Ellipsis in Warlpiri children's narratives: an analysis of frog stories*

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Abstract

The paper reports on developmental aspects of the ellipsis of core lexical arguments in Warlpiri children's narratives. The children, aged from four to ten years, each told a frog story based on Mayer's Frog, Where Are You? *(1969). Stories from six adults were used for comparison. Warlpiri allows ellipsis of lexical subject and object and employs bound pronominals (clitics) to register the number and person of subject and object, although third person forms are zero. Analysis of the stories showed a high percentage of null arguments in the youngest children's stories. The lowest percentage of null lexical arguments was from the seven to eight-year-olds. The older children showed greater flexibility in the ellipsis or overt expression of lexical arguments. Overall, the stories showed no bias toward ellipsis of subject or object; for two-argument verbs, subject and object are equally likely to be null, but more subjects were null in same-subject contexts than in switch-subject contexts. No differences were noted with patterns of lexical ellipsis in sentences with overt or zero bound pronominals. The findings are discussed in relation to Karmiloff-Smith's arguments for a three-phase developmental pattern in narrative organization.*

1. Introduction

Much of the past research on ellipsis of arguments in child language has focused on the absence of grammatical subjects in early child productions. Several explanations have been proposed for such ellipsis. A performance explanation was proposed by Paul Bloom (1990); that is, there are limitations on how many arguments a young child can incorporate into an utterance. Gerken (1991) suggested a prosodic explanation for the more frequent omission of pronominal subjects than objects in child language; that is, children omit weakly stressed syllables in certain

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positions determined by metrical theory. Assuming an innate approach to language acquisition, Hyams (e.g. 1986, 1989), following the principles-and-parameters account of language acquisition, argued that the ellipsis of pronominal subjects in early child language could be accounted for by the proposed prodrop parameter.

Valian (1991), discussing the prodrop property of languages, illustrated that young Italian children had a higher percentage of subject ellipsis than English-speaking children of an equivalent age, suggesting that the prodrop property of Italian is already known to Italian infants. Based on findings from a second study on null subjects, based on the speech of children acquiring Portuguese or English, Valian and Eisenberg (1996) proposed that infants have knowledge of subject at the onset of their combinatorial speech.

While children acquiring prodrop language show more subject ellipsis than children acquiring English, English-speaking infants also drop subjects. Thus explanations of argument ellipsis must account for why children acquiring a language with obligatory subjects do not include them. Such an explanation might be based on infants' processing capacities; it could also be that the children have detected patterns in the input language but have overgeneralized them. For example, subjects (and other assumed arguments) may be nonovert in responses to questions in English; what is included is new information. So subject drop is possible in English discourse. Children will learn under which conditions subjects may be dropped and when they are required.

The research reported has focused on infants' language, but it is clear that children do not acquire the range of discourse functions of null arguments at the beginning of combinatorial speech. By studying ellipsis over a wide age range, researchers are in a position to identify developmental trends, as the infant speaker develops into a mature speaker.

While most research has focused on missing pronominal subjects, explanations of ellipsis must also account for languages that allow ellipsis of lexical objects as well as lexical subjects. In discussing such ellipsis in children's productions, it is important to remember that only if a child knows the argument structure for particular predicates can missing arguments be considered as ellipsis. Before this knowledge has been acquired, verbal utterances without a full set of arguments could reflect partial acquisition of the verb; that is, the set of constructions in which the verb may be used is not known.

Research on null arguments from a discourse-functionalist perspective has focused on the contexts in which core arguments are overt or null. Clancy (1993), for example, argued that Korean infants' productions follow the predictions of the preferred argument constraint (PAS)

(DuBois 1987). The constraint, based on a theory of information flow, adopts a three-way distinction for arguments: S (subject of intransitive verb), O (object of transitive verb), and A (transitive verb subject, typically an agent). An assumption of the approach is that, having already been introduced into the discourse in an S or O position, As are presupposed and tend to be nonovert. The prediction is that more As will be ellipsed than subjects or objects. Clancy reports that the Korean children studied tended to form verbal sentences with only one overt argument. As predicted by the PAS, agents tended to be missing in the children's productions. Such findings show that if the use of subjects or other arguments is not random in child productions but is predictable from features of the discourse context, linguistic or nonlinguistic, then a functional approach is essential in explaining DEVELOPMENTAL aspects of children's use of null arguments. Part of becoming a mature speaker of a language is acquiring the range of options available within a language for packaging information (Berman and Slobin 1994). For a language that allows subject and object ellipsis, part of becoming a mature speaker is determining when to include arguments and when not.

The aim of the current study was to identify developmental trends in the inclusion or omission of lexical arguments in Warlpiri children's narratives, and to identify influencing factors. The narratives were elicited using Mercer Mayer's (1969) picture book, *Frog Where Are You?*, which has now been used to elicit narratives in different languages and cultures in normal and atypical populations. Its use for cross-language comparisons has been justified (see Berman and Slobin 1994 for a discussion of the findings from some of the cross-linguistic studies, and for a listing of other studies using the book). The book, first used by Bamberg (1987) in a study with German children, contains 24 pictures with no words; the pictures show a sequence of events in which a boy and his dog search for a frog that has escaped and in their search experience a number of incidents.

Before discussing the current study, I present a brief overview of the sentence structure in Warlpiri,[1] some information on Warlpiri children's language knowledge at three years of age, and information about Warlpiri culture and storytelling.

