

# ACQUISITION OF FORM-FUNCTION MAPPINGS IN THE WARLPIRI TENSE-ASPECT SYSTEM

Edith L. Bavin

## 1. Introduction

The acquisition of the forms available in the language for marking tense and aspect and other temporal concepts is a gradual process. Even though the child may use a form from the adult system, it does not necessarily have the same function or range of functions as for the adult. For example, as will be discussed below, past forms of verbs are first used by young children to focus on a change of state or location or completion of an activity in the immediate environment rather than to place events on a time continuum, while nonpast forms are used to indicate on going activity. That is, young children focus on different perspectives of the temporal contour of a situation, not on the time frame. The paper summarizes the gradual acquisition of form-function mappings in the tense/aspect system by children acquiring Warlpiri as a first language. Before presenting the data, I will comment on some of the findings from other languages, and then discuss the Warlpiri adult system.

## 2. Tense and aspect

### 2.1 Introduction

Although tense and aspect are often interconnected morphologically, they can be distinguished (e.g. Comrie 1976). Tense is the grammatical category which indicates the temporal location of an event with respect to a reference time, the moment of speaking or some other time that is established. Aspect gives information about the internal temporal constituency of the situation expressed by the verb.

The range of functions for tense and aspect morphology depends on the distinctions made in the language, and it is only in discourse contexts that the full range can be determined. Hopper (1979), for example, discusses the connection between the perfective-imperfective aspectual distinctions in the organization of narrative. Perfective is generally used for foregrounded events and the imperfective for background information (i.e. information about the temporal or spatial context). Background clauses are more likely to contain stative or durative verbs, while foreground clauses define the main events of the narrative, events which are sequenced and contingent upon each other. The foreground clauses are most likely to contain punctual verbs, those which have an intrinsic or imposed end point.

### 2.2 Early functions of tense forms

There are similarities in the acquisition of tense/aspect morphology cross-linguistically. A frequent finding reported in the literature is that the child first uses tense morphology to indicate aspect (e.g. Antinucci & Miller 1979; Bloom, Lifter & Hafitz 1980; Aksu-Koç 1986 & 1988). When children first uses inflected verb forms, they take different perspectives on a situation, focusing either on its completion or its on-going properties. These are viewpoint aspect distinctions. Slobin (1985b:1183) argues that the young child orients to two temporal perspectives: result (punctual, complete) and process. There is also evidence in the acquisition literature that the lexical semantics of the verbs (Aktionsart) correlates with the tense-aspect morphology used. Telic verbs are more frequently marked with past inflection than are stative and activity verbs in the child data reported.

Aksu-Koç (1986:253) reports that the major characteristic of the first stage of development in Turkish is the reference to the immediate present. The situational context provides the

background for the utterance. Inflections are used aspectually, to mark punctual events which usually result in an end state, or to mark dynamic events with duration. Thus the tense/aspect system in Turkish evolves from an initial distinction between the immediately completed change of state and durative events to the use of the past-tense morpheme for past tense, and other developments (Aksu-Koc & Slobin 1985:846). At about the age of 2;5-2;6, the Turkish child starts to make reference to the remote past and future (Aksu-Koc 1986:225). By the age of 3, the child's ability to recount past events that are not known to the conversational partner gets progressively better (p.257). By 4;6-5 the tense-aspect mood inflections are mastered and can be used for imposing different perspectives on events (p.258).

Clancy's (1985) and Cziko & Koda's (1987) discussion of Japanese data, Berman's (1985) discussion of Hebrew data, and Clark's (1985) discussion of French data also indicate that children first use the past forms of verbs aspectually, to mark results or the outcome of actions. Past verb forms are used to comment on completed events in the immediate context, while non-past verbs are used to comment on an on-going activity in the immediate context.

Although Weist, Wysocka, Witkowska-Stadnik, Buczowska & Konieczna (1984) argue that Polish children acquire tense along with aspect, statistical analysis of their data by Bloom and Harner (1989) suggests that the children are primarily influenced by the verb semantics. Another study which focuses on the early relationship between Aktionsart and aspect is Ping (1989) on Mandarin, while Rispoli (1987) argues that Japanese children are attuned to verb semantics from an early age.

### **2.3 Developmental patterns**

The adult-like flexibility in using morphemes for tense and aspect functions develops gradually. The development is related to the separation of event time from speech time and reference time, and thus is connected with the child's ability to decentre, and to establish an orientation with respect to the event. McShane, Whittaker & Dockrell (1986:280) argue that the location of situations in time requires a number of conceptual and linguistic skills. The conceptual skills involve the construction of the various relations of sequence between situations, and the communicative skills lie in the selection of an appropriate reference point to meet the needs of the audience as well as an appropriate method of linguistic encoding. While young children generally focus on the here and now and early mention of past events is tied to the non-linguistic context, as in answering a mother's question, there is an increase in talk about the past and future between the ages of 2 and 5 (Bloom, Rocissano & Hood 1976; Moerk 1975). As Sachs (1984) points out, reference to events out of the immediate context requires temporal displacement, and this involves cognitive development.

