The distribution of passives in spoken Sesotho

Katherine Demuth* and Melissa Kline

Department of Cognitive & Linguistic Sciences, Brown University, Box 1978,
Providence, Rhode Island, USA
* Corresponding author, e-mail: katherine_demuth@brown.edu

Abstract: A previous study of passive constructions has suggested that these are much more frequent in Sesotho than in English spontaneous speech (Demuth, 1989). This has raised a number of questions regarding the possible effects of the input on the apparently earlier acquisition of passives in Sesotho. This paper explores the distribution of passives in Sesotho child-directed speech. It aims to provide a more thorough investigation of the grammatical, lexical and discourse contexts in which the passive is used. The findings confirm that passives occur in approximately 4% of utterances directed at 2–3-year olds. Many of these are full (rather than truncated) passives, most occurring with actional verbs that show active/passive alternations. Many passives are also questions/clarifications about past events. The implications for language acquisition are discussed.

Introduction

The mechanisms underlying the acquisition of the passive construction continue to be hotly debated. This is partly due to crosslinguistic differences in the age when passives are acquired. Researchers of languages where the acquisition of passives is late (for example, English) propose that this is due to the late maturation of the grammatical principles necessary for passive formation (for example, Borer & Wexler, 1987). In contrast, researchers of languages where the acquisition of passives is acquired early (for example, Sesotho) attribute this to the high frequency with which passives are used in input which children hear (Demuth, 1989). Still others suggest that children learn the passive construction verb-by-verb, making syntactic generalisations only later (for example, Brooks & Tomasello, 1999).

Passive constructions are rarely used in spoken English. They tend to occur more in written text, including newspaper headlines. As a result, young English learners rarely hear passives in the speech directed to them (child-directed speech) (Gordon & Chafetz, 1990). Like adults, children learning English rarely use passives in their own spontaneous speech productions, and perform poorly in experiments designed to elicit such forms (Maratsos *et al*., 1985; Pinker *et al*., 1987). In contrast, previous research has suggested that Sesotho learners hear passive constructions much more frequently, and this stimulates earlier acquisition of these constructions (Demuth, 1989).

The primary goal of this study was to provide a better understanding of the factors that might influence children's acquisition of passives. We therefore wanted to explore more deeply the nature of passive constructions in Sesotho to better understand why these might be use more frequently in informal Sesotho than in languages like English. A secondary goal was to provide a framework for exploring the use of passives in other Bantu languages. Since we suspect that the distribution of passives in other Bantu languages may be similar to that found in Sesotho, these findings would also generalise to other languages. The database used to address these questions is the Demuth Sesotho Corpus, found on the CHILDES[1] database (Demuth, 1992). For the purposes of this paper, all adult utterances (directed toward children) in the H files (one third of the entire corpus) were extracted and analysed as outlined below. The data analysed included a total of 3022 utterances containing 3562 verbs.

In the first section we provide an introduction to the syntactic structure of Sesotho passives. In the second section, we examine the frequency with which these occur in spoken (child-directed

speech. In the section entitled, 'The productivity of Sesotho passives' we explore the productivity with which passives are used as a function of declaratives versus interrogatives. This section also investigates full versus truncated passives, question type, verb type (passive-active verb alterna- tions, actional versus non-actional), the use of the passives with the perfect, and the larger discourse contexts in which these constructions are found. We conclude with a discussion of the implications of these findings on language acquisition.

The syntax of Sesotho passives

Like most other Bantu languages, Sesotho is an SVO language with an extensive noun class prefix and agreement system (cf. Doke & Mofokeng, 1985). This is useful for determining if arguments have moved (cf. Demuth & Harford, 1999; Harford & Demuth, 1999). The subject-agreement facts demonstrate that the lexical subject has raised out of VP-internal position, triggering agreement on the verb (1a). In a passive (1b) or with an unaccusative verb (1c), the object raises to subject position, also triggering agreement on the verb. However, if movement has not taken place, as in the case of the unaccusative verb in (1d), the object remains in postverbal position. In impersonal passives, *subject agreement* is filled with the expletive marker *ho* (locative class 17), which does not agree with any nouns in Sesotho, and carries presentational focus. Sesotho also permits unergative verbs to passivise, creating impersonal passives like that in (1e) (cf. Machobane, 1987; Demuth, 1990a; Demuth & Mmusi, 1997).[2]

(1a)   Basadi   ba-rek-il-e   di-tapole
        2-women   2AGR-buy-PERF-FV 10-potatoes
         'women bought some potatoes'
(1b)   Di-tapole$_i$ di-rek-il-w-e t_i (ke ba-sadi)
        10-potatoes 10AGR-buy-PERF-PASS-FV (by 2-women)
        'The potatoes were bought (by the women).'
(1c)   Ba-sadi$_i$ ba-fihl-il-e t_i
        2-women 2AGR-arrive-PERF-FV
        'The women arrived.'
(1d)   Ho-fihl-il-e   basadi
        17-arrive-PERF-FV women
        'There arrived women.' ('Women arrived.')
(1e)   Ho-a-bin-w-a
        17-PRES-sing-PASS-FV
        'There is being sung.' ('There is singing.')