2. Background on Warlpiri

2.1. *Warlpiri sentence structure*

The role of a lexical argument in Warlpiri is determined by its case, not word order, since word order in the language is flexible. Lexical arguments

are case-marked, the case depending on the case frame of the particular verbal predicate they accompany. Most two-argument verbs, such as *nyanyi* 'see', take ergative subjects and absolutive (i.e. unmarked) objects, as in example (1). A derived frame with ergative subject and dative object is used to indicate attempted action as opposed to successful action; thus a change from ergative–absolutive to ergative–dative for a verb such as *luwarni* 'shoot' or *nyanyi* 'see' marks attempted or incomplete action (as shown in example [2]). The ergative–dative frame is also the basic frame for the verb *warrirni* 'search for'. The verb *rdipimi* 'encounter' is one two-argument verb that has a basic frame of an absolutive subject and dative object. Intransitive predicates have an absolutive subject, as in (4), but may add a dative argument.[2]

(1) nya-nyi ka jarntu kurdu-ngku
see-NP IMPV dog child-ERG
'The/a child is looking at the dog.'

(2) nya-nyi ka-rla jarntu-ku kurdu-ngku
see-NP IMPV-3SGDAT dog-DAT child-ERG
'The/a child is trying to see the dog.'

(3) nya-nyi ka jarntu
see-NP IMPV dog
'(He/she/it/someone) is looking at the dog.'

(4) nyina-mi ka jarntu
sit-NP IMPV dog
'The/a dog is sitting.'

Overt lexical subjects and objects are not essential in a Warlpiri sentence; they may both be included, or one, or none. In adult discourse, it is typical to find ellipsis of one or both arguments. Thus an absolutive argument is potentially ambiguous between subject or object. It is only knowledge of the verb's semantics and case frame that allows interpretation. In (3) the overt argument must be the object, not the subject, because the verb is a two-place predicate and the subject would be marked with an ergative case form, but in (4) it is the subject. A sentence typically consists of a verb, with some or all of the following: linking morphology, aspectual markers, locative nominals, locative case-marked nouns, directionals, and modal particles.

Distinct bound pronominal forms for subject and object also form part of a sentence; these register the person and number of these arguments, with the object marker following the subject marker. These are not inflections on the verb but appear in a clitic cluster, together with aspect and modality markers, in second position of the clause. There are overt forms for all except third person singular object and subject, which

are null. There are no overt bound pronominal forms with the aspectual marker *ka* in examples (1)–(4) because the core arguments (subject and object) are third person singular. Example (5) shows a sentence with non-null bound pronominals for the subject and the object. (Lexical arguments marked only by bound pronominals in Warlpiri are placed in parentheses in the English translations.)

(5) nya-nyi ka-rna-jana
see-NP IMPV 1-SGSUB-3PLOBJ
'(I) am looking at (them).'

2.2. *Children's language knowledge by age three*

Aspects of Warlpiri children's language development have been discussed in earlier papers (e.g. Bavin 1990, 1992, 1995, 1998, 1999). Naturalistic data from Warlpiri children show that they have acquired knowledge of verbs and some knowledge of their case frames by the age of three. They use bound pronominals as well as the aspect marker *ka* in the appropriate second position in the clause, to which bound pronominals are attached. Because the third person singular subject and object bound pronominals are zero in form, it is with the first and second person, dual and plural third person, and dative object that the knowledge of bound pronominals by Warlpiri children can be determined. The children typically use (appropriately) first person singular object and subject forms, and also the third person dative object form *rla*, showing their knowledge of contexts for dative objects, even if the lexical dative argument is not overt. When no bound pronominal appears in a verbal utterance from a Warlpiri child of two years or older, the context is appropriate for a third person singular argument. Note that ergative case-marked nouns are not frequent in the children's language until they are aged about 3;3. Young children talk about things in the immediate context, focusing on change of state and change of location rather than the causer of these changes, most frequently the child.

2.3. *Warlpiri culture and storytelling*

Sand drawings are associated with traditional Warlpiri storytelling. The drawings use symbols for people, not images of the human figure, and they focus on the land. They are drawn from an areal perspective, not as in European style (see Sutton et al. 1988). Some Warlpiri speakers still use sand drawings when telling stories. However, canvases are now

used for paintings. A series of dots and lines represent the people and their journeys; these form visual representations of narratives that are culturally relevant. When telling about a painting, the painter (the owner) tells his/her ''story,'' identifying the important features. When telling about a painting, the narrator tells who is involved and their location, for example as in, *Nyampu-rla Napaljarri jirrama* 'Here are two Napaljarris' or *Yanu-pala yatijarra* 'They went north'. Thus the use of a set of pictures for eliciting a story is appropriate.

A feature of Warlpiri adult discourse is repetition, which is reported to be a common feature of narratives in oral tradition (Brewer 1985). Information is repeated in a different form or word order. A ''build-up'' style is often used: information from one sentence is partly repeated in the next with something new added. There can be a gradual build over a series of utterances; for example, in telling the frog story a speaker might give the information that someone fell, then someone fell to the water, then someone fell down to the water, and then specify that it the child and dog who fell. Not all is revealed at once. This could be a way of holding the attention of the listeners, although this is speculative. Repetition is noted even in the talk from three-year-old Warlpiri children.

