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THE ACQUISITION OF TEMPORAL REFERENCE IN FIRST
AND SECOND LANGUAGE ACQUISITION: WHAT CHILDREN
ALREADY KNOW AND ADULTS STILL HAVE TO LEARN
AND VICE VERSA*

This paper studies the acquisition of verbal inflections, aspectual particles and other linguistic means for marking time, tense and aspect in German and Chinese. The acquisition of first languages German and Chinese by children is compared to the acquisition of the second language German by adult Chinese. Data consist of narratives elicited by means of two picture sequences, a HORSE and a CAT story. Subjects were 4, 7, and 10-year-old children and Chinese adults. Data also include a control group of adult native speakers. Speakers were asked to tell the stories to a naive interlocutor who had no access to the picture material. The acquisition of verbal inflections has been studied extremely frequently in L1 and somewhat less frequently in L2. Researchers have tried to show, for both groups of learners, that the inherent temporal properties of the verbs rather than temporal constellations such as anteriority, posteriority have an influence on the inflections / aspectual particles used (the so-called defective tense hypothesis). In most of these studies comparisons with the target language input have not systematically been made. In this paper we will show that, first of all, the target languages show a more or less biased distribution of inflections / particles over types of verbs, and that the difference of bias together with transfer of function puts Chinese learners in a disadvantaged learning situation compared to the L1 learners. Data furthermore show that hardly any proof for the defective tense hypothesis is available in L1 at the ages under consideration, and that in L2, the acquisition path seems opposite to what one would expect on the basis of the defective tense hypothesis. As far as adverbs and connectives is concerned, we will show that there is a clear difference of use between children and adults, in that the types of linguistic means used differ clearly. We will claim that this difference is due to the level of understanding by children vs. adults of discourse pragmatic principles such as the Principle of Natural Order.

Introduction

This paper focuses on the acquisition of German and Chinese linguistic devices to mark temporality in discourse by children (first language acquisition)¹ and by adults (second language acquisition).

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¹ The monolingual data in this study stem from a larger database collected by M. Hickmann. Collection was financed by the Max-Planck Institute and the DFG (among others). All results reported here on the monolingual

In order to tell a narrative, or rather, in order to communicate effectively in general, speakers have to organize information about protagonists and their spatio-temporal frame in unambiguous sentences and texts. Two kinds of capacities are involved in this task:

- the capacity to organize discourse according to (possibly) universal pragmatic principles,
- the capacity to acquire the linguistic means, often *language-specific*, that allow the speaker to realize the pragmatic rules.

Both types of capacities are essential for all speakers and learners of a given language, whether they are children or adults. However, we hypothesize that the capacities play a different role in first versus second language acquisition. Thus, whereas children have to acquire both capacities simultaneously, we assume that adult L2 learners have already acquired the first capacity, i.e., organizing discourse according to pragmatic principles. If this assumption is right, we should find clear differences in the acquisition path taken by the child vs. the adult in so far as the narrative task is concerned. Note that acquired knowledge of the first capacity in a source language before starting to acquire a second language is useful only if it is indeed universal, and that the acquisition of the second capacity in a second language might be seriously disturbed if one already has a fixed form-function relation system installed through one's first language.

In order to test the above hypothesis, we will focus on the expression of time in narratives by child learners of Chinese and German and adult learners of German. Roughly speaking, the task of these learners is to acquire the language-specific linguistic means in German and Chinese, which involve the German inflectional system, the Chinese aspectual particle system, and the temporal adverbial / connective system of both languages. These forms are pluri-functional. On the sentence level, they express tense and aspect and *Aktionsart*²; on the discourse level, these means can be used to organize text into foregrounded and backgrounded clauses, to mark temporal sequence, overlap, etc., and to increase the overall cohesion of the text. It has furthermore been claimed that the inherent temporal properties of the verb, or *Aktionsart*, may interact with the inflections and particles used and with the meaning of the inflections and particles in those cases.

In the following section, we will give the reader a more detailed description of both languages involved and point out the specific problems the two types of learners are likely to encounter. In section 3 we will discuss some previous studies on the acquisition of temporality in L1 and L2, summarizing results and adding some critical remarks. We will then present the data and get into the results and discussion in sections 4, 5, and 6.

Some words about the temporal systems of German and Chinese

German obligatorily marks tense on all verbs by means of an inflectional system, as do most Indo-European languages. Unfortunately for the learner, the German temporal sys-

data were obtained in previous projects supervised by M. Hickmann and they have been reported earlier in various papers (see Hickmann & Roland, 1992), and most recently in Hendriks et al. (1998). I'm greatly indebted to Maya Hickmann for letting me use her data in this new project, which compares L1 and L2 acquisition.

² We will use the term *Aktionsart* to refer to what has also been called the *inherent temporal properties* of the predicate. Each predicate may express such properties as boundedness (is there a natural end to the activity expressed by the predicate) and durativity which contribute to the temporal understanding of a situation.

tem does not provide clear form-function relations (see Behrens 1993). The four main tenses are *Präsens*, *Perfekt*, *Präteritum* and *Plusquamperfekt*. *Präsens* can be used for present and future reference, or for the non-past. *Perfekt* and *Präteritum* can both be used for past reference, *Perfekt* being the more frequent of the two. Depending on the *Aktionsart* of the predicate, the meaning of these tenses can vary. For example, when combining the *Perfekt* with resultative verbs, the reading is that of a perfective present (as in example (1)). When the same *Perfekt* is combined with durative non-resultative predicates, the reading is indefinite past, with no specification of beginning or end of the action, as in example (2). When combined with a predicate that expresses non-durative non-resultative actions, such as cough, the reading is immediate past, as in example (3).

- | | |
|--------------------------------------|--|
| (1) Er ist gefallen als ich reinkam. | He fell down when I came in. |
| (2) Er hat geduscht als ich reinkam. | He was taking a shower when I came in. |
| | He had taken a shower when I came in. |
| (3) Er hat gehustet als ich reinkam. | Just before I came in he coughed. |

In contrast to the Indo-European languages, Chinese does not have an inflectional system. Tense is marked by adverbials, or inferred from the use of so-called aspectual particles, which can be claimed to have the function of assertion markers (cf. Klein, Hendriks & Li Ping, ms.). For present purposes, however, we will give the traditional descriptions of these particles. The particles *zhe* and *ne* are imperfectivity markers. The particle *le*, when verb-final, is claimed to mark perfectivity (cf. Li & Thompson, 1981). Aspectual markers, in contrast to the Indo-European tense markers, are optional. Utterances can also occur without any aspectual particle. Note that utterances of this type will hardly ever be accepted as a grammatical sentence by Chinese native speakers when presented in isolation, but up to 63% of utterances in discourse consist of such kinds of utterances (Hendriks et al. 1998).