Evidence that the arguments in (1a–c) have moved to subject position comes from the fact that relative clauses use different process for extracting from subject and object position (Demuth, 1995). Consider the subject relatives in (2a–c) where the monosyllabic subject complementiser cliticises to the verb. Compare this with the object relative in (3), which contains a disyllabic complementiser and a resumptive object pronoun.

(2a)   Ke-rat-a   ba-sadi$_i$ [t_i ba-rek-il-e-ng   di-tapole]
        1sAGR-like-FV 2-women 2REL-buy-PERF-FV-RL 10-potatoes
        'I like the women who are buying potatoes.'
(2b)   Ke-rat-a   di-tapoli$_i$ [t_i tse-rek-il-w-e-ng   (ke ba-sadi)]
        1sAGR-like-FV 10-potatoes 10REL-buy-PERF-PASS-FV-RL (by 2-women)
        'I like the potatoes that were bought (by the women).'
(2c)   Ke-rat-a   ba-sadi$_i$ [t_i ba-fihl-il-e-ng]
        1sAGR-like-FV   2-women   2REL-arrive-PERF-FV-RL
        'I like the women who arrived.'

(3)   Ke-rat-a   di-tapole$_i$ [tseo   ba-sadi   ba-di-rek-il-e-ng t_i]
         1sAGR-like-FV   10-potatoes   10REL   2-women 2AGR-10OBJ-buy-PERF-FVRL
         'I like the potatoes that the women bought.'

Thus, while Sesotho does not have good tests for quantifier float or mutual c-command, these diagnostics demonstrate that the formation of passives and unaccusative verbs in Sesotho involves the same types of syntactic processes as in English. That is, the object noun raises to subject position via A-chain formation, and is then suppressed, being realised as either null (in truncated passives) or as part of a by-phase (in full passives). The structure of impersonal passives, as in (1e) is less clear. Perlmutter (1978) uses a relational grammar analysis of German, proposing that impersonal passives also result from movement. We have considered several different analyses of this construction in the past (cf. Demuth, 1987; 1990a; Machobane, 1987; Demuth & Mmusi, 1997). It is still an open question as to whether the impersonal passive exhibits argument movement. The results for verbal and impersonal passive verbs are therefore listed separately in the discussion below.

The frequency of Sesotho passives in everyday speech

Like many Bantu languages, Sesotho does not permit wh-words in subject position (4a). This means that either a passive (4b) or a cleft/relative construction (4c) is used to form subject questions (Doke & Mofokeng, 1985; Demuth, 1995). This is part of a larger tendency found in many Bantu (and other) languages to map topical information into subject position and new information into object position (cf. Bresnan & Mchombo, 1987).

(4)   The formation of subject questions
(4a)   *Mang o-qad-il-e   le-bese?
         1who 1AGR-spill-PERF-FV 5-milk
         'Who spilled the milk?'
(4b)   Le-bese le-qad-il-w-e   ke mang?
         5-milk   5-1AGR-spill-PERF-PASS-FV by who
         'The milk was spilled by whom?'
(4c)   Ke mang ea-qad-il-e-ng   le-bese
         CP 1who 1RL/AGR-spill-PERF-FV-Rel 5-milk
         'It is who that spilled the milk?'

Demuth (1989) hypothesises that this grammatical constraint might be one of the factors enhancing the use of passives in Sesotho, especially in child-directed speech. However, previous analyses have only examined a small portion of the corpus (4 hours of speech). In our first analysis we therefore wanted to investigate the overall frequency of passives in the Sesotho corpus. To do this, we extracted all child-directed utterances produced by the 19 adult speakers (including one 15 year old) in the H files (approximately a third of the corpus). We then included for analysis all utterances containing at least one semantically contentful (non-copula) verb. Thus, the copula (5a), all variants of the copula-like verbs *na*, 'to be' (5b), and *ra*, 'to say' (5c), as well as any lexicalised expressions (5d–g) were excluded from our analyses. Finally, identical consecutive utterances were counted only once.