3. Data collection

The frog stories were collected in a culturally appropriate setting, that is, outside in view of others but not close enough for others to hear. The session generally took place sitting on the ground where the children were most comfortable. The speakers were allowed as much time as they needed, and they were only encouraged to tell the story if they showed initial willingness and interest. The children were first shown the book and asked to look through it at the sequence of pictures before telling the story. All communication was in Warlpiri. The task was to tell a good story (*yimi ngurrju*). If the child hesitated, a prompt was used, *Ngarrikaju* 'Tell me' and later, if necessary, *Nyarrpa-jarrija* 'What happened?' Once a child started to tell the story, he/she readily continued to the end, as long as there was no interruption. The stories were recorded onto audio tape.[3]

The analysis is based on stories from 39 children aged from four to ten years: eight children aged 4;10–5;10; eleven children aged 6;1–6;8; twelve children aged 7;1–8;11; and eight children aged 9;3–10;7 (see Table 1 for gender breakdown). Stories from six mothers were used for comparison. While the aim was to collect and analyze stories from an equal number of children in each age group, for a number of practical

Table 1. *Gender by age groups*

	Age			
	4–5	6	7–8	9–10
Male	2	5	4	6
Female	6	6	8	2

reasons this aim was not achieved. The reasons included equipment failure; birth dates not recorded so that it was not clear what age a child was; ages given found to be incorrect; too much background noise so that the children were disturbed or the tapes could not be heard clearly enough for transcription, particularly if the children spoke softly; and in a few instances disturbances from other people coming up to see what was happening, something that is difficult to control in an outside setting.

The narratives were transcribed with the assistance of Warlpiri adults and checked with a second and sometimes third person. The inclusion or absence of lexical subjects overall was examined first, and then the contexts in which lexical subjects were null. Object ellipsis with two-argument verbs was examined, and the use of overt or null lexical subjects and objects with these verbs. Because the number of verbal sentences varied across and within groups, the number of utterances with subject ellipsis was converted to a percentage of the total number of verbal utterances for each child. For the discussions of ellipsis in utterances with two-argument verbs percentages were used also; these were based on the number of utterances with two-argument verbs for each child.

Means by age group are illustrated in Figure 1 for subject ellipsis, Figure 2 for switch-subject versus same-subject contexts for subject ellipsis, Figure 3 for object ellipsis with two-argument verbs, and Figure 4 for the number of overt core arguments for two-argument verbs. The patterns for subject ellipsis will be discussed first, followed by discussion of ellipsis with two-argument verbs.

4. Subject omission

4.1. *Overview*

Note from Figure 1 the high percentage of null lexical subjects for the youngest group (four to five years). In the third age group (seven to eight years), more subjects were overt, and the nine- to ten-year-olds had an even higher percentage of overt lexical subjects. As with all examples,

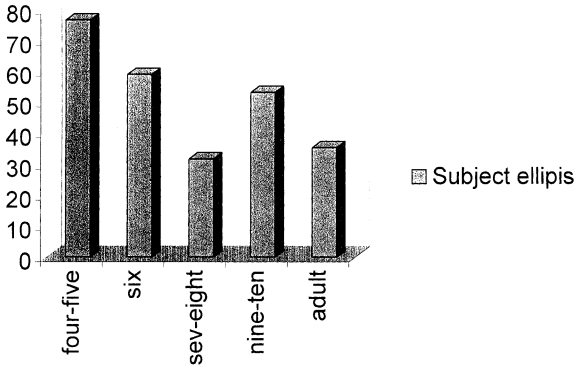

Figure 1. *Subject ellipsis*

when mean percentages are used and the length of the narratives from individual children varies, as does group size, the figures need to be treated with some caution. However, a one-way ANOVA on children's subject ellipsis by age group revealed a significant difference for age group, $F(3, 35) = 8.181$, $p < 0.001$. Post hoc analyses revealed that the seven- to eight-year-old group had significantly less subject ellipsis than the two youngest groups, the four-to-fives and the sixes. No other significant differences were found.

Typical from the children under six, and even the six-year-olds, was a narrative with few overt lexical arguments. For example, a story from one six-year-old boy used 13 verb types in 26 verbal sentences. The story started with *Nyanyi ka-pala* '(Two) are looking'. The first overt lexical argument was in sentence 8, when the boy in the story was first mentioned. The boy was the nonovert subject for many of the previous sentences. The owl was mentioned in sentence 19, and the dog only once, in sentence 23, although the dog was the nonovert subject of many of the previous sentences. The frog was mentioned only in the last two sentences. Because of the high percentage of null arguments, there are potential problems in interpretation, as illustrated in (6).

Stories from other six-year-olds are similar in structure, a few with more arguments overt. For example, one story from a six-year-old contained ten verb types in 28 verbal sentences; these covered about half the episodes covered in the book, although minimally. The boy had knowledge of argument structure as shown in his use of an overt dative argument and also the appropriate bound pronominal form *rla* in (7), and in the use of ergative case markers on three overt transitive subjects (dog, owl, and child).

(6) kuja ma-ni ka. kapu pi-nyi.
thus hold-NP IMPV FUT attack-NP
nya-nyi ka. wanti-ja-rra.
see-NP IMPV fall-P-DIR
warrka-rnu. warrka-rnu. wanti-ja.
climb-P, climb-P fall-P
'Thus (he) is holding (it). (It) will attack. (He/It) is looking at (it/him). (He) fell away. (He) climbed. (He) climbed. (He) fell.'

(7) nya-nyi ka-rla praku-praku-ku
see:NP IMPV-DATOBJ frog-DAT
'(He) is looking for the frog.'