Events can be located on the time continuum, but they can also be located in relation to each other. Reichenbach (1947) made use of three temporal points in discussing tense: speech point, event point and reference point. Weist (1986), adopting the terminology, argues that when a child first uses tensed verbs, event time and reference time are frozen at speech time. At a later stage of development, the child is able to distinguish event and speech time; this assumes that the child has conceptualized events as happening prior to (past), simultaneous with (present) or subsequent to speech time (future). As well as tense distinctions, event time may be marked with temporal words; that is the event may be located relative to some specified time, not necessarily speech time. Weist & Buczowski. (1987) found that Polish children first used adverbs for 'already', 'now' and 'soon'. The forms for 'yesterday', 'today' and 'tomorrow' appeared later, followed by forms which encode more remote time reference. Sachs (1984) reports 'again', 'soon', 'later' occurred in the 29-30 month period in English speaking children. These indicate that the 'immediate' is more salient for the child than the 'remote'.

When reference time emerges as a separate concept, the child will be able to relate two events, one establishing the reference time for the other. However, when children first link two events they do not perceive one of the events as providing a reference time for another (Ferreiro & Sinclair 1971). The children first juxtapose the events and add co-ordination links ('and', 'then'). Events are mentioned in order of occurrence (e.g. E. Clark 1970). Later, causal and sequential links appear, and these appear before markers of simultaneity, indicating the complexity of the concept (e.g. Clancy, Jacobsen & Silva 1976).

A number of studies report how children sequence events at different age levels and their use of temporal connectors ; for example, Bamberg (1987), Berman & Slobin (1988), Berman (1988), Renner (1988) and Slobin & Bocaz (1989). Berman (1988) reports that by 3 years-of-age, Hebrew children use appropriate markers for present, past and future tense, but there is a lack of thematic organization until several years later. While preschool children use simple clauses with occasional coordination, children from the age of 4 use complement clauses, and school-age children use adverbial subordination to package events, as well as a large number of complement clauses (p.485). The use of sequential markers increases between the ages of 4 and 7 but then drops, reflecting the fact that children have mastered the means to integrate information. Other studies of children's developmental patterns in joining events report similar trends (e.g. Slobin 1989).

Berman (1988) argues that productions at first are largely item based and pregrammatical; subsequently, acquisition is structure dependent and knowledge becomes grammaticized. Finally, the children are able to integrate knowledge of both grammatical structure and lexical convention within the discourse context.

### 3. The Warlpiri tense-aspect system<sup>1</sup>

Verbs in Warlpiri are inflected for past, non-past, imperative, infinitive and irrealis. Five verb classes are determined on the basis of the set of suffixes used. The verb form and an auxiliary cluster, which generally appears in second position in the clause, together give information about tense and aspect. One of the aspect morphemes which appears as part of the auxiliary cluster is *ka*. This is used together with the non-past form of the verb and indicates imperfective aspect with present time reference. The auxiliary *lpa* is used with the past form of the verb to indicate imperfective aspect. The perfective is unmarked; it is synonymous with the past tense form of the verb. An auxiliary element, *kapi* (*kapu*), is used to indicate future time reference and is used with the non-past verb form. Without *ka* or *kapi/kapu*, the non-past verb form indicates immediate future. Tense and aspect are not marked in nominal clauses.

Note example (1) from a Warlpiri account of a historic event. The past form of the verb + *lpa* indicate imperfective aspect but the inference here is that Napangardi used to work at the house, the time frame having been set earlier in the narrative as prior to speech time. The sentences given serves as background information for the main sequence of events.

- (1) *Napangardi-lpa warrki-jarri-ja yuwarli-rla walypali- kirlangu-rla*  
 Napangardi-IPFV work-INTRANS-PAST house-LOC white man- POSS-LOC  
 Harry Henty-kirlangu-rla Jampijimpa-lpa warrki-jarri-ja puluku-wana  
 Harry Henty-POSS-LOC Jampijimpa-IPVF work-INTRANS-PAST cow-along  
 'Napangardi was working at Henry Henty's house. Jampijimpa was working as a stockman.'

<sup>1</sup> Warlpiri is a Pama-Nyungan language of central Australia. The research has been funded by the Australian Research Council, the Institute of Aboriginal and Torres Strait Islander Studies, and La Trobe University School of Humanities.