(5)   Excluded copula verbs and formulaic expressions
(5a)   Ke mo-kopu
         CP 3-pumpkin
         'It is a pumpkin.'
(5b)   Ha   e-n-a   ma-bidi?
         NEG 9AGR-be-FV 6-wheel
         'It doesn't have wheels?'

(5c)   Ke-r-e   khudu
        1sAGR-say-FV 9tortoise
        'I say tortoise.'
(5d)   Ho-th-w-e-ng?
        17-say-PASS-FV-WH
        'What is said?'
(5e)   Mona ho-its-w-e   monkey
        here 17-say/PERF-PASS-FV monkey
        'Here it is said monkey.'
(5f)   U-ts'wer-w-e   ke bo-roko ?
        2sAGR-grab-PASS-FV CP 14-sleep
        'Are you drowsy?'
(5g)   Tsam(ay-a u-y-e)   (h)o-mo-jwets-a [tsam'o mo jwetsa]
        leave-FV 2sAGR-go-FV INF-1OBJ-tell-FV
        'Leave (and go) tell her.'

All remaining verbs were tagged for the presence or absence of the passive morpheme, and for the expletive subject marker that indicates an impersonal passive.

Out of a total of 3562 verb tokens, 142 (4%) were used in the passive. Only 15 (0.4%) of these were impersonal passives, constituting 11% of all passive constructions. These results are shown in Table 1.

Table 1: Number (per cent) of verbal and impersonal passives, and number (per cent) of verbs used in the passive and active in Sesotho child-directed speech

	Verbal passive	Impersonal passive	Total
Passive	127 (89)	15 (11)	142 (4)
Active			3420 (96)
Total			3562

These results confirm Demuth's (1989) contention that passives occur frequently in Sesotho child-directed speech (though the original estimate, based on a very small corpus, was 6%). This finding clearly contrasts with languages like English, where the per cent of verbal passives in a larger corpus of English child-directed speech was approximately 0.1% (Gordon & Chafetz, 1990). As noted in Demuth (1989), this has implications for language learners, namely that it facilitates the learning of these constructions.

The productivity of Sesotho passives

One of the issues that has long been of interest in the field of language acquisition is how general or item-specific children's early lexical representations might be. This has been of particular concern in the acquisition of verbs, where Tomasello (1992) *et al.* propose that children first learn verb-island constructions, only later developing more abstract lexical and syntactic representations. We can ask the same of adults: is the use of passive verbs productive? Or is it restricted to a small class of verbs that only occur in the passive, or only in restricted syntactic or semantic contexts? In this section we explore the constructions and verbs with which the passive occurs. We first examine the use of the passive in questions and in full versus truncated form. We then focus on the types of verbs used in the passive and the extent to which the verb semantics are actional versus nonactional. We investigate whether verbs co-occur with perfect aspect, or have adversity semantics, possibly leading to a stative interpretation.

Sesotho passives used as questions

Demuth's (1989) initial work suggested that many of the passives used in Sesotho child-directed speech were questions. However, it was also noted that children's passives tended to be declaratives. This raises the possibility that children and adults may use passives in different discourse contexts. The purpose of this part of the study was therefore to determine if Demuth's original observations were true, and if so, why. Given the possibility that subject questions might increase the number of passives in Sesotho, we wished to determine what per cent of passives were questions, and if this was different from the per cent of actives that were questions. For this analysis, 'question' verbs were defined as all verbs occurring in a question utterance, coded by the presence of a '?' marker in the morphology tags. The results are shown in Table 2. While 41% of active verbs in the corpus occurred in the context of questions, this proportion was more than double for passive verbs (87% for verbal passives). This finding therefore confirms Demuth's (1989) conjecture that many of the passives in Sesotho child-directed speech are questions.

Table 2: Number (per cent) of passive and active verbs used in questions

	Questions	Declaratives	Total
Verbal passive	111 (87)	16 (13)	127
Impersonal passive	12 (80)	3 (20)	15
Active	1417 (41)	2003 (59)	3420
Total	1540 (43)	2022 (57)	3562

Given the disparity between the frequencies with which Sesotho passive and active verbs are used in questions in child-directed speech, we investigated what types of passive questions were used (subject, object/oblique, yes-no, or other). Questions such as those in (6a) and (6b) were both coded as subject questions. Examples (6c–e) show examples of object, oblique, and yes-no questions respectively. Multi-clause questions as in (6f) were multi-clause utterances in which the information requested involves either a copula or no verb at all, and were coded as 'other.'