For the youngest two age groups, the nonappearance of arguments generally cannot be considered to be instances of zero anaphor since the referents are not introduced. For anaphora to be identified, a participant must be introduced; subsequent reference to a participant using a pronominal form or a zero form can then be assumed to be anaphoric (see Karmiloff-Smith 1981, 1985). While it might be argued that because a child knows the adult has seen the book before, there is no need to introduce the participants, this would apply to all age groups and to all studies. What is crucial is that, using the same elicitation technique, older children do introduce the referents. Adults also introduce participants. Thus the data show a clear developmental trend in the use of discourse skills.

4.2. *Responses from children under six*

The responses from the children under four years are of interest. None produced a narrative, that is, a connected set of utterances (Labov and Waletsky 1967). This finding is consistent with other studies with Warlpiri children of this age (Bavin 1987, 1992; Bavin and Shopen 1985). Most children under four either said nothing, although they looked carefully through the set of pictures, or they named a few of the participants. One child of 24 months used a total of ten utterances when asked to tell the story, but none contained verbs. The ten utterances included eight single nominals and two questions, which are given in (8):

(8) a. nyampu mayi
this Q
'What's this?'

b. maliki nyampu mayi
dog this Q
'Is this a dog?'

Some of the utterances made by a child of 2;6 are presented below. Many of the 24 utterances were nominal, and many included the affect marker *pardu*, as in two of the following:

(8) c. jarntu wita pardu
'dear little dog'
d. nyampu jinta kari
'here's another one'
e. nyampu wita pardu
'this dear little one'

Another feature was the questioning about who the characters in the story were (*ngana mayi*? 'Who is it?' and *ngana*? 'Who?'). Being able to identify someone in the community is essential since the whole social and economic organization is determined on the basis of kin groups. Obligation relations, marriage and avoidance relations, and land custodianship are determined by which subgroup a person belongs to, so it is of crucial importance to know how someone fits into the system. Naming people is an important feature to which children are socialized from an early age.

Only six utterances from this child of 2;6 contained verbs. These are given in (9). Note that the child produced these utterances unprompted.[4]

(9) a. nya-ngka, maliki-ki
look-IMP dog-DAT
'Look, for the dog.'
b. nya-nyi jinta kari
look-NP one other (no ka included)
'(He) sees another one.'
c. wanti-ja, nya-ngka, wanti-ja
fall-P look-IMP fall-P
'(He) fell, look, (he) fell.'
d. jarntu nyina wiyapa
dog sit(NP) affect (no ka included)
'The dog is sitting, poor thing.'
e. yuka-mi ka
enter IMPV
'(It) is entering.'
f. nyampu-ju, ya-ni-rra ka
here/this-FOC, go-NP-DIR IMPV
'This one/here, (he) is going away.'

In two of the four contexts in which it is syntactically required, the aspect marker *ka* was included. Only one lexical argument was overt, a subject

(*jarntu* 'dog'). No linking morphology was used to link the events into a story.

For comparison, the responses from a child just six months older are summarized. After naming the dog and frog, the child (3;0) produced three verbal utterances, one containing a lexical subject. After a prompt, the three-year-old then produced 15 sentences, using 12 verb types. None of these contained an overt lexical argument, either subject or object. One sentence included the dative object form *rla* (*nyanyi ka-rla* '[he] is looking for [it]'). The child covered many of the story elements, although basically, and no details were included. For all verbs (except one), the boy is the default subject, although he is never introduced.

While they knew the words for the participants in the story (they used them in isolation), the youngest children did not include them in their sentences. There was no distinction made between subject and object; both were null. Yet knowledge about argument structure is evident; when a dative argument was appropriate, the dative bound pronominal form *rla* was used. In contrast to the utterances by the children under four, narratives produced by four- to five-year-olds included some linking elements, and sometimes lexical subjects and objects.

As Peterson and McCabe (1994) argue, for a discourse to be a narrative at all, it must provide contextualizing information. In order to interpret the stories of the young Warlpiri children, the nonlinguistic context is required because the children, like young children from other language groups as discussed in the acquisition literature, do not create the linguistic context for interpreting zero arguments. That is, the referents are not created. The null arguments in the youngest children's stories have a deictic function for the young children. In this respect, the Warlpiri children behave like children from other language backgrounds, as discussed, for example, by Hickman (1980) and Karmiloff-Smith (1985).

4.3. *Subject ellipsis with the older age groups*

The stories from the seven- to eight-year-olds contained more overt lexical subjects than those of the younger groups. This is partly because more episodes were included and more secondary characters mentioned. But the structures from the group were less variable than those from the nine- to ten-year-olds, who included more complex sentences, linking elements, background information, and details than did the seven- to eight-year-olds. The seven- to eight-year olds employ a strategy whereby they include arguments that could be omitted. This "regression" results in stories that are less like the adults' stories in some ways than are the stories from

the younger children. However, there is ellipsis of more subjects with the older groups.

Thus the subject ellipsis data show a U-shape developmental pattern. A U-shape pattern is observed in other areas of language development; for example, overgeneralizations appear in a number of areas of grammar after a period in which children use appropriate forms (e.g. see Bowerman 1982 for a discussion of overgeneralizations in verb use). Karmiloff-Smith (1985), reporting on the acquisition of nominal determiners, argues that children pass through three phases. Words are used appropriately in the first phase, followed by a phase in which their productions no longer reflect the adult model, and then a third phase when they revert to the adult model. The changes are explained in terms of representational progression as there is reorganization of linguistic representations into a system, and the creation of a control process that constrains connected discourse. The changes result in cohesion in narratives produced.

