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PREFACE

This volume has its roots in a seminar on Khoisan syntax taught by Chris Collins. The papers in section I (Syntax), several of which grew out of this seminar, apply recent syntactic theories to topics in Khoisan. In section II (Phonology and Phonetics), we present two new studies: one dealing with click accompaniments, the other with reduplicative templates and syllable weight. Section III (Historical and Contact Issues) examines the influence of Khoisan languages on the development of Afrikaans. This section also details historical and genetic ties between various sub-groups within Khoisan.

Although much controversy surrounds the spelling of "Khoisan/Khoesan", we do not pretend to resolve this conflict here. Instead, we leave the choice to the author. The title of the volume follows the prevailing American convention. In all cases within this volume, Khoisan and Khoesan are taken to have the same referent.

The Khoisan group at Cornell University is currently developing a website devoted to Khoisan Syntax. Point your browser to: http://instruct1.cit.cornell.edu/courses/ling700/home.htm

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ACKNOWLEDGEMENTS

We would like to thank the authors for their patience throughout the process of reviewing and editing. Further, we would like to thank the graduate student staff of CLC Publications, as well as Molly Diesing and Wayne Harbert, the faculty advisors to CLC Publications. Thanks also to the faculty and students who took the time to read and review submissions: Wayles Browne, Carol Rosen, Sally McConnell-Ginet, Wayne Harbert, and Eungyeong Yang. Several of the papers herein were initially written for a seminar on Khoisan Syntax taught by Chris Collins, whom we thank for bringing Khoisan studies to Cornell. Finally, we would like to thank the Department of Linguistics at Cornell University for funding this project.
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The Internal Structure of the Verb Phrase  
in Jul’hoan and +%Hoan

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0  Introduction

This paper will investigate the syntax of verbal complements and adjuncts in two  
Khoisan languages: +%Hoan and Jul’hoan. Examples from these languages are given  
below:

(1) a. Uto dchuun-a Jeff ko n!ama n!ang (Jul’hoan)  
car hit-trans Jeff part road in  
“A car hit Jeff in the road”

b. koloi glon-a +%amkoe ki gyeo na (%Hoan)  
car hit-perf person part road in  
“A car hit a person in the road”

(2) a. Mi ba l!ohm-a !aihn ko l’ai (Jul’hoan)  
my father chop-trans tree part axe  
“My father chopped the tree with (by means of) an axe”  
(Dickens 1992: 21)

b. gya”msi a-’n+a”m Jefo ki setinkane (%Hoan)  
child prog-hit Jef part hand harp  
“The child is hitting Jeff with a hand harp”

(3) a. Besa komm l’ama-l’an Oba ko tcsisi (Jul’hoan)  
Besa emph buy give Oba part things  
“Besa bought Oba some things”

b. gya”m-la’a a-tsaxo-cu ‘am gye ki lla”e (%Hoan)  
child-dim.pl prog-cook-give my mother part meat  
“The children are cooking meat for my mother”

The sentences in (1) illustrate a verb followed by a theme and a locative phrase.  
The sentences in (2) illustrate a verb followed by a theme and an instrument. The  
sentences in (3) are double object constructions. In this paper, I will focus mainly on  
constructions with locative and instrumental phrases.

In (1a) the particle ko (Jul’hoan) separates the DP theme and the PP locative (see  
Dicks 1992: 20, and Snyman 1970: 181). In (1b) the particle ki (%Hoan) separates the
DP theme from the PP locative. Despite the surface similarity between (1a) and (1b), I will show that there are systematic differences between the syntax of ko in Jul’hoan and ki in Hoan. One immediate difference between Jul’hoan and Hoan is that Jul’hoan has what is called the transitivity suffix –a (glossed trans). This paper will give a syntactic analysis of these grammatical morphemes.

One theoretical goal of this paper is to show how the comparative data can be naturally analyzed in terms of a vP internal Case position which direct objects and other complements and adjuncts of the verb can move to (see Koizumi 1995 and Collins and Thráinsson 1996 among others). I will suggest that the Khoisan languages provide particularly striking evidence for the existence of this vP internal Case position.

The paper will also elucidate the role of economy in natural language. In particular, the paper provides evidence for a particular economy condition favoring the use of affixes over free morphemes, as in Emonds (1994).

In section 1, I discuss locative phrases with transitive verbs, and present the main assumptions about vP internal structure adopted in the paper. In section 2, I discuss the inversion of constituents internal to the vP. In section 3, I discuss the Last Resort nature of ko. In particular, I show that ko does not appear with intransitive verbs and when verbal complements are extracted. In section 4, I discuss the relevance of the Jul’hoan data to Chomsky’s (2000a,b) analysis of Case assignment. In section 5, I show that instrument phrases have largely the same syntactic distribution as locative phrases. In section 6, I show that the transitivity suffix –a in Jul’hoan is not an applicative suffix. Section 7 is the conclusion.

A note on the data is in order. Most of the data in this paper come from my own fieldwork with Hoan and Jul’hoan. Sentences that do not come from my own fieldwork are explicitly noted.

1 Locative Phrases with Transitive Verbs

The following example shows a locative phrase following a transitive verb (I return to intransitive verbs in section 3.1):
The Internal Structure of the Verb Phrase in Jul'hoan and †Hoan

(4) a. Uto dchuun-(*a) Jeff (Jul’hoan)
car hit-trans jeff
“the car hit Jeff”

b. Uto dchuun-a Jeff ko n'ama n'lang
car hit-trans Jeff part road in
“A car hit Jeff in the road”

These examples illustrate that when a locative phrase follows a transitive verb, the locative phrase must be preceded by ko. Note that if there is no locative phrase, then it is impossible for the transitivity suffix –a to appear, as shown in (4a).

The discussion in Dickens (1992: 20-22) implies that the transitivity suffix –a in (4b) is obligatory whenever a locative phrase (preceded by ko) is added. In my research, I have found this assumption to be true for intransitives (see section 3.1 below). However, when a locative PP is added to transitive verb (as in (4b)), the transitivity suffix is optional (although usually the presence of the transitivity suffix is preferred). This kind of optionality varies from person to person and from example to example, in ways that I do not fully understand. From now on, I do not represent the optionality of the transitivity suffix (I return to the optionality of the transitivity suffix in (39) in section 4 below).

No other position for ko is possible, as illustrated below:

(5) a. *Uto dchuun-a ko Jeff n'ama n'lang (Jul’hoan)
car hit-trans part Jeff road in

b. *Uto dchuun-a Jeff n'ama n'lang ko
car hit-trans Jeff road in part

In summary, there is a fixed position for ko in Jul’hoan: V Theme ko Locative (the order [V Locative ko Theme] is also possible, as will be shown in section 2). This suggests that ko heads a functional projection, and that the DP theme occupies the specifier of that projection (I will return to an alternative analysis where ko forms a constituent with the following DP or PP in (13) below).

A similar analysis can be given for the following sentences from †Hoan:
(6)  a. *koloi gllon-a ki †’amkoe gyeo na (†Hoan)  
car hit-perf part person road in

b. *koloi gllon-a †’amkoe gyeo na ki  
car hit-perf person road in part

Given these facts, the structure of Jul’hoan sentence in (4b) is given below:

(7)

A few notes on this structure are in order. First, although I have labeled the highest VP “shell” as vP, it would also be reasonable to label it PredP (as in Bowers 1993). Second, since one of the functions of ko is to assign Case (as shown below), F might be labeled Tr “transitivity” (subsuming one of the functions of Tr in Collins (1997)).

I assume the verb raises over F to the higher verb v. There is no violation of the MLC condition here, since F has no verbal feature (cf. Chomsky 1995). Important evidence for verb movement in (7) comes from languages where verb movement to v does not occur, yielding the word order S O V XP (See Koizumi 1995: 51 and Bowers 2000).

As will be made clear below, I also assume that ko in Jul’hoan (and ki in †Hoan) assigns Case to a following locative PP. Locative PPs in †Hoan and Jul’hoan are nominal (see Dickens 1992 for Jul’hoan and Collins 1998 for †Hoan), so it is reasonable to suppose that they have a Case feature to check. The evidence that locative postpositions
are nominal includes the following: First, Collins 1998 shows that postpositions have the same plural form as inalienable nouns. Second, Collins 1998 shows that postpositions assign genitive Case to the 1sg pronoun (the only pronoun showing Case distinctions).

In the structure (7), the DP Jeff raises up into the specifier of FP. I assume that FP has an EPP feature that forces this movement. The light verb ν checks the Case feature of the DP Jeff (see Collins 1997, Collins and Thráinsson 1996 and Chomsky 1995). I assume that if the light verb ν has no Case feature to check, then F is not assigned an EPP feature. I assume that Case checking takes place by the mechanisms described in Chomsky (2000a, 2000b). In particular, I assume that ν has uninterpretable phi-features that enter into an Agree relation with the phi-features of the DP Jeff (see section 4).

The above analysis naturally rules out examples in (5a,b) in Jul’hoan and examples (6a,b) in Hoan. Consider first (5a) (repeated below):

(8)  *Uto dchuun-a ko Jeff n!ama n!ang (Jul’hoan)
car hit-trans part Jeff road in

This example is ruled out because no constituent has raised to Spec FP, so the verbs Case assigning feature remains unchecked and the EPP feature of ko is unsatisfied. Consider now (5b), repeated below:

(9)  *Uto dchuun-a Jeff n!ama n!ang ko (Jul’hoan)
car hit-trans Jeff road in part

This example is ruled out because two XPs have been moved to Spec FP, while FP has only one specifier position.

If no locative phrase is present, then it is not possible for ko to appear. This is illustrated below:

(10) a.  *Uto dchuun-(a) Jeff ko (Jul’hoan)
car hit-trans Jeff part

b.  *Uto dchuun-(a) ko Jeff
car hit-trans part Jeff

Since dchuun “hit” is a transitive verb in (10), it follows that it has a Case feature. I am also assuming that ko has a Case feature. In particular I assume that the Case assigning feature of ko is checked by some DP that ko c-commands (under Minimality). Given these assumptions, consider (10a). If the DP Jeff checks the Case feature of the
verb, then *ko will not have its Case feature checked, and the derivation will crash. The sentence in (10b) is unacceptable for similar reasons.

Similar facts hold for +Hoan:

(11) a. *koloi gllon-a Jefo ki (+Hoan)
car hit-perf Jeff part

b. *koloi gllon-a ki Jefo
car hit-perf part Jeff

Why are there no particles such as *ko (Jul’hoan) or *ki (+Hoan) in English? As mentioned above, the postpositions in Jul’hoan are definitely nominal in nature (see Dickens 1992: 48 for Jul’hoan, and Collins 1998 for +Hoan). Since the postpositions are nominal, they need to have their Case feature checked, and that is what the *ko in Jul’hoan does. Therefore, we make the prediction that particles such as *ko will only appear in languages that have nominal postpositions. I formulate this as follows:

(12) A vP internal Case assigner F may appear only in language with nominal adpositions.

An alternative analysis of *ko in Jul’hoan (and *ki in +Hoan) would be that it is a preposition, forming a constituent with the DP or PP following it: [ko DP] or [ko PP]. The diagram of this structure is the following:

(13) vP
    /   \
   DP   FP
     /  \
    v   F'
      /  \
     DP  F
       /  \
      Jeff  VP
         /  \
        v  koP
          /  \
         hit ko PP
In this diagram, DP *Jeff* raises into the specifier of FP. The Case feature of the PP is checked by *ko*, once again. The difference between (7) and (13) is that in (13) the complement of *ko* is no longer a VP; rather it is a nominal PP. One argument against the analysis in (13) is that it postulates two projections (FP and koP), where only one (FP, as in (7)) is necessary to describe all the data.

Furthermore, there is no positive evidence for the constituent [ko PP]. For example, the koP never undergoes movement, as might be expected if [ko PP] were a constituent. This is illustrated below:

(14) a. Uto m dchuun-a Jeff ko n!ama n!ang (Jul’hoan)
car emph hit-trans Jeff part road in
“the car hit Jeff in the road”

b. *ko n!ama n!ang komm uto dchuun-a Jeff
part road in emph car hit-trans Jeff

Similar facts hold for *Hoan*, as illustrated below:

(15) a. koloi gllon-a *’amkoe ki gyeo na (*Hoan)
car hit-perf person part road in
“the car hit the person in the road”

b. *ki gyeo na koloi gllon-a *’amkoe
part road in car hit-perf person

c. *ki *’amkoe koloi gllon-a gyeo na
part person car hit-perf road in

A cross-linguistic argument in favor of the structure given in (7) can be made on the basis of comparative data with the Bantu language Kinande (Note that Jul’hoan and *Hoan are unrelated to Kinande). In Kinande, an agreement particle appears between the two complements of a verb: [V DP AGR XP]. This particle agrees with the preceding DP. The data is illustrated in the following example of a double object construction (DOC) (the data below are from Schneider-Zioga 1995, see Hualde 1989 for further discussion):

(16) a. Yosefu a-ka-ha EkItabU ky’-aBana (Kinande)
Joseph AGR-tense-give book AGR-children
“Joseph is giving the book to the children”
b. Yosefu a-ka-ha EBikEnE Byo Marya
   Joseph AGR-tense-give yams AGR Mary
   "Joseph is giving yams to Mary"

In (16a), the AGR morpheme between the two objects agrees with \textit{Ekle\textit{tab}U}
"book". In (16b), the AGR morpheme between the two objects agrees with \textit{EBikEnE}
"yams". Schneider-Zioga suggests that there is an Agr phrase, and that the first object
occupies the specifier of that AgrP.

Schneider-Zioga (footnote 7, pg. 70) notes "In fact DOC agreement phenomenon
is not restricted to DOCs proper. It also occurs in resultative small clauses (agreement
between `subject' and predicate), and when a direct object and certain adjuncts
(instrumentals and certain locatives) co-occur." This statement suggests the distribution
of DOC agreement is very similar to \textit{ko} in Jul'hoan and \textit{ki} in \textit{Hoan} (both of which
appear with DOCs, locatives and instruments). Strikingly, no Agr morpheme appears if
the direct object has been extracted by wh-movement (Schneider-Zioga 1995: 76),
suggesting even a closer parallel to Jul'hoan (see section 3.3 below).

I propose that \textit{ko} in Jul'hoan (and \textit{ki} in \textit{Hoan}) should be identified with this Agr
in Kinande, the difference being that \textit{ko} does not show agreement with its specifier. I will
assume the analysis in (7) (the [ko VP] analysis) in the rest of this paper.

2 Inversion

Perhaps the strongest evidence for the structure in (7) is inversion, where
we have the order: [V Locative ko Theme]. This is illustrated below:

(17) a. Uto dchuun-a Jeff ko n!ama n!ang (Jul'hoan)
   car hit-trans Jeff part road in
   "A car hit Jeff in the road"

b. Uto dchuun-a n!ama n!ang ko Jeff
   car hit-trans road in part Jeff
   "A car hit Jeff in the road"

(18) a. ha ku llohm-a !aihn ko glu (Jul'hoan)
   3sg asp chop-trans tree part forest
   "He was chopping the tree in the forest"
b. ha ku llohm-a glui ko 'aihn
    he asp chop-trans forest part tree
    “He was chopping the tree in the forest” (Dickens 1992: 22)

The examples in (17b, 18b) illustrate the following order: V Locative ko Theme. I will sometimes refer to this word order as inversion. Dickens (1992: 21) makes the following statement (see Heikkinen 1987: 98 for a similar generalization): “Since the semantic relations (object, locative, temporal or instrumental) between nouns and the doubly transitive verb are determined by their meanings, the order of the nouns is not important and can be reversed without a change in meaning.” I have found this statement to be true over quite a range of verbs, although speakers differ as to how freely they allow the two word orders. One case where inversion is not allowed is with benefactives:

(19) a. Besa komm ll'ama-l'an Oba ko tcisi (Jul’hoan)
    Besa emph buy give Oba part things
    “Besa bought Oba some things”

b. *Besa komm ll'ama-l'an tcisi ko Oba
    Besa emph buy give things part Oba

The fact that benefactives do not allow inversion has also been reported for Bantu languages (see Baker 1988: 370). I will not explore this constraint any further in this paper.

Given the structure in (7), either the DP or the PP could potentially move into Spec FP. This yields the freedom of word order found in the above examples. As I mentioned earlier, I am assuming that FP has an EPP feature, which motivates movement into its specifier (see Lasnik 1995, Koizumi 1995 for similar analyses). Under these assumptions, if PP raises to Spec FP, we obtain the following structure.
In (20), \( v \) checks the Case of PP, and \( ko \) checks the Case of the DP. In this derivation, the movement of the PP seems to violate Relativized Minimality (Rizzi 1990, Chomsky 1995), because the DP Jeff intervenes between the PP \( n!ama n!ang \) “in the road” and its trace. I assume that internal to the lower VP, the DP and the PP are equidistant, since they are in the minimal domain of the V “hit”. The inversion in (20) is precisely the same kind of inversion that Collins (1997: 26) and Ura (2000: 56) postulate in the case of locative inversion (see Collins 1997 for an analysis of quotative inversion involving the notion of equidistance).

Interestingly, it is not in general possible to have inversion in \(+Hoan\). This is illustrated below:

(21) a. koloi glon-a \( ^* \)amkoe ki gyeo na \(+Hoan\)  
car hit-perf person part road in  
“the car hit the person in the road”

b. *koloi glon-a gyeo na ki \( ^* \)amkoe  
car hit-perf person part

(22) a. gya”msi a-‘n\( ^* \)a’m Jefo ki !oa na \(+Hoan\)  
child prog-hit Jeff part house in  
“the child is hitting Jeff in the house”
b. *gya"msi a-'n+a"m !oa na ki Jefo
child prog-hit house in part Jeff

If the locative is extracted to the left periphery in *Hoan, inversion does seem to take place:

(23) gyeo na koloi glon-a ki *'amkoe (*Hoan)
path in truck hit-perf part person
"in the road, a truck hit a person"

In (23), we have the order [V ki Theme]. This order suggests one of two possible analyses. First, the order [V ki Theme] is consistent with a derivation where the locative has been extracted from the postverbal position, landing in Spec FP: [V t_{loc} ki Theme]. Second, the order [V ki Theme] is consistent with a derivation where the locative has been extracted from its base position without landing in Spec FP: [V ki Theme t_{loc}]. I know of no strong empirical evidence favoring one analysis over the other.

3 ko as a Last Resort

In this section, I will discuss a number of environments where ko in Jul’hoan does not appear. In particular, ko is absent when a locative phrase is added to an intransitive verb (section 3.1), and when a either the theme or the locative following a transitive verb is extracted (section 3.3). The absence of ko in these environments (and the corresponding presence of ki in *Hoan) provides evidence for ko as a Last Resort syntactic strategy.