Temporal-aspectual markers can also be used to organize discourse. For example, the imperfective in English, sometimes in combination with other devices, presents events as in the background of a text, whereas the perfective usually presents events as foregrounded. This leads to a different understanding of the sequence of events in the following three examples: example (4) expresses two events happening one after another; examples (5) and (6) express two simultaneously occurring events.

- (4) The duck ran into the kitchen. The chef grasped her by the neck.
 (5) The duck ran into the kitchen. The chef was boiling eggs.
 (6) While the chef was boiling eggs, the duck ran into the kitchen.

Both languages also provide speakers with the possibility of using adverbials / connectives to specify temporal relations. A first function is to specify the location of the event on the time axis (7). They can also establish the order (8) or topological relation (9) of events in time.

- (7) *In 1999* a lot of people ate duck.
 (8) *First* we ate the duck's skin, *then* we ate its meat.
Before we ate the duck meat, we ate the skin.
 (9) *While* we were eating the duck skin, the chef was preparing the meat.

Both L1 and L2 learners have to acquire the German inflectional and adverbial / connective system. They also have to learn how the inherent temporal properties of the verb, or *Aktionsart*, interact with the inflections used, and finally, how one can use temporal markers to organize discourse. For children, the acquisition not only of forms but also of their interaction with *Aktionsart* and usage for discourse organization has to be discovered simultaneously. Second language learners may already be sensitive to the interaction of temporal markers with *Aktionsart* and of the discourse regulating functions of these markers. However, it is not sure that the form-function relations are the same in the target language as in the source language. Besides, in this case, the L2 learners being Chinese, they will have to discover that temporal-aspectual information is not marked by particles, but rather, by inflections that are glued to the verb. Furthermore, they will have to learn that these markings in the target language are obligatory and not optional as in their source language. Finally, Chinese adults will have to find out that inflections code aspect and tense, in contrast again to the particles in their source language that encode only aspect.

In sum, both types of learners have a huge task facing them, and both seem to have some advantages and some disadvantages. The question we ask ourselves is how the acquisition path differs, and what this can tell us about the information learners use or do not use in acquiring their native tongue or a second language.

When we present the results of this study, we will be answering the following four more specific questions:

- What inflections / particles / adverbials are used in general in narratives?
- Is the use of inflections / particles related to the inherent temporal properties of verbs?
- Is there a difference in use between adult L2 learners and child L1 learners?
- Can we come up with a good reason for this difference?

Earlier studies and the aspect before tense hypothesis

Earlier studies on the acquisition of temporal markers in L1 and L2 tend to concentrate on the acquisition of verb morphology, and much less on the acquisition of other temporal markers, such as adverbs and connectives (but see Behrens, 1993). We will summarize the main stream of research here, and highlight one particularly well-known subject: the defective tense hypothesis. This hypothesis states that children, before a certain age, cannot use inflections to mark tense, since they conceptually have not yet developed an understanding of tense. They acquire “forms before function”, and apply non-target functions to the forms, namely aspect, or more specifically, the marking of boundedness. In fact, we should not speak about aspect, but rather about *Aktionsart* (Li Ping, 1990).

One of the earlier studies on the acquisition of time, tense and aspect dates from 1973 and was carried out by Bronckart and Sinclair. The paper investigated the use of French verbal forms by children between the ages of 2;11 and 8;7. The data are experimental, and results show that

these subjects do not only use tenses to indicate the relationship of posteriority, anteriority or simultaneity between the events described and the moment of enunciation, but that aspectual factors intervene. [...] For all subjects the type of result influences the choice of verb forms. More objective features (frequency and duration) exert an influence between the ages of 3 and 6; after that age, the use of tenses

begins to resemble adult usage in which the different verb forms are mainly employed to express temporal relationships. (Bronckart & Sinclair, 1973, pp. 107)

The experiment was run as follows: children watched the acting out of different events, some of which had clear results terminating at a predetermined point (perfective events); some actions did not have a result (imperfective events); some events were perceived auditorily rather than visually (cries of animals) and since the distinction between perfective and imperfective was believed not pertinent in these cases, these were called aperfective events. Within these categories, the duration of events was controlled for. The instructions were as follows: "I'm going to do something with the toys, and you are going to look carefully at what happens, and after that, you are going to tell me everything. Try not to forget anything". After the acting out, the child then got a very simple question: "*raconte!*" (Tell me). Even though all questions were asked *after* the action had been played and answers were given at about at least 7 seconds later, actions that did not lead to any result were mostly described in the *présent*³ by the children, actions that obtained clear results in the *passé composé*, and actions without an intrinsic aim in the *présent* or the *passé composé*.

Before the age of 6 the distinction between perfective and imperfective events seemed to be of more importance than the purely deictic temporal relation between the time of action and the time of utterance. From 6 years on, children started using the *passé composé* for all actions more frequently, and when the imparfait began to appear, children used tenses to express the same temporal relationships as adults. Note that these data do not mean that children never referred to past tense with a past tense marker. All uses of the *passé composé* co-occur with past situations.

About the target language (adult language), the authors state the following:

[...] there was therefore a clear posteriority relationship, which adult French speakers generally express by the passé composé, imparfait, plus-que-parfait and the more recon dite passé simple. In the current use, the passé composé expresses perfective past actions, and the imparfait imperfective past actions.

Note that this is a statement, not a result of the study. The authors failed to do the exact same experiment with adult native speakers! Although it seems unlikely that an adult would ever use the *présent* in this situation, it is not impossible, and certainly ought to have been checked explicitly.

A second study on the acquisition of past tenses (Antinucci and Miller, 1976) looks at longitudinal data, *Italian* and *English*. The findings show that children are able to make reference to and encode past events *only* when their character is such that they result in a present end-state of some object (have a boundary). Their evidence consists of knowledge of the semantics of the verbs to which the children do vs. do not add past tense markers, and, interestingly, they come up with an independent factor of proof, i.e., the marking of object agreement on the past participle, which led Antinucci and Miller to think that these children are seeing past participles as a kind of adjective. And this only happens with past participles that express the resulting state of an action.

³ *Présent* = present; *imparfait* = imperfect; *passé composé* = perfect; *passé simple* = past historic.