4.4. *Contexts for subject omission*

A second analysis was conducted to determine the contexts in which lexical subjects were overt or null. All verbal sentences were classified as switch-subject or same-subject contexts. This was determined on the basis of which referent did what, not whether the argument had been introduced previously or not.[5] The decision about who was the subject when the noun was not overt was resolved in most instances by the pictures or by the verb (e.g. the verb 'bark' would be assigned 'dog' as subject). In a few instances there was potential ambiguity, particularly if both subject and object were elided, but the Warlpiri adults' intuitions were always followed, and at no time did they hesitate to interpret the sentences.

The mean percentages of ellipsis in the two contexts of same- and switch-subject are shown by age group in Figure 2. For all groups same-subject contexts showed more ellipsis, although for the four- to five-year-olds and the seven- to eight-year-olds the differences are not as great as for the other groups. Separate one-way ANOVAs on subject ellipsis in switch- and same-subject contexts reveal that between-group differences were significant for both: switch-subject contexts, $F(3, 35) = 6.572$, $p < 0.01$; same-subject contexts, $F(3, 35) = 6.929$, $p < 0.01$. Post hoc analyses showed differences for switch-subject contexts between two groups, the four- to five-year-olds and the seven- to eight-year-olds. For same-subject contexts, there were significant differences between the seven- to eight-year old group and the other three age groups (four-to-five, six, and nine-to-ten). This finding supports the U-shape developmental pattern discussed in the previous

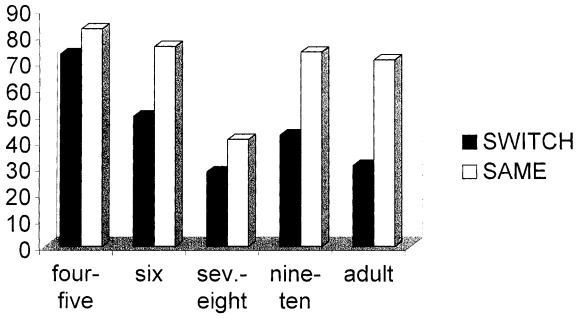

Figure 2. *Switch or same-subject ellipsis*

section, in which the seven- to eight-year olds included more lexical subjects than the other groups.

Within-group analyses were also performed; they showed that ellipsis in switch- versus same-subject contexts was significant for all groups except the youngest. The same-subject contexts show more subject ellipsis overall. If a storyteller frequently switches from one participant to another there is more likelihood that the subject will be overt, but switch-subject contexts do not imply that the subject WILL be overt. As an example, one adult produced 66 verbal utterances for which a lexical subject would be appropriate. This excluded two imperatives, which represented direct speech from the boy searching for his frog. Only 26 (39%) had overt lexical subjects and of these 15% were in same-subject contexts. The remaining 85% were in switch-subject contexts. However, for the 40 (61%) nonovert subjects, 45% were in a same-subject context and 55% in a switch-subject context. Thus it is more likely that a subject will be overt in a switch-subject context but a switch-subject context does not guarantee that a lexical subject will be overt. When a storyteller focuses on the actions of one character there will be more likelihood of subject ellipsis. In the stories of some of the older speakers, if the subject of a sentence was the same referent as the object of the preceding sentence the subject was more likely to be nonovert, but this pattern was not systematic.

5. Object ellipsis

A third analysis examined ellipsis of lexical subjects and objects for all two-argument verbs. Figure 3 shows the percentage of null lexical objects by age group, and Figure 4 the percentages by age group of which arguments were overt: both arguments, one argument (subject or object),

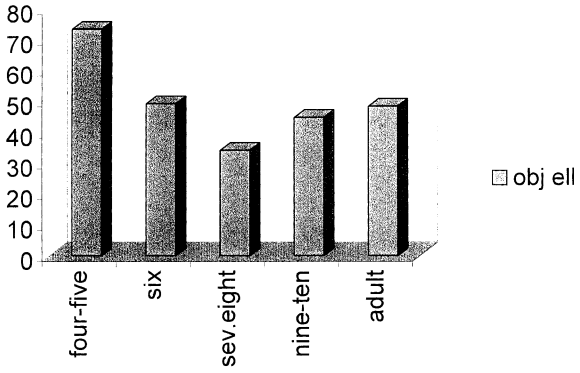

Figure 3. *Object ellipsis*

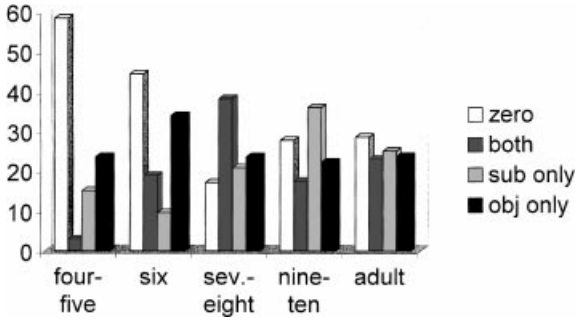

Figure 4. *Transitive verbs: arguments used*

or none. Note that since each speaker has options about which details to include and which participants to focus on, there was variation in how many two-argument verbs were used. The percentage of two-argument verbs used in the four- to-five-year age group ranged from 27%–63%; in the six-year-old age group the range was 20%–63%; in the seven- to eight-year group it was 32%–65%; in the nine-to-ten age group the range was 42%–72%, and in the adult group it was 24%–59%. Clearly, if a storyteller uses a high percentage of transitive verbs, there is more opportunity for object ellipsis.