3.1 Locative Phrases with Intransitive Verbs

According to Dickens (1992), in Jul’hoan, if a locative phrase is added to an intransitive verb, the verb must have the transitivity suffix –a. An example is given below:

(a) ha ku u (Jul’hoan)
he asp go
“He was going”

(b) ha ku u-a tjum!ui
he asp go-trans Tsumkwe
In effect, the transitivity suffix makes a transitive verb out of an intransitive verb.
As Dickens (1992: 19) points out, transitive verbs do not have the transitivity suffix.
Examples from Dickens' grammar are given below:

(25) a. ha ku llohm !aihn     (J-ul hoan)
    he Asp chop tree
    "He was chopping the tree"

    b. da'ama n+au lAotch a
    child head toward lAotch a
    "The child headed toward lAotch a"

How does the transitivity suffix make a transitive verb out of an intransitive verb? I
suggest that the transitivity suffix assigns Case to a DP (or checks the Case of a DP, see
section 4 for a more articulated analysis). The reason that it is impossible to add the
transitivity suffix to a transitive verb (see 4a) is that a transitive verb is already a Case
assigner.

The transitivity suffix -a in J-ul hoan has a distribution similar to the particle ki in
+Hoan, as illustrated below:

(26) tsi a-kyxai ki !oa na     (+Hoan)
    they prog-dance part house in
    "they are dancing in the house"

(27) a. Lena koh dixani-a tju n!ang     (J-ul hoan)
    Lena pst dance-trans house-in
    "Lena danced in the house"

    b. *Lena koh dixani-(a) ko tju n!ang
    Lena pst kill-trans part house-in

In +Hoan (26), if the verb kyxai "dance" is followed by a locative adjunct, the
locative adjunct is preceded by the particle ki. In J-ul hoan (27a,b), if the verb dixani
"dance" is followed by a locative adjunct, the verb has to have the transitivity suffix -*a.
In J-ul hoan, it is impossible for the locative phrase following an intransitive verb to be
preceded by ko (as shown in (27b)), whether or not the transitivity suffix is present.
A similar paradigm illustrating the difference between Jul’hoan and ṢHoan is illustrated below with the locative copular construction:

(28) a. Oba m ge-a tju n!ang (Jul’hoan)
    Oba emph cop-trans house in
    “Oba is in the house”

    b. Titi ‘a ki !oa na (ṢHoan)
    Titi cop part house in
    “Titi is in the house”

In Jul’hoan (28a), ko is not used, rather the transitivity suffix is used. In ṢHoan, the particle ki is used obligatorily after the copular verb in (28b).

As mentioned above (see the discussion following (25)), the transitivity suffix –a in Jul’hoan assigns Case to the following DP, just as ki does in ṢHoan. I suggest that the transitivity suffix –a in Jul’hoan is underlyingly in the same position as the particle ki in ṢHoan. I give the precise structure in the next section.

3.2 Morphological Merger and Adjacency

The next question then becomes why ko can appear when a locative phrase follows a transitive verb in (4b), but not when a locative phrase follows an intransitive verb. The data is summarized below (repeated from (27) and (4b) above):

(29) a. Lena koh djxani-a tju n!ang (Jul’hoan)
    Lena pst dance-trans house-in

    b. *Lena koh djxani-(a) ko tju n!ang
    Lena pst dance-trans part house-in

(30) Uto dchuun-a Jeff ko n!ama n!ang (Jul’hoan)
    car hit-trans Jeff part road in
    “A car hit Jeff in the road”

Intuitively, this is an economy effect; ko is a last resort mechanism, similar to do-support in English. The basic generalization seems to be that if it is possible to use the suffix –a, then it must be used. Otherwise, ko can be used. The basic constraint was
proposed by Emonds (1994: 162) "The most economic realization of a given deep structure minimizes insertions of free morphemes ('Use as few words as possible')."

Consider first the structure of an intransitive verb followed by a locative phrase represented below:

(31)
```
  vP
  /   \
 DP  v'  \
 /   \  
 Lena v     \
      /   \ 
     F      VP
     / \    /  \
    V  PP   \
     /    /  
    dance house in
```

Assume that during the syntactic component, F is not realized as either –a (the transitivity suffix) or ko. Rather, these morphemes are inserted into F in the morphological component (so-called "late insertion," see Halle and Marantz 1993, Gruber 1973). When F is filled, the choice has to be made between the suffix –a, and the free morpheme ko. According to Emonds' constraint, the suffix –a is chosen.

At this point, the suffix –a and the verb must come together. I propose that they combine via the process of morphological merger in the morphological component (part of Spell-Out) (see Bobaljik 1995, Halle and Marantz 1993). In other words we have the following morphological derivation of (29a):

(32)  a.  [v djxani]  [FP ...F]  linear order
   b.  [v djxani]  [FP...[F -a]]  lexical insertion
   c.  [v djxani] + [F -a]  morphological merger
   d.  djxania  Spell-Out

Note that in this derivation I take lexical insertion to apply before morphological merger. The reason for this is that the driving force of the morphological merger is the fact that a suffix has been inserted in F. If ko (which is not a suffix) were inserted in F, there would be no morphological merger. I assume that morphological merger takes place under adjacency (see Bobaljik 1995 for extensive justification). If any phonological
material Y intervened between the V *dixani* “dance” and F in (32), morphological merger would be impossible.

Consider now what happens with a transitive verb (1, 4b). Once again, neither the suffix –*a* nor *ko* are inserted into F until the morphological component, giving us the following structure:

(33) Uto dchuun Jeff F n!ama n!ang (Jul’hoan)
    car hit Jeff part road in

In the morphological component, a choice has to be made between *ko* and the transitivity suffix –*a* for filling F. By Emonds constraint, the suffix –*a* must be chosen if possible. However, if the suffix –*a* is chosen, it will be blocked from combining with the V *dchuun* “hit” because of the presence of the DP *Jeff*. In other words, morphological merger only applies under adjacency. Since it impossible to insert –*a* in F, *ko* is inserted as a last resort, deriving (30).

In summary, this account has three separate ingredients: late insertion, Emonds’ economy constraint, and morphological merger under adjacency.

3.3 Extraction of the Verbal Complements

The Last Resort nature of *ko* also surfaces when the theme DP or the locative PP is extracted, which is illustrated in the following example:

(34) a Jeff komm Uto dchuun-a (*ko) n!ama n!ang (Jul’hoan)
    Jeff emph car hit-trans part road in
    “Jeff, the car hit in the road”

b. *Jeff komm Uto dchuun (ko) n!ama n!ang
    Jeff emph car hit part road in

c. n!ama n!ang komm Uto dchuun-a (*ko) Jeff
    road in emph car hit-trans part Jeff
    “in the road, the car hit Jeff”

d. *n!ama n!ang komm Uto dchuun (ko) Jeff
    road in emph car hit part Jeff

I have checked the above paradigm against quite a few examples (using question formation, relativization and topicalization), and it is very general. The generalization that emerges from this data is that if the theme (34a) or the locative phrase (34c) is
extracted, then *ko must disappear. Furthermore, whether the theme (34b) or the locative phrase (34d) is extracted, the transitivity suffix *-a must be present.

The data in †Hoan is predictably different. When either the theme or the locative is extracted, *ki remains standing:

(35) a. koloi gllon-a †’amkoe ki gyeo na (†Hoan)
    truck hit-perf person part road in
    “The truck hit the person in the road”

b. †’amkoe koloi gllon-a ki gyeo na
    person truck hit-perf part road in
    “The person, the truck hit in the road”

c. gyeo na koloi gllon-a ki †’amkoe
    path in truck hit-perf part person
    “in the road, a truck hit a person”

Returning to Jul’hoan, let us focus on the extraction of the theme first. Once the theme has been extracted we have the following configuration:

(36) v trace F PP

Following Bobaljik (1995: 65), I will assume that the trace of movement does not block morphological merger. Therefore, in the morphological component F is filled with the suffix *-a, and v and *-a are merged morphologically under adjacency.

4 The Relation Agree(-a, ko)

How can we explain the presence of the transitivity suffix in (7b) (repeated below)?

(37) Uto dchuun-a Jeff ko n!ama n!ang (Jul’hoan)
    car hit-trans Jeff part road in
    “A car hit Jeff in the road”

In (37), v assigns Case to the DP *Jeff and *ko assigns Case to n!ama n!ang “in the road” (a nominal postpositional phrase). The transitivity suffix *-a does not appear to be assigning Case to any DP. This conclusion is problematic because in examples involving intransitive verbs (see 24b, 27a, 28a), the transitivity suffix *-a seems to assign Case.
One possibility would be to say that \(-a\) and \(ko\) form a movement chain (-a, ko). On this analysis, \(-a\) moves and adjoins to \(v\), leaving an overt trace \(ko\). This solution raises the following question: if movement is involved, then why is the trace spelled out overtly (as \(ko\)). Another possibility is that \(-a\) combines with \(V\) by morphological merger. This solution is problematic if morphological merger is subject to an adjacency condition (as assumed in (32)).

I would like to suggest the relationship between \(-a\) and \(ko\) involves agreement, not movement. In particular, I suggest that the transitivity suffix in (37) is base generated in \(v\), and undergoes agreement with \(ko\), which occupies F. This analysis has the undesirable consequence that there are two separate ways for the transitivity suffix to combine with the verb \(V\): (1) by morphological merger, if \(-a\) is generated in F (see (32) above), and (2) by verb movement if \(-a\) is generated in \(v\).

I will give an agreement analysis in the framework of Chomsky (2000a,b). In Chomsky’s theory, the probe P (features of a functional head, either T or \(v\)) is a set of unvalued phi-features that match the goal G, the interpretable phi-features of a DP, forming the relation Agree (P,G). At this point, the phi-features of P are valued, and they delete at Spell-Out (which happens at the phase level). Chomsky proposes that the uninterpretable Case features of the DP are valued as a reflex of the relation Agree(P,G).

I propose that both \(ko\) and \(-a\) have unvalued phi-features. Given this analysis, we have the following relations:

\[
(38) \quad \text{Uto dchuun-a [FP Jeff ko n!ama n!ang ] (Jul’hoan)}
\]

In Step 1, the unvalued phi-features \(ko\) enter into an Agree relation with the phi-features of \(n!ang\) “in,inside”: Agree(\(\phi_{ko}\), \(\phi_{Lco}\)). In Step 2, the unvalued phi-features of \(-a\) (the transitivity suffix), enter into an Agree relation with the valued phi-features of \(ko\): Agree(\(\phi_{a}\), \(\phi_{ko}\)). Note we are crucially assuming that uninterpretable phi-features (of both \(-a\) and \(ko\)) are not deleted until the phase level (\(vP\)).
Another important point about Step 2 in (38) is that the DP Jeff and ko are
equidistant from the v (containing the transitivity suffix –a). This is the reason why the
DP Jeff does not block the relation Agree(\phi_{ia}, \phi_{ko}).

If the analysis above is correct, it provides striking confirmation of Chomsky’s
(2000a,b) view of Case. Under the standard view of Case assignment, the only way to
describe (37) would be to say that a Case assigner (-a) assigns Case to another Case
assigner (ko), which is absurd. If Chomsky’s analysis is correct, we predict that there will
be other examples where the unvalued phi-features of one “Case assigner” are valued by
the valued phi-features of another “Case assigner”.

Recall (see section 1) that when a locative phrase is added to transitive verb, the
transitivity suffix is optional (although usually the presence of the transitivity suffix is
preferred). In other words, we have the following data:

(39) Uto dchuun-(a) Jeff ko n!ama n!ang (Jul’hoan)
car hit-trans Jeff part road in
“A car hit Jeff in the road”

This optionality is consistent with the theory that I have given. Since in transitive
constructions the suffix –a does not assign Case to any DP (see (37)), there is no reason
for the suffix –a to be obligatory. On the other hand, the transitivity suffix -a is obligatory
in when a locative phrase is added to an intransitive verb (see (24b, 27a, 28a)), since
otherwise the Case feature of the locative phrase would not be checked.

4.1 Some Implications of Agree(-a, ko)

The assumption that the transitivity suffix can be inserted under the light verb v
yields the possibility of a completely different analysis of intransitives, illustrated below:
In this structure, the verb *dixani* "dance" moves to $v$. The relation Agree($\phi_{1a}$, $\phi_{1c}$) is established, deleting the Case features of the locative PP. Note that no FP is required in structure (40), since the transitivity suffix is inserted under $v$. It is unclear to me what kind of evidence would distinguish the theory in (40) from the one in (31) (based on morphological merger), although a number of considerations seem to favor the analysis in (31). First, the analysis of Jul’hoan in (31) is maximally parallel to the *Hoan data, where $ki$ is used even with intransitives (see (26)). Second, the analysis in (31) makes all constructions involving a locative phrase parallel. In other words, an FP is required whether or not the verb is transitive or intransitive (see (7)).

5 Instrumental Phrases

By instrumental phrases, I mean constructions expressing instrument, material used to make things, and accompaniment. These phrases are usually preceded by the preposition "with" in English.

The conclusions reached above concerning the analysis of $ki$ (*Hoan), $ko$ (Jul’hoan) and the transitivity morpheme $a$ hold for instrumental constructions in *Hoan and Jul’hoan. Consider the following paradigm for instruments (from Dickens 1992: 22):

(41) a. ha gu-a tju ko l’aisi (Jul’hoan)  
3sg build-trans house prep grass  
"He built the house with grass"

b. ha gu-a l’aisi ko tju  
3sg build-trans grass prep house  
"He built the house with grass"

The data in (41) illustrate that both of the following orders are possible: [V Theme ko Instrument] and [V Instrument ko Theme]. No other word orders are possible (for any speakers), as the following example shows:

(42) a. *ha gu-a ko l’aisi tju (Jul’hoan)  
3sg build-trans part grass house  

b. *ha gu-a ko tju l’aisi  
c. *ha gu-a l’aisi tju ko  
d. *ha gu-a tju l’aisi ko
When the instrument or theme is extracted, the ko disappears as expected:

(43) a. tju komm ha gu-a ll’aisi (Jul’hooan)  
    house emph 3sg build-trans grass  
    “the house, he built with grass”

b. ll’aisi komm ha gu-a tju  
    grass emph 3sg build-trans house  
    “grass, he built the house with”

In #Hoan, as with the locatives, no inversion is possible:

(44) a. gya”msi a-’n+a”m Jefo ki setinkane (+Hoan)  
    child prog-hit Jef part hand harp  
    “The child is hitting Jeff with a hand harp”

b. *gya”msi a-’n+a”m setinkane ki Jefo  
    child prog-hit hand harp part Jeff

(45) a. ya i !hai ya !oa ki qlhui-qa (+Hoan)  
    3sg past thatch 3sg house part grass-pl  
    “He thatched his house with grass”

b. *ya I !hai qlhui-qa ki ya !oa  
    3sg past thatch grass-pl part 3sg house

When the theme or the instrument is extracted, ki does not drop:

(46) a. ya !oa ya i !hai ki qlhui-qa (+Hoan)  
    3sg house 3sg past thatch part grass-pl  
    “his house, he thatched with grass”

b. qlhui-qa ya i !hai ki ya !oa  
    grass-pl 3sg past thatch part 3sg house  
    “with grass, he thatched his house”

In summary, the data for instrument expressions closely parallels that found with locative expressions (in both +Hoan and Jul’hooan).
5.1 The Instrumental Particle \textit{lxoa}

One difference between the locative and instrument constructions in Jul’hoan is that there is an alternative way of realizing instrumental phrases using the morpheme \textit{lxoa} “with”. This is illustrated below (examples from Dickens 1992):

(47) a. \textit{ha gu-\textit{lxoa} ll’aisi ko tju} (Jul’hoan)  
3sg build-with grass part house  
“He built the house with grass”

b. \textit{ha gu-\textit{lxoa} tju ko ll’aisi}  
3sg build-with house part grass

As in the case of locatives, either order of the theme and instrument is possible. Dickens (1992: 22) claims that the particle \textit{lxoa} “with” immediately follows the verb, implying that \textit{lxoa} is a suffix of some type. This claim seems justified by the examples above. Note that \textit{+Hoan} does not have any morpheme with the same range of syntactic positions that \textit{lxoa} has.

In addition to the word order noted by Dickens, I have found that it is possible for the \textit{lxoa} to be non-adjacent to the verb. This paradigm is illustrated below:

(48) a. \textit{lkaece goaq$^+$an gu-a tju ko ll’aisi} (Jul’hoan)  
lkaece yesterday build-trans house part grass  
“lkaece built the house with grass”

b. \textit{lkaece goaq$^+$an gu-(*a)-\textit{lxoa} tju ko ll’aisi}  
lkaece yesterday build-trans-with house part grass  
“lkaece built the house with grass yesterday”

c. \textit{lkaece goaq$^+$an gu-(*a) tju \textit{lxoa} ll’aisi}  
lkaece yesterday build-trans house with grass  
“He built the house with grass yesterday”

The sentence in (48a) shows that if an instrument is added, the has the transitivity suffix. In (48b), the particle \textit{lxoa} has been added as a suffix. As can be seen, the transitivity suffix is not possible here. Lastly, in (48c), the particle \textit{lxoa} is not adjacent to the verb. I should point out that the preferred word order seems to be the one where \textit{lxoa} is adjacent to the verb.
What is of interest in (48c) is that the transitivity suffix is not possible. I assume that lxoa “with” assigns Case to its DP complement [lxoa DP]. In the system of Chomsky 2000a,b, this entails that lxoa “with” has uninterpretable phi-features. The sentence in (48c) shows that the uninterpretable phi-features of the transitivity suffix cannot be valued by the uninterpretable phi-features of -lxoa. This suggest that [PP lxoa DP] forms a phase. If [PP lxoa DP] were a phase, the uninterpretable phi-features of lxoa would be deleted by the time the derivation reached the light verb v.

Another difference between the instrumental construction with lxoa and the one without lxoa is word order. If lxoa is separated from the verb, inversion is impossible. This is illustrated in the following example.

(49) a. mi l’ama-lxoa tcisi ko mari (Jul’hoan)
     I buy-with things part money
     “I bought some things with money”

     b. mi l’ama-lxoa mari ko tcisi
        I buy-with money part things

     c. mi l’ama tcisi lxoa mari
        I buy things with money

     d. *mi l’ama mari lxoa tcisi
        I buy money with things

These sentences indicate that lxoa “with” and ko have an entirely different status. The particle ko is the head of a functional projection (taking a VP complement). The preposition lxoa forms a constituent with the instrument forming the structure [PP lxoa DP]. The preposition may be incorporated into the verb. The data in (49c,d) is exactly what one would expect of a preposition.

6 Is the Transitivity Suffix –a an Applicative Morpheme?

Consider the following example of an applicative suffix in Setswana (Cole 1955: 201):

(50) Ke-rēka-ēla rrē di-kgōmo
     lsg-buy-appl father pl-cow
     “I buy cattle for my father”
The suffix –ëla is the benefactive applicative suffix. Baker (1996: 427) characterizes applicatives in the following way: “Applicatives are standardly characterized as constructions in which a derivational morpheme is attached to the verb resulting in the verb taking a new nominal as its surface object.” Baker’s characterization could be taken to describe the transitivity suffix –a in Jul’hoan. In spite of the similarity between the transitivity suffix –a and applicative morphemes, I will give an argument against an analysis of the transitivity suffix as an applicative suffix.