A third influential study in this respect is the one by Bloom, Lifter and Hafitz (1980). They studied the language production of four English speaking children longitudinally between 22 and 28 months of age. The major results of the study were that the verb inflections *-ing*, *-s* and *irregular past* emerged in the children's speech at the same time, but the inflections were distributed selectively with different populations of verbs. Again, no comparison with the use of inflections by the surrounding adults was provided in this study.

A study by Weist et al. (1984) argues against these findings and their explanation (the so-called aspect before tense hypothesis). Note that these authors tested what Andersen (1994) calls the **absolute** defective tense hypothesis, that is, *young children are cognitively incapable of conceiving of events displaced in time and can **only** encode reference to the here and now*. Weist et al's data show, however, that children speaking Polish between 1;6 and 2;6 can make tense distinctions as well as aspectual distinctions, and that they do not only use the past form to refer to an observable change, but also to refer to distant past. These results thus seem to contrast with the above mentioned studies. The earlier studies, however, worked with a less absolute hypothesis, in which the tendency is for children to be guided by the *Aktionsart* of verbs in their usage of tense markers. These authors, in fact, do not make any claims about children's ability to mark tense (Andersen & Shirai, 1994); they just mention the tendency of markers to go with a specific type of verbs rather than with other ones. A reanalysis of Weist's data by different researchers (Bloom & Harner, 1989) showed that Polish children are clearly biased in their use of tense-aspect markers in relation to the *Aktionsart* of the verb. Again, Weist's study, just like the previous mentioned ones, does not include any adult data to verify how far the child usage of tense markers deviates from adult language.

Bickerton has reanalyzed the above data in L1 and concluded that the oppositions that children were making was between state and process, and punctual and non-punctual events. Bickerton compared the data with the structure of Creole languages and discovered similarities which, according to him, can be explained by an innate ability of children to acquire language. He calls this innate ability the language bioprogram. According to him, the universal traits of Creole languages show us how children acquire language in its purest form, since

[...] the universal features result when children invent a Creole language when the sole language input is an unsystematic and impoverished pidgin language (Cziko, 1989).

Irrespective of authors checking the absolute or the relative defective tense hypothesis in L1 acquisition, their explanation of the phenomenon is always a cognitive-developmental one. Antinucci and Miller, for instance, give the following explanation:

The problem for the child in referring to past events lies in the fact that he has to form a representation of this event, even though it is not in his immediate surroundings anymore. This is difficult. However, some past events leave a trace in form of a resulting state in the present. This resulting state originally enables the child to reconstruct the past event that caused this resulting state. This is why change-of-state verbs are the first to occur with past tense marking in child language.

Given this explanation, defective tense should not occur in second language acquisition, since adult learners should be able (on a cognitive level) to represent events that

happened in the past and relate events in time in general, irrespective of results being visible during the time of utterance. However, a considerable number of studies have found a correlation between *Aktionsart* and the acquisition of tense-aspectual markers in L2 as well. These correlations were furthermore found not only in non-guided L2 acquisition (Noyau & Vasseur, 1986; Dietrich, Klein & Noyau, 1995) but also in guided L2 acquisition (Bardovi-Harlig, 1992). The latter fact seems even more surprising, since learners in these situations usually learn complete verb paradigms with all possible tenses as a block! There is no input that might lead them to think that some inflections will only go with some verbs and not with others. It seems obvious, then, that the cognitive-developmental explanation cannot be the only one! Again, comparisons with target language speakers were rare and an equal distribution of inflections over predicate types was assumed. Bardovi-Harlig mentions a control group of target language speakers in her study, but discusses these data only in a footnote. Dietrich, Klein and Noyau discuss the source and target language systems in their book on temporality in second language acquisition, but only on a theoretical level. They do not have a control group of native speakers producing language in the same tasks as the learners.

Explanations other than the cognitive-developmental one are brought up in later L1 studies, as by Stephany (1981), who suggests that the language directed to the child is biased as to the use of verb morphology and *Aktionsart*. She claims that it is more likely for adults around children to comment on resulting states in the past tense and on ongoing states in the present, for example. Shirai (1991) claims the same for the input toward second language learners.

Andersen, in 1986, first introduced the notion of *distributional bias* to suggest a possible explanation for learner's use of verb morphology in L1 and L2. The notion was defined as follows:

Native speakers in normal interaction with other native speakers tend to use each verb morpheme with a specific class of verbs, also following the aspect hypothesis. When learners are then exposed to this language of native speakers, they initially interpret this skewed distribution as an absolute characteristic of the forms themselves.

For Andersen, it is not necessarily the case that the language directed towards learners has specific properties other than the regular target language. According to him, an overall bias exists in (all) target languages, and the learner is influenced by that overall bias (Andersen, 1993). As evidence for the distributional bias Andersen quotes Shirai (1991) who studied the language of three children learning English as well as the speech of the children's mother. The speech of the mother shows a considerable distributional bias in use of English verb inflections.

Neither Andersen's proposal, nor the data presented by Shirai, seem world shocking. It seems surprising, therefore, that so few studies have compared the child data with actual adult (target language) data in studies before 1986. It seems even more surprising that researchers have not started doing this after 1986. The present study sees this as a big lack, and will present data from adult native speakers, children learning their mother tongue and adult learners of a second language. This will allow for the control of the target aimed at by both child and adult learners, and will allow for explanations taking into account the cognitive-developmental stage of the learners, as well as the influence of source and target language distance, among other factors.

The data

The data consist of narratives elicited by means of two picture sequences, the HORSE story and the CAT story (see Appendix 1). Child subjects were asked to narrate these stories for a naive blindfolded interlocutor, who then would have to tell the story back to them. The use of a blindfolded interlocutor was meant to ensure the absence of mutual knowledge, thereby encouraging children to rely maximally on discourse. Adult native speakers and learners were asked to tell the story to a tape recorder for a naive listener who would get to hear the story without having access to the pictures. It was hoped that this would provide an understanding in the adult of the same absence of mutual knowledge. Half of the subjects began with the HORSE story, the other half with the CAT story. Subjects consisted of monolingual Chinese and German children at 4, 7, and 10 years, and a control group of 10 monolingual adults in both languages, and of Chinese learners of German (4 levels of proficiency, ten learners per group).

The proficiency level of the Chinese learners of German was established on the basis of an additional reading / narrating task consisting of an A4 size text for which all subjects had the same amount of reading time, after which they were asked to tell the story without being allowed to rely on the written text. These narrations were transcribed and handed to four native speakers and a teacher of German to score on various elements such as general understandability, grammatical competence, and lexicon. Further information about the subjects was obtained through a sociolinguistic questionnaire. To give an indication of the level of proficiency: the lowest proficiency group contains some speakers at the so-called 'non-finite-state' (cf. Perdue & Klein, 1997), the other speakers in this group have reached the 'basic variety'.