An analysis of variance on objects (overt or not) showed that the differences in the percentage of null objects for the children was significant across the four age groups, $F(3, 35) = 7.017$, $p < 0.1$. Post hoc analyses showed the youngest group (age four to five) to be significantly different from the seven-to-eights and the nine-to-tens.

It is clear from Figure 4 that the ellipsis of BOTH ARGUMENTS for two-argument verbs is most noticeable in the two youngest age groups. There were very few sentences with both arguments overt for the youngest group. The seven-to-eight group, however, had the highest percentage for both arguments overt. The likelihood of the object as the ONLY overt argument is most notable in the data from the six-year-olds; the likelihood of the subject being the only overt argument (for two-place predicates) is most notable for the eight- to nine-year-olds. For the adults all four options are fairly evenly distributed.

There seems to be no one factor that influences object ellipses. Some of the more mature speakers repeated that the boy was looking for the frog or calling for the frog (with the frog as object) across several episodes, although the boy and frog were not typically overt after the first instance. The listener can assume that if the boy calls for the frog once, he is the one calling for it again, and it is the frog he is calling for. So the repetition provided a context for object (as well as subject) ellipsis.

6. Bound pronominals with lexical argument ellipsis

Jelineck (1984) and Hale (1983) have argued that bound pronominals are the core arguments in Warlpiri, and that overt lexical arguments are adjuncts. This raises the question as to whether the presence of a non-null bound pronominal influences the ellipsis of core arguments. A count was made of overt lexical subjects in sentences that included a non-null bound third person subject pronominal (*pala* for a dual subject or *lu* for a plural subject); a similar count was made for overt lexical objects when non-null bound object pronominals were used for third person (e.g. *palangu* for dual third person object or *rla* for third person singular dative object.) Overall, more lexical arguments were null than overt when non-null bound pronominals were used. However, for the youngest two groups more subjects were null than overt in ANY context, so one cannot argue that the presence of a non-null form INFLUENCES ellipsis of the lexical arguments. Thus while seven of the eight children in the four- to five-year group and all the children in the six-year-old group had more null arguments than overt in contexts with non-null bound pronominals, this is a function of the lack of overt subjects and objects overall. In the seven-to-eight group, four of the children had more overt arguments than null in non-null bound pronominal contexts, and in the nine-to-ten group, three had more. For the adults, two of the six had more. So there is individual variation, but no clear differences emerged, developmentally,

for lexical argument ellipsis when bound pronominals were overt (that is, other than third singular).

Bound pronominals give information (number and person) about the core arguments, but ambiguity still arises, just as with a zero form. In the following extract (example [10]) from an adult, the dog and child form one pair (dual), but the two frogs another, so *pala* '3DUSUB' could refer to either. In the segment the lexical argument (for two frogs) is included in one sentence, as well as the dual object marker *palangu*. The dual subject marker *pala* in the next sentence seems to refer to the two frogs, not the boy and his dog, but either interpretation is possible without nonverbal contextual information. Overall, the closest possible referent is the one that adults most frequently linked to a bound pronominal marker when there was possible ambiguity. However, verb semantics also influenced the interpretation.

(10) Yan-tir-rni. wurulypa wangka-nja wangu warlkur wangka-nja
go-IMP-DIR quiet (PV) talk-INF without bark talk-INF
wangu, wirriya-rlu-ju ngarra-rnu.
without boy-ERG-FOC ask-P
'Come here, stay quiet, don't bark, don't bark the boy asked (it).'
junga-juku-pala warrka-rnu-rra watiya-wana.
true-just-3DUSUB climb-P-DIR tree-along
'Then (they) climbed away along a tree.'
nya-ngu-palangu jarlji-jarra kalinja nyina-ja-lpa-pala.
see-P-3DUOBJ frog-DU spouse sit-P-IMPV-3:DUSUB
'(He) saw two frogs, husband and wife. (They) were sitting.'
kurdu-kurdu-lu-rlu ngula pura-ja
child-child-3PLSUB-ERG that/then follow-P
'The children followed.'

Generally, overt bound pronominals were more frequent in the last episode of the story, that is, after the boy and dog had fallen into the water. In most of the stores, these two participants remain the subject of the majority of sentences following the fall, with *pala* as the non-null bound pronominal. That is, a same-subject context is created for many of the final sentences. However, recall that more subject ellipsis was found in same-subject contexts than in switch contexts. So in this last episode, ellipsis is more likely to be influenced by the content—which creates a same-subject context—than the presence of bound pronominals.

7. Repetition of information

The discourse of mature speakers, as mentioned above, includes much repetition. There may be two words for the same referent in one sentence,

for example, two words for dog (*jarntu* and *maliki*). Another pattern is the repetition of a whole sentence. A third pattern is what I have referred to as a "build-up" style; in each utterance some information from the last is repeated with some new information added. An example is given in (11), from one of the adult stories. In adult stories an argument might appear at the end of a series of sentences, rather than in the first sentence, as the example shows. Repetition is found in the stories from the children, as shown in (12), from an eight-year-old. However, even the stories from the younger children show repetition, of a word or of a whole sentence.

