 recordings sessions in total). The study developed by the author set out to investigate the relation between emergence of verbal morphology for tense-aspect marking and extra-linguistic restrictions resulting from interactional formats in discourse. According to de Lemos (1981), her data reveals that perfective markers were first observed with accomplishment verbs, such as *cantar uma música ‘sing a song’*, and were used “exclusively as markers of completion of the child own’s actions” (p. 59). Furthermore, perfective markers were associated with achievement verbs, such as *caiu ‘fell down’* or *quebrou ‘broke’*, only “in contexts where the child seems to be attending to changes of state resultative of unobserved processes” (p. 59). In addition, she argued that the first occurrences of the progressive forms were associated with activity

⁵ In fact, this experiment has been cited by Andersen (1989), Andersen & Shirai (1994, 1996) and Jabbari (1998), among others, as important evidence in support of the Primacy of Aspect Hypothesis.

verbs, such as *dançar ‘dance’* and *pular ‘jump’*, “in contexts where the child was calling attention for the activity he was engaged in” (p. 59). Besides, she asserts that the imperfective forms of the verbs appeared only much later in the process, around the first half of the third year and “at first only with state and activity verbs in imaginary contexts such as pretend-play and story-telling formats” (p. 59). The cited author further points out that imperfective tense forms in Italian were reported to have occurred in similar contexts by Antinucci and Miller (1976), that is, with activities and states and in make-believe and story-telling contexts.

At first, it seems that both studies on Portuguese (Simões & Stoel-Gammon, 1979; de Lemos, 1981) provide evidence for the suggestion that children first attach inflectional morphemes to verbs according to their inherent lexical aspect, following the patterns found in the analysis of French, Italian and English. In fact, many authors have relied on these results to strengthen their position for ‘aspect before tense’ (in particular, see the discussion in Andersen, 1989; Robison, 1995; Andersen & Shirai, 1996; and Jabbari, 1998). What raises doubt here is the fact that none of the two studies referred to above seem to provide clear arguments in support of the strong claims they make. First of all, none of them clearly set out to investigate the primacy of aspect hypothesis itself, but use its descriptive claims to favor other theories. Besides, it would be extremely interesting to know the criteria they have used for classifying verbs, which are not explicitly mentioned in the published studies.

Up until now, I had the goal of presenting a comprehensive review of the findings that have been exposed in the literature as evidence for the POA hypothesis. In what follows, I will discuss the studies that allegedly provide some evidence against it.

1.5.2 Evidence against the Primacy of Aspect Hypothesis

The first study to be reported here is the one developed by Weist, Wysocka, Witkowska-Stadnik, Buczowska & Konieczna (1984), which involves longitudinal and cross-sectional data from Polish children. In the longitudinal design, six children (ages ranging from 1;7 to 2;2) were tape-recorded in interaction with their caretakers. The cross-sectional design involved nine 2;4 – 2;8 year-old and nine 3;4 – 3;11 year-old children.

Based mainly on their longitudinal results, and using Vendler’s (1957) fourfold verb classification, Weist et al. (1984) strongly criticize the aspect before tense view, which they name **defective tense hypothesis**. They hold that when tensed utterances first emerge in child language, they express deictic relationships

as well as aspectual marking and not the contrary as their opponents have argued for. Therefore, in their opinion, tense is not defective in the early stages of acquisition, and, in fact, contrasts in aspect and contrasts in tense marking emerge at the same time.⁶ Apart from that, they also observed that (a) imperfective activity verb phrases were associated with past-tense inflections from the very beginning; and (b) telic verbs were produced irrespective of observable resulting states.

The aspectual distinction between imperfective and perfective aspect and the deictic relationship between present and past tense evolve simultaneously in child Polish. (1984: 371)

Moreover, Weist et al. (1984) challenge the tenability of a cognitive deficit view as maintained by Antinucci & Miller (1976). While they agree that the early temporal system may be limited in the sense that children may not be able to distinguish event time from reference time in the early stages, they say that it is by no means defective.