There are two theories of applicative morphemes. The first theory is that the applicative morpheme is an incorporated preposition (Baker 1988, Baker 1996: 439). The second theory is that the applicative morpheme is the head of a “VP-shell” that introduces the applied argument (Collins 1997: 53, Baker 1996: 432). I believe that the following argument against the transitivity suffix –a as an applicative morpheme holds for both types of theories.

Consider the causative construction, which is illustrated below:

51) a. mi n‡ai tjin-(a) Oba
   I make cry-trans Oba
   “I made Oba cry”

b. mi m n‡ai glaoh-(a) tju tzi
   lsg emph cause strong-trans house mouth
   “I strengthened the door of the house” (as a carpenter would)

c. mi m n‡ai l’hom-(a) mi tju
   lsg emph cause beautiful-trans lsg house
   “I made my house beautiful (e.g., by painting it)”

The generalization seems to be that in a causative construction, the transitivity suffix is optionally affixed to the second verb. Dickens (1992: 59) states: “It cannot be predicted from the second verb itself whether it will take a transitive suffix so it is better to learn this as one goes along (there is even disagreement among the Jul’hoan speakers in some cases).” There is also variation from speaker to speaker. I will idealize and assume that the transitivity suffix is optional in the general case.

What is important to note is that no language uses an applicative suffix in the way that the transitivity suffix –a is used in (51) (in combination with a causative morpheme).
The reason for this is simple. In (51) the causative morpheme introduces the causer, so there is no reason for the applicative morpheme to be added.

Given the conclusions of section 4, a simple analysis of these facts can be given. I assume that the causative morpheme *n*₄ₐᵢ introduces an argument (the causer) and assigns accusative Case (and thus has uninterpretable phi-features). Similarly, the transitivity suffix has uninterpretable phi-features (see section 4). When the transitivity suffix is absent, I suggest that the uninterpretable phi-features of the causative morpheme are valued by the interpretable phi-features of the DP (see (52)). When the transitivity suffix *-a* is present, I suggest that the uninterpretable phi-features of the transitivity suffix *-a* are valued by the interpretable phi-features of the DP, and the uninterpretable phi-features of causative morpheme are valued by the valued phi-features of the transitivity suffix (see (53)). These two analyses are given below:

\[
(52) \quad \text{Cause} \quad \text{V} \quad \text{DP} \quad \text{Agree(}\phi_i\text{\textsubscript{cause}}, \phi_i\text{\textsubscript{DP}}) \\
(53) \quad \text{Cause} \quad \text{V-a} \quad \text{DP} \quad \text{Agree(}\phi_i\text{\textsubscript{cause}}, \phi_i) \quad \text{Agree(}\phi_i, \phi_i\text{\textsubscript{DP}})
\]

7 Conclusion

In this paper, I have analysed *k*ᵢ (ŋHoan) and *k*₀ (Jul’hoan) as heading a functional projection dominated by vP. This analysis provides a natural account for the various possible and impossible word orders in constructions involving locative and instrumental phrases.

Theoretically, we have found striking support for a class of proposals concerning vP internal structure (see Lasnik 1995, Koizumi 1995, Collins and Thráinsson 1996). In particular, the Khoisan data strongly support an analysis involving a functional head dominated by vP, and dominating VP.
Furthermore, my analysis lends strong support to Emonds economy condition: “The most economic realization of a given deep structure minimizes insertions of free morphemes (‘Use as few words as possible’).”

Lastly, the fact that the relation Agree(-a,k0) is established between two Case assigners gives evidence for Chomsky’s (2000a,b) analysis of Case assignment.

I have just scratched the surface of the distribution of k0 and the suffix -a in Jul’hoan and ki in †Hoan. Other constructions that involve the use of the suffix -a in Jul’hoan include nominal compound constructions, verbal compound constructions, manner adverbs, and reciprocal constructions. In †Hoan, ki plays a role in predicate relativization. I will not attempt to integrate all these constructions into the analysis presented above, although I hope to do so in the future. Furthermore, as discussed in Traill (1985, 1994), there is a particle kV that plays a role in transitivity in !Xóó. I would like to investigate the relationship between this particle and ki (†Hoan) and ko (Jul’hoan) in the future.

This type of particle that appears between VP constituents (either complements or adjuncts) is relatively rare typologically. Hopefully, this comparative study of the Khoisan languages will lead to a deeper understanding of this little studied area of syntax.

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Acknowledgments

I would like to thank John Bowers, Noam Chomsky, the editors of this volume, and an anonymous reviewer for very helpful comments. Mark Baker alerted me to existence of Schnieder-Zioga (1995), and gave me valuable comments on the paper. Parts of this paper were presented at Cornell (1998), Harvard (1997) and in my courses on Khoisan syntax (1998, 1999).

The research on Jul’hoan in this paper was done during a visit to Namibia during July and August of 1998. I would like to acknowledge the help of my main informants
Oba Kamaseb and Besa Abuse. I would also like to thank Megan Biesle for acting as an interpreter for me at the beginning of my stay in Namibia.

The research on Hoan was done during the academic year 1996-1997 (Fulbright) and during July and August of 1999. This research would not have been possible without the help of Jeff Gruber, who made available to me all of his unpublished field notes. I would like to thank my main informants Titi Matshabanega, Leha Rasello and Bistol for their help in that project.

The material in this paper is based upon work supported by the National Science Foundation under Grant No. SBR-9808256.
A Minimalist Approach to Khoekhoe Declaratives

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0 Introduction

Recent work by Chomsky (1998, 1999) has served to further refine the Minimalist Program, which he introduced only a short time ago. In this paper, I use the most recent incarnation of Minimalist syntax (as laid out by Chomsky 1999) to achieve a three-fold purpose: a) to apply the latest syntactic theory to an understudied language (Khoekhoe) and thereby show the theory to be robust in its application; b) to highlight some apparent difficulties the theory has in explaining Khoekhoe declaratives; and c) to subsequently provide an analysis which is in keeping with the observable facts.

Although Chomsky's theory comfortably accommodates the languages he chooses to work with (English, French, Icelandic, etc.), its application in other, less-studied languages has not yet been sufficiently tested. One such language is Khoekhoe1 - a member of the Central Khoisan family. The following examples show a common pattern for basic declaratives:

(1) 'áop(*p) ke tarásà kè múu.
man(*+cl) dec woman+Case rmtpst see
'the man saw the woman' (Hagman 1999:5)

(2) tarásàp ke 'áopà kè múu.
woman+Case+cl dec man+Case rmtpst see
'the man saw the woman'

(3) múup ke kè 'áopà tarásà.
see+cl dec rmtpst man+Case woman+Case
'the man saw the woman'

I will provide a more in-depth discussion of these sentences in a later section. For now, however, I will simply highlight a few things for initial consideration. First, note the

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* I would like to acknowledge those people who have helped me in producing this paper. First, I would like to thank Chris Collins for initially pointing me in the direction of Khoisan syntax. My thanks also to Abby Cohn and my peers in the Fall 2000 Research Workshop for their undying patience and helpful comments. My most heartfelt thanks go to Wayne Harbert. His guidance has been invaluable and is greatly appreciated.

1 According to Haacke (1992:149), this is the term preferred by native speakers. Apparently, Khoekhoe is "...the unitary name presently revived by the speakers themselves in order to replace the dichotomous 'Nama/Damara.'" As of 1977, Khoekhoe had 30,000 speakers spread over most of Namibia and parts of South Africa (as reported in Hagman (1977:1)).

A. Bell and P. Washburn (eds.)
Cornell Working Papers in Linguistics, Volume 18, pp. 28-56
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various word orders. (1) is the least marked usage as a basic declarative. The remaining examples have some other element fronted to sentence-initial position (the direct object and the verb, respectively). This fronting mechanism adds emphasis to that element (shown underlined in the English gloss). Second, in examples (2) and (3), note the appearance of a subject-agreeing clitic (italicized and boldfaced). Last, note the identical Case-marking on both the subject and the direct object in (3). If we are to accept Minimalism as a truly robust theory, these data must be accounted for.

These facts can be explained using the general framework outlined by Chomsky (1998, 1999). However, in order to satisfactorily account for much of the data, I have made a number of stipulative departures. This is not to suggest they be universally (or even marginally) accepted. Instead they are offered strictly to provide a plausible explanation for the Khoekhoe facts alone. On the theoretical side, I assume that \(v\) (the first phase head) always has an EPP feature associated with it. Also, some head within this first phase must be optionally \(\Phi\)-incomplete (or defective). Identifying that head depends on which element is considered the locus for object agreement - either \(v\) \(V\) (see Chomsky 1999), or \(Tr\) (see Bowers 2000). I claim that Bowers’ (2000) notion of \(Tr\) being the locus of object agreement fits the facts most readily. Aside from the structural framework, observations of Khoekhoe word order and Case-marking demand another stipulation – all DP Case is checked in SPEC \(T\). This is an ugly stipulation but one which is made necessary by the data. With these assumptions in place and the addition of certain ideas from Rizzi (1997) and Kayne (1994), the facts sketched in the above examples may all be accounted for.

It should be noted that this paper (and all the data contained within) is based on secondary sources. My primary source of information is Hagman (1977). As a result, no example will be starred as “ungrammatical” since I do not have access to native judgements.

The paper will be structured as follows: section 1 will provide the necessary information concerning the framework that is crucial to my analysis; section 2 contains some background material to help identify the various agreement morphemes on Khoekhoe nouns; section 3 will present the core data and some its consequences; section 4 will incorporate some further assumptions into my argument; section 5 will provide a step-by-step analysis for typical Khoekhoe declaratives (specifically those in examples (1)-(3)); and section 6 will consider the conclusions.
1 Framework

As mentioned earlier, I assume the basic outline of minimalism as discussed in Chomsky (1999). In this system, the two primary operations are Agree and Merge. Merge is the primary operation, taking two syntactic objects $\alpha$ and $\beta$ to form a larger syntactic object $\Gamma = \{\alpha, \beta\}$ with a label $\text{LB}(\Gamma)$. Agree is a matching relation between two elements, where one element - called a probe - has uninterpretable features and the other element - called a goal - has identical interpretable features. When agreement takes place, the uninterpretable features of the probe are deleted. In order for Agree to apply, both the probe and the goal must be active - that is, the probe must have some uninterpretable $\phi$-features and the goal must have an unchecked feature of structural Case. Once this Case feature is checked for a particular element, it may no longer enter into similar agreement relations and is considered frozen in place. Below is a summary of the Agree relation (summary provided by Carstens 1999):

(4) Agree operates between a probe $\alpha$ and a goal $\beta$ iff:
   i. $\alpha$ has uninterpretable $\phi$-features
   ii. $\beta$ has identical interpretable $\phi$-features
   iii. $\beta$ has an unchecked feature of structural Case
   iv. $\alpha$ c-commands $\beta$
   v. there is no potential alternative goal $\gamma$ such that $\alpha$ c-commands $\gamma$ and $\gamma$ c-commands $\beta$
   vi. the structural relation between $(\alpha, \beta)$ was not created by Merge $(\alpha, \beta)$

Movement, or Move, is a combination of Agree, pied-piping, and Merge. A probe (specifically one having an EPP feature) matches up with a goal under the Agree relation and is followed by merging that goal into the specifier of the probe's category. The EPP feature itself is an uninterpretable selection feature, which demands Merge in the specifier of the category that contains it.

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2 Some notes before proceeding:

$\diamondsuit$ Generally, the examples reflect the orthographic conventions used by Hagman (1977, 1999). Apostrophes [ ’ ] represent a glottal stop.

$\diamondsuit$ Khoekhoe is a tone language. These tones are represented as follows: [ á ] for “high”, [ a ] for “mid”, and [ à ] for “low”. Nasals may also carry tone. However, due to font difficulties, I have elected not to show tone on nasals.
In accordance with the trend originated by Chomsky (1998, 1999), I also assume that derivations take place by phase and that both CP and vP are strong phases. A strong phase is one that is a potential target for movement. As a practical result, both C and v may contain an EPP feature. In section 5, I propose that, in Khoekhoe, these categories must always have an EPP feature. In addition, I also adopt Chomsky's description of the core functional categories (CFC). These categories are C (complementizer), T (tense), and v ('light verb').

At this point I would like to call attention to three other ideas that are particularly relevant to my analysis. I provide a brief definition of each below. Later in the analysis, I will highlight the problems and consequences that are intrinsic to their application in Khoekhoe. These ideas include: defective elements, Defective Intervention Effects, and the Phase Impenetrability Condition.

Defective elements are usually associated with the CFC's. In short, if an active probe (one of the CFC's) is not φ-complete (having a full set of φ-features - person, number, and gender), then that probe cannot delete the uninterpretable features of the paired matching goal (or, in other words, the Case feature cannot be checked). For example, in English ECM constructions, the lower T is defective. It only has [person] features and is therefore unable to check the Case of its subject. As a consequence, the DP must look to a higher, φ-complete probe to check its Case (resulting in the assignment of Accusative Case by the higher v).

Defective Intervention Effects unify (loosely) the concepts of the Head Movement Constraint (see Lasnik and Saito 1992 et al.), Barriers (Chomsky 1986b), and Relativized Minimality (Rizzi 1990). In short, if there exists a c-command relation of the type in (5), where γ and β can both match the probe α, but γ is inactive (i.e. its Case features have already been checked), then matching between α and β is blocked. In other words, since Agree is blocked – Move is also blocked. Neither an X'' nor an XP may move over an already filled position.

\[(5)\quad \alpha > *\gamma > \beta\]

= (42) from Chomsky (1998:38)

The Phase Impenetrability Condition constrains which material may be accessed by elements in the next highest phase. As mentioned above, vP is a phase. As such, according
to this condition, only those elements contained in the Head [v] and its Specifiers may be accessed by higher phases. More formally:

\[(6) \quad \text{In phase } \alpha \text{ with head } H, \text{ the domain of } H \text{ is not accessible to operations outside } \alpha, \text{ but only } H \text{ and its edge} \]

\[= (21) \text{ from Chomsky (1998:22)}\]

Everything discussed so far has relied on Chomsky’s basic outline of minimalism. To this general framework, I will add a few more theoretical assumptions. First, I adopt the proposal made by Bowers (2000) concerning the existence of an additional CFC between v and V. He calls this functional head ‘Transitivity’, or Tr, after Collins (1997). It functions as the locus for object-agreement (just as T is the locus for subject-agreement). Also, as a CFC, Tr must have an EPP feature. In my analysis, I show that this head must be \textit{optionally} defective (as defined above).

Second, in keeping with the Linear Correspondence Axiom (LCA) proposed by Kayne (1994) (and accepted in slightly modified form by Chomsky 1995, 1998, 1999), I assume all languages have a universal underlying SVO word order. Khoekhoe - as examples (1)-(3) show - is a surface SOV language. Therefore, the SOV order must be derived during the course of the derivation.

Finally, remember that structure preservation (see Chomsky 1986b, among others) must also hold. An \(X^0\) may only move (be adjoined) to another head position. Similarly, an XP may only move to positions reserved for phrasal categories. This is illustrated below for heads:

\[(7) \quad YP \quad \begin{array}{c}
\text{YP} \\
\text{YP} \\
\text{YP} \\
\text{YP}
\end{array} \quad * YP \quad \begin{array}{c}
\text{Y'} \\
\text{Y'} \\
\text{Y'} \\
\text{Y'}
\end{array} \quad \begin{array}{c}
\text{XP} \\
\text{XP} \\
\text{XP} \\
\text{XP}
\end{array} \quad \begin{array}{c}
\text{X'} \\
\text{X'} \\
\text{X'} \\
\text{X'}
\end{array} \quad \begin{array}{c}
\text{ZP} \\
\text{ZP} \\
\text{ZP} \\
\text{ZP}
\end{array} \quad \begin{array}{c}
\text{t} \\
\text{t} \\
\text{t} \\
\text{t}
\end{array} \quad \begin{array}{c}
\text{...} \\
\text{...} \\
\text{...} \\
\text{...}
\end{array} \]

Using this framework, the basic clause structure for a transitive sentence should appear as in (8) (below). Additional specifier positions (other than the EA) are created as necessary through \textit{Move} - such as WH movement to SPEC C or English subjects raising to
SPEC T for Case-checking. The External Argument is located in the SPEC of v. Keep in mind that this structure is only a basic template. I will be making some modifications as the paper progresses.

\[(8)\]
\[
\text{CP} \\
\text{C} \quad \text{TP} \\
\text{T} \quad \text{vP} \\
\text{(EA)} \quad \text{v'} \\
\quad \text{v} \quad \text{TrP} \\
\quad \text{Tr} \quad \text{VP} \\
\quad \text{V} \quad \ldots
\]

The minimalist framework sketched above - with the added modifications and reminders - is the one I use throughout my analysis. Before I apply it, however, I will introduce some useful background material as a prelude to my discussion of the core data.

2 Background Information

In this next Section, I will supply some basic facts concerning noun formation in Khoekhoe. Like many African languages (the Bantu family in particular), Khoekhoe has a rather robust system of noun agreement. These bound morphemes encode the usual complement of [person, gender, number] features (henceforth 'pgn') and are (for the most part) obligatory.\(^3\) For simplicity's sake, I have elected to omit discussion of pronouns (and therefore 1\(^{st}\) and 2\(^{nd}\) person agreement morphemes). The following chart shows the full paradigm for 3\(^{rd}\) person NPs (variants are phonologically conditioned):

\(^3\) Predicate nominals (such as [man] in *He is a man*) are apparently able to omit the agreement morpheme. Although space considerations prevent my taking up the subject fully, such constructions are evidence that the noun agreement morpheme may not be simply an agreement *suffix*. It may, in fact, be an agreement *clitic* located in the head of DP. This idea is more fully explored in Hagman (1999) and Haacke (1978, 1992) with further support from Stowell (1991). This is rather desirable to my analysis since it would parallel the structure of the declarative clause as a whole. However, since the internal structure of Khoekhoe DPs is not
When assigning gender, all nouns are divided into two classes: animate (in which the proper gender assignment is not necessarily fixed within the lexicon) and inanimate (in which all gender is arbitrarily assigned). These nouns consist of a root (which is minimally bimoraic and has only three possible shapes - CVCV, CVV, or CVN) plus its agreement morpheme (see Hagman 1977:11-19). The following examples all use animate nouns. (10) and (11) show how the same noun may be inflected for a different gender (depending on the circumstances of its use, of course):

(10) \textbf{kxôep} \quad \textbf{kxôes}  
\text{person + 3.sg.masc.} \quad \text{person + 3.sg.fem.}  
(\text{the) male person'} \quad (\text{the) female person'} \quad \text{(Hagman 1977)}

(11) \textbf{/irîp} \quad \textbf{/irîs}  
\text{jackal + 3.sg.masc.} \quad \text{jackal + 3.sg.fem.}  
(\text{the) male jackal}' \quad (\text{the) female jackal}'" \quad "

Examples (12) and (13) show how the gender of an animate noun may be fixed if the noun in question has a lexical gender already understood:

(12) \textbf{táop} \quad \textbf{tarás}  
\text{man + 3.sg.masc.} \quad \text{woman + 3.sg.fem.}  
(\text{the) man, husband'} \quad (\text{the) woman, wife'} \quad \text{(Hagman 1977)}

(13) \textbf{tâtâp} \quad \textbf{mâmás}  
\text{father + 3.sg.masc.} \quad \text{mother + 3.sg.fem.}  
(\text{the) father'} \quad (\text{the) mother'} \quad "

There are a number of regular exceptions to this basic pattern. For example, any of the examples in (12) or (13) may be inflected for the opposite gender. According to Hagman, this mechanism is often used in a derogatory way (though not necessarily so). Opposite genders show up on inanimates as well - usually to denote something special about that particular noun. While these variants are interesting (and often amusing), they are not my immediate concern (and does not seem to affect the overall clause structure), I will leave this topic for another paper.
particularly relevant to my analysis. If interested, see Hagman (1977:22-26) for a complete treatment.