(6)   Coding of Question Types

(6a)   Le-bese le-qad-il-w-e   ke mang?   Subject
        5-milk 5-1AGR-spill-PERF-PASS-FV by who
        'The milk was spilled by whom?'

(6b)   Ke mang ya-quad-il-e-ng   le-bese?   Subject
        CP 1who 1RL/AGR-spill-PERF-FV-Rel 5-milk
        It is who that spilled the milk?

(6c)   Ba-ets-a   jwang?   Object
        2AGR-do-FV what
        'What are they doing?'

(6d)   U-y-a   kae?   Oblique
        2sAGR-go-FV where
        'You are going where?'

(6e)   U-j-a   le-phoqo?   Yes/No
        2sAGR-eat-FV 5-cornstalk
        'You are eating a cornstalk?'

(6f)   N-jwets-e   ntho eno ke eng?   Other
        1OBJ-tell-FV thing this CP what
        'Tell me what is this thing?'

The results are presented in Table 3. As Demuth (1989) hypothesised, the majority of passive questions were subject questions (73% of verbal passives, or 66% including impersonals). In contrast, most of the questions that take only active verbs are Object/Oblique or Yes/No questions.

Table 3: Number (per cent) of verbal passive questions and declaratives that are full passives

	Subject	Object/Oblique	Yes-no	Other	Total questions
Verbal passive	81 (73)	15 (14)	15 (14)	0 (0)	111
Impersonal passive	0 (0)	7 (58)	5 (42)	0 (0)	12
No passive verbs	21 (2)	767 (59)	485 (37)	22 (2)	1295
Total	104 (7)	789 (56)	505 (36)	20 (1)	1418

These findings confirm that the use of subject questions is a major factor in the high rate of passives in Sesotho child-directed speech. Cleft/relative constructions can also be used to form subject questions that are contrastively focussed, as shown in (4c). All of these take the active form of the verb, though one was expressed using a (non-passive) impersonal construction. This is shown in (7) below.

(7)   Ho-rek-is-a   mang?
         17-buy-CAU-FV who
         'Who is selling?'

These findings show that passive syntax is the most common construction used to satisfy the grammatical constraint found in Sesotho against wh-question words appearing in subject position (cf. (4a)). In the next section we examined the extent to which these subject questions, and passives more generally, occurred with either a full by-phrase or in truncated form.

Full versus truncated passives

In an attempt to understand why passive constructions might be acquired late in English, some researchers have proposed that the form which English passives typically take may be a verbal passive (which entails movement), and an adjectival (or lexical) passive, which does not (Wexler, 1999). Thus, the sentence 'the lamp was broken' is ambiguous between a state, and a truncated verbal passive where the agent has been suppressed. However, in the full passive 'the lamp was broken by the boy', the ambiguity disappears, rendering a well formed verbal passive reading. Babyonyshev *et al*. (2001) suggest that children may treat such 'truncated forms' as adjectival passives even when an adult would treat them as a verbal passive. One of the issues addressed below, then, was the extent to which Sesotho passives also occur with a by-phrase, resulting in an unambiguously verbal passive. We expected that a large proportion of Sesotho verbal passives would be full passives, and that many of the full passives would be questions. The results are presented in Table 4. Both hypotheses were confirmed: 72 % of Sesotho verbal passives were full passives, and all but one of these was a question. Thus, 81% of all passive questions were full passives.

Table 4: Number (per cent) of verbal passive questions and declaratives that are full passives

	Questions	Declaratives	Total
Verbal passive	90/111 (81)	1/16 (6)	91/127 (72)

Fox and Grodzinsky (1998) suggest that full passives with a by-phrase, where the thematic role of agent is clear, may have a facilitating effect on learning verbal passives. If they are right, the high instance of by-phrases may enhance the earlier comprehension and production of Sesotho passives. We have therefore shown that 4% of the utterances which Sesotho-speaking children hear contain passives, and that 72% of verbal passives are full passives.

Verb-types used in the Sesotho passive

Although Sesotho (and many other Bantu languages) does not have an adjectival passive construction, there are two possible ways in which the lack of a by-phrase might be relevant. First, Suzman (1987; 1990) suggests that many of the passives in Zulu child-directed speech result in a negatively affected argument (for example, kick, hit, push, throw, tie up, etc.). Second, adversity passives in Japanese have been analysed as not containing A-chain movement (Miyagawa, 1989). Sesotho does have a selection of hitting verbs used in the passive, although many other verbs are used in the passive as well. Another goal of the study was therefore to examine the types of verbs used in the Sesotho passive, if these verbs alternate between the passive and active form, if these are actional or non-actional verbs, and the degree to which they contain negatively affected patients. We first determined if the verb types used in the passive only occur in the passive, or if they also are found in the active. For the purposes of this analysis, verb types were classified by verb root. Thus, **ho-rek-a** 'to buy', and **ho-rek-is-a** 'to sell' (i.e., cause to buy), were considered two instances of the verb root **–rek**- 'buy'. Out of 251 verb types appearing in the corpus, 37 contained a passive morpheme.