Results

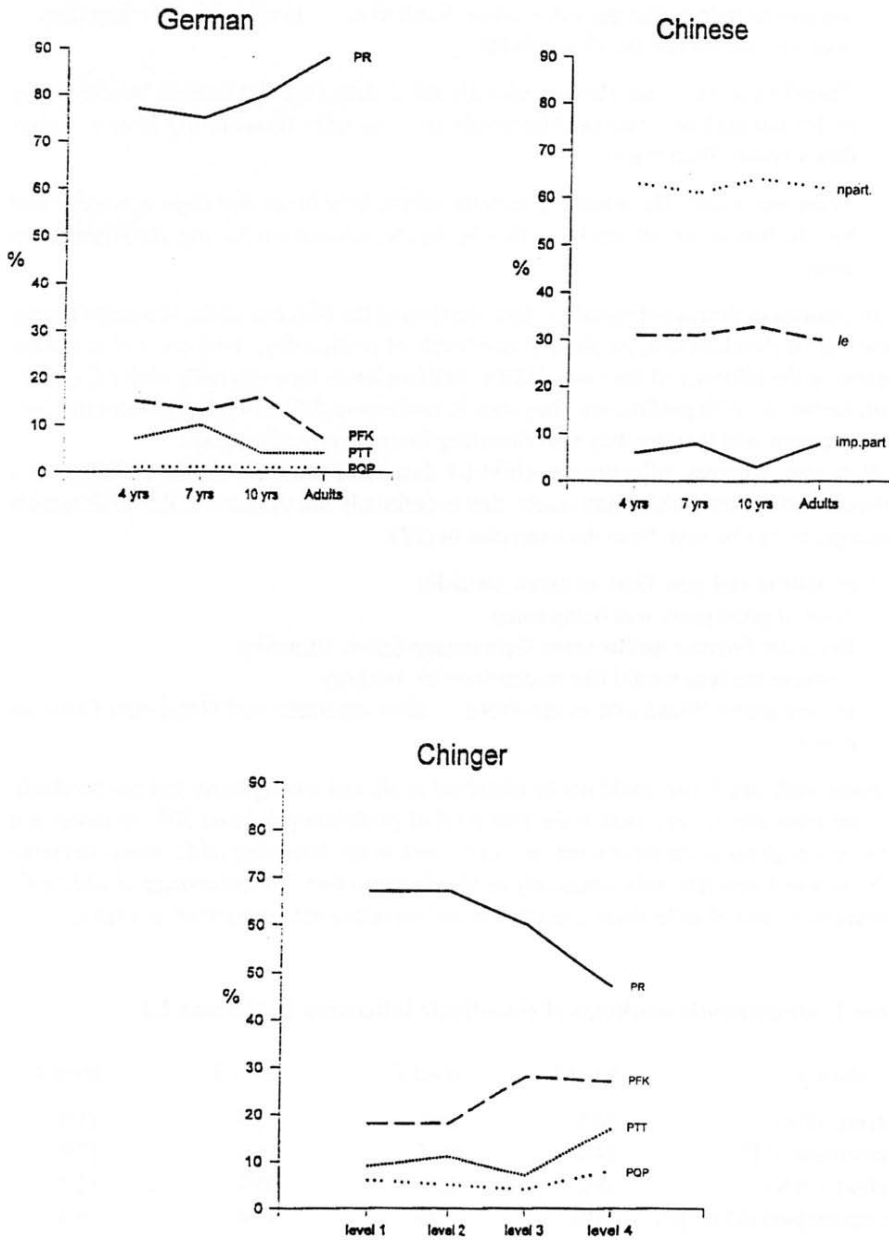
Overall uses of inflections in narratives

A first analysis makes an inventory of inflections used overall in the HORSE and CAT stories (L1 results are taken from Hickmann & Roland, 1992; Hendriks et al. 1998). As can be seen in Figure 1, German native adults use almost exclusively *Präsens* when telling a story (up to 90%). Children follow this pattern closely with between 75 and 80% of *Präsens* forms from 4 years onward (cf. example (10) for a typical German story). A slight tendency to use more different forms by the younger children can be noticed, but this tendency is not significant.

- (10) Ja, da *ist* ein Vogel mit drei Kücken. (+) Eh – der Vogel *fliegt* weg, weil er für die Kücken Futter holen *will* (+). Da *steht* eine Katze, die *will* hier die Kücken fressen. Sie klet – die klet – die Ka – die Katze *klettert* dann am Baum hier hinauf. (+) Da *kommt* ein Hund. Und der Hund *will* nicht, daß die Katze die Kücken *frisßt*. Da *kommt* der Vogel zurück. Da *beißt* der Hund der Katze in den Schwanz und *zieht* sie runter. Da *kommt* wieder der Vogel wieder mit eim Wurm und der – Hund *jagt* die Katze davon (10-year-old).

Chinese native adults most frequently produce utterances without any aspectual particle (nonparticle or *npart.* in Figure 1) when constructing a story. Up to 65% of the utterances are of this type, as can be seen in example (11) for a typical Chinese story (predicates without a particle are presented in italics). Children, again, follow this tendency closely. When particles are used, it is most frequently the perfective particle *le* (30%) and very

Figure 1: Uses of inflections and particles in narratives



infrequently the imperfective particles *zhe* and *ne*. The Chinese data show even less proof of development than the German data.

- (11) *You yi-zhi ... huangshulang. Ta xiang tou chi ... xiao niao. Keshi ne you yi-ge huanggou ba tade weiba gei yao – yaole. Ranhou ne ... ta ne ta jiu xian teng diao ... diao-xia-lai. Jiu pao3le. (7-year-old)*

There be one-CL ... cat. He want secretly eat ... little bird. But NE there be one-CL dog BA his tail GEI bite – bite LE. Afterwards NE ... he NE he then hurting jump ... jump-down-come. Then run LE.

There was a cat⁴. He wanted to secretly eat the little birds. But there was a dog that bit – bit him in the tail. And then he – he then he came down hurting. And then he ran away.

In contrast to the monolingual L1 data, the data of the Chinese adults learning German show a clear development. At the first two levels of proficiency, speakers tend to use the *Präsens* in the majority of the cases (68%). At these levels they resemble native Germans most. However, with proficiency, they start to learn more different inflections of the German language, and thereby they start diverting from the target language.