This section is meant to introduce the agreement morphemes that will appear throughout the rest of the paper. For convenience, nearly all the examples from here on will feature nouns using either the masculine singular [-p] or the feminine singular [-s]. It is important to recognize these morphemes since, as will be shown in the next section, there is another agreement morpheme that looks identical but is not part of the regular noun formation process.

3 Primary Data

This section introduces the core data and its more complex issues. To begin, it might be useful to take a brief look at Hagman's (1977:61) template for ordering simple Khoekhoe declaratives:

\[(14) \quad \text{NP + Prt + (Advb/ Loc) + (NP+à) + (NP+à) + Tense (+ Imp) + V + (Perf)}\]

Going from left to right: the first NP represents the logical subject, the particle is an *obligatory* declarative marker [*ke*], the second NP is the indirect object (IO) plus the Case-marker [- à ], and the third NP is the direct object (DO) - with the same Case-marker. “Tense” is represented by an overt marker (whether or not this marker is really in T is something to be discussed later) and the verb is in final position. Although they must eventually be accounted for in any subsequent work, for the purposes of this paper, I have elected to (largely) disregard adverbials/ locatives, negation, and Aspect. At present, these elements only complicate matters to the detriment of any base-line analysis.

The following data shows some of the possible permutations available to this template. In order to show a good range of options, I have used the traditional ditransitive verb ‘give’ [*màa*]. Each group of two represents one possibility. The only difference between each pair is the gender of the logical subject (offered for contrast). Examples (15)-(24) are from Hagman (1999:3). The first pair shows the basic or “canonical” ordering:

---

4 By “simple” I mean no relative clauses or other complex constructions. Note also that this template is for ‘active’ verbs (as opposed to ‘stative’ verbs).
These examples fit the template perfectly. Notice that both objects have been marked for Case and that the marker is identical for both. The fact that they are identical will become even more important later on. Notice, also, that all arguments surface to the left of the tense particle - a non-trivial problem that I will address in section 4. The next group shows the first of a very productive process in Khoekhoe - what Hagman (1977, 1999) calls "initialization". A lexical element (NP, Adverbial, adjective, or Verb) may occupy initial position with a corresponding added emphasis. As this is an adequate definition of focus, I will consider this process as such. The next pair has a fronted (or focussed) indirect object (with the English gloss underlining the focussed element):

There is a lot to say about this pair. First look at the position of the subject - it is now to the immediate right of the declarative marker. Also, it has a Case-marker - which is, again, identical to the Case-markers on both objects. Further, the Case-marker is retained on the fronted IO (in the previous examples of the canonical order it is missing on the subject). Equally important, there is an added morpheme on the fronted object (in boldface). What's more, this morpheme is identical to the noun-agreement suffix of the subject NP (shown in italics). (17) might seem ambiguous since both subject and DO are masculine singular. (18) clearly shows that the agreement is with the subject. Since this added morpheme can be separated from the NP root by the Case marker, it is fair to say that it is a clitic (in the
broader sense of the term) as opposed to a reduplicated noun-agreement suffix. And, since it seems to attach itself to a focussed element, I claim it is an overt Focus clitic. The same facts can be observed when the direct object is focussed - as shown in the next pair of examples:

\[
[\text{DOcl \ ke \ S \ IO \ T \ V}]
\]

(19) xuupàp ke ‘áopà tarásà kè màa. 
object+Case+cl dec man+Case woman+Case rmt-pst give ‘the man gave the woman the object’

(20) xuupàs ke tarásà ‘áopà kè màa. 
object+Case+cl dec woman+Case man+Case rmt-pst give ‘the woman gave the man the object’

With the exception of the focussed element, these examples exhibit the same pattern as those in (17) and (18). Notice, however, that both (19) and (20) unambiguously show Focus clitic agreement with the subject. Considering the sentences initially used ((15) and (16) - lacking adverbials and other such extras), only one other permutation is possible. It is without a doubt the most unusual. The next pair has a focussed verb:

\[
[\text{Vcl \ ke \ T \ S \ IO \ DO}]
\]

(21) màap ke kè ‘áopà tarásà xuupà. 
give+cl dec rmt-pst man+Case woman+Case object+Case ‘the man gave the woman the object’

(22) màas ke kè tarásà ‘áopà xuupà. 
give+cl dec rmt-pst woman+Case man+Case object+Case ‘the woman gave the man the object’

In these examples, the verb acts in the same fashion as the objects - the Focus clitic (which agrees with the subject) is directly attached to the focussed verb. The subject is, again, overtly marked for Case. However, there is a new twist added - the tense marker has moved to a position immediately to the right of the declarative marker (that it has, in fact, moved can be shown in example (34) below). Given the uniform positions of the Focus clitic (it is always second) and the declarative marker [ke] (always following the Focus clitic), I believe it is reasonable to claim the Focus clitic is present even in the canonical word order (like those in (15) and (16)). In short, I claim that the subject is also focussed in the canonical word order; the difference being that the Focus clitic remains unrealized in
this case. This claim unifies the structure for all the permutations. (15) and (16) may then be recast as (23) and (24):

\[
\begin{array}{c}
\text{Scl ke IO DO T V} \\
\text{man(+cl) dec woman+Case object+Case rmt-pst give 'the man gave the woman the object'} \\
\text{woman(+cl) dec man+Case object+Case rmt-pst give 'the woman gave the man the object'}
\end{array}
\]

(23) ‘áop(*p) ke taràsà xuupà kè màà.

These data and the claims I have made so far give rise to a number of questions. In the next two sections, given the facts from examples (15)-(24), I will argue the following:

- What I have called the Focus clitic is the overt head of a FocusP (FocP).
- The declarative marker [ke] is the overt head of FinitenessP (FinP).
- The overt tense marker is necessarily the head of TP.

These three claims must be established first in order to understand what subsequent movements are taking place and where the landing sites are (this is true for both heads and arguments). The last point is of particular importance and has rather drastic consequences. As the above data shows, all arguments must surface to the left of T. Since they precede T (and are simultaneously to the right of the Fin head [ke]), they must necessarily be in SPEC T. As a result, they must all be licensed in this position. Therefore, I must make the additional claim that:

- In Khoekhoe, all argument Case is checked in T.

Remember that all Case-markers in Khoekhoe are *identical*. The Case marker [ -à] is attached to both objects and subjects (when not initial - see examples (17)-(22)). This fact is expected if the above claim is true. If the arguments were Case-licensed in other locations, the marker would not be expected to be the same. Of course, the question

---

5 This is a recurring theme in Khoekhoe. Apparently, if a DP and its agreeing head are in a local SPEC-Head relation, only one of the two may be overtly Spelled-Out. In other words, the same feature will not get spelled-out on both a head and an adjacent dependent. It is seen here with the Focus clitic and the subject. If the subject is focussed, the Focus clitic will not appear. If anything else is focussed, then the Focus clitic will be overt. In section 5, the same kind of alternation is seen with direct objects and the Tr head. Why this occurs is not clear.

6 Notice that this requires multiple specifier positions.
immediately arises as to what happens to the Case-marker on initial subjects. For now, I will leave that question aside. More importantly - considering the theoretical framework and its restrictions - how can all the arguments be Case-checked in \( T \)? This question will ultimately lead to an inevitable stipulation:

- In Khoekhoe, \( T \) is always defective for overt nominals.

The analysis in section 5 will illustrate how this stipulation must be in effect.

A separate issue - but one of equal importance - is how the Focus clitic can establish agreement with the subject and yet choose a different XP to focus. On a superficial level, this would seem to violate Maximize Matching (see Chomsky 1999:12). Further along, in section 5, I show that this apparent violation is merely an illusion. Before getting to the actual analysis, however, I will provide some justification for making my first three claims (concerning the placement of clitics, declarative markers, and tense).

4 Further Assumptions

In this section, I will briefly expand on my reasons for making the first three claims. Once again, they are: a) the Focus clitic is the overt head of FocP; b) the declarative marker \([k\epsilon]\) is the overt head of FinP; and c) the tense marker is necessarily the head of TP.

4.1 The Focus Clitic

The first necessary step is to adopt Rizzi's (1997) proposal for the left periphery. In this work, Rizzi argues for an expanded notion of CPs - one that fractures the CP into three separate projections: Force, Focus, and Finite(less). This idea fits well with the Khoekhoe facts from the previous section. In fact, my claim that the clitic is a Focus head falls out naturally. In Rizzi's work, the Focus head often encodes subject agreement in the same way as AGRs does in earlier frameworks. As the above examples have already shown, the

---

7 Perhaps this is similar to the "case-dropping" effects seen in Japanese and Turkish (as presented by Travis & Lamontagne 1981). The problem, however, is that Khoekhoe seems to be behaving in reverse (a mirror-image). Instead of dropping the Case-marker when adjacent to its Case assignor (which I assume to be \( T \)), a subject appears to drop the Case-marker when NOT adjacent to its Case assignor. And objects keep theirs at all times. One possibility is that my assumption of \( T \) being the 'universal' Case assignor is wrong. It may be that the Focus head assigns Case to subjects. This approach is feasible but it comes with several complications that I feel are undesirable at this time. Ultimately, I am unclear as to the status of the initial subject's missing Case-marker.
clitic always agrees with the subject. Therefore, it is not unreasonable to assume that this clitic is indeed a Focus clitic and can be instantiated as the head of FocP. To do this, the basic tree structure from (8) must be modified as follows:

(25) 
```
  ForceP
   /\     
  Force  FocP
       |     
  Foc  FinP
     |     
  [-cl] Fin TP
       |     
  T    vP
      |     
  (EA) v'
      |     
   v    TrP
      |     
  Tr   VP
      |     
  V    ....
```

This tree shows how the new projections are ordered and the Focus clitic has been placed in its proper location (boldfaced). As the following subsections show, the other head positions (Force and Fin) also have overt realizations in Khoekhoe.

4.2 The Declarative marker [ke]

Considering the structure in (25), I propose placing the declarative marker [ke] in the Fin head. The argument for such a claim is two-fold. First, it can be shown that ke is strictly functional. It apparently adds nothing to the semantics (or pragmatics). Since Fin (in Rizzi's proposal) is a functional category and overt heads of functional categories are often judged to be semantically vacuous, then a "strictly functional ke" would make a nice fit. The following examples illustrate this point:

(26) 'áop ke //naápá kè máá.
    man dec there rmtpst stand
    'the man stood there'  (Hagman 1977:54)

(27) 'áop ke kóómá 'a !áí.
    man dec supposedly cop good
    'the man is supposedly good'  "
(28) ‘áop km /naápá kè máá ‘oo.
man prt1 there rmr-pst stand assertion2
‘the man certainly stood there’

(26) is a standard declarative sentence with no particular emphasis. (27), with the addition of "supposedly," shows that ke has no inherent force of assertion associated with it. If such were the case, (27) would have conflicting illocutionary elements. In fact, in order to have the proper illocutionary force (that of emphatic assertion), an entirely different construction is necessary. This is shown in (28). Note that there are two new elements involved in this construction. The final particle ['oo] is an evidential which co-occurs with [km] (appearing in the same position as – and thereby replacing – ke). By providing the proper illocutionary force, ['oo] becomes a good candidate for occupying the Force head.

There is at least one other evidential - [tf] - that behaves in much the same way. This particular particle represents a direct quote:

(29) ‘áop ke kè míi píli ke tarásà kè mìu tf.
man dec rmr-pst say Bill dec woman rmr-pst see quote
‘the man said “Bill saw the woman”’

(Hagman 1977:139)

In keeping with the function these evidentials seem to perform, I assume that they are indeed overt Force heads. Since Foc is already occupied, Fin is the only slot left available for ke (which, as mentioned at the outset, would make a good fit).

On its own, the previous argument seems a bit weak. However, when taken in conjunction with the following argument, it feels much stronger. Recall the verb-fronted examples from section 3 (repeated below):

(30) màap ke kè ‘áopà tarásà xuupà.
give+cl dec rmr-pst man+Case woman+Case object+Case
‘the man gave the woman the object’

(31) màas ke kè tarásà ‘áopà xuupà.
give+cl dec rmr-pst woman+Case man+Case object+Case
‘the woman gave the man the object’

\[\text{Note the sentence final position. If evidentials are Force heads, then the only way they could be sentence final (barring right-branching heads) is for the entire FocP to eventually move into the SPEC of Force. I assume this to be the case. Recall that Rizzi's proposal demands that Force always be present (if not collapsed into Fin per his A void Structure principle). What this means for Khoekhoe (which will never collapse Force into Fin due to the ever-present Foc) is that every sentence - even those without an overt Force head - will also have the entire FocP eventually move into the SPEC of Force.} \]
Unlike all the other examples, these involve a displacement of the tense-marker. The expected position of this marker, if verb fronting is identical to the other types, is sentence final (following the template). As a matter of fact, the tense-marker *can* appear sentence final (see example (34) in the next subsection), although it is dispreferred. If the tense-marker is the T head (which I argue for in the following subsection), then this displacement must be an instance of head movement. The best landing site is adjoined to the position occupied by *ke.* Therefore, thanks to structure preservation, this position can only be a head.

With *ke* established as the head of Fin and the evidentials serving as potential Force heads, Rizzi’s fractured CP is nicely complete. The tree from (25) may then be filled in as follows:

\[
(32)
\]

\[
\begin{array}{c}
\text{ForceP} \\
\text{Force} \\
\text{ti} \\
\text{oo} \\
\text{[-cl]} \\
\text{Fin} \\
\text{ke} \\
\text{km} \\
\text{(EA)} \\
\text{v'} \\
\text{v} \\
\text{TrP} \\
\text{Tr} \\
\text{VP} \\
\text{V} \\
\text{....}
\end{array}
\]

### 4.3 Tense is necessarily in T

At this point, all that remains is to properly place the 'tense-marker' into the tree. The following list shows that Khoekhoe has a typical range of morphemes encoding tense information:

- kè: remote past
- kò: recent past
- ø: present
- nǐ: future
- kà: indefinite

\[9\] Notice that this involves right-adjunction.
As is also typical, the present tense tends to be unmarked (and therefore empty). On their own, such observations suggest that Khoekhoe uses a strategy similar to other languages in which tense-markers are understood to be in T. Analogy is fine as far as it goes, but there is other evidence – specific to Khoekhoe – that supports the idea. As examples (33)-(38) show, the tense-marker cannot be considered inflectional morphology on the verb:

(33) ˈáop ke tarásà xuupà kè màa.
man dec woman+Case object+Case rmtpst give
‘the man gave the woman the object’

(Hagman 1999:3)

(34) ? màap ke ˈáopà tarásà xuupà kè.
give+cl dec man+Case woman+Case object+Case rmtpst
‘the man gave the woman the object’

(35) màap ke kè ˈáopà tarásà xuupà.
give+cl dec rmtpst man+Case woman+Case object+Case
‘the man gave the woman the object’

In either option where the verb has been focussed, the tense marker is left separate. This would be impossible if it were an inflectional affix. More to the point, the [?] in (34) indicates that this sentence is "acceptable but awkward" (Hagman 1977: 111). The preferred word order is (35). In this structure, the tense-marker has moved to a head-adjoined position (recall, from above, that the declarative marker ke is a head). Only a head may undergo head movement. This situation rules out the possibility of the tense-marker as inflectional morphology.

The (near) homophony shared by the declarative marker and the remote-past marker might suggest that the "real" order is actually the reverse - with the tense first and the declarative following. The next examples – having the added imperfective Aspect morpheme – clarify the issue:

(36) ˈáop ke l'iipà hàispà kèrè màa.
man dec him+Case stick+Case rmtpst.IMP give
‘the man was giving him the stick’

(Hagman 1977:112)

(37) màap ke kèrè ˈáopà l'iipà hàispà.
give+cl dec rmtpst.IMP man+Case him+Case stick+Case
‘the man was giving him the stick’

(Hagman 1977:112)

10 Hagman (1999:3) describes this usage as "archaic."
(38) *unreported.*

\[ \text{màap } \text{kèrè } \text{ke 'áopà } \text{/iipà hàipà.} \]

\[ \begin{array}{lcl}
give+cl & \text{rmt-pst.IMP} & \text{dec man+Case him+Case stick+Case} \\
\end{array} \]

\[ \text{‘the man was giving him the stick’} \]

Notice that the situations in examples (36) and (37) are identical to those in (33) and (35) - kèrè also undergoes head movement to adjoin to the Fin head. Since structure preservation must hold, the position occupied by kè/ kèrè must be a head.

So far then, the tense-marker is not inflectional and is able to undergo head movement. However, there is even stronger evidence suggesting its position is the target of head movement - thereby demanding it occupy a head position. The following examples involve copula raising:

(39) He seldom comes.

(40) He *is* often *t* late.

(41) He *can* often *be* late.

(39) shows the normal position of a lexical verb in English (an SVO language) with non-overt T. In the copular expression (40), a non-overt T allows head movement of the copula (itself a head) to T. The normal position of the copula can be shown when T is overtly filled – as in (41). Khoekhoe has an identical situation involving copulas:

(42) ‘áop ke ‘a ‘ái t.

\[ \text{man dec Cop good} \]

\[ \text{‘the man is good’} \]

(Hagman 1977:61)

(43) ‘áop ke kè ‘ái ‘íí.

\[ \text{man dec T good Cop} \]

\[ \text{‘the man was good’} \]

(Hagman 1977:83)

(44) ‘áop ke káiše ‘a ‘ái t.

\[ \text{man dec very Cop good} \]

\[ \text{‘the man is very good’} \]

(Hagman 1999:4)

---

11 Having no access to native speakers, I can only presume this to be ungrammatical. Hagman does not use this possibility in his grammar, so I present this example as “unreported.”