Other morphemes can be used to establish the temporal reference for an event or state, and to establish the temporal relation between events.<sup>2</sup> These include *wiyi* ‘first, before’ and *lku* ‘as of now/then’. Both can be suffixed to nouns and verbs. There are other temporal words and affixes such as those in (2) may be used to establish temporal relations between events and speech time. The verb suffix *rla*, a sequential complementizer which is used on infinitive verbs, carries the meaning that the event is carried out prior to the main event.

(2) nyurru	‘already, finished, complete’
jalangu	‘now’
kamparru	‘before, first, previously’
ngaka	‘later’
ngulajangka	‘after that’

Other complementizers used on infinitive verbs conflate information about time reference and the subject of the infinite verb; these are given in (3). They imply simultaneity between the two events, and so the non-finite clause fills the same function as ‘while’ clauses in English and some ‘when’ clauses (Hale 1982). They could also be translated with relative clauses.

(3) Infinitive complementizers	
karra-	subject of infinitive = subject of main verb
kurra-	subject of infinitive = object of main verb
rla/ngka+jinta-	subject of infinitive = subject/object (reflexive) of main verb
rla/ngka+rni-	subject of infinitive = some other argument

Thus, in acquiring the forms necessary to locate events, the Warlpiri child has to learn the appropriate verb suffixes for the 5 verb classes, plus the future marker and the aspectual markers and the positions these take in the clause. In addition, there are temporal words to be acquired, and the morphology used on the infinitive verbs in subordinate clauses to mark the temporal relations between events.

## 4.0 The data

### 4.1 Early forms

Tense forms on verbs are detectable in the data from children of 2 years and over. Before that age, there is too much phonetic distortion to recognize the forms. Like children acquiring other languages, Warlpiri children first use past tense to mark a recently completed event.<sup>3</sup>

<sup>2</sup> There are other forms such as the aspect marker *kala* ‘usitative’. It is used with past verb forms as illustrated below (from: Nelson, Ross & Oldfield, Nyurruwiyi kuja kalalu-jana mardarnu pirtirrkka ‘Childbirth in the old days’)

*Kala karnta yilya-ja wati-ngki-ji ngati-nyanu-kurra*  
 USIJT woman send-PAST man-ERG-FOC mother-POSS-ALLAT  
 ‘The man would send the woman to her mother.’

<sup>3</sup> The data reported are from a number of sources. Naturalistic data has been collected from 20 children aged from 2-4:11. The children were taped and observations about the context noted. Two types of elicitation were used: children from 8-14 years were asked to tell one or two stories to a friend, or to tell about weekend activities; and children from 4-12 years were asked to tell narratives using as prompts series of pictures bound into book form with no text. Altogether 4 prompt books have been used. Some children also made up their own stories.

The verbs used in the data from the young children show a correlation between the semantics of the verbs and the tense form used; verbs with end points are marked with the past. Since the children are talking about recently completed events in the immediate environment, the data support the claims that past tense forms at first have the function of marking aspect. Table 1 summarizes the data from a taping session from 2 two-year-olds. One child produced 42 utterances, and 10 of these contained verbs. That is, about 20% of the utterances were verbal. Both the past and non-past of the activity verb *parnkami* 'run' were used, indicating some productivity for inflections. One form was used to comment on an animal running and the other to indicate a recently terminated action. There is no past for the verb *yani* 'go', and no nonpast for the verbs *wantimi* 'fall' and *palimi* 'die'. Verbs for 'fall' and 'die' are frequent in the early production data as will be seen in some of the following tables. They always appear in the past form from the youngest children. These verbs encode a clear change of state. Note that the child in using 'die' in these play situations is actually talking about an animal falling down, pretending it is dead. The child is marking viewpoint aspect with the verb forms used.

TABLE 1: **Verb forms from 2 two-year-olds**

NON-PAST		PAST	
parnka	'run'	parnkaja	'ran'
yani:	'go, come'	palija	'died'
		wantija	'fell'
IMPERATIVE			
nyangka	'look'		
yampiya	'leave it'		
yirraka	'put it'		
yanta-mi	'come here'		
ma	'take it'		

Slobin (1985a) argues that focus on result precludes a focus on agency and in Warlpiri this is clear in that agent nominals are not overt in the early utterances. The agent needs to be inferred from the context linguistic or non-linguistic. If introduced into the utterance, a participant is introduced as an absolutive. The first utterances with an agent noun appear in data from a 3 year- old, but agents are not frequent until some months later.