Note that, whereas inflections in child L1 data can almost always be classified as a particular inflection without any doubt, this is definitely not the case in the adult learner language, as can be seen from the examples in (12):

- (12) Es **würde** viel gute Gras zu essen. (**wurde**)
 A lot of good grass was being eaten.
 Denn der Frösche **müßte** seine Geburtstage feiern. (**möchte**)
 Because the frog would like to celebrate his birthday
 In eine große Wiese gibt es ein Pferd ... ehm **spazieren** und Grass ehm Grass **zu essen**.

Some verb-like forms could not be classified at all, and among those that can be classified, the error rate is very high at the first level of proficiency (around 30% or more) and stays very high up to the third level, as can be seen in the following table. Errors decrease with *Präsens* forms (the most frequently used inflection) first. The percentage of children's idiosyncratic uses of inflections is negligible and therefore not represented in a table.

Table 1: idiosyncratic markings of classifiable inflections in German L2

Proficiency:	level 1	level 2	level 3	level 4
Präsens (PR)	30%	25%	12%	11%
Präteritum (PTT)	24%	36%	35%	17%
Perfekt (PFK)	38%	43%	36%	12%
Plusquamperfekt (PQP)	33%	7%	33%	4%

⁴ As said, Chinese does not express tense systematically. We randomly chose the past tense for the translation of this and all following Chinese examples.

Testing the distributional bias of inflections / particles

In order to check if *Aktionsart* has an influence on the inflections/particles used by native speaker adults, children, and possibly also second language learners, the next analysis looked at the interaction between these two factors. In order to do so, predicates were split up into bounded and unbounded ones. As can be seen from Figure 2, German adults used the *Präsens* abundantly with bounded (Fig. 2a) and unbounded (Fig. 2b) predicates (in up to 89% of the cases). Other inflections are used only marginally as we saw already in the overall picture. Note that a difference can be found in the distribution of *Präteritum* and *Perfekt* forms with bounded vs. unbounded predicates. The use of *Perfekt* tends to be higher overall with bounded predicates, whereas the use of *Präteritum* is higher with unbounded predicates. No clear development is going on over age in as far as the uses of inflections with unbounded predicates are concerned. With bounded predicates the picture is somewhat different in that, especially in the child data, the *Perfekt* is used in about 20% of the cases (Hickmann & Roland, 1992; Hendriks et al. 1998). In sum, we can say that the use of inflections in German is not particularly strongly biased towards a correlation with *Aktionsart*.

In contrast, the Chinese data are very clearly influenced by *Aktionsart*. With unbounded predicates, Chinese hardly ever use an aspectual particle. Particles, when used with this type of predicate, mainly consist of *zhe* and *ne*. The particle *le* is used in less than 10% of the cases over all ages. When the predicate is bounded, imperfective particles are no longer a possible choice! *Le* is used almost as frequently as the units without particle (around 50%) at all ages (Hendriks et al. 1998). Apart from a very slight change in the distribution of particles with the unbounded predicates at 10 years, development in Chinese across ages is non-existent.

As in Chinese, in the L2 data we do find a considerable influence of predicate type / *Aktionsart* on the use of the various inflections. Thus, with unbounded predicates, Chinese learners of German at all levels use *Präsens* in most cases (80% at first three levels), and thereby reflect the input of the target language. Where bounded predicates are concerned, only speakers at the first two levels of proficiency resemble German native speakers, and already less clearly than with the unbounded predicates (60% *Präsens* vs. almost 90% in German L1).

The overall lack of development found in the L1 data is in sharp contrast with the L2 data. Results here show considerable influence of level of proficiency on inflections used. Looking at the use of inflections with bounded predicates, we can see that at the last level of proficiency Chinese learners suddenly completely diverge from the target language, in that they start using the *Präteritum* in 25% of the cases. With bounded predicates, the developmental trend is recognizable from the second level of proficiency onward. Whereas at the first two levels, Chinese speakers seem to tune into the target language, at the third level *Perfekt* has become the main inflection in combination with bounded predicates, and at the 4th level the use of *Präsens* has decreased to 23% vs. 48% of *Perfekt* forms.

In the case that we had only looked at the very early stages of the acquisition of German by Chinese adults, we might have concluded that they tune into the target language system without trouble. However, with growing proficiency (and probably growing aptitude to use different inflections in the target language), instead of getting closer to the target, they diverge more and more, especially insofar as the function of the inflections is concerned. It is, as such, not very surprising that the differences only occur later in the development, since we might assume that learners of German at the first level of profi-

Fig. 2a. Uses of inflections and particles in the narratives in combination with bounded predicates