(11) wali purla-ja-rla. rdaku-jangka wilypi-pardi-ja jungunpa.
PART call-P-3DATOBJ hole-ELL arise-P mouse
ya-nu jingi-jingi. watiya-rla warrka-rnu. purla-ja-lpa-rla
go-P straight tree-LOC climb-P call-P-IMPV-3DATOBJ
kuja-lpa-rla purla-ja jarlji-ki, wirriya-wita-pardu
thus-IMPV-3DATOBJ call-P frog-DAT boy-small-DIM
'(He) called for (it). From his hole arose a mouse. (He) went straight. (He) climbed a tree. (He) was calling for (it); thus (he) was calling for the frog, the little boy.'

(12) wanti-ja-pala. jarntu manu kurdu-pala wanti-ja.
fall-P-3DUSUB dog and child-3DUSUB fall-P
ngapa-kurra-pala wanti-ja, kurdu-jarra
water-ALL-3DUSUB fall-P child-DUAL
'(They) fell. The dog and child fell. To the water (they) fell, the two children.'

8. Conclusions

A number of conclusions can be drawn about argument ellipsis from the analysis of the Warlpiri frog stories. For the youngest children few overt lexical arguments were included. In English, which employs pronominal anaphors and definite articles, young children use these forms in their early narratives, but with a different function from mature speakers. As Karmiloff-Smith (1981, 1985), Hickmann (1991), and others have argued, pronouns and definite nouns in young children's discourse have a deictic function. Children assume referents. The anaphoric function is acquired later as children develop cohesion strategies for discourse.

When a referent has been introduced, subsequent ellipsis is zero anaphora, and such anaphora helps create cohesion. In Warlpiri, anaphors such as *nyanungu* 'that one' are not used frequently by young children. One example, from a six-year-old, is given in (13); note that it is

case-marked with an ergative case marker, showing that it stands for the null ergative subject. In this example, *nyanungu* is used alone, but in sentences with *nyanungu*, the lexical argument may also be included, and it is typically overt in the few examples containing *nyanungu* in the stories. Thus there is redundancy, just as with two words for dog in the same sentence. The inclusion of the lexical argument and *nyanungu* is another example of the repetition style.

(13) kuju-rnu-lku-palangu ngapa-kurra nyanungu-rlu. kuja
throw-P-then-3DUOBJ water-ALL that one-ERG thus
ngapa-ngka-pala julyurl-wantija
water-LOC-3DUSUB PV-fall
'Then it threw (them) to the water. Thus in the water (they) swam.'

The higher percentage of overt lexical arguments overall for the seven- to eight-year-olds can be attributed to several factors. First, more events and details about the secondary participants were included than in the stories from the younger groups, and the secondary characters involved in these episodes were frequently named (e.g. the bees, the 'mouse', the tree, the owl, the log). Second, the children in this age group might be aware of potential ambiguity, adding lexical arguments when more mature speakers might have left them out. Alternatively, restructuring of linguistic knowledge is responsible for this phase, as strategies for producing cohesive narratives develop. That the differences for this age group were noted for subject and object ellipsis is support for a general reorganization of knowledge about sentence and discourse structure and the functions of the linguistic elements. The data support Karmiloff-Smith's (1985) three-phase model. In the Warlpiri stories, the children first assume referents, focusing on what is happening to the characters; then they are more specific about who is involved, showing awareness of the different participants in the events of the story, the links between the different episodes, and the argument structures for different verbs. Finally, the speakers are less rigid; ellipsis or overt expression of lexical arguments is manipulated for cohesion and also for rhetorical effect.

Two other major findings are significant. More subjects were nonovert in same-subject contexts, indicating that lexical argument ellipsis is a general cohesion strategy. Second, the presence of a non-null bound pronominal does not seem to result in more argument ellipsis.

In conclusion, a focus on whether children show language-specific differences in the use of pronominal subjects (for example as discussed by Valian 1991) is of value in showing that young children are aware of the grammatical category subject and that they are influenced by language-specific input in their early utterances. However, such findings

do not account for what the null arguments represent. A functional approach with a focus on the contexts in which arguments are overt or null at different ages is necessary to provide a developmental account of changes in the functions. Such an account complements those of early ellipsis of subjects in child utterances.

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Notes

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1. See Hale (1982, 1983) and Nash (1986) for detailed descriptions of the grammar of Warlpiri.
2. The following abbreviations are used:

ALL	allative
DAT	dative
DIM	diminutive
DIR	directional
Du	dual
ELL	elative
ERG	ergative
FOC	focus
FUT	future
IMP	imperative
IMPV	imperfective
INF	infinitive
LOC	locative
NP	nonpast
OBJ	object
P	past
PART	particle
PL	plural
PV	preverb
Q	question
SG	singular
SUB	subject
3	third person

3. Note that the author has worked in the community for many years and is well known to the children and their mothers, some of whom were children themselves on the

researcher's first fieldtrips. The children in the community have participated in other tasks with the researcher over the years.

4. Adults do not spend time looking at picture books with their children as in Western society, nor do they ask rhetorical questions or prompt children to give answers to questions about picture books (see Bavin 1991). People in Yuendumu live in camps in extended families, many outside. Possessions are few. Children learn in real-life situations in large group settings. They are not separated from adult activities.
5. Because so few referents were introduced by the younger children, an analysis of given versus new information is not possible across the age range. One would have to include assumed given, which is not consistent with such an analysis. Similarly, when participants are not introduced it is not possible to discuss proximity of the last mention. The data are not suited to the types of analyses adopted by Allen, for example, in her discussion of ellipsis in Inuktitut, adopting principles of informativeness discussed by Greenfield and Smith (1976).