The data in tables 2 and 3 from two children aged 2;8, represent the verb forms used in two half hour tapes. For one child, 18 utterances were produced, 6 with verbs. For the other child, 56 utterances produced contained 13 verbs. These samples indicate some connection between the semantic properties of the verb and the verb form used. Verbs with clear end points (such as 'fall') are in the past form. Non-past is used for activities with some duration. So the verbs for 'die', 'find', 'drop', and 'break' are in the past, while activities or on-going processes such as 'running', 'standing', 'ingesting', and 'kissing' are in the non-past. However, the child has the choice of focusing on the end point of the action in the immediate context. For some verbs, there is the possibility of focusing on the activity itself the end point as with the verb for transport, *kanyi*. But when the child focuses on the end-point of the action, reporting that it is just completed, the past form is used. It is clear from direct observation that these utterances are related to the immediate context.

TABLE 2: **Verb forms from child at 2;8**

NON-PAST		PAST	
parnkami	'run'	palija	'died'
		payinti-manu	'found'
		pakamu	'hit'
IMPERATIVE COMPOUND			
nyangka	'look'	ngaminjini	'go and eat'
yampiya	'leave it'		
payinti-manda	'find it'		
ma	'take it'		

TABLE 3: **Verb forms from another child of 2;8**

NON-PAST		PAST	
mani ka	'get, take'	kujumu	'threw'
kanyi	'transport'	kangu	'transported'
ngami ka	'ingest'	luwarnu	'shot'
karrimi ka	'stand'	wangkaja	'spoke'
nyunjirni	'kiss'	rdilyki-pungu	'broke'
IMPERATIVE		COMPOUND	
nyangka	'look'	maninjini	'going and getting it'
nganja	'eat'		
yanta	'go'		
yungka	'give it'		
wangkaya	'talk'		
nyinaya	'sit'		

At the age of 2;8, a few instances of *lku* 'now/then' are used, but these relate an event to the speech time rather than relating it to some previous event. The use of *lku* represents a new state or activity rather than establishing some relationship between two events. It is only in elicited data from the 4-5 year-olds that *lku* shows up as a linking morpheme, linking events in discourse.

By the age of 3, the number of different verbs used is greater than at 2;8, but as indicated in table (4), the correlation between tense form and verb semantics is still high: activity verbs are more likely to be in the non-past than past. This reflects the fact that children of this age and up to 3;5 talk about the immediate context than events in the past or future.

TABLE 4: **Verb forms at 3;0**

NON-PAST		PAST	
nyanyi	'see'	wantija	'fell'
yani	'go'	pakamu	'hit'
ngarni	'ingest'	karnu	'pressed down'
yukami	'enter'	yamkaja	'started on journey'
luwami	'shoot'		
yalkirni	'bite'		

IMPERATIVE	INFINITIVE	
nyangka	‘look’	luwaminja ‘shoot’
yampiya	‘leave it’	
pakaka	‘hit’	
yungka	‘give’	
mardaka	‘hold it’	
manta	‘take it’	

The development of *ka* is related to the separation of event time from speech time. The data show that the use of *ka* increases between the ages of 2;8 and 3;0. Once *ka* is used, it is possible for the child to encode on-going activity (with *ka*) as distinct from imminent activity (without *ka*). However, when the children use a nonpast verb form without *ka* (which, recall, is used for immediate future in the adult system), there is a modality element; the child is expressing intention rather than an actual prediction of future happenings, and this pattern is supported by data from other languages (Slobin 1985).

Hebrew children have the past, present and future tenses distinguished by 3 years of age (Berman 1985). In the Warlpiri data, the future marker *kapu* first appears (once) at 2;11, but it is not frequent in the data until 3;5. By using *kapu*, the child can distinguish future from immediate future. Thus the child is able to place event time as subsequent to, prior to, or simultaneous with speech time. This provides support for the argument that the young child is concerned with the here-and-now at first, and later extends the framework to include other temporal contexts. Once the Warlpiri child can make distinctions such as locating an event at speech time (*ka* + nonpast form of verb) or prior to speech time (past tense of verb) or subsequent to speech time (nonpast form of the verb), the child is making the distinction between event and speech time.

That the child can establish a distinct reference time is evident when temporal words appear. The earliest temporal word is *munma* at 2 years which like ‘wait’ functions as a comment on the immediate situation. *Wiyi* ‘first/before’ is included in the data from a child of 2; 11, and this also is a comment of the immediate context. These temporal words show the child has the understanding of events being sequenced, and this concept is a necessary basis for being able to link events linguistically, either as sequential or simultaneous.

Temporal words such as *jalangu* ‘now’ appear in the data at around 3;8, as illustrated in (4). *Nyurru*, ‘already, complete’ appears then also. It is used by the children commonly with verbs for ‘shoot’ and ‘die’, which conveys its ‘completion’ component. *Nyurru* also carries an implication of current relevance (anterior), as indicated in (5). The child is commenting that something is complete and so the group is ready to go.