Independent reanalyses of the tables provided by Weist et al. (1984)⁷ are found in Andersen (1989), and Bloom & Harner (1989). Each showed that not only are achievements and accomplishments the two most frequent verbs to be associated with past tense inflections, but also that imperfective markings are mainly used with activities in the early stages, both of which conform to the results of the other aspect studies. Andersen (1989) puts forth the view that what Weist et al. (1984) do, in fact, dispute is an overly strong view of the primacy of aspect hypothesis, which he labels **absolute defective tense hypothesis**. He claims that although the data in Weist et al. invalidates an all-or-nothing version of the hypothesis, it clearly supports a **relative** version of it, which he names **relative defective tense hypothesis**, according to which early verbal morphology is generally guided by inherent aspectual features of verbs. In Andersen's opinion, the relative defective tense hypothesis is similar to his Primacy of Aspect Hypothesis.

According to the absolute version, only telic verbs receive past-tense inflections; tense distinctions will be redundant and will only accompany aspectual distinctions; only

⁶ Both tense and aspect are grammaticalized in Polish.

⁷ Weist et al. (1984) originated an interesting debate between Weist & Bloom (Rispoli & Bloom, 1985; Smith & Weist, 1987; Bloom & Harner, 1989; and Weist, 1989).

references to immediate past situations will be made. (...) Weist et al.'s claim is correct if they were criticizing this absolute version of the defective tense hypothesis. However, a less stringent version of POA still holds true: namely, past inflections are predominantly attached on achievement and accomplishment verbs in the early stages, and imperfective past marking which emerges later, is used predominantly with state-activity verbs in the beginning. (Andersen & Shirai, 1996: 536)

Andersen & Shirai (1994, 1996) further point out that the POA hypothesis version that they advocate makes no claims about the cognitive ability/inability that very young children may have to mark tense distinctions, whereas the defective tense hypothesis does.

Possible counter-examples to the POA hypothesis are also found in Jacobsen (1986) and Eisenberg (1982), who investigated Spanish-speaking children, Cziko & Koda (1987), who tested Japanese acquisition, Li (1989), who worked on Chinese verbal morphology acquisition, and Shirai (1994), who analyzed the speech of three English-speaking children.

Jacobsen (1986) analyzed the speech of a Peruvian Spanish-speaking child, called Kiki, between 2;3 and 2;8, during a six-month period. Aiming at assessing the extent to which aspect and tense features are related in early acquisition, as well as the cognitive routes underlying the linguistic representation of the past tense, Jacobsen makes use of Piaget's framework. Comparing her findings with Antinucci & Miller's (1976) results, she gives support to the POA claim that children encode aspectual markings prior to tense representations and that the two are acquired independently. Her data reveals that past (*pretérito*) and perfective (*pretérito perfecto*) markings are exclusively used in association with change of state verbs, whereas stative and activity verbs are not marked with any past tense form in the early stages. Apart from that, the progressive inflection (*gerundio*) is initially attached to activities, but not to states or change of state predicates.

Although some of the results reported by her are consistent with the POA hypothesis, there is one exception. Contrary to Antinucci & Miller's findings, her subject did not use the past participle form to encode punctual events (achievements), but instead to mark a situation in which a state that continues in the present time is referred to (see Jacobsen, 1986: 105 for a few examples). Recall that in the case of the Italian children, the participle was mainly used to mark the 'end of a state' – that is, it was attached to verbs expressing punctual and telic events.

Andersen (1989: 22-23) and Andersen & Shirai (1996: 537-538) provide somewhat detailed reanalyses of Jacobsen's examples and dispute her interpretation of the data. According to Andersen & Shirai, the author presents a number of unclear examples in the study. Besides, they claim that a possible interpretation would be that children gave a distinct non-adult-like function to each of the two different forms of past in Spanish. In other words, it may be the case that perfective past was used for achievements and past participle for states that continue in the present time. According to them, this claim is reasonable once we take into consideration how subtle the distinction between the two tenses is (see Andersen & Shirai, 1996: 537-538 for more on this).

Eisenberg (1982) investigated spontaneous speech of two bilingual Spanish-English-speaking girls in a longitudinal study. The first subject's age range was from 1;4 to 2;4; the other child was 1;10 in the beginning of data collection and 3;0 at the end.