12 (39)-(41) from Wayne Harbert, personal communication
(45) ‘áop ke káise kè lái ‘íi.
man dec very T good Cop
‘the man was very good’

In (42) and (44), the present tense is unrealized (see the list at the beginning of this subsection). Just as in the English examples, the copula raises from its normal position (sentence final in an SOV language like Khoekhoe) to occupy the position usually reserved for the tense marker. (43) and (45) show the copula in its expected position when the tense marker is overt. Since the copula is a head (in both English and Khoekhoe) and it targets the position occupied by the overt tense-marker, this position must also be a head. The similarity between Khoekhoe and English copulas suggests that the position occupied by tense is, in fact, T.

In summary, the ‘tense-marker’: encodes actual tense information; is not affixal; undergoes head movement; and is the target of head movement. With these arguments in place, it is not unreasonable to suggest the tense-marker is, in fact, in T. As a result, the tense-marker will henceforth be referred to simply as T.

In this section, I have modified my basic clause structure (from example (8)) to accommodate Rizzi’s (1997) left periphery (example (32)). By doing so, I am able to plausibly locate various particles and clitics found in Khoekhoe (the Focus clitic, the declarative marker, and the evidentials). Further, I have argued that the tense marker is indeed found in T. At this point, it would be beneficial to offer a reminder of the consequences regarding this last claim. All arguments appear to the left of T and to the right of Fin. These arguments must therefore be licensed in the SPEC of T. In the next section, my analysis of a sample transitive sentence will take as its foundation the proposal from section 3 – in Khoekhoe, all Case is checked in SPEC T.

5 Analysis

The previous sections have served multiple purposes. Sections 2 and 3 give a brief and rather concise sketch of Khoekhoe declarative sentences. In the process, I have highlighted a few of the difficulties that must be accounted for in the subsequent analysis (such as the apparent necessity of T checking all argument Case - hence the identical Case-markers). The following example is offered to reinforce this idea:
\(46\) pili ke jónà maríasà #xanísà kè màa-pa
Bill dec John+Case Mary+Case letter+Case rmt-pst give.APPL
‘Bill gave Mary the letter for John’ (Hagman 1977:79)

In sections 1 and 4, I have outlined the basic framework for my analysis and expanded (or modified) some of the standard assumptions contained in Chomsky’s (1999) latest work. Also, in section 4, I have argued for placing certain markers found in Khoekhoe as the overt heads of various functional categories. With all of this in place, I can now offer a plausible explanation that may account for my target examples ((1)-(3)). For ease of reference, these are repeated below:

\(47\) \(\breve{\text{áop}}(\text{*p})\) ke tarásà kè múù.
man(\text{*+cl}) dec woman+Case rmt-pst see
‘the man saw the woman’ (Hagman 1999:5)

\(48\) tarásàp ke \(\breve{\text{áop}}\) kè múù.
woman+Case+cl dec man+Case rmt-pst see
‘the man saw the woman’

\(49\) múùp ke kè \(\breve{\text{áop}}\) tarásà.
see+cl dec rmt-pst man+Case woman+Case
‘the man saw the woman’

The first issue that must be addressed is the possibility of the subject (in example 47) somehow being base generated to the left of the declarative marker \(\text{[ke]}\). This possibility would easily explain the lack of a Case-marker - since the ‘universal’ Case-marker \(\text{[-à]}\) is licensed in the SPEC of T. A subject generated to the left of \(\text{ke}\) would never be in the SPEC of T to license such marking. However, this possibility is quickly ruled out. A brief look at question formation shows that, when the subject is a question (either WH or Yes/No), the Case-marker is actually present.\(^\text{13}\) In his grammar of Khoekhoe, Hagman states this phenomenon explicitly: “…what we have been calling the 'subject NP' is followed by the … [ -à ] in the interrogative sentence” (Hagman 1977: 140). The following examples bear this out:

\(50\) \(\breve{\text{áop}}\) (kxa) tarásà kè múù.
man+Case(+cl) INT woman+Case rmt-pst see
‘did the man see the woman?’ (Hagman 1999:11)

\(^{13}\) I am unclear as to how this might interact with the "case-dropping" story alluded to in footnote 6.
(51) (animate) interrogative pronoun: tarí
with appropriate (pgn) suffix: tarí'ì, taríp, taríš
with [ -à ]; tarí'è, tarípa, tarísa = 'who'

(52) tarípa (kxa) tarásà kè mùù?
who(+cl) INT woman+Case rmt-pst see
'who saw the woman?'

(Hagman 1999:11)

(53) tarí'ep (kxa) 'àopà kè mùù?
whom+cl INT man+Case rmt-pst see
'who did the man see?'

(50) is the clearest case. In the Yes/No question, the logical subject shows the
Case-marker and it is not in the SPEC of T. This is shown by the optional appearance of an
interrogative particle that has the same distribution as the declarative marker. However,
since it is Case-marked - and this marking must have been licensed in the SPEC of T - the
subject must have moved out of SPEC T into the focus position just as in the declaratives.
By extension, therefore, the subject in declaratives must also undergo the same movement
and not be generated to the left of ke. (52) shows the same facts when the interrogative
pronoun is used instead of the full nominal. (53) shows that the targeted position is, in fact,
the focus position - note the appearance of the subject-agreeing focus clitic on the fronted
WH-object. Also, as expected from the pattern found in declaratives, the focus clitic is
absent when the WH-subject is fronted. Since the subject cannot be base generated to the
left of ke, I will assume that it is Merged in the usual position for External Arguments.

Given the structure in (32), the underlying tree for all three target examples ((47)-(49))
should look something like this:
From this point on, for simplicity's sake, I will not refer explicitly to each individual process of matching, valuation, and deletion of features between probes and goals (unless necessary for a point of clarity). Instead, I assume that all movement taking place involves the matching of a probe's uninterpretable $\phi$-features with the goal's interpretable $\phi$-features (under the conditions governing Agree - see summary on page 2). This process also involves the deletion of the probe's uninterpretable features. As a result, I will be mostly referring to Case checking (the valuation part of the process) and whether or not the Case feature is deleted. Head movement will refer to the same process as it applies to heads.

The first phase consists of the $vP$ and its contents. After initial Merge has taken place (yielding the structure above), the first step in the derivation involves head movement of the verb to Tr:
The next step is rather more complicated. As proposed by Bowers (2000), Tr is the locus for object agreement (having uninterpretable object \( \phi \)-features) and has an EPP feature that must be satisfied. Therefore, the direct object is moved into the SPEC of Tr:

\[
\begin{align*}
\text{(56)} & \quad \text{...TrP} \\
& \quad \text{DP} \\
& \quad \text{\( \triangle \) tar\( \text{\'} \)s\( \text{\'} \)a} \\
& \quad \text{Tr'} \\
& \quad \text{Tr} \\
& \quad \text{VP} \\
& \quad \text{\( V \)} \\
& \quad \text{\( \text{Tr} \)} \\
& \quad \text{\( f_v \)} \\
& \quad \text{\( t_{obj} \)} \\
& \quad \text{\( \text{\( m\( \text{\'} \)u} \)}
\end{align*}
\]

However, the situation at this stage is not quite so simple. According to the theory, once the object has been moved in this manner, its Case feature deletes and the nominal is frozen in place. This is an undesirable result. The verb will eventually move up and adjoin to \( v \) "since all verbs end up in Pred" (Bowers 2000:6). This leaves the direct object in a post-verbal position. Its frozen status renders it unavailable for further movement to SPEC \( v \) to satisfy the EPP feature of \( v \). That \( v \) even has an EPP feature is due its status as a strong phase head.\(^{15}\) Also, a strict reading of the Phase Impenetrability Condition\(^{16}\) (PIC) will require the presence of the object in the SPEC of \( v \) for it to be available to elements in the next phase. The question is how to resolve the matter. To further complicate matters, the following alternatives exist:

\[
\begin{align*}
\text{(57)} & \quad \text{\( \text{\( \text{l} \)\( \text{i} \)iku ke} \quad \text{\( \text{l} \)\( \text{i} \)ip\( \text{\'} \)a k\( \text{\'} \)e m\( \text{\'} \)u.} \)
\end{align*}
\]

\[\text{they dec him+Case rmt-pst see} \]

\[\text{‘They saw him.’} \quad \text{(Hagman 1977:80)}\]

---

\(^{14}\) "Pred" is interchangeable with \( v \).

\(^{15}\) It is true that Chomsky said a strong phase head only may have an EPP feature. However, if the object does not move to SPEC \( v \) - into a specifier position over that of the subject - then the word order facts in examples such as (49) would be difficult to explain. If I assume that the PIC doesn't even apply at the time T is moving the arguments up (as suggested by Chomsky 1999:11) and assuming that the higher element moves first (since equidistance is no longer a factor in this framework), then the subject would move to SPEC \( T \) first followed by the object (from the SPEC of Tr). The surface order would then be [ V-cl \( ke \quad T \ OBJ \ SUBJ \) ] - which is counter to the actual order found in example (49). So, I conclude that \( v \) must have an EPP feature in Khoekhoe.

\(^{16}\) By strict I mean that for any element in a single phase to be available to any element in the next higher phase (which is counter to Chomsky - see above footnote), it must be in either the phase head or its specifier.
(58) //iiku ke kè mûupi.  
they dec rmt-pst see-3ms
'They saw him.'

(59) tiîta ke niî !'úî-pa-îsî-îpi. (dashes mine) 
I dec fut watch over.APPL.2ms.3ms
'I will watch over him for you.'

These examples show the possibility of substituting an object clitic for a full nominal (even when there are double objects\textsuperscript{17} - as in (59)). This is where my final claim from section 3 comes in. In Khoekhoe, Tr is always defective for overt nominals. A defective Tr (perhaps having only [person] features) - which should be possible due to its status as a CFC - would allow the direct object to move into its specifier and still be active (since its Case feature will not checked or deleted). Its active status will allow further movement into the SPEC of v - which is desirable for all the reasons outlined in the preceding paragraph. Since v cannot value Case for objects either, the direct object is still available for Case-checking by T later on. Furthermore, it is now in the proper position according to the PIC. In contrast, the object-clitic examples have a φ-complete Tr head and a small pro object. The clitic itself is in the Tr head as the Spell-Out of these φ-features.\textsuperscript{18} When the pro is moved into the SPEC of Tr, its case is checked. However, since pro is phonologically null, the fact that it remains post-verbal is not an issue. The following shows the relevant structures for examples (57) and (58) (respectively):

\begin{align*}
(60) & \quad ...\text{TrP} \\
& \quad \quad \text{DP} \quad \text{Tr'} \\
& \quad \quad \quad /iîpa \quad \text{Tr} \quad \text{VP} \\
& \quad \quad \quad \quad \text{V} \quad \text{Tr} \quad t_v \quad t_{obj} \\
& \quad \quad \quad \quad \quad \text{mûu} \quad \text{φ} \\
\end{align*}

\begin{align*}
\quad ...\text{TrP} \\
& \quad \quad \text{pro} \quad \text{Tr'} \\
& \quad \quad \quad \text{Tr} \quad \text{VP} \\
& \quad \quad \quad \quad \text{V} \quad \text{Tr} \quad t_v \quad t_{obj} \\
& \quad \quad \quad \quad \quad \text{mûu} \quad -\text{pi}
\end{align*}

Returning to the derivation in progress, after the object has moved to SPEC Tr (as in (56)), the next step involves head movement of the V-Tr complex to v (for the reason stated earlier). Following that, the EPP feature of the phase head v will move the direct object into a higher specifier position (again for the reasons mentioned earlier). Remember

\textsuperscript{17} Notice that the ordering of the clitics with respect to the verb - and each other - is supportive of Kayne's underlying SVO word order and also of Bowers' iterative property of TrP's (for double objects).
that \( \nu \) is also unable to check object Case. As a result, both the subject and the object are active DP’s and are in accessible positions for elements from the next phase. The tree should now appear like this:

(61)

\[
\begin{array}{c}
\text{DP} \\
\triangle
\end{array}
\]

\[
\begin{array}{c}
\text{tarásâ} \\
\triangle
\end{array}
\]

\[
\begin{array}{c}
\text{ālop} \\
\end{array}
\]

\[
\begin{array}{c}
\nu \\
\end{array}
\]

\[
\begin{array}{c}
\nu' \\
\end{array}
\]

\[
\begin{array}{c}
\text{TrP} \\
\end{array}
\]

\[
\begin{array}{c}
\text{Tr} \\
\end{array}
\]

\[
\begin{array}{c}
\nu \\
\end{array}
\]

\[
\begin{array}{c}
\text{t}_{\text{obj}} \\
\end{array}
\]

\[
\begin{array}{c}
\text{Tr} \\
\end{array}
\]

\[
\begin{array}{c}
\nu \\
\end{array}
\]

\[
\begin{array}{c}
\text{t}_{\text{Tr}} \\
\end{array}
\]

\[
\begin{array}{c}
\text{VP} \\
\end{array}
\]

\[
\begin{array}{c}
\text{tv} \\
\end{array}
\]

\[
\begin{array}{c}
\text{t}_{\text{obj}} \\
\end{array}
\]

With the first phase at an end, the next (and final) phase begins. The next step involves bringing the arguments to the SPEC of T. One other assumption has to be made at this point – in Khoekhoe, the \( \phi \)-features and the EPP feature of T may be checked more than once (that is, once they are matched they get deleted but not erased). This allows multiple elements to be matched and valued by T. Since Chomsky’s (1999) framework does not allow equidistance anymore, the higher argument in the tree will get matched first (which is also due to the Minimal Link Condition (MLC)) – yielding the following:

---

18 See footnote 5 as to why the full nominal and spelled-out \( \phi \)-features can not co-occur.
At this stage, both the subject and the object – neither of which had yet been checked – are Case-licensed by \( \phi \)-complete T. Since they are both getting their Case from the same licensing element, they get an identical Case-marker \([ - \; à]\) (which the subject will drop later if it is focussed).

The next step involves matching the \( \phi \)-features of the Foc head (or the Focus clitic) with the nearest candidate. Thanks to the ordering results from (62) and the MLC, this element will always be the logical subject:
Note, however, that this head cannot have an A-type EPP feature. If it did, the derivation would crash since the subject is frozen in place for further A-movement. Instead, this head has an A’-type uninterpretable focus feature that has a function identical to that of the EPP feature. The element that will satisfy this feature depends on which XP has the corresponding “Case-like” interpretable focus feature (which is similar to the Q feature for WH movement proposed by Chomsky 1998). If this element is the subject, as in example (47), the final structure will look like this:

---

19 This takes care of the apparent violations of Maximize Matching. There is no violation since two separate mechanisms are being used – A and A’.

20 I say “final” here, but recall that the entire FocP will eventually be moved into the SPEC of Force. I have elected not to show this movement (or the ForceP projection) due to space considerations and the fact that I do not yet have a satisfactory motivation for it.
This structure yields the proper word order for example (47). Note, however, that the clitic will be unrealized in this case (as discussed in footnote 5). If the direct object has the interpretable focus feature, then it will be moved into SPEC Foc. The subject will stay put and the focus clitic will attach to \([\text{tarásà}]\) – thereby yielding the word order of example (48). Finally, if \(\nu\)\text{P} has the interpretable focus feature, then it moves to SPEC Foc.\(^{21}\) Both arguments stay in SPEC T and the focus clitic attaches to \([\text{mùù}]\). If the derivation stops there, then the word order is similar to that in example (34), which is deemed to be awkward by native speakers. As a result, to yield the preferred word order in (49), there must be a last head movement of T to Fin.\(^{22}\)

In summary, using the framework from section 1 and incorporating the assumptions from section 4, the data from section 3 (as represented by examples (47)-(49)) can be adequately explained. All the permutations of a basic Khoekhoe declarative are accounted for.

\(^{21}\) This is not an unreasonable assumption since the other CFC’s (CP and TP) can be targeted for movement – such as pseudo-clefting for CP’s.

\(^{22}\) Once again, this involves right-adjunction (which I am not addressing at this time).
6 Conclusions

In this paper, I have shown that Chomsky’s latest incarnation of minimalist syntax can indeed be used fruitfully on an understudied language. However, to do so, I had to make a number of stipulative departures from the main thrust of his theory. I do not mean to suggest that these departures be universally accepted. They are offered merely to explain the facts observed in Khoekhoe. However, if my arguments have any validity, then perhaps the overall theory needs some minor alteration in order to accommodate them. This is a question in need of much further research. In particular, native judgements are necessary and all the elements I neglected in the present study (such as negation and Aspect) must be accounted for as well.

Here is a summary of the various claims and stipulations that I have proposed in this paper:

In Khoekhoe,

♦ The Focus clitic is the overt head of a FocusP (FocP).
♦ The declarative marker [ke] is the overt head of FinitenessP (FinP).
♦ The overt tense marker is necessarily the head of TP.
♦ All argument Case is checked in T.
♦ Tr is always defective for overt nominals.
♦ v must always have an EPP feature.
♦ The PIC must be interpreted strictly.
♦ The Foc head has both A and A’ properties.

There is obviously much more work to be done and several issues brought up in the course of this paper are still unresolved (such as the focussed subject “dropping” its Case-marker). Ultimately, I believe my primary goal - providing a first-approximation explanation for the structure of basic Khoekhoe declaratives - has been achieved.

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Agreement and Word Order in Sandawe

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0 Introduction

The purpose of this paper is to provide a generative account of agreement and word order of a transitive verb construction in Sandawe, a Khoisan language of Tanzania. The syntax of Sandawe has rarely been discussed in the literature, among the few studies are Dalgish 1979, Dempwolff 1916, Kagaya 1990. Even such “basic” constructions as a transitive verb construction seem to pose a considerable challenge because it shows an “unusual” pattern, where a subject agreement marker shows up on the object. I will try to show that such a construction can be accounted for naturally within the framework of generative grammar.

In section 2, I will introduce Kagaya’s (1990) data and generalization. In section 3, I will provide an account for his generalization within a framework of generative grammar. Section 4 concludes the discussion.

1 Kagaya’s Generalization

Sandawe allows any possible word order, and shows a surprising agreement pattern where not only verbs, but also objects and adverbs may have an agreement marker (called a nominative clitic, NC) which agrees with the subject in gender, person, and number.¹ The following statement is from Kagaya 1990.²

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¹ I would like to thank Chris Collins and anonymous reviewers for comments and suggestions.
² I will not discuss adverbs in this paper.
³ In what follows, when I cite Kagaya’s paper, I will use Kunio Nishiyama’s English translation. The page numbers refer to Kagaya’s original paper.

A. Bell and P. Washburn (eds.)
Cornell Working Papers in Linguistics, Volume 18, pp. 57-74
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At least one of object, verb, adverb must have a nominative clitic (NC). An NC cannot attach to the subject. For the encliticizability of an NC, the object and the adverb are perfectly equal.