(4) *Jalangu kapi pi-nyi*  
 now FUT attack-NONPAST  
 ‘It will attack now.’ (age =3;8)

(5) *Ka-rilpa ngalipa jalangu ya-ni; nyurru*  
 IPVF-1:PL:INCL:SUBJ 1PL:INCL:SUBJ now go-NONPAST already  
 ‘We’re going now; ready.’ (age =4;11)

The form *ngaka* ‘later’ appears in the fifth year, and the frozen *nyurru wiyi* ‘in the olden days’ is used at 5, but the remote past concept is not necessarily encoded in *nyurru wiyi* at that age. Rather it is a story opener. Consider example (6), in which a child of 5;2 uses the expression about an event which happened the day before. In comparison, the child of 6;7 in

(7) j making reference to the olden days. However, in both examples, the child is establishing a reference time other than speech time. Both examples are from elicited narratives.

(6) *Nyurru-wiyi-rnalu*      *julyurlwanti-ja*      *ngapa-ngka*  
 already-first-1:PLSUBJ      swim-PAST      water-LOC  
 ‘A long time ago we went swimming in the water.’ (age =5;2)

(7) *Yapa-lu*      *nyurru-wiyi*      *nyina-ja,*      *munga-ngka,*      *manu-lu*  
 person-3 :PL:SUBJ      already-first      sit-PAST      night-LOC      and-3 :PL:SUBJ  
*yarrpu-rnu*      *paya*      *yuka-ngka*  
 build fire-PAST      fire      grass-LOC (age =6;7)  
 ‘In the olden times people sat at night and they made a fire on the grass.’

The acquisition ordering of temporal words suggest “cognitive pacesetting”. The forms representing proximity are acquired before remote terms, and this supports Weist et al’s (1984) finding for Polish (as reported in section 2.3).

By 3;5, the Warlpiri child produces more verb stems with different tense suffixes. Nearly 50% of the ‘utterances’ have verbs. Of 93 utterances produced in a 30 minute taping session, a child of 3;5 produced 42 verbs. Recall a 2 year-old used only about 20% of utterances with verbs. The data show that from about 3;5, past events are discussed spontaneously. That is, the children talk about events that happened a few weeks prior to speech time, events that the listener may not be aware of. This pattern corresponds to that reported for other languages.

Verbs used by a girl of 3; 10 in 30 minutes of taping are given in (5). The child refers to events in the past, the present and future. I have glossed these verbs and the clitics appearing with them as complete sentences so that the information they express can be captured. While some of the forms appeared with overt core nominals, most frequently the nominals were not overt, but inferred from context.

TABLE 5:      **Verb forms from a child of 3;10**

NONPAST:

<i>karrimi</i>	‘it will stand’
<i>nyinami ka</i>	‘it is sitting’
<i>yirrami ka-lu</i>	‘they are putting it
<i>ngunami ka-lu</i>	‘they are lying down’
<i>ngunami ka</i>	‘it is lying down’
<i>purra-ma-ngku</i>	‘I will cook for you’
<i>purrami</i>	‘she will cook’
<i>katirni ka-npa-ju</i>	‘you are stepping on me’
<i>ka nyinanjini</i>	‘it’s going and sitting’
<i>jurnta parnka</i>	‘it will run away’

PAST:

<i>pakarnu</i>	‘she was hitting it’
<i>pakamu</i>	‘she hit it’
<i>wantija-pala</i>	‘the two fell’
<i>warramu</i>	‘it’s looking for it
<i>paji-manu</i>	‘it passed by’
<i>jurnta-jayija-rra</i>	‘it got away’

IMPERATIVE:

nyangka	'look'
nyinaya	'sit'

#### 4.2 Discourse use of tense-aspect distinctions

When the past imperfective form *lpa* is added to the child's lexicon, there is evidence that ongoing action in the past is distinguished from the perfective. It is not used productively until 3;10, and then the form is not used to relate events from some other perspective than the speech time. However, texts from children older than 6 do contain frequent uses of *lpa*, to mark on going action in the past either in relation to the speech time or some other reference time established in the text. The absence of *lpa* in the early data must be related to the discourse function of past imperfective, which appears to be its main function in the adult language. It is used in clauses which provide a background to main event clauses. The child does not develop clause linking strategies until later, nor discourse organising principles. Thus the acquisition of a form does not imply that all of its functions are immediately available to the child.

Note in (8) and (9), *lpa* is used to give background information against which the main event takes place. These examples are taken from personal experience narratives from a 10 year-old and a 12 year-old. The development in the discourse use of *lpa*, particularly for backgrounding information, is consistent with the development of other narrative skills in Warlpiri. For example, it is not until 6-7 years that the child organizes a narrative around a theme. Also at this age, links such as *ngula jangka* 'after that'; and *ngula* 'then/that one' appear.