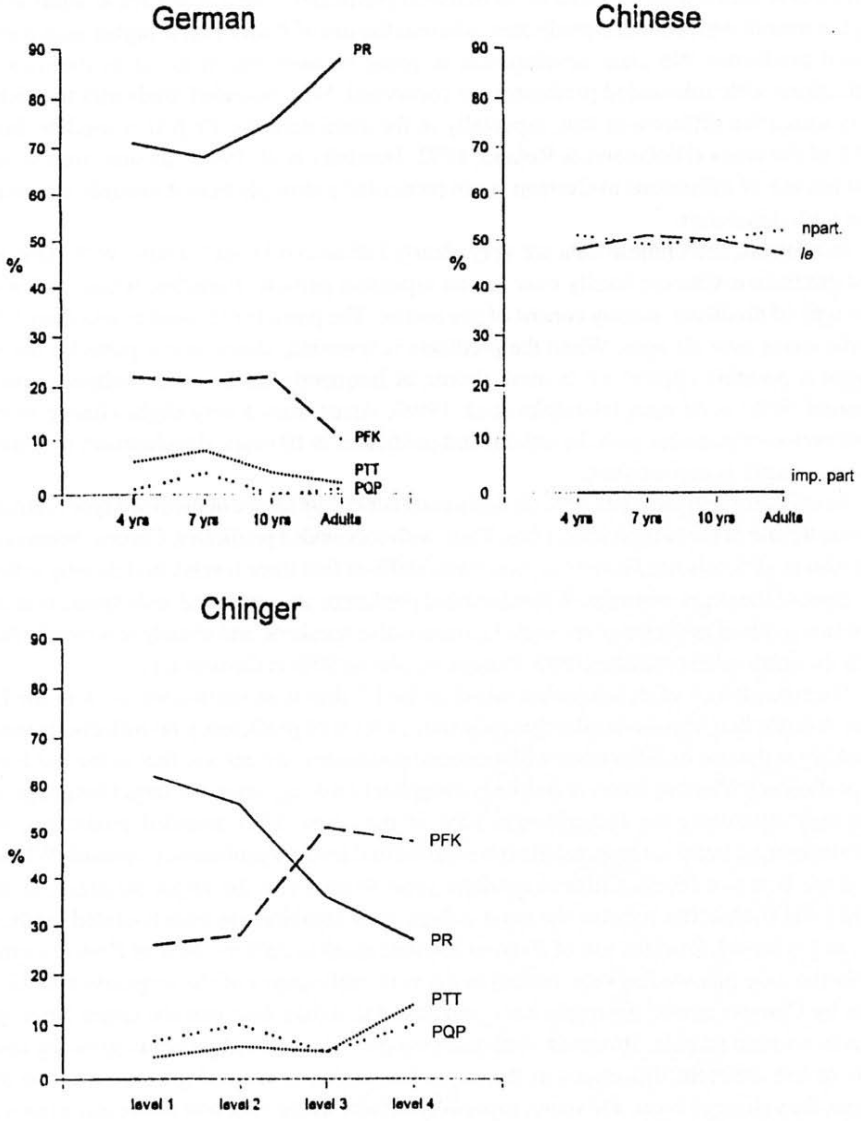
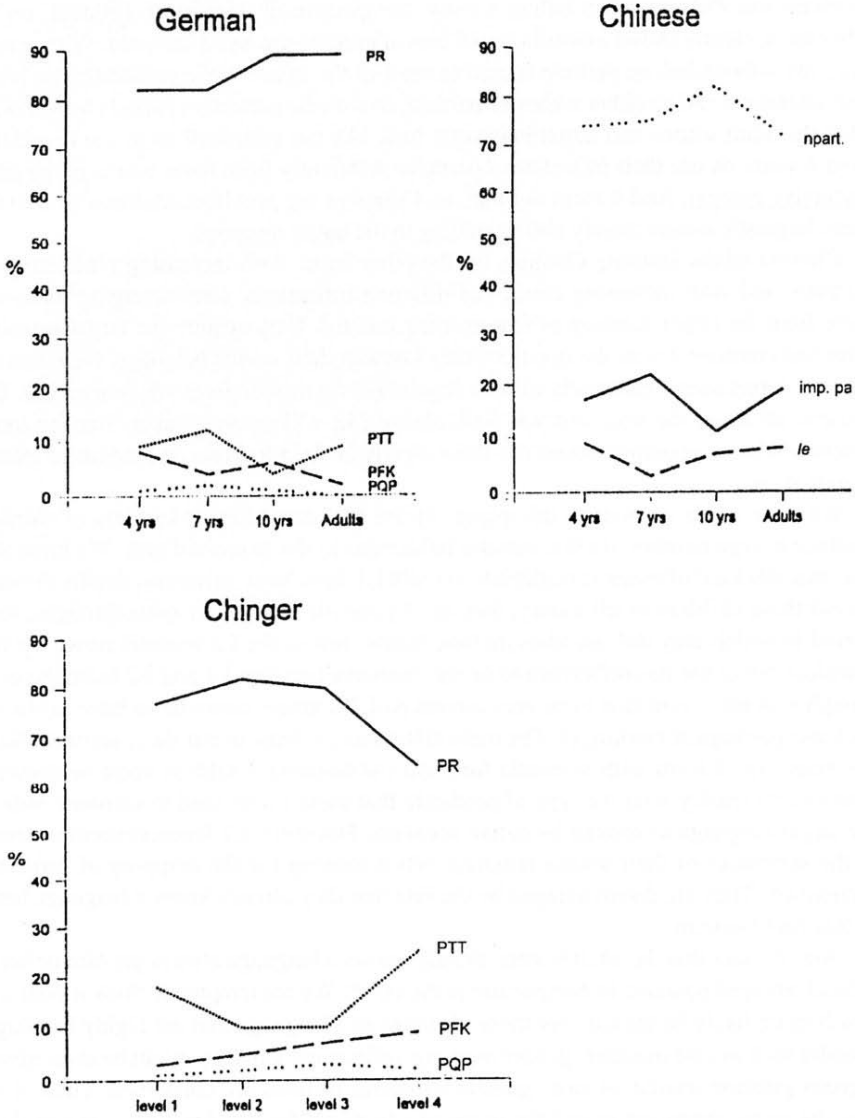


Fig. 2b. Uses of inflections and particles in the narratives in combination with unbounded predicates



ciency simply do not yet have any other forms available, and therefore perform like the native speakers. One fact going against this theory is that all these learners have, at some point in time, had specific training in German. It should thus be assumed that they have encountered all of these forms before telling the HORSE and CAT story to us.

In sum, several results have come out of these first two analyses. First of all, it has turned out very useful to look at the adult native speaker data. This has permitted us to show that German, in this narrative task, does not seem to show any distributional bias of inflections with *Aktionsart*. The only overwhelming distributional bias we found is that Germans use *Präsens* when telling a story, irrespective of *Aktionsart*. Chinese, on the other hand, clearly shows a distributional bias of particle use and *Aktionsart*. When predicates are unbounded, no particle is used in most of the cases. When predicates are bounded, utterances end up either without a particle, or with the perfective particle *le*. Knowing what the adult source and target languages look like has permitted us to see if children from 4 years on use their inflections / particles differently from those adults in the same discursive context. And it turns out that, at 4 years of age and later, children tend to use these linguistic means largely corresponding to the target language.

Chinese adults learning German, on the other hand, with increasing proficiency of German, and with increasing control of different inflections, start diverging more and more from the target, because of that growing control. They acquire the target language form and combine it with the functions they know in their source language. Note that the German target seems extremely easy to acquire (as far as narratives are concerned). Use *Präsens* all along the text, and you look almost like a German speaker. But the form-function relation apparently does not show clearly enough for a second language learner to pick it up.

We have made a point, in this paper, of the fact that Chinese learners of German produce a large number of idiosyncratic inflections in the described task. We have also said that this kind of usage is negligible in child L1 data. Note, however, that by the time we ask these children to tell a story, they are 4 years old. They have gone through a long period in which they did use idiosyncratic forms, just as the L2 learners now. We can therefore not claim this difference to be the main one between L1 and L2 learners (even though it is often said that even very advanced L2 learners continue to have problems with morphological markings). The main difference, at least in our data, seems to lie in the mapping of form with semantic function (*Aktionsart*). Children seem to combine forms more readily with the type of predicate that these forms tend to combine with in the target language as spoken by native speakers. However, L2 learners seem to return to the semantics of their source language when looking for the mapping of form and *Aktionsart*. They are disadvantaged by the fact that they already know a language before learning German.