Kagaya 1990 argues that, although Sandawe allows any possible word order, the word order is not really free, but is restricted by agreement.\(^3\) He shows the following data (2),\(^4\) the meaning of which is “Mother planted maize”:

(2)  

i. SOV  

a. iyoo |nining’-sa |aa  
mother maize-3sg.fem plant  
b. iyoo |nining’ |aa-sa  
mother maize plant -3sg.fem

ii. SVO  

a. iyoo |aa-sa |nining’  
mother plant-3sg.fem maize  
b. iyoo |aa-sa |nining’-sa  
mother plant-3sg.fem maize-3sg.fem

iii. OSV  

a. |nining’-sa iyoo |aa  
maize-3sg.fem mother plant  
b. |nining’ iyoo |aa-sa  
maize mother plant-3sg.fem

iv. OVS  

a. |nining’-sa |aa iyoo  
maize-3sg.fem plant mother  
b. |nining’ |aa -sa iyoo  
maize plant -3sg.fem mother

v. VSO  

a. |aa-sa iyoo |nining’  
plant-3sg.fem mother maize  
b. |aa-sa iyoo |nining’-sa  
plant-3sg.fem mother maize-3sg.fem

\(^3\) Dalgish (1979:274) points out that “it seems that SOV word order is statistically more prevalent,” but that “other orders are fully acceptable without necessarily implying greater emphasis in one way or another.” I do not presuppose any pretheoretical basic word order in this paper.

\(^4\) In the original text, (2-iii-a) is given as:

\[(i) /nining’-sa iyoo //aa-sa\]

However, it is a typographical mistake (Ryohei Kagaya, personal communication), and (2-iii-a) is the correct example.
vi. VOS

a. ḋaa-sa ḋ nin’-sa iyoo
   plant-3sg.fem maize mother
b. ḋaa-sa ḋ nin’-sa iyoo
   plant-3sg.fem maize-3sg.fem mother
   (Kagaya 1990: 2)

According to Kagaya (1990), the examples in (2) are the only possible grammatical sentences. That is, “iyoo ḋ nin’-sa ḋaa-sa” is not grammatical in the SOV order because of the NC -sa on the verb ḋaa, for example. He proposes the following generalizations on the word order and agreement:5

(3)  a. When the verb has an NC encliticized, words preceding the verb cannot have one. Words following the verb can optionally have an NC cliticized.
    b. When a word other than the verb has an NC, the verb following the word cannot have an NC. The verb preceding the word must have an NC.

To put the generalizations in a schematic way, we have the following:

(3)  a’. (i) XP-*NC ... V-NC  (ii) V-NC ... XP(-NC)  = (3a)
b’. (i) XP-NC ... V-*NC  (ii) V*(-NC) ... XP-NC  = (3b)

Here, -*NC means that we cannot have an NC, (-NC) means that we can optionally have an NC, and *(−NC) means that we must have an NC.

Let us consider (2-i) in terms of the generalizations, for example. (2i) is repeated here:

(2)  i. SOV

a. iyoo ḋ nin’-sa aa.
   mother maize-3sg.fem plant
b. iyoo ḋ nin’ ḋaa-sa.
   mother maize plant -3sg.fem

---

5 Dalgish 1979 proposes the following generalization:

(i) The objects are marked for subject invariably.  
   Dalgish 1979: 279

This generalization is not compatible with Kagaya’s generalization, as well as his data. In this paper, I will take Kagaya’s data and generalization to be correct.
(2-i-a) is grammatical because it obeys (3b)/(3b'-i): The object has an NC and the following verb may not, and does not, have an NC. (2-i-b) is grammatical because it is subject to (3a)/(3a'-i): The verb has an NC, so the preceding object may not, and does not, have an NC. Given the generalization, the following sentence should be ungrammatical, and it is, according to Kagaya (1990), because it does not obey (3a)/(3a'-i) and (3b)/(3b'-i):

(4) *iyoo nining'-sa ka-as
    mother maize-3sg.fem plant-3sg.fem

This sentence violates (3a)/(3a'-i) since the object /ning’ has an NC even though it precedes a verb with an NC, i.e., ka-as. It also violates (3b)/(3b'-i) since the verb ka has an NC even though it follows one of the phrases with an NC, namely the object nining’-sa.

In what follows, I will try to give an account for the generalization within a framework of generative grammar.

2 A Proposed Account

2.1 Assumptions

The paradigm that I want to account for is shown schematically in (5)-(10):

(5) a. S O-NC V
    b. S O V-NC
    c. * S O-NC V-NC

(6) a. S V-NC O
    b. S V-NC O-NC
    c. * S V O-NC

(7) a. O S V-NC
    b. O-NC S V
    c. * O-NC S V-NC
For expository purposes, I will use the terminology, such as checking, strong/EPP-features, (un)interpretable features, and so on, roughly in the sense of Chomsky 1995. And I will assume that economy conditions are local in that the decision as to whether a syntactic operation may apply at a stage of derivation is made only on the basis of information given in a phrase structure at that stage of derivation (Collins 1997: 4). Thus, a longer derivation does not block a shorter one.

The extremely free word order of Sandawe might lead one to believe that it is a polysynthetic language. However, I will assume that Sandawe is a language like English in that arguments (subject, object) occupy an A-position, but not an adjoined position. Baker’s (1996: 14) informal definition of the Polysynthesis Parameter is cited below:

(11) Every argument of a head element must be related to a morpheme in the word containing that head.

As shown in (2), not every argument of a head element (verb) in Sandawe is related to a morpheme on the verb. Verbs in Sandawe do not have a morpheme that is related to an object. Therefore, it would be reasonable to assume that Sandawe is not a polysynthetic language.
I will adopt the following basic phrase structure for sentence with transitive verbs (see Chomsky 1995):

\[(12) \ [CP \ C [TP \ T [v_p \ S \ v [v_p \ V \ O]]]]\]

Object (O) is generated in the complement of Verb (V), where it is assigned a theta-role. Subject (S) is generated in the specifier of the light verb, which assigns a theta-role to S.

As I showed above, the object may be marked with a subject NC in Sandawe. I will assume whether this marker (NC) appears on the reflects syntactic computation.\(^6\)

Then, we must have phi-features (gender, number, and person features) that agree with the subject on the object in order to have subject agreement on the object. Since the phi-features on the object that agree with the subject are not relevant to the interpretation of the object itself, they should be uninterpretable. So, I will assume that uninterpretable phi-features (which are optional but not intrinsic, in the sense of Chomsky 1995: 277) are assigned to the object when it is extracted out of Lexicon:\(^7\)

\[(13) \ Object \ is \ assigned \ uninterpretable \ phi-features.\]

I will assume that checking relation holds under c-command or Spec-Head relations. That is, a feature of a phrase XP may enter into a checking relation with a feature in a head H if H c-commands XP or if XP is a specifier of H.\(^8\) Then, object cannot agree with subject directly because a head of the subject may not c-command object since the subject may be branching. Similarly, the object cannot be a specifier of the subject at any stage of derivation. Therefore, I assume that subject agrees with object indirectly via T. Subject agrees with T under a Spec-head relation, and then T agrees with object under c-command. So, the agreement between subject and T is a precondition for the agreement with object. Note that the phi-features on T may not erase upon checking.

---

\(^6\) This assumption is incompatible with Dalgish 1979, who argues that the subject agreement marker on object contributes to the identification of subject. I will not discuss his analysis in this paper.

\(^7\) Object also has its own phi-features, which are interpretable.
because they must agree with object after agreeing with subject: uninterpretable features must still be available after being checked.\(^9\)

Given these considerations, I propose that the phi-features on the object are licensed in two ways:

(14) The uninterpretable phi-features on object can be licensed if
a. they are checked overtly under the configuration (15), or
b. an NC is attached in the PF component, and the phi-features on the object are checked by the checked phi-features on T covertly.

When the phi-features are checked under (14a),\(^{10}\) they do are realized phonetically. That is, the object does not bear an NC in this case. The condition on checking referred to in (14a), namely (15), is shown below:

(15) \textit{Indirect Agreement Configuration (IAC)}:

\[
\begin{array}{ccccccc}
\text{\textit{TP}} & \text{S} & \text{V-} & \text{v-} & \text{T} & \text{\textit{IP}} & \text{O} \\
\wedge & \wedge & \wedge & \wedge & \wedge & \wedge
\end{array}
\]

(i) (ii)

(i) S-T Agreement
(ii) T-O Agreement

(15) shows the (overt) configuration under which the overt checking of the phi-features on the object is executed. Here, V, which is adjoined to v, is in T, and S is in a Spec-head relation with T. O is in the c-commanding domain of T. I will assume that (15) is a precondition for overt checking, so we need not always have the overt checking when we have IAC: even if we have IAC, (14b) may be optionally chosen to license the phi-features on object.

\(^8\) Spec-head relation could be reduced to c-command + EPP feature checking relation, as in Chomsky 1998.

\(^9\) Feature checking might be taken to be a "valuing" operation, which values the uninterpretable phi-features. Cf. Chomsky 1999, Collins 1999. In the case discussed here, the interpretable phi-features on the subject value the uninterpretable phi-features on T, and then the valued phi-features on T value the uninterpretable phi-features on the object. I will not go into the details in this paper.

\(^{10}\) In this case, the checked uninterpretable phi-features may erase unless it violates some principle of UG.
In the case of (14b), the uninterpretable phi-features on the object are supported by an overt NC. The form of NC is determined by the unchecked phi-features on the object in the PF component. Agreement with the subject is enforced by a checking relation with the phi-features on T which have been checked by the subject. This checking takes place in the course of LF derivation, preventing the derivation from crashing at LF.

Note that the uninterpretable phi-features on the object are strong in the sense that they cause a PF crash unless they are licensed overtly (Chomsky 1993). If so, some assumptions behind (14) should be clarified here. First, a DP/NP, in addition to functional categories, may have a strong feature. Second, a strong feature causes not only an LF crash but also a PF crash. Third, formal features other than categorial features may be strong. I will not go into the details of these theoretical issues in this paper. See Lasnik (1999: Ch.7) for discussions related to the first two assumptions, and Ura 2000 for the third assumption. I will assume (i) that the attachment of an NC to the strong phi-features blocks a PF crash, (ii) that the checking of the strong phi-features blocks LF and PF crashes, (iii) that the strong phi-features on the object are checked under c-command overtly without movement.\(^1\)

Note also that (14) presupposes that feature checking is a syntactic operation in that it is subject to economy conditions (Ura 2000). If it is not a syntactic operation and is taken to be a part of an operation, then we could not have the optionality in the licensing of the uninterpretable phi-features of the object. Suppose that we have an IAC configuration at a stage of derivation. If the checking operation were a part of Merge/Move, then the checking of the phi-features on the object would be automatically carried out. However, as I will show below, we need to have optionality here: the

\(^1\) The checking of the strong/EPP features on a head to which a phrase moves requires overt movement.
checking of the phi-features (14a) or the attachment of an NC (14b). This optionality accounts for the relationship between the word order and the agreement pattern.

Let me next introduce the mechanism that deals with an NC on V. I will assume the following:

(16) NC on V is an overt realization of T. It appears iff we have IAC (15) at some stage of derivation.

Unlike the uninterpretable phi-features on object, the phi-features on T must be phonetically realized when we have IAC.

I will adopt the following constraint on the behavior of NC’s:

(17) \*_{Y_P} \text{XP-NC Y-NC} \subset \text{ZP} ...

This constraint prohibits an NC more than once from appearing in the same projection.\(^{12}\)

Thus, if a head Y bears an NC, its specifier XP cannot bear an NC, and if XP bears an NC, then Y cannot bear an NC.

Finally, I will make the following assumptions on feature strength:

(18) a. T and \(v\) have an EPP feature. The EPP feature on T may be checked more than once.
b. T has a strong V feature (\(v\) must move to T)
c. \(v\) may be assigned a strong V feature. (V moves to \(v\) optionally).
d. C may be assigned a strong V-feature.
e. C may be assigned an EPP feature if it has a strong V feature.

An EPP feature on a head requires a phrase (subject or object) to be in its Spec. A strong V-feature on a head requires a verbal head to be adjoined to that head.

I will further assume that the empirical consequences of Kayne’s (1994) theory are correct in that the underlying word order is SVO universally, and we do not have the Head Parameter. For example, in order for object to precede verb, it must move over the

\(^{12}\) (17), of course, is a stipulation which should be explained. As pointed out by Chris Collins (personal communication), it might be the case that NC is actually a head, which projects its own projection. I will leave this problem open in this paper.
verb. Note that this assumption does not necessarily argue that the basic word order in Sandawe is SOV (see footnote 3).

Given the assumptions just made above, let us see how (5)-(10) are accounted for in the following subsections.

2.2 \( v \) without a Strong V-feature

Let us start with the stage of derivation shown in (19):

\[
(19) \quad [_{vp} S \ v \ [_{vp} V O]]
\]

Suppose that \( v \) is not assigned a strong V-feature. Then, the verb V stays in situ. And the derivation proceeds as shown in (20):

\[
(20) \quad \begin{align*}
a. & \quad [_{vp} O \ S \ v \ [_{vp} V tO]] \\
b. & \quad T [_{vp} O \ S \ v \ [_{vp} V tO]] \\
c. & \quad [_{tp} v-T [_{vp} O \ S \ tv \ [_{vp} V tO]] \\
d. & \quad [_{tp} S v-T [_{vp} O \ tS \ tv \ [_{vp} V tO]] \\
d' & \quad O v-T [_{vp} tO S tv \ [_{vp} V tO]] \\
e. & \quad [_{tp} S v-T [_{vp} O-NC tS \ tv \ [_{vp} V tO]]] \quad (5a) \\
e' & \quad [_{tp} O-NC v-T [_{vp} tO S tv \ [_{vp} V tO]]] \quad (7b)
\end{align*}
\]

Given that \( v \) has an EPP feature, the object O must move to the Spec of \( v \) as in (20a). Then, T is merged with vP as in (20b). Since T has a strong V feature, it attracts the light verb \( v \), to which the verb V is not adjoined, as in (20c). Since T also has an EPP feature, something must move to its Spec. The subject S and the object O are in the Spec of the same head \( v \) in (20c), so they are equidistant to T. Either S or O may move to the Spec of T at this point. Suppose that S moves, as in (20d). Here we do not have IAC since V is not on T. Therefore, the uninterpretable phi-features on O must be licensed under (14b); an NC is attached to O. Since S is in the Spec of T, it checks the phi-features on T. Then, the checked phi-features on T check the uninterpretable phi-features on O under c-command in the course of LF derivation. Then we have (20e), and this is (5a).
Let us go back to (20c), where we have S and O in the Spec of the same head, v. Suppose that O moves to the Spec of T, as in (20d'). Here, we do not have IAC, so the uninterpretable phi-features on O is supported by an NC, as in (20e'). This is (7b). The (Case and) phi-features on S are checked by T under c-command covertly, and then the checked phi-features on T check the phi-features on O under a Spec-head relation.

2.3 \( v \) with a Strong V-feature

Let us consider (19) again, which is repeated here.

(21) \( [_{vp} S v [_{vp} V O]] \)

Suppose that \( v \) has a strong V feature, which attracts V to \( v \). Then the derivation proceeds as in (22):

(22) a. \( [_{vp} S V-v [_{vp} tV tO]] \)
b. \( [_{vp} O S V-v [_{vp} tV tO]] \)
c. \( T [_{vp} O S tV-v [_{vp} tV tO]] \)
d. \( [_{TP} V-v-T [_{vp} O S tV-v [_{vp} tV tO]] \)

V moves to \( v \) as in (22a). Since \( v \) has an EPP feature, O moves to the Spec of \( v \) as in (22b). At the next stage, T is merged with \( vp \) as in (22c). Since T has a strong V-feature, \( [V-v] \) moves to T as in (22d). At this point, we have several possible continuations of the derivation. Suppose that S moves to the Spec of T for EPP:

(23) a. \( [_{TP} S V-v-T [_{vp} O tS tV-v [_{vp} tV tO]] \)
b. \( [_{TP} S V-v-NC [_{vp} O tS tV-v [_{vp} tV tO]] \) (6a)
c. \( [_{TP} O V-v-NC [_{vp} tO tS tV-v [_{vp} tV tO]] \) (5b)
c'. \( [_{TP} O S V-v-NC [_{vp} tO tS tV-v [_{vp} tV tO]] \) (7a)
b'. \( [_{TP} S V-v-NC [_{vp} O-NC tS tV-v [_{vp} tV tO]] \) (6b)
b''. \( *_{[TP} S V-v-T [_{vp} O-NC tS tV-v [_{vp} tV tO]] \) (6c)
c''. \( *_{[TP} O-NC V-v-NC [_{vp} tO-NC tS tV-v [_{vp} tV tO]] \) (5c)
c'''. \( *_{[TP} O-NC S V-v-NC [_{vp} tO-NC tS tV-v [_{vp} tV tO]] \) (7c)
In (23a), we have IAC. As I am assuming that IAC is a precondition for the checking of the uninterpretable phi-features on the object, we have the options of (i) checking of the uninterpretable phi-features on the object and (ii) attaching an NC to the object.

Suppose that the checking operation takes place. Then we have (23b), where O is not supported by an NC. This is (6a). Recall that I am assuming that an EPP feature on T may be checked more than once. Suppose that the EPP feature on T in (23b) is checked once more. And suppose further that when we form the second specifier by movement, the merger into the inner Spec and the merger into the outer Spec are equally possible. If the merger into the inner Spec is chosen, we have (23c), which is (5b), and if the merger into the outer Spec is chosen, we have (23c'), which is (7a). In these two cases, the uninterpretable phi-features on O are checked against T under Spec-head relation in the course of LF derivation.

Suppose that the attachment of an NC to the object takes place at (23a). Then, we have (23b'), and this is (6b). The uninterpretable phi-features on O are checked covertly in the course of LF derivation.

Recall that in (23b), we have IAC. So the NC on V, namely T, must be phonetically realized, given (16). If it fails to be realized phonetically, we have an illicit structure (23b''), which is (6c).

Let us consider (23b'), again. Since I am assuming that the EPP feature on T may be checked more than once, T in (23b') could have another specifier filled by O, in principle. Suppose that O-NC moves to the Spec of T. Whether it goes to the inner or outer specifier, it is ruled out by the constraint (17), since we have two occurrences of -NC in the same projection, namely TP. Therefore (23c'') = (5c) and (23c'''') = (7c) are ungrammatical.
Let's go back to (22d), repeated here as (24a). In (23) I considered the cases where S moves to the Spec of TP first. Since S and O are equidistant to T in (24a), O may move to the Spec of T first:

(24)  

a. \([_{TP} V\cdot v\cdot T \ [_{vp} O S \ iV\cdot v \ [_{vp} iV \ tO]]]\) = (22d)  

b. \([_{TP} O V\cdot v\cdot T \ [_{vp} to S \ iV\cdot v \ [_{vp} iV \ tO]]]\)  

*IAIC  

c. \([_{TP} O-NC V\cdot v\cdot T \ [_{vp} to S \ iV\cdot v \ [_{vp} iV \ tO]]]\) (8a)  

d. \([_{TP} O-NC V\cdot v\cdot NC \ [_{vp} to S \ iV\cdot v \ [_{vp} iV \ tO]]]\) (8c)  

In (24b), O moves to the Spec of TP. Here we do not have IAC. The uninterpretable phi-features on O cannot be checked under IAC. That is, the phi-features on O must be licensed by attaching an NC, and the phi-features on T are not realized as -NC, as in (24c). This is (8a). The phi-features of T are checked by S which is in the c-commanding domain of T, and then the phi-features on O are checked by the checked phi-features of T under a Spec-head relation. These checking operations take place covertly. (24d) = (8c) is out since T may not realize as -NC here because we do not have IAC (see (16)). Note that (24d) is also ruled out because it violates (17).