- (8) *Ngula-rnalu ngapa-wangu nyina-ja. Ngula-lpa-rnalu*  
 then-1 :PL:SUBJ water-without sit-past then-ipfv-1 :pl:subj  
*jatanya-ngu. Kankarlu-rnalu parnka-ja pirli-kirra*  
 worry-PAST up-1:PL:SUBJ run-PAST hill-ALLAT (age =10;6)  
 'We had no water. We were worried. We ran up the hill.'
- (9) *Ngurra-ngka-lpa-rnalu munga-tayimi.*  
 camp-LOC-IPFV- 1 :PL:SUBJ night-time  
*Yapa ya-nu-rnukuukuu. Lani-ma-nu-nganpa. (age =12;5)*  
 person go-PAST-DIREC monster fear-cause-PAST-1 :PL:OBJ  
 'We were at the camp at night. A ghost came. It frightened us.'

The first temporal relation between events that is marked linguistically is sequential. Other relations are purposive or causal. The first complex clauses are purposive with *ku* on the infinitive verb. These are used by children of 6 and older. Examples (10) and (11) from a girl of 6;10 show purposive and sequential ('having done') clauses. She also uses causal clauses with *yungu* 'motivational/causal' as given in (12). An example from a girl of 8;2 using purposive clauses and *manu* 'and' is given in (13). These examples are from elicited narratives.

- (10) *Ngula-ju wati-jarra-ju-ka-pala parnka-mi marlu-ku luwarni-nja-ku*  
 then-FOC man-DU-FOC-IPFV-3:DU:SUBJ run-NONPAST kangaroo-DAT shoot-INF-PURP  
 'The men are running to shoot kangaroo.' (age =6;10)

- (11) *Wati-jarra-ju-ka-pala*      *wapanjani-lki*      *mata-jarri-ja -lku-pala*  
 man-DU-FOC-IPFV-3:DU:SUBJ    walking along-now    tired-INTRANS-past-now-3:DU:SUBJ  
*parnka-nja-rla*  
 run-INF-SEQ      (age =6;10)  
 ‘The two men are walking along now having become tired from running.’
- (12) *Wati-jarra-ju-pala*      *ya-nu*      *yungu-pala*      *marlu-wangu-lku-pala*  
 man-DU-FOC-3:DU:SUBJ    go-PAST because-3:DU:SUBJ    kangaroo-without-now-3:DU:SUBJ  
*pina*      *ya-nu-rnu*      *wati-jarra-ju*  
 back      go-PAS-dir      man-DU:FOC      (age =6;i0)  
 ‘The two men came because they had no kangaroo; they came back the two men.’
- (13) *Yani*      *ka*      *wirlinyi tarrki-ki*      *luwarni-nja-ku*  
 go-NONPAST-IPFV    hunt      turkey-DAT      shoot-INF-PURP  
 ‘He’s going to shoot turkey.’
- manu*      *ka-nyi*      *yuwarli-kirra*      *ngarni-nja-ku*  
 and      carry-NONPAST      house-ALLAT      eat-INF-PURP  
 ‘And he’ll carry it to his house to eat.’      (age =8;2)

The use of the complementizers that imply simultaneous events and which also include the notion of same or different subject are not common in the data base. There are a few examples from six year olds and these utilize the form *kurra* which appears on *karrinja*, the infinitive of the verb ‘stand’, as in (14). The information expressed is that someone did something to another while the other was standing. The form could be rote-learned as a compound since there is no evidence of productivity in using the complementizer. From a 10 year-old, there is one example of *kurra* on *yulanja*, the infinitive of the verb ‘cry’. The form is more productive from older children, one example being given in (15).

- (14) *Manu*      *yankirri-rnalu*      *nya-ngu*      *jinta*      *karri-nja-kurra*  
 and      emu-l:PL:SUBJ      see-PAST      one      stand-INF-OBJCOMPLR  
 ‘And we saw an emu standing.’
- (15) *Pulka*      *nya-ngu*      *jurtpu-kurlu*      *marda-rninja-kirra*      *pintipu-kurlu*  
 old man      see-PAST      bird-having      hold-INF-OBJCOMPLR      bird-having  
 ‘He saw an old man holding a bird.’      (age =11;2)

The conceptual difficulty of a form that conflates temporal information and switch reference features must account partly for the late development. Reporting on clause chaining in Turkish, Slobin (1989) points out the gerund *erek* is not used until the age of 9. This late use may be attributed to its function of relating two phases of a situation in the construction of an event. The form is used to link two clauses with the same subject, when there is a sequential or simultaneous relation between the two clauses. Thus there is conflation of information packed into one form, and it would appear that the conceptual complexity of the form is related to the conflation of temporal information and same subject. Although *erek* is similar to *karra* in Warlpiri in that both are used as clause linkers and the two clauses have the same subject, *karra* is different in that it always indicates that the event in the main clause coincides in time with that of the infinitive clause (Hale 1982). Recall this is true for all four of the complementizers. In Turkish, *erek* may be used when there is either a sequential or simultaneous relation between the clauses.