The author presents her data as evidence against the POA hypothesis, claiming that for neither of her subjects do aspectual features seem to influence the appearance of verbal morphology. According to her analysis, atelic verbs were not employed to mark imperfective aspect and that telic verbs were not associated with perfective aspect, either. Notwithstanding, while being used by some to raise doubts with respect to the universality of the POA claims,⁸ Eisenberg's findings have also been severely criticized in the literature. In particular, the set of criteria she used for establishing verb type distinctions has been contested. Andersen (1993) mentions an unpublished paper by Gonzales (1989), in which a reanalysis of Eisenberg's data was developed, to justify the claim that her results are, in fact, consistent with the POA. He says:

Eisenberg did not use the same criteria for establishing these (aspectual) categories, however, that the other studies used. When her data are reinterpreted in terms of the Vendler (1967) and Mourelatos (1981) categories of states, activities, telic events, and punctual events, they fit the patterns found in other studies (...) (1993: 317).

In other words, Andersen further argues that the Spanish data shows that initially the subjects exclusively used perfective and imperfective forms in association with telic/punctual events and in with activities respectively.

⁸ E. V. Clark (1985), in her analysis of the acquisition of Romance languages, for instance, quotes Eisenberg's results as evidence refuting the POA claims (p. 750).

With respect to L1 Japanese acquisition, contradictory results have been reported. On the one hand, Cziko & Koda (1987), who tested a Japanese subject aged between 1;0 and 4;1, state that aspectual semantics did not influence their subject's acquisition of time markers the way the defenders of the POA would like to suggest. In particular, they reported that no relationship between punctuality and past-time morphology was found in their data. Still, they have found that the progressive inflection was not over-generalized to stative verbs, evidence that gives support to the POA.⁹

On the other hand, it is interesting to note that Shirai (1991), based on the analysis of the same data discussed in Cziko & Koda (1987), reported that the Japanese child followed the pattern predicted by the POA. That is, early association of imperfective marking (*-tei*) for activity events and perfective morphology in achievement situations (see Shirai, 1991, for further discussion on the issue).

Finally, the study that raises most doubts about the POA hypothesis is the one developed by Li (1989). Li obtained data from 135 Chinese Mandarin-speaking children aged between 3;11 and 6;4, with the use of three different tasks: imitation, comprehension, and production. In particular, he tested Bickerton's two hypotheses, the so-called 'punctual-non-punctual distinction' (PNPD) and the 'state-process distinction' (SPD) – which roughly correspond to predictions 1 and 4 of the POA hypothesis stated above. His general conclusion was that his findings did not corroborate these two hypotheses, but endorsed Slobin's (1985) result-process distinction as a cognitive universal instead.

In his appraisal of Bickerton's (1981) approach, Li (1989) provides us with severe critical remarks against Bickerton's line of reasoning. He particularly criticizes Bickerton's lack of clarity with respect to the terminology adopted and to the levels of aspect at which his claims are assumed to apply. In other words, Li contended that Bickerton's distinction between the notions of grammatical aspect, inherent lexical aspect and situational characteristics¹⁰ of an event creates serious confusion. He insists that it is not at all clear whether Bickerton posits that his punctual-non-punctual distinction applies to all three levels or not.

⁹ However, Youseff (1988, 1990) indicated some methodological problems in Cziko & Koda's investigation.

¹⁰ The situational aspect or the situational property of an event is typically understood as involving the characteristics of the event in terms of real-world situations. For example, the phrase *look at* is normally conceived as a process, i.e., its inherent aspect is activity, which has [-telic] and [-punctual] features, as can be seen in the sentence *Mary looked at the picture very carefully*. However, in the sentence *Mary looked at him when he shouted*, it is clearly an achievement, which has [+telic] and [+punctual] features.

Andersen & Shirai (1996) present a very interesting reinterpretation of Li's data within the POA framework, and point out that Li's main argument, i.e., that Slobin's result-process distinction is innate, does not go against the POA. In fact, they see Li's data as providing additional support for the POA hypothesis. In their opinion, it is possible to view Slobin's result-process principle in the following way: (a) process verbs are the same as activity verbs (in Vendler's terminology); and (b) resultative verbs possess similar features to Vendler's telic verbs (achievements and accomplishments), i.e., they have a clear end-point. It is important to notice that, in spite of not presenting serious challenges to the POA hypothesis in descriptive terms, Li's argument about the innateness of the result-process principle brings about a discussion at the explanatory level, which goes far beyond the POA descriptive power.