References

Bamberg, M. (1987). *The Acquisition of Narratives: Learning to Use Language*. Berlin: Mouton de Gruyter.

Bavin, Edith L. (1987). Anaphora in children's Warlpiri. *Australian Review of Applied Linguistics* 10, 1–11.

—(1990). Locative terms and Warlpiri acquisition. *Journal of Child Language* 17, 43–66.

—(1991). Socialization and the acquisition of Warlpiri kin terms. *Papers in Pragmatics* 1, 319–344.

—(1992). The acquisition of Warlpiri. In *The Crosslinguistic Study of Language Acquisition*, vol. 3, D. Slobin (ed.), 309–371. Hillsdale, NJ: Erlbaum.

—(1995). Inflections and lexical organisation: some evidence from Warlpiri. In *The Development of Morphological Systematicity*, H. Pishwa and K. Marold (eds.), 39–53. Tubingen: Narr.

—(1998). Factors of typology in language acquisition: some examples from Warlpiri. In *Case, Typology and Grammar*, A. Siewierska and J. Song (eds.), 37–55. Amsterdam and Philadelphia: Benjamins.

—(1999). Focussing on where: an analysis of Warlpiri frog stories. Unpublished manuscript.

—; and Shopen, Timothy (1985). Warlpiri children's development of narrative. *Berkeley Linguistics Society Proceedings* 11, 1–13.

Berman, Ruth; and Slobin, Dan I. (1994). *Different Ways of Relating Events in Narrative: A Crosslinguistic Developmental Study*. Hillsdale, NJ: Erlbaum.

Bloom, Paul (1990). Subjectless sentences in child language. *Linguistic Inquiry* 21, 491–504.

Bowerman, Melissa (1982). Reorganisation processes in lexical and syntactic development. In *Language Acquisition: The State of the Art*, E. Wanner and L. R. Gleitman (eds.), 319–346. Cambridge: Cambridge University Press.

Brewer, W. F. (1985). The story schema: universal and culture-specific properties. In *Literacy, Language and Learning: The Nature and Consequences of Reading and Writing*, D. R. Olson, N. Torrance, A. Hildyard, and R. Scollon (eds.), 167–194. Cambridge: Cambridge University Press.

Clancy, Patricia M. (1993). Preferred argument structure in Korean. In *Proceedings of the Twenty-Fifth Child Language Research Forum*, E. Clark (ed.), 307–314. Stanford: CSLI.

DuBois, John W. (1987). The discourse basis of ergativity. *Language* 63, 805–855.

Gerken, LouAnn (1991). The metrical basis for children's subjectless sentences. *Journal of Memory and Language* 30, 431–451.

Greenfield, Patricia; and Smith, Joshua H. (1976). *The Structure of Communication in Early Language Development*. New York: Academic Press.

Hale, Ken (1982). Some essential features of Warlpiri verbal clauses. In *Papers in Warlpiri Grammar: In Memory of Lothar Jagst*, S. Swartz (ed.), 217–313. Papers of SIL-AAB, Series A, 6. Darwin: Summer Institute of Linguistics.

—(1983). Warlpiri and the grammar of nonconfigurational languages. *Natural Language and Linguistic Theory* 1, 5–47.

Hickman, M. (1980). Creating referents in discourse: a developmental analysis of linguistic cohesion. In *Proceedings of the Chicago Linguistic Society Parasession on Pronouns and Anaphora*, 192–203. Chicago: CLS.

—(1991). The development of discourse cohesion: some functional and cross-linguistic issues. In *Language Bases … Discourse Bases*, G. Pieraut-le Bonniec and M. Dolitsky (eds.), 157–183. Amsterdam: Benjamins.

Hyams, Nina (1986). *Language Acquisition and the Theory of Parameters*. Dortrecht: Reidel.

—(1989). The null subject parameter in language acquisition. In *The Null Subject Parameter*, O. Jaeggli and K. F. Safir (eds.), 215–238. Dordrecht: Kluwer.

Jelinek, Eloise (1984). Empty categories, case and configurationality. *Natural Language and Linguistic Theory* 2, 39–76.

Karmiloff-Smith, Annette (1981). The grammatical marking of thematic structure. In *The Child's Construction of Language*, W. Deutsch (ed.), 123–147. London: Academic Press.

—(1985). Language and cognitive processes from a developmental perspective. *Language and Cognitive Processes* 1, 61–85.

Labov, W.; and Waletsky, J. (1967). Narrative analysis: oral versions of personal experience. In *Essays in the Verbal and Visual Arts*, J. Helm (ed.), 12–44. Seattle: University of Washington Press.

Mayer, Mercer (1969). *Frog, Where Are You?* New York: Dial Books for Young Readers.

Nash, D. (1986). *Topics in Warlpiri Grammar*. New York: Garland.

Peterson, Carole; and MacCabe, Allysa (1994). A social interactionalist account of developing decontextualized narrative skills. *Developmental Psychology* 30, 937–948.

Sutton, Peter; Anderson, C.; Dussart, Francoise; and Hemming, F. (1988). *Dreamings: The Art of Australian Aborigines*. New York: George Braziller.

Valian, Virginia (1991). Syntactic subjects in the early speech of American and Italian children. *Cognition* 40, 21–81.

—; and Eisenberg, Zena (1996). The development of syntactic subjects in Portuguese-speaking children. *Journal of Child Language* 23, 103–128.