Appendix A lists how often these 37 verb types were used in the passive and active and the overall per cent of passive use. Four of these verb types occurred in both active form and in the impersonal passive, but not in other passive constructions. These are indicated by an asterisk. Additionally, 5 verbs occurred only in the passive, as indicated by 100% passive use. However, the corpus considered here is small. We therefore expect that once a larger corpus of data is analysed, we may find that these verbs also occur in the active. Thus, it appears that there are few Sesotho verbs that are only used in the passive. This should ensure that Sesotho learners hear most passive verbs alternate between passive and active form, further enhancing knowledge of the active/passive syntactic alternations.

It has also been noted in the literature that young learners of English find nonactional passives more difficult to learn than actional passives (for example, Maratsos *et al*., 1985; Gordon & Chafetz, 1990). If very few of the verbs which Sesotho adults used in the passive were non-actional verbs, we might likewise expect Sesotho-learners to exhibit a protracted course of non-actional passive acquisition.

In the next analysis we coded all verbs in the corpus in terms of whether they were actional or non-actional by grouping the 251 verb types present in the adult input into several semantic classes which were subsets of one of these categories. Following Gordon and Chafetz (1990), we made actionality classifications at the level of verb type. In future studies it may be beneficial to distinguish between more or less actional uses of the same verb. For instance it may be useful to compare the distribution of 'kick the ball' versus 'kick the habit'. Actional verb types included all those that necessarily involve a salient observable event of some kind, such as **ja** 'eat', **jwetsa** 'tell', and **hohleda** 'cough'—note that neither causation nor intentionality was required for actionality. Verbs were also called actional if they were used in most input utterances in contexts implying an observable action central to the meaning of the verb. Examples of this class include **eketsa** (add) and **hlodiya** (annoy). Non-actional verbs included perceptual and mental states — **bona** (see) and **belaela** (doubt), as well as ongoing physical processes or conditions like **lapa** (become hungry), **bata** (be cold) and **na** (rain.) Finally, any other verb which did not involve an observable action either by definition or overall use was classified as non-actional. Examples of these include **kholwa** (be convinced) and ts'wana (be alike.) Table 5 lists the ten most frequent actional and non-actional verbs.

Table 5: The highest frequency Sesotho actional and non-actional verb types and tokens

	Actional verbs			Non-actional verbs	
etsa	'do/make'	301	*bona*	'see'	137
ya	'go'	223	*utlwa*	'feel/hear'	94
tla	'come'	162	*batla*	'seek/like'	90
fa	'give'	148	*tseba*	'know'	79
jwetsa	'tell'	121	*sheba*	'look'	69
nka	'take'	93	*tloha*	'leave/abandon'	43
ja	'eat'	88	*rata*	'like'	30
bua	'speak'	70	*thola*	'become silent'	28
shapa	'thrash'	67	*siya*	'leave behind'	26
bina	'sing'	64	*robala*	'sleep'	23

The input contained a broad range of actional verbs (193 out of 251 total verb types). Actional verbs constituted the majority, although non-actional verbs constituted a substantial percentage. On the other hand, a striking 99% of verbal passive constructions and 100% of impersonals occurred with actional verbs. This is shown in Table 6.

Table 6: Distribution of actional and non-actional verbs

	Actional	Non-actional	Total
Verbal passive	126 (99)	1 (1)	127
Impersonal passive	15 (100)	0 (0)	15
Active	2612 (76)	808 (24)	3420
Total	2753 (77)	809 (23)	3562

There was only one instance of a non-actional verb used in the passive voice. The verb was ***rata***, to like, which was one of the more frequent non-actional verbs in the entire corpus. Thus, it is clear that the great majority of the passive verb types that Sesotho-speaking children hear are actional verbs. This should facilitate early acquisition and use of the Sesotho passive.

Sesotho passives used with perfect aspect

The perfect aspectual marker indicates completion of an action, often resulting in a present state (cf. Machobane, 1985). It also functions as a general past tense marker, both for recent and more distant events (Doke & Mofokeng, 1985). Sesotho also has a set of 'inchoative' verbs that assume a stative reading when used in the perfect (for example, mount/ride (***palama***), put on/wear (***roala***), sit down/sit (***dula***) etc.). It is therefore possible that language learners might treat Sesotho passives as stative events. Another goal of this study was therefore to examine the co-occurrence of the passive with the perfect, and the possible interpretation of such examples as states rather than completed actions.