However, the authors admit that some of Li's findings pose serious problems for the POA. First of all, subjects did not associate the perfective morphological marking (-*le*) with punctual verbs in the comprehension task. To make matters worse, comprehension was actually facilitated in situations where the progressive marker (-*zai*) and not the perfective marker (-*le*) had been used with achievement verbs, clearly contradicting the POA predictions. Second, data analysis showed that the progressive inflection was incorrectly used with stative verbs in the production task. Andersen & Shirai conclude by saying that

Li's study presents two important challenges to the POA hypothesis for further investigation: (1) it is not the temporal contour of the situation (i.e., punctuality) that is important, but the result that arises out of a situation that is important for past-perfective marking; and (2) over-extension of progressive markers to stative verbs may not be non-existent. Otherwise, Li (1989) reported results consistent with POA. (p. 541)

Consonant with Li's (1989) findings regarding the over-extension of progressive markings on to stative verbs, Shirai's (1994) results also present problems for the POA advocates. Using data taken from the CHILDES (Child Language Data Exchange System, MacWhinney and Snow, 1985, 1990) corpus, Shirai investigated the spontaneous speech of three English-speaking children in interactional situations with their mothers and showed that incorrect use of the progressive inflection does in fact occur. His data consisted of the transcribed

¹¹ Adam's and Eve's data are from Brown's (1973) seminal study.

speech of Adam (aged between 2;3 and 4;10), Eve (aged between 1;6 and 2;3) and Naomi (aged between 1;6 and 4;9)¹¹ and their mothers.

In particular, Shirai (1994) set out to investigate: (a) Whether the claim that children (almost) never show over-extension of the (-*ing*) progressive marker to stative verbs is really sound; and (b) If it is, what are the characteristics that indeed prevent children from making these errors? Are children bioprogrammed or innately endowed with such a feature? To what extent does caretaker speech influence child language? In order to carry out such an experiment, he used objective linguistic tests to classify verb tokens. First, all the verbs produced by the children and their mothers were classified according to Vendler's four aspectual categories: states, activities, accomplishments and achievements. To distinguish statives from non-statives, each sentence was analyzed according to the following criteria: "Does the verb have a habitual interpretation in simple present tense? If so, it is non-state. If not, it is a state" (p.72).¹² Shirai claims that most of the other tests designed to contrast statives/non-statives supplied in the literature are problematic because they involve acceptability judgements and do not always yield precise distinctions. Besides, the author notes that it is not always the case that stative sentences containing -*ing* are ungrammatical. In order to back up such statement, Shirai cites Smith (1983) who asserted that some stative verbs are indeed used by adult native speakers in the progressive to express a sense of contingency. Such a feature of English poses serious problems for the detection of incorrect attachment of the -*ing* progressive inflection on to statives, as only a subset of the actual uses of stative progressives in child language acquisition can be considered errors. In other words, how can we possibly say that a child is actually making an error when she utters 'I am hating the new baby-sitter'? Would we not regard the same sentence as an instance of creative use of language if uttered by an adult native-speaker of English?

Since it is often difficult to determine which uses of stative progressives are grammatical or ungrammatical, it is not easy to determine which tokens in children's speech are examples of overgeneralization. (p. 69)

In addition, such a feature of English is problematic for the POA claim number 4, according to which overgeneralization of progressive morphology does not take place in child language acquisition. Shirai disputes the interpretation of a few studies used to give support to the state-process distinction as a universal

¹² Habituality is understood as involving a repetition of the same situation.

of language acquisition (e.g., Brown, 1973; Bickerton, 1981; and Cziko & Koda, 1987), and points out that there are a few studies that have in fact showed that children do produce overextended progressive marking (e.g., Rispoli, 1990; Li, 1989).