2.4 CP Domain

So far, I have considered the derivations within TP, and accounted for the (un)grammaticality of (5a-c), (6a-c), (7a-c), (8a) and (8c). In order to account for the (un)grammaticality of (8b), (9a-c) and (10a-c), I would like to expand the phrase structure into CP domain.

Recall that in (18d) and (18e), repeated here, I made the following assumptions:

(18)  

d. C may be assigned a strong V-feature.  

e. C may be assigned an EPP feature if it has a strong V feature.
Given these assumptions, C may optionally have strong/EPP-features. If it does not, we have the sentences equivalent to the ones examined in the previous subsections. If it does, the derivation continues until those strong features on C are checked off.

Let us consider the stage of derivation (23b), repeated as (25a). Suppose that C with a strong V-feature is merged, as shown in (25b):

\[(25) \quad a. \quad [_{TP} \quad S \quad V\-v\-NC \quad [_{vp} \quad O \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (23b)\]
\[b. \quad C \quad [_{TP} \quad S \quad V\-v\-NC \quad [_{vp} \quad O \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (25b)\]
\[c. \quad V\-v\-NC\-C \quad [_{TP} \quad S \quad rV\-v\-NC \quad [_{vp} \quad O \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (26b)\]

Then, the V-v-NC complex moves to C, as in (25c). This is (9a).

Let us consider the continuation of (23c), which is repeated here in (26a). Suppose that C is merged, as in (26b):

\[(26) \quad a. \quad [_{TP} \quad S \quad O \quad V\-v\-NC \quad [_{vp} \quad O \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (5b),(23c)\]
\[b. \quad C \quad [_{TP} \quad S \quad O \quad V\-v\-NC \quad [_{vp} \quad O \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (26b)\]
\[c. \quad V\-v\-NC\-C \quad [_{TP} \quad S \quad O \quad rV\-v\-NC \quad [_{vp} \quad O \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (26b)\]
\[d. \quad [_{CP} \quad O \quad V\-v\-NC\-C \quad [_{TP} \quad S \quad O \quad rV\-v\-NC \quad [_{vp} \quad O \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (8b)\]

If the C has a strong V-feature, then the V-v-NC complex moves to the C, as in (26c).\(^{13}\)

Given (18e), some element may be attracted to occupy the Spec of the CP. If O moves there, we have (26d), which is (8b).\(^{14}\)

Let us consider the continuation of (23b\(^{+}\)), repeated here as in (27a). Suppose that C is merged as in (27b):

\[(27) \quad a. \quad [_{TP} \quad S \quad V\-v\-NC \quad [_{vp} \quad O\-NC \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (23b^{+}),(6b)\]
\[b. \quad C \quad [_{TP} \quad S \quad V\-v\-NC \quad [_{vp} \quad O\-NC \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (27b)\]
\[c. \quad V\-v\-NC\-C \quad [_{TP} \quad S \quad tV\-v\-NC \quad [_{vp} \quad O\-NC \quad tS \quad rV\-v \quad [_{vp} \quad rV \quad tO]]] \quad (9b)\]

\(^{13}\) (26c) may be the representation of (9a). I argued that (25c) is the representation of (9a) before. In order for (26c) to be a representation of (9a), C may not be assigned an EPP feature, otherwise the derivation would crash. C must be assigned a V-feature without an EPP feature.

\(^{14}\) If S, instead of O, moves to the Spec of CP, then it may the representation of (6a). I argued that (23b) is the representation of (6a).
If the C has a strong V-feature, the V-ν-NC complex is attracted, and we have (27c), which is (9b).\textsuperscript{15}

Let us consider the continuation of (23c'), repeated in (28a). Suppose that C is merged, as in (28b):

\begin{align*}
(28) & \quad a. \quad [_{\text{TP}} \quad O \quad S \quad V-\nu-NC \quad [_{\text{vp}} \quad tO \quad tS \quad tV-\nu \quad [_{\text{vp}} \quad tV \quad tO]]] \quad (7a), (23c') \\
& \quad b. \quad C \quad [_{\text{TP}} \quad O \quad S \quad V-\nu-NC \quad [_{\text{vp}} \quad tO \quad tS \quad tV-\nu \quad [_{\text{vp}} \quad tV \quad tO]]] \\
& \quad c. \quad V-\nu-NC-C \quad [_{\text{TP}} \quad O \quad S \quad tV-\nu-NC \quad [_{\text{vp}} \quad tO \quad tS \quad tV-\nu \quad [_{\text{vp}} \quad tV \quad tO]]] \quad (10a)
\end{align*}

If the C has a strong V-feature, then the V-ν-NC complex is attracted, as in (28c). This is the representation of (10a).\textsuperscript{16}

Let us consider (23c'''), which is repeated here in (29a). If it is the final stage of the derivation, this structure itself is ruled out because of (17), which prohibits the multiple occurrences of the same NCs within the same projection. However, if the derivation continues, it could result in a legitimate representation. Suppose that C is merged, as in (29b):

\begin{align*}
(29) & \quad a. \quad *[_{\text{TP}} \quad O-NC \quad S \quad V-\nu-NC \quad [_{\text{vp}} \quad tO-NC \quad tS \quad tV-\nu \quad [_{\text{vp}} \quad tV \quad tO]]] \quad (23c'''), (7c) \\
& \quad b. \quad C \quad [_{\text{TP}} \quad O-NC \quad S \quad V-\nu-NC \quad [_{\text{vp}} \quad tO-NC \quad tS \quad tV-\nu \quad [_{\text{vp}} \quad tV \quad tO]]] \\
& \quad c. \quad V-\nu-NC-C \quad [_{\text{TP}} \quad O-NC \quad S \quad tV-\nu-NC \quad [_{\text{vp}} \quad tO-NC \quad tS \quad tV-\nu \quad [_{\text{vp}} \quad tV \quad tO]]] \quad (10b)
\end{align*}

If the C has a strong V-feature, then V-ν-NC moves to it, as in (29c). This is the representation of (10b).\textsuperscript{17}

So far, I have examined the derivations of (8b), (9a, b) and (10a, b), but I have not accounted for why (9c) and (10c), repeated here, are ungrammatical.

\begin{align*}
(9c) & \quad * \quad V \quad S \quad O-NC \\
(10c) & \quad * \quad V \quad O-NC \quad S
\end{align*}

\textsuperscript{15} If C is assigned an EPP feature in (27c), then S would move to the Spec of CP. Then the resulting representation would be that of (6b). I argued that (23b') is the representation of (6b) before.

\textsuperscript{16} If C is assigned an EPP feature in (28c), S or O could move to the Spec of the C. If S moves, it may be the representation of (6a). I argued that (23b) is the representation of (6a). If O moves, it may be the representation of (8b). I argued that (26d) is the representation of (8b).

\textsuperscript{17} If S in the Spec of TP moves to the Spec of CP, then we may get the representation of (6b). I argued that the representation of (6b) is (23b'). Note that if O moves to the Spec of CP, it is ruled out by (17).
Since T has an EPP feature, S or O is always in the Spec of TP. Thus S in (9c) and O-NC in (10c) are in the Spec of TP. Then V must move (at least) as high as C, in order to precede both S and O. Given that Head Movement Constraint (HMC) is descriptively correct, V cannot move, skipping T:

(30)  
a.  *V-C [TP S ν-T [vp O-NC tS tv [vp tv tO]]] \hfill (9c)  
b.  *V-C [TP O-NC ν-T [vp tO-NC S tv [vp tv tO]]] \hfill (10c)  

Since V which does not bear an NC usually does not move to T, the bear V would have to move to C, skipping T (notice that a strong V-feature on T has already been checked by ν, and the movement of V to T at this state is not motivated). However, this movement violates HMC. Therefore, (9c) and (10c) are out. However, as I suggested before, the representation of (8a) is (24c), repeated here:

(24c)  [TP O-NC V-ν-T [vp to S tv-ν [vp tv tO]]] \hfill (8a)  

I argued that, in (24c), even though V is in T, it does not have an NC (or T is not phonetically realized) since we do not have IAC. If C, which has a strong V-feature, is merged with this phrase marker, then we have the following representation, which would be (10c):

(31)  V-ν-T-C [TP O-NC tv-ν-T [vp to S tv-ν [vp tv tO]]]  

Notice that the phi-features on T has not been checked at this stage. Since they are uninterpretable, they must be checked for convergence. Assuming that the trace cannot enter into a checking relation, T must enter into checking in the position adjoined to C. If the checking relation holds under c-command, then T, which is adjoined to C, must find the matching feature in its c-commanding domain. However, O intervenes between T and S. So, T cannot enter into checking with S in (31). Since I am assuming that the uninterpretable phi-features on O are checked by the phi-features on T which have been
checked by S, T cannot check the uninterpretable phi-features on O under c-command. So, (10c) is ruled out.

3 Concluding Remarks

I tried to account for Kagaya’s generalizations about Sandawe word order and agreement in a generative framework. As noted in footnotes, as the derivations go into the CP-domain, we have some redundancies in that a grammatical sentence may have more than one representation, although I can still distinguish the grammatical and the ungrammatical sentences. This might be a fatal error of my account, or it might be the case that Sandawe in fact has some structural ambiguity for a given word order. In either way, we do not have enough data to judge the validity of my account. Much further investigation of Sandawe syntax is necessary.

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Multiple Verb Movement in ÷Hoan

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0 Introduction
In this paper I will give an analysis of verbal compounds in ÷Hoan, illustrated in the following example:

(1) ma a- qllhu l’o jo ki kx’u na (÷Hoan)
1sg prog pour put.in water part pot in
“I am pouring water into the pot”

The order of verbs in a verbal compound cannot be reversed:

(2) *ma a- l’o qllhu jo ki kx’u na (÷Hoan)
1sg prog put.in pour water part pot in

I argue that the structure in (1) involves verb movement, so that a structure [...] V V NP...] is derived from an underlying structure such as [...] V NP V...]. Evidence for the verb movement analysis is provided by the parallelism that is found between Serial Verb Constructions (SVCs) and verbal compounds. The analysis accounts for the fact that the order of the verbs cannot be reversed.

The multiple verb movement analysis has numerous theoretical implications, which I will explore in this paper. First, the analysis has direct implications for the form of the Serialization Parameter. Second, the analysis has implications for the locality conditions found on verb movement. In particular, I show that in multiple verb movement, each instance of verb movement undergoes local merge (see Chomsky 2000) and that the trace of a verb is invisible for the MLC.

This paper is structured in the following way. In section 1, I define verbal compounds in ÷Hoan. In section 2, I illustrate, on a descriptive level, the parallelism between verbal compounds and serial verb constructions. In section 3, I give the theoretical assumptions about clause structure, SVCs and movement needed for my analysis. In section 4, I give an analysis of verbal compounds as involving multiple verb
movement. In sections 5-8, I discuss several classes of verbal compounds showing how they fit into the analysis in section 4. Section 9 is the conclusion.

The main data in this paper comes from *Hoan, although I will draw numerous comparisons to Jul’hoan.

1 Diagnosing Verbal Compounds

Verbal compounds in *Hoan are characterized by the following generalization (due to Gruber 1975b: 2, see also Traill 1994: 32 on !Xóõ):

(3) In verbal compounds involving V1 and V2, V1 and V2 are adjacent, and share one tense/aspect/voice marker.

This is illustrated in the following *Hoan examples:

(4) a. ma a- qllhu l’o jo ki kx’u na (*Hoan)
   1sg prog pour put.in water part pot in
   “I am pouring water into a pot”

   b. *ma a- qllhu jo l’o ki kx’u na
      I prog- pour water put.in part pot in

   c. *ma a- qllhu a- l’o jo ki kx’u na
      1sg prog pour prog put.in water part pot in

(5) a. ma qhaen-sa a- qllhu l’o jo ki kx’u na
   1sg good-adv prog pour put.in water part pot in
   “I am pouring the water into the pot well”

   b. *ma a- qllhu qhaen-sa l’o jo ki kx’u na
      1sg prog pour good-adv put.in water part pot in

(6) a. ma lho’on a- qllhu l’o jo ki kx’u na (*Hoan)
   1sg neg prog pour put water part pot in
   “I am not pouring the water into the pot”

   b. *ma a- qllhu lho’on l’o jo ki kx’u na
      1sg prog pour not put water part pot in

(7) jo a- ki- qllhu l’o ki kx’u na (*Hoan)
    water prog pass pour put.in part pot in
    “The water is being poured into the pot”
Sentence (4b) shows that the direct object cannot intervene between the two verbs of a verbal compound, nor can a progressive marker (4c), an adverb (5b), or negation (6). Sentence (7) shows that if the verbal compound is passivized, the passive prefix appears only once before the first verb.

Similar facts can be demonstrated for Jul’hoan as well.

(8) a. mi m ku tcaq l’u -a g!u ko kom n!ang  
    1sg emph prog pour put.in trans water part cup in  
    "I am pouring the water in the cup"

b. *mi m ku tcaq ku l’u -a g!u ko kom n!ang  
    1sg emph prog pour prog put.in trans water part cup in

2 Verbal Compounds and Serial Verb Constructions

Collins (1993, 1997b: 462) gives the following definition of serial verb constructions:

(9) A serial verb construction is a succession of verbs and their complements (if any) with one subject and one tense value that are not separated by any overt marker of coordination or subordination.

This definition covers verbal compounds as well. The main difference between verbal compounds and serial verb constructions is the word order. Examples of SVCs (mostly from Ewe) and verbal compounds (from Hoan) are given below:

(10) a. ma a- qllhu l’o jo ki kx’u na (Hoan)  
    1sg prog pour put.in water part pot in  
    "I am pouring water into a pot" (see section 4)

b. A kandi di wata buta a di bata (Sarammacan)  
    3sg tilt DET water put LOC DET bottle  
    "He poured the water into the bottle"  
    (Veenstra 1996: 94)

c. me le tsi fo dë kôpô me (Ewe)  
    1sg prog water pour loc cup in  
    "I am pouring water into the cup"
(11) a. ma tca !'ae kankan ya (+Hoan)
   1sg fut grab raise it
   “I will lift it up” (see section 7)

   b. m-a kɔ-i yi dzi (Ewe)
   1sg-fut take-3sg go up
   “I will lift it up”

(12) a. ma lloeg na ka llhoam-llhoam tca (+Hoan)
   1sg still aux sub jog come
   “While I was still coming jogging” (see section 5)

   b. Kofi zo va gbɔ nye (Ewe)
   Kofi walk come near me
   “Kofi walked to me”

(13) a. ma qo kí- tsaxo ‘am lla”e (+Hoan)
   1sg fut kì[pl] cook eat meat
   “I will cook and eat meat (repeatedly)” (see section 6)

   b. wo ɗa fufu ɗu (Ewe)
   they cook fufu eat
   “they cooked fufu and ate it” (Collins 1997b)

(14) a. ya i tc'eon lo’a tsi (+Hoan)
   3sg past make absent them
   “He finished making them” (see section 7.1)

   b. Ama ɗu nu vo (Ewe)
   Ama eat thing finish
   “Ama has finished eating” (Ameka 1988)

(15) a. gya”m-la’ a- tsaxo cu ‘am gye ki lla”e (+Hoan)
   child-dim.pl prog cook give 1sg mother part meat
   “the children are cooking meat for my mother” (see section 8)

   b. ɗevisi-wo ɗa nu ne Kofi (Ewe)
   child-pl cook thing for Kofi
   “the children cooked something for Kofi”

The above examples require some comment. In examples (10-12), the second
verb describes a direction. There is no SVC in Ewe that corresponds directly to the verbal
compound in (10a), since Ewe uses a locative preposition in this case (10c). However, Saramaccan (10b) provides a good example of a matching SVC.

In examples (10a, 11a), the first and the second verbs of the verbal compound are transitive. In example (12), the first and the second verbs are intransitive. As I will show in section 7, there is a restriction on the transitivity of the second verb of a verbal compound in HvHoan.

In example (13a), the event denoted by the first verb follows the event denoted by the second verb. I will call combinations such as that found in (13a) consecutive verbal compounds. In this I follow Baker and Stewart (1999b, 2001), who call SVCs such as (13b) consecutive SVCs. The consecutive verbal compound necessarily involves the morpheme k[i][pl], which I return to in section 6.

In (14a), the verb lo'a “absent” is being used to show that the event of making is completed. Similarly in Ewe, the verb vo “finish” is being used to show that the event of eating is completed (see Ameka (1988) for a detailed semantic analysis).

In example (15a), the second verb is cu “give”. This type of verbal compound is used to indicate the benefactive argument. In Ewe, the benefactive preposition ne “for” is phonologically similar to the verb na “give”. Jansen et. al. (1978) show that in Sranan, the benefactive preposition gi “for” is homophonous with the verb gi “give”, and has some verbal properties (the ability to be clefted in a predicate cleft construction). I will return to the analysis of benefactive sentences like (15) in section 8.

The general parallelism between verbal compounds and serial verb constructions is unmistakable. First, the same range of meanings is expressed by both constructions (directional, consecutive, benefactive). Second, in most cases the same verbs that are used in a verbal compound can also be used to form a SVC (e.g., cook-eat). The parallelism between SVCs and verbal compounds strongly suggests that verbal compounds should be derived by verb movement from underlying structures which are similar to SVCs.

However it is difficult to reconcile a verb movement analysis of verbal compounds with the following generalization:

(16) The order of verbs in a verbal compound is the same as the order of the verbs in a corresponding serial verb construction.
The generalization in (16) involves comparing languages with verbal compounds (such as ḥHoan or Jul’hoan) to languages with SVCs (such as Ewe or Yoruba). A survey of the literature on verbal compounds reveals that (16) holds quite generally. Languages that conform to this generalization include ḥHoan, Jul’hoan, Igbo (Dechaine 1993: 242), Nama (Hagman 1977: 69-70), Xóô (Traill 1994: 31), Japanese and Chinese (Nishiyama 1998). As far as I know there are no exceptions to (16).

To see why a verb movement analysis of verbal compounds is difficult to reconcile with (16), consider the following derivation. Suppose that in forming a verbal compound, the second verb V2 adjoins to the first verb V1. There are two possibilities for the order of adjunction. Either V2 adjoins to V1 to the left (17b) or to the right (17b’):

(17)  a.  V1       V2
     b.  V2-V1     t_v2   (left adjunction)
     b’. V1-V2     t_v2   (right adjunction)

If the derivation in (17b) were possible, there should exist some language in which the order of verbs in a verbal compound is the opposite of that found in SVCs (10-15), contra (16). As far I know, no such language exists.