Researchers of English have proposed that truncated passives such as, 'the lamp was broken', are ambiguous between a passive and a non-passive stative interpretation (Wexler, 1999). In this analysis we were therefore interested to determine if a large proportion of Sesotho passives were used with perfect aspect, perhaps leading to a more stative interpretation. To do this we coded all active and passive verbs for co-occurrence with the perfect. This is realised by the ***–il-*** affix and its morphological variants (cf. Doke & Mofokeng, 1985) as shown in Table 7.

Although verbs occurring with perfect aspect were infrequent across the corpus as a whole (only 13%), more than half (60%) of the verbal passives co-occurred with perfect aspect.

Table 7: Number (per cent) of verbs appearing with perfect aspect

Verbal passive	Impersonal passive	Active	Total
76/127 (60)	3/15 (20)	437/3420 (13)	516/3562 (14)

However, it cannot be claimed that these perfect passives are treated by native speakers as stative events, because the majority of verbal passives in both the perfect and other aspects were full passives containing a by-phrase. This is shown in Table 8.

Table 8: Number (per cent) of full passives used with the perfect or other tense/aspect (T/A)

	Full passive	Truncated passive	Total
Perfect	63 (83)	13 (17)	76
Other T/A	28 (55)	23 (45)	51
Total	91 (72)	36 (28)	127

Thus, the use of the verb, **qabola** 'to amuse' in (8) cannot be construed as being either an adjectival/lexical passive (a construction which Sesotho does not possess — cf. Demuth, 1989), or a 'completed event' (i.e., to be in a state of amusement).

(8)   Jwale u-qabots-w-e   ke   eng ?
            Now 2sAGR-amuse/PERF-PASS-FV   CP   what
            'Now you were amused by what?'

The high rate of passives used with perfect aspect may be a function of the high frequency of passives which are used as part of questions: in both passive and other constructions, a higher percentage of verbs with the perfect aspect were used in questions than was the case for those not in the perfect. This is shown in Table 9.

Table 9: Number (per cent) of questions as a function of tense/aspect (T/A)

	Perfect	Other T/A	Total
Verbal passive	72/76 (95)	39/51 (76)	111/127 (87)
Impersonal passive	3/3 (100)	9/12 (75)	12/15 (80)
Active	292/437 (67)	1125/2983 (38)	1417/3420 (41)
Total	367/516 (71)	1173/3046 (39)	1540/3562 (43)

Thus, perfect aspect is used most frequently in the context of questions, for both active, but especially passive verbs. This may be related to discourse factors, since one of the more frequently used functions of perfect aspect is to seek clarification about past events.

Japanese exhibits the use of adversity passives with verbs like 'kick' or 'push', where the patient is negatively affected. Although this construction has the semantics of a passive, it does not involve A-chain movement (Miyagawa, 1989). Since some Sesotho verbs appear to have similar semantics, it has been proposed that they also do not require A-chain movement (Wexler, 1999). Of the Sesotho verbs used in the passive (see Appendix A), only four can be classified as negatively affecting their arguments: **tsipa** 'pinch', **qala** 'attack/begin', **tabola** 'tear', and **shapa** 'thrash'. All of these verbs

(except for ***tabola***, for which only one token was found in the corpus) also appeared in active constructions. These verbs account for 9.9% of the passive tokens. Thus, over 90% of the passive verbs children hear cannot be construed as adversity passives.

In sum, this section has shown that passive verbs are highly productive in Sesotho. The majority show passive/active alternations, almost all are actional passives, and only a very few might be able to be construed as 'adversity' passive. Most of the passives also occur in subject questions containing a by-phrase. Most also occur in the perfect. Thus, passive constructions are robustly used in Sesotho in certain discourse contexts. This contrasts with English, where passives are often truncated in form, and rarely occur in child-directed speech. These findings therefore confirm that the use of the passive in Sesotho is a productive, integral part of Sesotho grammar, providing ample opportunities for children to assimilate and create such constructions on their own.

Discussion

In this study we have examined several different aspects of passive use in spoken Sesotho. Passives tend to be used in questions, particularly subject questions. This is most likely related to the restriction in Sesotho against mapping question words into (syntactic) subject position, but it is notable that in the majority of cases, passive constructions ('My book was taken by who?') rather than cleft relative clauses ('It's who that took my book?') were employed to satisfy this constraint.