In addition, homophony may lead to delay in mastering the forms. For example, *kurra* is homophonous with the allative case, and the locative case allomorphs (*rla/ngka*) are used as the base for two complementizers. Other constructions are available to express similar

information and thus the complementizers can be avoided. For example, a speaker could use the past imperfective in one clause and join this to the other with *manu* ‘and’. This would give the equivalent of, for example, ‘The kangaroo was sitting on the hill and the man shot it’. Alternatively a speaker could use a clause joined to another with *kuja* ‘instantiated relative’ or, alternatively, *ngula*, as in (16). This form is evident in the elicited narratives of the children over 6, the *lpa* clause being used to give the background information.

- (16) *Wati-ngki ka puranjani marlu kuja-lpa nyina-ja pirli-wana*  
 man-ERG IPFV go along follow kangaroo REL-IPFV sit-PAST rocks-along  
 ‘The man is going along following the kangaroo which was sitting by the rocks.’

The fact that *kurra* is the one form used by the young Warlpiri speakers may be related to its frequency in the input data. Laughren (p.c.) reports that most adults under 30-years of age now generally use *kurra* for the two functions formerly distinguished by *karra* and *kurra*, although all examples I have show *kurra* with the function of marking a switch subject (matrix object = subordinate subject).

## 5. Conclusion

The Warlpiri child acquires tense/aspect distinctions and other temporal forms at the single clause level before using them to link events. The data show that the Warlpiri child first uses past tense morphology to mark completed activity in the immediate context, and this is an aspect function. Most forms marking purely temporal relations are acquired before age 4. Later, other forms, including temporal words that allow the reference time to be established other than speech time, are used. The discourse functions for *lku* and *ipa* are an extension of the clause level usage, and the extension appears only when the child can separate reference time from event time, and only when the child has developed enough discourse skills to relate the events linguistically.

Through interaction with others, the child develops the skills for using verbal forms in line with adult usage. Child utterances are guided by frames set up by interaction with adults. While temporal reference is limited to the here-and-now in the beginning, development in the use of temporal reference is guided by discourse interaction (DeLemos 1981). It is clear that there is a development over a number of years in the use of tense-aspect morphology, a development from the initial grammaticization of the tense-aspect distinctions available in the language, to the use of the forms in creating cohesive discourse. Even though there are language specific differences, the data from Warlpiri support the general patterns reported for other languages, indicating that general cognitive development is related to the acquisition and use of the forms which allow the child to encode different perspectives on events.

## REFERENCES

- Antinucci, F. & R. Miller. 1976. How children talk about what happened. *Journal of Child Language* 3. 167-189.
- Aksu-Koc, A. 1986. The acquisition of past reference in Turkish. In D.I. Slobin & K. Zimmer (eds.) *Studies in Turkish Linguistics*, 247-264. Amsterdam, Philadelphia: John Benjamins.
- Aksu-Koç, A. 1988. *The Acquisition of Aspect and Modality*. Cambridge: Cambridge University Press
- Aksu-Koc, A. & D.I. Slobin. 1985. The acquisition of Turkish. In D.I. Slobin (ed.) *The Cross-linguistic Study of Language Acquisition* Vol.1, 839-878. Hillsdale, N.J.: Lawrence Erlbaum.
- Bamberg, M.G.W. 1987. *The Acquisition of Narratives; learning to use language*. Berlin: Mouton de Gruyter.