In his analysis of the data, Shirai concluded that Adam and Eve rarely used progressive markings associated with statives, in contrast to Naomi, who produced overgeneralizations in a number of occasions. The author contends that if Bickerton's state-process hypothesis were innate, incorrect use of the progressive would not only be rare but non-existent. He also observed that while Naomi's mother often used stative progressives, the mothers of the other two children never did. Based on the evidence, Shirai further claimed that the pattern of the input that is addressed to the child determines his/her incorrect use of stative progressives. He criticizes the innateness argument by showing that when children are exposed to maternal speech, in which stative progressives are used, they are more likely to produce such sentences.

At last, after supplying evidence against Bickerton's state-process hypothesis, which makes all-or-nothing predictions, Shirai proposes a prototype explanation of the phenomena. In his view, a prototype approach would account for the fact that children seldom produce incorrect stative progressives.

Children originally do not use morphology to its full potential as it is used in adult speech. They start with a small subset (i.e., the prototype) of the semantic category that a morphological form signifies, and only later do they acquire full potential of the morphology by extending its semantic boundary. (...) it may be argued that the prototype of progressive is 'action in progress'. If so, children are unlikely to use the progressive with stative verbs at early stages, much less to extend it to a wrong context, since such uses are far from the prototype of the progressive as a semantic category. (p. 79)

In my opinion, Li's (1989) result combined with Shirai's (1994) data provide interesting evidence that raises serious doubts regarding claim number 4 of the POA hypothesis. The least one can say is that data from other children are needed before we can make any more precise remarks about the use of progressive markings in stative sentences. With respect to the prototype explanation put forth by Shirai, I believe that a number of other aspects must be taken into consideration in the analysis before a decision about its reliability can be reached. First of all, there is the need to test more children. Second, is it really

the case that children's speech is so restricted by the language input that they are exposed to? Let us recall Chomsky's (1986) 'poverty-of-the-stimulus' argument, according to which the data in the stimulus is too impoverished to justify the complexity in terms of knowledge of the language that children possess even at a very early age. Third, how can we account for the attested variability in morphology marking? In other words, if it is true that children start out with a prototype of the semantic category that a morpheme represents, and only later on in the process they acquire full potential of the morphology, how come even the three children studied by Shirai do not follow the same steps? For a prototype explanation to successfully account for the phenomena, we would expect less variability across learners. Finally, even if we assume an interactionist view of language acquisition, we cannot forget that a child is exposed to various sources of language input and not only to his/her caretaker's speech. That is, in order to test the prototype hypothesis, an investigation of all the numerous sources of input to which a certain child is exposed is required. Unfortunately, such would not be an easy task.

1.6 Explanations for variability in the acquisition of aspectual distinctions

A great number of studies in L1 acquisition indicate support for the POA predictions. In particular, perfective past inflections were generally found to correlate with punctual and/or telic predicates; imperfective appears to first emerge in states and then to spread to activities; the *-ing* progressive marker initially occurs associated with activities and spreads slowly to accomplishments and achievements. The specific prediction concerning the nonexistence of stative progressives seems to be the most problematic one due to some contradictory evidence reported by the authors.

Until now, I have provided a description of a number of investigations in which the effects of verbal aspect in the acquisition of verbal morphology by language learners were analyzed. My goal in this section is to critically discuss the explanations that have been introduced in the literature for the aspect data.

Working within the Piagetian framework, Antinucci & Miller (1976) and Bronckart & Sinclair (1973) reported that the children they tested did not possess the concept of temporal deixis, therefore employing verbal morphology to mark aspectual rather than tense distinctions. As explained in 2.3, they have attributed the influence of verbal aspect on the distribution of morphology to a supposed cognitive inability of very young children to mark verbs with appropriate adult-like tense distinctions. Nevertheless, an unequivocal problem with a cognitive-

deficit explanation for early use of inflectional morphology, as the one given by Bronckart & Sinclair (1973) and Antinucci & Miller (1976), is that it does not provide a viable explanation for what takes place in adult second language acquisition.

On the basis of the evidence presented by Bronckart & Sinclair, and Antinucci & Miller, as well as on his investigations on pidgin and creole languages, Bickerton (1981) maintains that the distribution of verb types by learners is guided by a set of innate linguistic universals. Under this view, these cognitive universals determine that aspectual features be more prominent than tense distinctions, consequently influencing learners to initially link emerging inflections to internal aspectual categories, and only later shift to a more native-like distribution. This approach has been called Bickerton's **Bioprogram Hypothesis**.