The particular verbs used in the passive were also limited in terms of semantic class in that very few were non-actional. This is in line with the types of passive verbs considered easiest to learn by English-speaking children (Gordon & Chafetz, 1990). Furthermore, with the exception of five low-frequency verbs, we found that passive verbs were used in multiple syntactic frames, providing learners with a robust model of the passive/active alternation.

Demuth (1989) has already shown that Sesotho does not possess an equivalent to the 'adjectival passives' found in English, a construction which is generally considered not involve the same syntactic processes as verbal passives. The present study also disconfirms several other possible ways in which subsets of the passives in Sesotho adult speech might be treated differently from true verbal/syntactic passives. In particular, although a large number of the passive verbs were used with perfect aspect, the majority of these occurred in full passives. The presence of the agentive by-phrase makes an adjectival reading impossible for these verbs. The prevalence of perfect aspect therefore appears to be due to the discourse functions of questions: for both passive and active verbs, the verb was more likely to appear as part of a question if it was in the perfect. This may reflect a discourse bias in questions which seek information or clarification about past events (for example, 'Who took my book?' rather than 'Who will take my book?')

Of course, there are several limitations to the current study. First, the corpus is small: it would be good to consult a larger corpus of data to determine how robust the findings here might be. This is especially relevant for evaluating the likelihood that some verbs may primarily be used in the passive rather than alternating between passive and active form. However, we anticipate that a larger corpus will show even more robustly the patterns found here, where passive verbs typically occur also in the active, and exhibit the other properties found in this study.

Another limitation of the findings presented here is the nature of the corpus examined. Child-directed speech is a specific genre of language which may not be typical of spoken language in general. For example, it may contain shorter utterances and a more reduced set of vocabulary and grammatical constructions than that typically found in adult speech or in written texts. However, we suspect that the distribution of passives reported in this study will be much closer to that found in typical adult conversation than in two different genres of written text. Thus, we suggest that this study provides a good first approximation to the syntactic, lexical and discourse characteristics of passives that will be found in typical Sesotho conversations. As such, this study provides an opening into some of the issues that may be useful not only for understanding how children learn passives, but also for how machine learning might proceed during automatic translation of spoken conversation, either between Bantu languages, or between languages like English and Sesotho.

Conclusion

This study has provided an in-depth analysis of the syntactic, lexical, and discourse characteristics of passive constructions in spoken Sesotho. It found that Sesotho-speaking adults in conversations with young children exhibit active/passive alternations with the same verbs, showing passive productivity. Most of these were actional verbs, the type most easily acquired. Most of the passives also occurred in subject questions with a by-phrase, providing young Sesotho learners with a complete and unambiguous model of syntactic passive form. These results suggest that learners will find passive constructions easier to acquire in Sesotho than in a language like English, where passives are few and typically truncated.

Acknowledgements

Notes

[1] The CHILDES database is available online at: http://childes.psy.cmu.edu/data/other/

[2] Glosses are as follows: AGR= subject-verb agreement, CAU = causative, CP = copula, DEM = Demonstrative, FUT = future, FV = final vowel (mood marker), INF = infinitive marker, NEG = negation, OBJ = object marker, PASS = passive, PERF = perfect aspect, PR = preposition, REL = relative complementiser, RL = relative marker. WH = question marker, Numbers = noun class, 17 = expletive marker.

References

Babyonyshev M, Ganger J, Pesetsky D & Wexler K. 2001. The maturation of grammatical principles: evidence from Russian unaccusatives. *Linguistic Inquiry* **32**: 1–44.

Borer H & Wexler K. 1987. The maturation of syntax. In: Roeper T & Williams E (eds) *Parameter Setting and Language Acquisition*. Dordrecht: Reidel, pp 123–72.

Bresnan J & Mchombo S. 1987. Topic, pronoun, and agreement in Chichewa. *Language* **63**: 741–782.

Brooks P & Tomasello M. 1999. Young children learn to produce passives with nonce verbs. *Developmental Psychology* **35**: 29–44.

Demuth K. 1987. Acquisition of impersonal passives: a matter of case. Paper presented at the Boston University Conference on Language Development, October 1987.

Demuth K. 1989. Maturation and the acquisition of Sesotho passive. *Language* **65**: 56–80.

Demuth K. 1990a. Locatives, impersonals and expletives in Sesotho. In: *The Linguistic Review 7*. Dordrecht: Foris Publications, pp 233–249.

Demuth K. 1990b. Subject, topic and the Sesotho passive. *Journal of Child Language* **17**: 67–84.