- Berman, R. 1985. The acquisition of Hebrew. In D.I.Slobin (ed.) *The Crosslinguistic Study of Language Acquisition* Vol.1, 255-371. Hillsdale, N.J.: Lawrence Erlbaum.
- Berman, R. 1988. On the ability to relate events in narrative. *Discourse Processes* 11. 469-497.
- Berman, R. & D.I. Slobin. 1988. Learning to talk about movement through time and space: the development of narrative abilities in Spanish and English. *Lenguas Modernas* 15. 5-24.
- Bloom, L & L. Harner. 1989. On the developmental contour of child language: a reply to Smith and Weist. *Journal of Child Language* 16. 207-216.
- Bloom, L., K. Lifter, & J. Hafitz. 1980. Semantics of verbs and the development of verb inflection in child language. *Language* 56. 386-412.
- Bloom, L., L. Rocissano & L. Hood. 1976. Adult-child discourse: developmental interaction between information processing and linguistic knowledge. *Cognitive Psychology* 8. 521-552.
- Clancy, P. 1985. The acquisition of Japanese. In D.I. Slobin (ed.) *The Crosslinguistic Study of Language Acquisition* Vol.1, 373-524. Hillsdale, NJ: Lawrence Erlbaum.
- Clancy, P., P. Jacobsen & M. Silva. 1976. The acquisition of conjunction: a crosslinguistic study. *PRCLD* 7, 7 1-80.
- Clark, E. 1970. How children describe events in time. In G. B. Flores d'Arcais & W.J.M. Levelt (eds.) *Advances in Psycholinguistics*. Amsterdam: North-Holland.
- Clark, E. V. 1985. The acquisition of Romance with special reference to French. In D.I. Slobin (ed.) *The Crosslinguistic Study of Language Acquisition* Vol.1, 687-782. Hillsdale, NJ: Lawrence Erlbaum.
- Comrie, B. 1976. *Aspect* Cambridge: Cambridge University Press.
- Cziko, G.A. & K. Koda. 1987. A Japanese child's use of stative and punctual verbs. *Journal of Child Language* 14.99-111.
- DeLemos, C. 1981. Interactional processes in the child's construction of language. In W. Deutsch (ed.) *The Child's Construction of Language*, 57-76. London: Academic Press.
- Ferreiro, E. & H. Sinclair. 1971. Temporal relations in language. *International Journal of Psychology* 6.39-47.
- Hale, K.1982. Some essential features of Warlpiri verbal clauses. In S. Swartz (ed.) *Papers in Warlpiri Grammar*, 217-315. Work Papers of SIL-AAB, Series A, 6. Darwin: SIL.
- Hopper, P.J. 1979. Some observations on the typology of focus and aspect in narrative language. *Studies in Language* 3:1.37-64.
- McShane, J., S. Whittaker, & J. Dockrell. 1986. Verbs and time. In S. Kuczaj & M. Barrett (eds.) *The Development of Word Meaning*, 75-302. New York, Berlin: Springer-Verlag.
- Moerk, E.L. 1975. Verbal interactions between children and their mothers during the preschool years. *Developmental Psychology* 11.788-794.
- Nelson, H., K. Ross & N. Oldfield. 1984. *Nyurruwiyi kuja kalalu-jana mardarnu pirltirrka*. Yuendumu: Bilingual Resources Development Unit.
- Ping, Li. 1989. *Aspect and Aktionsart in Child Mandarin*. Baar, Holland: M.C. Escher Heirs/Cordon Art.
- Reichenbach, H. 1947. *Elements of Symbolic Logic*. New York: The MacMillan Co.
- Renner, J. 1988. Development of temporality in children's narratives. PhD dissertation, U.C. Berkeley.
- Rispoli, M. 1987. The acquisition of verbs in Japanese. *First Language* 7.183-200.
- Sachs, J. 1984. Then: the emergence of displaced reference in parent-child discourse. In K. Nelson (ed.) *Children's Language*. Hillsdale, NJ: Lawrence Erlbaum.

- Slobin, D.I. 1985a. Why study acquisition crosslinguistically? In D.I. Slobin (ed.) *The Crosslinguistic Study of Language Acquisition* Vol.1, 3-24. Hillsdale, NJ: Lawrence Erlbaum.
- Slobin, D.I. 1985b. Cross-linguistic evidence for the language-making capacity. In D.I. Slobin (ed.) *The Crosslinguistic Study of Language Acquisition* Vol.2k 1157-1249. Hillsdale, NJ: Lawrence Erlbaum.
- Slobin, D.I. 1989. The development of clause chaining in Turkish child language. *Berkeley Cognitive Science Report* No.55, January.
- Slobin, D.I. & A. Bocaz. 1989. Learning to talk about movement through time and space: the development of narrative abilities in Spanish and English. *Berkeley Cognitive Science Report* No.55, January.
- Weist, R. 1986. Tense and aspect. In M. Fletcher & M. Garman (eds.) *Language Acquisition*. 2nd edition. Cambridge: Cambridge University Press.
- Weist, R. & E. Buczowski. 1987. The emergence of temporal adverbs in child Polish. *First Language* 7.217-229.
- Weist, R.M., H. Wysocka, K. Witkowska-Stadnik, E. Buczowska & E. Konieczna. 1984. The defective tense hypothesis: on the emergence of tense and aspect in child Polish. *Journal of Child Language* 11.347-37.