Does the fact that the adult learner already knows a language always put him or her in a disadvantaged position, in comparison to the child? We are tempted to think it does not. It will more likely be the case for those elements in a language that are highly language-specific such as case marking, gender marking, inflections. But they might be in an advantageous position insofar as more general structural features are concerned. Thus, if we take discourse organization and the usage of adverbials for this function, we can show how the adult's knowledge of the function of the principle of natural order and adverbs across languages helps them to construct discourse.

Overall uses of adverbs / connectives in narratives

Adult discourse, in general (universally) follows the principle of natural order, that is,

Unless otherwise specified, order of mention corresponds to order of events (Dietrich, Klein & Noyau, 1995, pp. 26–27).

As we saw in section 2, temporal adverbials / connectives are used in language to mark either sequentiality of events (example 8), simultaneity of events (9), or to mark the reverse mention of events (8), among others. When one constructs discourse according to the default order, that is, knowing the principle of natural order, events are thus lined up one after the other according to the natural order without the speaker having to mark this explicitly. The only times the speaker would have to use temporal adverbs or connectives would be in cases of deviation from the default, i.e., when two events occur simultaneously, or when events are represented in discourse in reverse order.

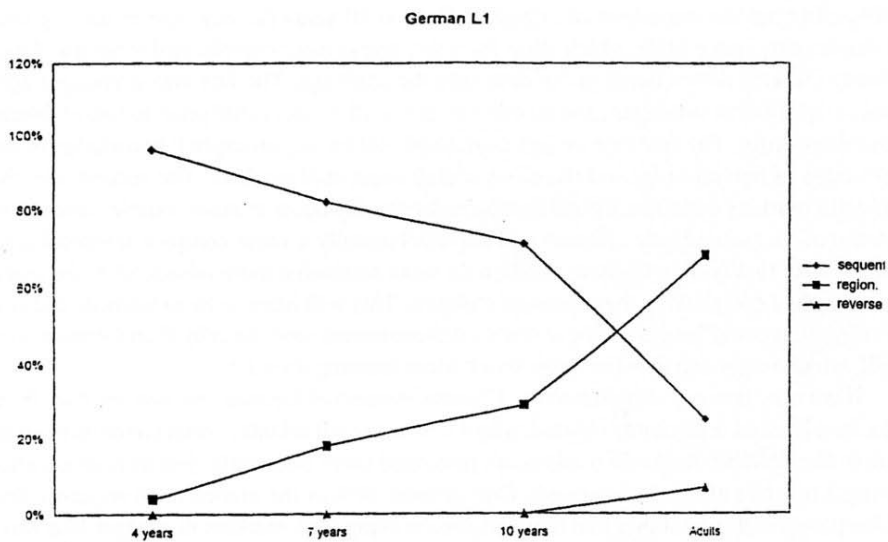
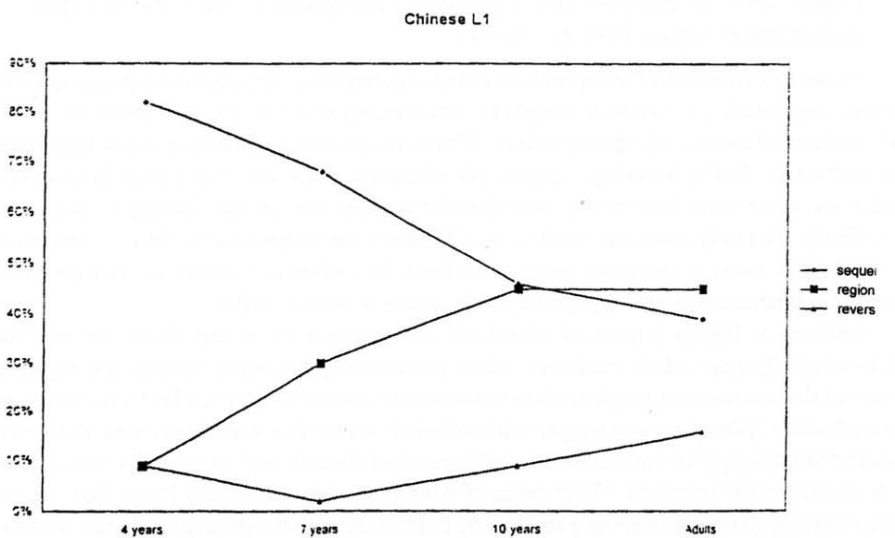
Looking at Figure 3 (uses of adverbials and connectives in narratives) we note the following: German adults (natives), when constructing discourse, mainly use regional adverbials / connectives (region) when constructing discourse, that is, adverbials that mark simultaneity. Thus, they use temporal adverbials / connectives mainly in cases of a violation of the principle of natural order, that is, for simultaneity and, to a much lesser extent, for reverse order (reverse). Their usage of adverbials shows that they know that regular sequentiality of events is already marked by default through the principle of natural order. Chinese adults seem to show the same pattern.

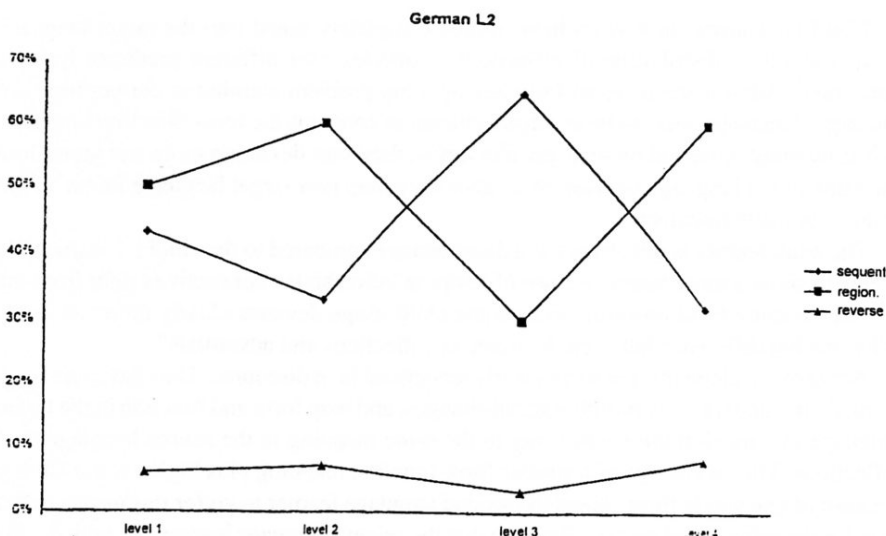
German and Chinese children, however, until 10 years of age use mainly sequential adverbials such as *und dann* (and then) in German and *jiù* 'then' in Chinese. These uses serve little in the organization of discourse, since the principle of natural order already suffices to mark sequentiality. Marking sequentiality by means of a temporal adverbial seems almost redundant. The reason that children do mark these situations explicitly might imply that they have not yet acquired the principle of natural order, and therefore feel obliged to put the sequential adverbial in. Only at 10 years do they start to use regional (simultaneity) adverbials, which allow them to express more complicated relations. Anteriority markers do not occur in our data until the adult age. The fact that at younger ages only sequential means occur, and no other means at all, in fact could point to two problems simultaneously. The first one we just mentioned: not having an explicit knowledge of the principle of natural order and therefore adding sequential markers. The second one: the adverbs marking simultaneity and reverse order usually occur in more complex utterances in discourse (subordinate clauses) and express basically a more complex temporal concept. Note, finally, that Chinese children do seem somewhat more advanced in the usage of adverbs / connectives than German children. This will have to be explained, and one explanation could be that Chinese relies on these means more heavily than German overall, which might enhance the usage by children learning their L1.