Demuth K. 1992. Acquisition of Sesotho. In: Slobin D (ed) *The Cross-linguistic Study of Language Acquisition, Vol. 3*. Hillsdale, NJ: Lawrence Earlbaum Associates, pp 557–638.

Demuth K. 1995. Questions, relatives, and minimal projection. *Language Acquisition* **4**: 49–71.

Demuth K & Harford C. 1999. Verb raising and subject inversion in comparative Bantu. *Journal of African Languages and Linguistics* **20**(1): 41–61.

Demuth K & Mmusi S. 1997. Presentational focus and thematic structure in comparative Bantu. *Journal of African Languages and Linguistics* **18**: 1–19.

Doke CM & Mofokeng SM. 1985. *Textbook of Southern Sotho Grammar*. Cape Town: Longman.

Fox D & Grodzinsky Y. 1998. Children's passive: a view from the by-phrase. *Linguistic Inquiry* **29**: 311–32.

Gordon P & Chafetz J. 1990. Verb-based *versus* class-based accounts of actionality effects in children's comprehension of passives. *Cognition* **36**: 227–254.

Harford C & Demuth K. 1999. Prosody outranks syntax: an optimality approach to subject inversion in Bantu relatives. *Linguistic Analysis* **29**(1&2): 47–68.

Machobane M. 1985. *Tense and Aspect in Sesotho. Studies in African Grammatical Systems No. 3*. Bloomington: Indiana University Linguistics Club (IULC).

Machobane M. 1987. *The Sesotho Passive Constructions. McGill Working Papers in Linguistics, Vol. 4, No. 2*. Montreal, Canada: McGill University, pp 33–52.

Maratsos MP, Fox D, Becker J & Chalkley MA. 1985. Semantic restrictions on children's passives. *Cognition* **19**: 167–191.

Miyagawa S. 1989. *Syntax and Semantics* **22**: *Structure and Case Marking in Japanese*. San Diego, CA: Academic Press.

Perlmutter D. 1978. Impersonal passives and the unaccusative hypothesis. Proceedings of the 4th Annual Meeting of the Berkeley Linguistics Society, Vol. 4, pp 57–189.

Pinker SD, Lebeaux D & Frost LA. 1987. Productivity and constraints in the acquisition of the passive. *Cognition* **26**: 195–267.

Suzman S. 1987. Passives and prototypes in Zulu children's speech. *African Studies* **46**(2): 241–254.

Suzman S. 1990. *Language Acquisition in Zulu*. PhD dissertation, University of Witwatersrand, Johannesburg.

Tomasello M. 1992. *First Verbs: a Case Study of Early Grammatical Development*. Cambridge: Cambridge University Press.

Wexler K. 1999. Maturation and the growth of grammar. In: Ritchie WC & Bhatia TK (eds) *Handbook of Language Acquisition*. San Diego, CA: Academic Press, pp 55–109.

Appendix A: Verb types used in the passive (passive/total, (per cent passive), (* = impersonal passive only, + = non-actional verb)

fa	'give'	39/148 (26)	*kwahela*	'cover'	2/4 (50)
pheha	'cook'	11/47 (23)	*kha*	'draw'	2/5 (40)
shapa	'thrash'	9/67 (13)	*ebola*	'peel'	2/10 (20)
reka	'buy'	9/61 (15)	*rata*+	'like'	1/30 (3)
ja	'eat'	9/88 (10)	*jwetsa*	'tell'	1/121 (1)
besa	'roast'	9/26 (35)	*chaisa*	'stop work'	1/1 (100)
nka	'take'	5/93 (5)	*bitsa*	'call'	1/20 (5)
ruta	'teach'	4/6 (67)	*pana*	'harness'	1/1 (100)
etsa	'do/make'	4/301 (1)	*kupa*	'cover'	1/1 (100)
qabola	'amuse'	3/3 (100)	*tsipa*	'pinch'	1/16 (6)
tSela	'pour'	3/15 (20)	*thepla*	'descend'	1/7 (14)
*ya**	'go'	2/223 (1)	*tena*	'dress/wear'	1/7 (14)
*bina**	'sing'	2/64 (3)	*roma*	'send'	1/3 (33)
*dula**	'sit'	2/52 (4)	*ngola*	'write'	1/24 (4)
tabola	'tear'	2/2 (100)	*kuka*	'take up'	1/5 (20)
qhoba	'drive'	2/9 (22)	*hlatswa*	'wash'	1/10 (10)
qala	'attack/begin'	2/17 (12)	*hata*	'step'	1/12 (8)
ntSa	'take out'	2/27 (7)	*bula**	'open'	1/3 (33)
neha	'give'	2/9 (22)	**Total**		**142**