A distributional bias in the input directed to the learner has also been suggested as a possible explanation for the findings reported in the preceding sections. The proponents of the so-called **Distributional Bias Hypothesis** – from now on, 'DBH' – (Andersen, 1989, 1993; Andersen & Shirai, 1994; Shirai, 1994) have tried to demonstrate that the patterns displayed by children during the acquisition process of verbal morphology are influenced by a distributional bias in the language addressed to the child. In other words, according to this view, children utilize verbal aspect selectively in terms of aspectual classes as a consequence of the fact that native speakers also follow the aspect hypothesis. As Andersen (1993) puts it, the DBH predicts that

proficient native speakers will exhibit in relative quantitative terms the same distributional bias found in more absolute terms in the acquisitional data (p. 320)

In particular, this means that native speakers also have the tendency of attaching past or perfective markers to accomplishments and achievements, and progressives to activities.

For the advocates of the DBH, since the distributional pattern that is observed in L1 learners also occurs in native speech, it is not the case that children are showing some kind of deviant behavior, but rather are employing verbal morphology in the same manner as native speakers do (see Weist et al (1989) for L1A, and Rhode (1996) for L2). Nevertheless, it is important to point out that the reason why this may be the case is not provided by these authors.

The studies set out to investigate the DBH have focused on analyzing not only the learners' production of verbal morphology, but also the type of speech that is addressed to them. What defenders of the DBH have tried to prove is that, in normal interaction, native speakers display the same tendency of using

particular verb morphemes with certain classes of verbs, also following the aspect hypothesis. Some empirical evidence has been used as support for the distributional bias claim (see review in Andersen & Shirai, 1996). Yet, because only very few studies focusing on native speech input in relation to aspect have been conducted, my personal view is that further inquiry into this issue is required before more definitive claims can be made.

Another alternative explanation that is found in the literature was initially proposed by Andersen (1989, 1993) and Andersen & Shirai (1994), and later adopted by Bardovi-Harlig (1999), among others. Based on Slobin's (1985) account, Andersen (1989, 1993) proposed a number of cognitive operating principles and notions that supposedly account for the patterns in the distribution of verbal morphology found in L1 and L2 acquisition. They are the **Relevance Principle**, the **Congruence Principle**, the **One-to-One Principle**, and the **Subset Principle** – more recently replaced with the **prototypicality notion** (Andersen & Shirai, 1994).

The Relevance Principle as a possible explanation for the primacy of aspect hypothesis was based on Bybee's (1985) and Slobin's (1985) work. Bybee's particular contribution to this discussion was to show that in languages that have distinct morphological inflections to mark aspect and tense, aspect inflections are closer to the stem than tense inflections. Even though this claim cannot be tested in languages like English, in which the same morphological marker is used for both features, research on other languages (for instance, Russian) is assumed to reinforce this view. If it is the case that acquisition processes are guided by the Relevance principle, Andersen (1989) predicts that

aspect would be perceived and internalized earliest, since it is most relevant to the lexical item to which it attached, the verb. Tense would be next, since it has wider scope than aspect, but is more relevant to the verb than subject-verb agreement, which would be last. (p. 124).

The main argument put forward by the defenders of the Relevance Principle is that while aspect is particularly relevant to the meaning of the verb, tense is not only relevant to the verb but also contributes to the interpretation of

the predicate, sentence or even a broader chunk of discourse. Early marking of inherent lexical aspect but not tense, thus, appears to be a consequence of the greater relevance of aspect to the meaning of the verb than tense (p. 18).

The operation of the Relevance Principle is determined by the Congruence

Principle that postulates that learners will have the tendency to employ tense-aspect inflections whose meaning most resembles that of the verb.