If we now turn our attention to the Chinese learners of German, we can see that, from the first level of proficiency onward, they seem to use adverbials / connectives more in an adult-like fashion. Regional markers are presented more frequently, just as markers allowing a reversal of the natural order. Only around 40% of the markers add sequentiality. This pattern clearly shows that these adults are using such markers in a target-like way.

In the usage of adverbs / connectives for the organization of discourse adult second language learners thus seem in an advantageous position, compared to the L1 learner.

Figure 3: Uses of temporal adverbs and connectives





Discussion

In the introduction of this paper we have suggested that two kinds of capacities are required in order to tell a narrative: organizing discourse according to (universal) pragmatic principles, and acquiring linguistic means. We furthermore hypothesized that adult L2 learners may already have acquired the first capacity, whereas children have to acquire both simultaneously. Finally, we proposed to carefully compare the acquisitional path of L1 and L2 learners when constructing discourse, and to focus on reference to time.

Studying the acquisition of time reference is particularly interesting knowing that major discussions have been going on about the cognitive luggage speakers need before they can start using temporal markers in an adult way. Thus, we have reported studies that seem to show that children do not use inflections in a target-like way. The reason for this phenomenon, as claimed, is that they cannot yet conceptualize time. We have also shown some studies that find the same problems of inflection usage by adults, which would mean that other reasons for the so-called defective tense phenomenon have to exist in language. Finally, we have shown that very few studies have actually compared the learner results with comparable native speaker data (in L2 nor in L1). We therefore proposed a three-way comparison: native adult speakers – child L1 learners and adult L2 learners.

We have analyzed how native speakers organize discourse temporally using inflections / particles and other markers, if and how the two languages differed, and if these differences resulted in a difference of the acquisition path of L1 and L2 learners. Finally, we have analyzed the specific differences in the acquisition path between L1 and L2 learners. We will try to explain the results here.

Concerning the use of inflections and particles, it was shown that no clear distributional bias related to *Aktionsart* exists in German, whereas it is very clearly present in Chinese. This is not surprising, if we keep in mind that Chinese particles mark aspect rather than tense, and that aspect marking stands in closer relation to *Aktionsart* than tense marking.

Child L1 learners at 4 years have almost completely tuned into the target language system as far as distribution of inflections / particles over different predicate types is concerned. Adult learners, apart from having a big problem learning to correct forms of the target language, seem to be at a disadvantage as concerns the form–function mapping. While learning more and more target-like forms, they start deviating more and more from the same target language because of it, since they map new target language forms on old source language functions.

The adult learner is not always at a disadvantage compared to the child L1 learner. He seems to show a more target-like use of temporal adverbials / connectives right from the first proficiency level onward, whereas the child usage deviates clearly up to 10 years. Why this big difference between the usage of inflections and adverbials?

Adverbs are elements that seem clearly recognizable in discourse. They have one fixed form, do not undergo any morphological changes, and map form and function in the target language in a much more similar way to the same mapping in the source language than inflections. This advantage of a similar form-function mapping plus higher retrievability because of one single form causes the second language learner to go for this means rather than for the inflectional system. But note that the second language learner can only do this because of the knowledge he has brought with him from his first (source) language. It is his knowledge of what an adverb might possibly look like, where it might occur in an utterance, and his knowledge of discourse construction and the role of adverbs in that construction that allow him to choose the easier adverb option instead of the harder inflection option. Entering this particular learning phase the child has hardly any adverbs at his disposal, and still has to learn, first, how discourse is constructed in general, and, second, what role adverbs can play in that construction. The child therefore does not have the option that the adult has of choosing the easiest forms to express certain information in discourse. The child does not know what form-function combinations exist, and is forced to learn all possible forms, until he or she finally finds out the exact functions going with it. And once the child knows the form-function relations, it might well be too late to choose one or the other form, since form does sometimes come before function (in child language), and forms may therefore already be mastered at that point in development.

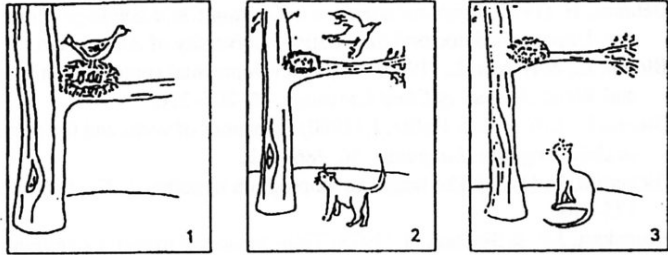
In sum, using these particular data, we feel we have been able to show how far knowledge available to adult and child learners of a language may lead them up a certain acquisitional path, and in how far certain capacities, or their lack, may enhance or hinder language acquisition in general.

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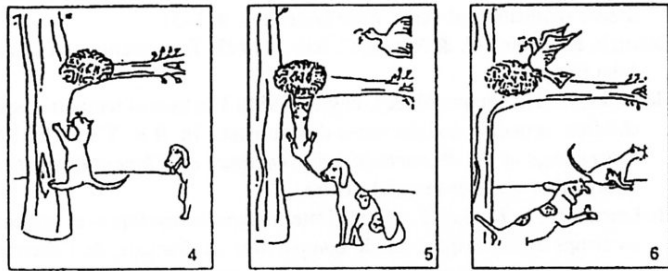
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Appendix



The Cat Story



The Horse Story