A grammatical morpheme is used by learners according to how congruent the meaning of the morpheme is with the meaning of the lexical item to which it is attached. (...) Thus, the first inflections that children use are those that are most relevant to the meaning of the verb (the Relevance Principle) and of these inflections, it is the inflection whose meaning is most congruent with the meaning of the verb stem that will be attached to a particular verb (the Congruence Principle). (Andersen, 1993: 328-329)

In addition to the above two principles, Andersen (1984, 1993) posits that learners are guided by the One-to-One Principle as well. This principle is responsible for directing learners to conclude that each new morpheme that is discovered has one and only one meaning, function and distribution.

Furthermore, a fourth cognitive construct, called **prototypicality** (Andersen & Shirai, 1994), has been proposed as complementary in accounting for learners' behavior with respect to aspect-tense marking. According to Andersen & Shirai (1996),

tense and aspect morphemes are prototype categories and (...) learners (both L1 and L2 learners) initially discover the least marked member of each category (one unitary achievement or accomplishment for past or perfective) and only later and gradually add progressively more marked members to their pool of "past" and "perfective" marked verbs. (p. 560)

In brief, the prototype account aims at explaining the factors that exert influence over learners' choices with respect to morphology marking. According to this view, learners decide which particular meaning to attribute to a certain form/meaning correspondence based on semantic prototypes. That is, each particular aspect-tense category, such as past, perfective or progressive, is conceived as "a prototype category consisting of good members and marginal members" (Andersen & Shirai, 1996: 556). Thus, from the input learners are exposed to, they infer a prototypical meaning for each verb inflection, such as 'deictic past' for the past tense *-ed* morpheme, and 'process' or action in progress' for progressive *-ing*.¹³ Accordingly, other possible meanings, such as

¹³ For further details on the prototype theory, including proposed internal structures for certain aspectual categories, see Andersen & Shirai (1996), and references therein.

'habitual or iterative meaning' for past tense, or 'futurate' for progressive are considered marginal. It is thus argued that speakers learn to affiliate an inflection to its prototypical meaning through an interaction of the One-to-One Principle with prototypicality.

Two serious difficulties with the prototypicality account are standardly recognized. The first one lies in determining dependable autonomous criteria to be used in theoretically deciding the prototypical member of each tense-aspect category, as well as the hierarchical relationship of more and less marked members within the category. Concerning this issue, Andersen & Shirai (1996) acknowledge that "at this point, there is no established and reliable measure to determine the internal structure of a prototype category" (p. 557). A further related problem is identifying the cognitive mechanisms that are utilized by learners in the process of figuring out the marked form of the category. That is, since the quality of input a learner receives cannot be controlled for, as a consequence he/she is exposed to all sorts of language, in which more and less marked members are present. The question that arises is, from all that is available in the input, how does the learner find out which prototypical meaning to assign to each particular inflection?

I believe that the immediate advantage of Andersen's principles, as they stand, is their enormous intuitive appeal. A serious difficulty, however, lies in verifying to what extent these principles actually explain what happens in first and second language acquisition of aspect. Assessing the applicability of these principles is no easy task. Therefore, not much clear evidence backing up these assertions has been provided.

CONCLUSION

I have reviewed the aspect studies that have provided evidence both for and against the POA hypothesis. I have showed that there seem to be methodological problems that prevent us from making more general claims regarding the soundness of the POA hypothesis with respect to L1 acquisition processes. First of all, the terminology adopted by the different researchers is sometimes confusing: the distinction between lexical and grammatical aspect is not always present, and not all of them adopt Vendler's verb classification. Second, some of the studies do not clearly report the criteria used to classify the

verbs produced by the children. When they do, there is sometimes disagreement on the interpretation of the data from the same children. Apart from that, different tasks have been used to test children, which should originate different levels of analyses that are not always taken into consideration. In other words, I wonder whether results from comprehension tasks, elicited production tasks and spontaneous speech can possibly be interpreted on the same basis. It is important to point out at this time that Weist et al. (1984) study is the only one so far to report on results from a combination of tasks.

In sum, in this article, I discussed the primacy of aspect hypothesis at some length. I first presented the aspect *versus* tense distinction and introduced Vendler's (1957) verb classification. Next, I looked at the most important L1 studies on aspect. Findings consistent with the aspect hypothesis predictions as well as some possible counter-evidence were critically analyzed. Finally, the main approaches to explaining learners' performance in acquisition with respect to tense-aspectual marking were presented.

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