The absence of the derivation in (17b) is even more surprising in the theory of Kayne (1994:38). One consequence of Kayne’s theory is the following:

(18)  Let X and Y be heads, if X adjoins to Y, then X precedes Y.

On Kayne’s theory, only derivation (17b) should be allowed. Baker and Stewart 1999a also note this ordering problem (the absence of V2-V1 combinations). They propose that (17b) can be ruled out by iconicity. In this paper, I will explore a very different analysis of the ordering of verbs in a verbal compound, which is consistent with (18). I will argue that V1 and V2 adjoin to the light verb v (of Chomsky 1995, Collins 1997a, Bowers 1993). I will argue that the order in which the verbs adjoin to v is determined by general locality conditions on movement. This is the analysis presented in section 4.
3 Preliminary Assumptions

In this section, I will outline the syntactic assumptions of my analysis of multiple verb movement. I will outline my assumptions about clause structure (section 3.1), serial verb constructions (section 3.2), and the locality conditions on movement (section 3.3).

3.1 Assumptions about Clause Structure

In this paper, I adopt the assumptions about clause structure found in Chomsky (1995), Collins (1997a) and Collins (2001). In particular, I assume that the external argument is introduced by the light verb v (following Chomsky’s (1995) notation). Consider the following example from ËHoan:

(19) koloi glon-a Ë’amkoe ki gyeo na (ËHoan)
car hit-perf person part road in
“A car hit a person in the road”

(20) ![Diagram of the sentence structure]

Although I have labeled the highest VP “shell” as vP, it would also be reasonable to label it PredP (as in Bowers 1993). Important evidence for verb movement in (20) comes from languages where verb movement to v does not occur, yielding the word order S O V XP (See Koizumi 1995: 51 and Bowers 2000).
In example (19) the morpheme *ki* that I gloss as part (particle) appears between
the post-verbal constituents. I assume that this *ki* heads a functional projection FP, whose
comparative syntax is discussed at length in Collins (2001). I assume the verb raises over
F and adjoins to the higher light verb *v*. There is no violation of the MLC condition here,
since F has no verbal feature (cf. Chomsky 1995). In the remainder of this paper, I will
often leave out the representation of FP, since it is not relevant for the issues discussed.

Furthermore, I assume that both transitive verbs (such as “pour”, “hit”) and
unaccusative verbs (such as “go”, “leave”) head VPs that are dominated by vP. This
implies that there are two types of light verb *v*: a transitive *v* (which introduces an
external argument and assigns accusative Case) and an unaccusative *v* (which does not
introduce an external argument and assigns no accusative Case). The analysis of *v* implies
the existence of a third type of *v*, one which does not introduce an external argument, but
does assign accusative Case. Such a construction is analyzed in Bowers (2000).

3.2 Assumptions about Serial Verb Constructions

I adopt the analysis of SVCs of Collins (1993, 1997b). I make some
modifications, in light of work on SVCs of Baker and Stewart (1999b, 2001). Consider
the following serial verb construction:

(21) me nya devi-e dzo (Ewe)
1sg chase child-def leave
“I chased the child away”

Collins (1993, 1997b) argues that the second verb *dzo* “leave” heads a VP which
is the complement of the first verb *nya* “chase” (see also Larson (1991) and Jansen et. al
(1978: 155)). This structure is given below:
In this structure, V2 heads a VP that is the complement of V1. The direct object of V1 controls a PRO. This control relation captures the phenomenon of argument sharing that is often discussed in the SVC literature (Baker 1989). Whether the controlled empty category is pro or PRO is unclear. If we assume, following Chomsky and Lasnik (1993), that PRO needs to be assigned null Case by an infinitival Infl, then the empty category would have to be pro instead of PRO.

Collins (1997b) proposes the following parameter for SVCs:

(23) Serialization Parameter (Collins 1997b)
    Infl (tense) can license multiple Vs

Collins furthermore suggests that this parameter is one of a family of parameters that allow multiple licensing by a single head. Other parameters in this family yield languages with multiple nominative (Ura 2000), multiple accusative and multiple wh-movement constructions (Rudin 1988). In this paper I will assume a modified version of (23), given below (see Baker and Stewart 1999b, 2001, and Veenstra 1996 for an alternative). I will refer to v as [+multiple] if (24) holds.

(24) Serialization Parameter
    The light verb v can license multiple Vs

English, French and Swahili (and all Bantu languages) have a negative setting for (24). Ewe, Yoruba, Chinese and #Hoan have a positive setting for (24).
Furthermore, I assume that all Vs must adjoin to v (no V can be left in-situ) in #Hoan. This last assumption is what distinguishes languages with verbal compounds from languages with SVCs.

The difference between English (with multiple wh-questions) and Bulgarian (with multiple wh-movement) is similar to the difference between Ewe (with serial verb constructions) and #Hoan (with verbal compounds). In the next section, I give my assumptions concerning multiple wh-movement in Bulgarian.

3.3 Locality Conditions on Movement

Rudin (1988: 472) notes the following data from Bulgarian:

(25) a. koj kogo vizda
    who whom sees
    "Who sees whom?"

b. *kogo koj vizda
   whom who sees

The generalization is that the order of multiple fronted wh-words preserves the base c-command relations. Since the subject c-commands the object, the subject wh-word koj “who” must precede the object wh-word kogo “whom”. Rudin proposes that this data can be analyzed in terms of superiority.

Richards (1997, chapter 3) shows that this generalization seems to hold of other types of movement as well, including scrambling and cliticization. I follow Richards (1997: 114) in assuming that two locality conditions are relevant. The first is the Minimal Link Condition (see Chomsky 1995) given in (26). The second is Local Move (which is taken from the discussion in Chomsky 2000: 136-137).

(26) Minimal Link Condition
    \( \alpha \) can raise to target K only if there is no legitimate operation Move \( \beta \) targeting K, where \( \beta \) is closer to K.

(27) Local Move
    Let X have a selectional feature F, and let Y satisfy F. Then Y must move to the closest possible position to X.
Now consider how these two locality conditions derive the order of wh-words. Suppose that the underlying structure is as in (28a) (with koj “who” c-commanding kogo “whom” in the IP):

(28) a. \[ {\text{CP C IP }} \] (underlying structure)
    b. \[ {\text{CP who [CP C IP ]}} \] (Minimal Link Condition)
    c. \[ {\text{CP who [CP whom [CP C IP ]}} \] (Local Move)

In step (28b), the Minimal Link Condition forces the subject wh-phrase to move to Spec CP first, since it is closer to Comp than the object wh-phrase. In step (28c), Shortest Move forces “tucking in” (Richards 1997), where the object wh-phrase moves to an inner specifier which is closer to Comp than the subject wh-phrase. Note that the movement of the object wh-phrase in (28c) must skip the trace of the subject wh-phrase (in Spec IP). Therefore, we have the following implication:

(29) traces are invisible (for the MLC)

As we will see in discussing multiple verb movement, these assumptions carry through with no further stipulations.

4 A Verb Movement Analysis of Verbal Compounds

Consider again the following sentence:

(30) ma a- qllhu l’o jo ki kx’u na (Hoan)
    1sg prog pour put.in water part pot in
    “I am pouring water into a pot”

As remarked earlier, one fact that needs to be explained is why the order of the verbs cannot be reversed:

(31) *ma a- l’o qllhu jo ki kx’u na (Hoan)
    1sg prog put.in pour water part pot in

Putting together the analysis of SVCs in section 3.2, and the analysis of clause structure in section 3.1, we have the following underlying structure for (30).
I am assuming that $\nu$ is [+multiple] and that all verbs must raise overtly and adjoin to $\nu$ in +Hoan. The question now arises as to which verb $V_1$ or $V_2$ first raises to $\nu$. Since $V_1$ is closer to $\nu$ than $V_2$, the Minimal Link Condition dictates that $V_1$ (qillhu "pour"), raises and adjoins to $\nu$ before $V_2$. I repeat the Minimal Link Condition in (33) (following Chomsky 1995: 296).

(33) Minimal Link Condition
$\alpha$ can raise to target $K$ only if there is no legitimate operation Move $\beta$ targeting $K$, where $\beta$ is closer to $K$.

In the examples at hand, $K$ is $\nu$ and $\alpha$ is $V_1$. The movement of $V_1$ is shown in (34).
The next step is for V2 (I' o „put.in”) to raise and adjoin to v. I am assuming that
the trace of V1 does not block movement of V2 (see (29) for an analogous assumption
about wh-movement). There are two possibilities when V2 adjoins to v. These are
illustrated as follows:

(35)  a.  [v V2 [v V1 v]]  (outer adjunction of V2)
b.  [v V1 [v V2 v]]  (inner adjunction of V2)

The structure in (35a) represents the unacceptable word order in (31). The
structure in (35b) represents the acceptable word order in (30). Local Move (27) entails
that the adjunction of the V2 to v must be to a position as close as possible to v. I claim
that V2 is closer to v in (35b) that it is in (35a). The reason is that V2 is a direct sister to v
in (35b), but not in (35a). Therefore, movement of V2 yields the following structure:

(36)
\[
\begin{align*}
&D\text{P} \\
&\quad v' \\
&\quad \quad \text{VP} \\
&\quad \quad \quad \text{DP}_i \\
&\quad \quad \quad \quad V' \\
&\quad \quad \quad \quad \quad \text{V} \\
&\quad \quad \quad \quad \quad \quad \text{t}_{\text{pour}} \\
&\quad \quad \quad \quad \quad \quad \quad \text{DP} \\
&\quad \quad \quad \quad \quad \quad \quad \quad \text{PRO}_i \\
&\quad \quad \quad \quad \quad \quad \quad \quad \quad \text{V} \\
&\quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \text{PP} \\
&\quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \text{t}_{\text{put.in}} \\
&\quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \text{pot} \\
&\quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \text{in}
\end{align*}
\]

The multiple verb movement analysis also explains the generalization noted in
(3). Since all the verbs are adjoined to v it is unsurprising that they are adjacent and share
one tense/aspect/voice marker.

The above explanation crucially relies on there being no adjunction of one verb to
another. If adjunction of one verb to another were allowed we would expect the following
derivation (yielding the unacceptable word order in 31)):
(37)  a.  \( v \)  \( V1 \)  \( V2 \)  
b.  \( v \)  \( V2-V1 \)  \( tv_2 \)  
c.  \( V2-V1-v \)  \( tv_1 \)  \( tv_2 \)  

I assume that (37b) is ruled out because head movement generally adjoins a head (lexical or functional) to a functional head.

In conclusion we have the following generalizations about verb movement that are needed to derive the correct word order:

(38)  a.  Verb adjunction is always to the left.  
b.  A verb cannot adjoin to another verb. Rather a verb must adjoin to a functional head (such as T, C or \( v \)).  
c.  The trace of a verb does not block verb movement  
d.  A verb always adjoins as close as possible to \( v \) (Local Move).  

There is one important difference between multiple verb movement (36) and multiple wh-movement (28). Whereas multiple verb movement involves multiple adjunction, multiple wh-movement involves multiple specifiers. I attribute this to the fundamental difference between head movement (adjunction) and XP movement (adjunction or substitution).

In the remainder of the paper, I will show how the verb movement analysis of verbal compounds applies in a number of specific cases of verbal compounds in \(+\)Hoan.

5 \( V1 \) \textbf{is Intransitive}

Consider the following examples involving two intransitive verbs. In many of these examples the first verb specifies the manner of motion and the second verb specifies the direction of motion.

(39)  \( \text{ma } llo \text{e } na \text{ ka } lloam-llhoam \text{ tca } \) (\(+\)Hoan)  
1sg still aux sub jog come  
“While I was still coming jogging”

(40)  \( \text{Oba } ku \text{ nllom-nllom } \text{ tsi } \) (Jul’hoan)  
Oba aux jog come  
“Oba is coming jogging”

(41)  \( \text{lla’a-si a } \text{ llobo kyu } \) (\(+\)Hoan)  
thing-dim prog jump rise  
“The thing is jumping up (as if by magic)”
The Internal Structure of the Verb Phrase in Jul'hoan and ‡Hoan

(42) mi m khu tsau
  lsg emph jump rise
“I jumped up”

(43) gya”msi a- llobo ‡’o ki lori na
  child prog jump exit part truck in
“the child is jumping from the car”

(44) ma qo ki’n!o khoa ki Molepolole
  lst fut run.sg arrive part Molepolole
“I will run to Molopepo”

I assume that the second verb heads a VP that is the complement of the first verb. The underlying structure of (39) is given below:

(45) \[\text{VP} = \text{vP} \]
    \[\text{vP} = \text{v} \]
    \[\text{v} = \text{DP}_1 \text{VP} \]
    \[\text{DP}_1 \text{VP} = \text{l V VP} \]
    \[\text{VP} = \text{jog PRO} \text{l V’} \]
    \[\text{DP}_1 \text{VP} = \text{l V VP} \]
    \[\text{l V VP} = \text{jog PRO} \text{l V’} \]
    \[\text{l V VP} = \text{l come} \]

The derivation of the example in (39) proceeds as follows:

(46) a. \[\text{v} \text{jog} \text{come} \]
   (underlying structure)


b. \[\text{jog-v} \text{t}_{\text{jog}} \text{come} \]
   (V1 moves by MLC)

c. \[\text{jog-come-v} \text{t}_{\text{jog}} \text{t}_{\text{come}} \]
   (Local Move)

It is also possible for the intransitive verb to be followed by a transitive verb. In (47) and (48), the first verb describes a manner of motion and the second verb describes a direction.

(47) ‡is-si a- kala ka l’on ci qll’am
    bird-dim prog fly go.to tree poss top
“The bird is flying to the top of the tree” (see Gruber 1975b: 1)

(48) tze-ma ku joaqin !’an-a !aihn ll’hansi
    bird-dim asp fly go.up.to-trans tree top
“The bird is flying to the top of the tree”
While it is possible for an intransitive V1 to combine with an intransitive/transitive V2, there are severe constraints on which combinations of verbs are possible. For example, the following examples are unacceptable:

(49) *ma a- ki-‘n!o ki-sile n!ui (+Hoan)
1sg prog run.sg imitate ostrich
“I am running imitating an ostrich”

(50) *ma a- nlobo ‘am lla”e (+Hoan)
1sg prog speak eat meat
“I am eating while speaking”

(51) *ya a- l’i nlobo (+Hoan)
3sg prog cry speak
“He is crying and speaking”

Evidently, the semantic relation of simultaneity that would be involved in the above examples is not enough to license them. In the structural theory that I am developing V2 would not be able to appear as the complement of V1 in the above verbal compounds. I will return to the issue of the semantic relationship between V1 and V2 in section 9.

6 V1 is Transitive and V2 is Transitive

The next group of examples includes those verbal compounds where V1 is transitive and V2 transitive. There are two types of combinations of a transitive verb followed by a transitive verb. In the first type of example, the first verb specifies an activity or manner of motion and the second verb specifies a direction. This is the type of example that was discussed extensively in section 4 (see (30)), so I will just illustrate it here.

(52) ma a- qllhu l’o jo ki kx’u na (+Hoan)
1sg prog pour put.in water part pot in
“I am pouring water into the pot”

(53) mi m tcq l’u-a g!u ko kom n!ang (Jul’hoan)
1sg emph pour put.in-trans water part cup in
“I poured the water into the cup”

Other examples of this type from +Hoan include the following:
(54) Titi a- Ilhai khy’a lefeelo ki Jefo (+Hoan)
Titi prog pull bring broom part Jeff
“Titi is pulling the broom to Jeff”

(55) ma a- Ilhai !xao g!ai ki tcena na (+Hoan)
lsg prog pull remove snake part hole in
“I am pulling the snake from the hole”

I assume that the following examples can be analyzed in the same way as (52-55), even though V2 does not specify a direction.

(56) ma ‘a kigyeo kini Jeff (+Hoan)
lsg prog call look.for Jeff
“I am calling Jeff, looking for him”

(57) mi m koh ku !xao kxoab Oba (Jul’hoan)
lsg emph past prog call look.for Oba
“I was calling Oba, looking for him”

The second type of verbal compound involving the combination of two transitive verbs is where the action of the first verb precedes the action of the second verb. I will call this type the consecutive verbal compound. An example of a consecutive verbal compound from +Hoan is given below:

(58) a. ma qo ki- tsaxo ‘am lla”e (+Hoan)
lsg fut ki[pl] cook eat meat
“I will cook and eat meat (repeatedly)”

b. *ma qo tsaxo ‘am lla”e
lsg fut cook eat meat

c. *ma qo ki- ‘am lla”e
lsg fut ki[pl] eat meat

d. *ma qo ki- tsaxo lla”e
lsg fut ki[pl] cook meat

(59) mi m a nloa ‘m !ha (Jul’hoan)
lsg emph fut cook eat meat
“I will cook and eat meat (repeatedly)”
In the +Hoan example in (58a), the transitive verb *tsaxo* “cook” is followed by the transitive verb ‘*am* “eat”. The sense of the examples is that the cooking and the eating will happen repeatedly (cooking, then eating, then cooking, etc.). The example (59) in Jul’hoan also has the repetitive reading. This repetition is made very clear in the +Hoan example, where the morpheme *ki*- (henceforth, k[i][pl]) must appear preceding the verbal compound (see (58b)). Note that the examples in (58c,d) show that k[i][pl] cannot normally precede a verb in isolation. Rather the verb must bear some type of plural suffix (as described in Collins 1998).

Collins (1998) analyses the morpheme k[i][pl] as an agreement morpheme, agreeing with a following pluralactional morpheme. Further examples of k[i][pl] (not involving multiple verb movement) are given below:

(60) a.  Jefe kí- qll’ao-tcu  -a  †’amkoe  (*Hoan)
    Jeff k[i][pl] stab-rep perf person
    “Jeff stabbed the person repeatedly”

b.  *Jefe kí- qll’ao  -a  †’amkoe
    Jeff k[i][pl] stab perf person

(61) a.  Jefe kí- tchi-tcu  -a  Ō’u  ki  lla’a-qa  (*Hoan)
    Jeff k[i][pl] shoot-rep perf duiker part arrow-pl
    “Jeff shot at the duikers repeatedly with arrows”

b.  *Jefe kí- tchi  -a  Ō’u  ki  lla’a-qa
    Jeff k[i][pl] shoot perf duiker part arrow-pl

In examples (60a, 61a), k[i][pl] agrees with the pluralactional morpheme –*tcu* that appears as a suffix on the verb. When the pluralactional morpheme –*tcu* is absent, as in (60b, 61b), it is no longer possible to have k[i][pl].

Another example of a consecutive verbal compound is given below (from the oral text *ňha ci nlobo* “hunting story”). Note that the repetitive character of the verbal compound is highlighted by the fact that it is repeated twice:

(62)  ma  a-  kí- cxa  ‘am  a-  kí- cxa  ‘am  (*Hoan)
    1sg prog k[i][pl] cut eat prog k[i][pl] cut eat
    “I cut it up and eat it, cut it up and eat it”
It is also possible to find consecutive verbal compounds involving intransitive verbs:

(63) a. \[ \text{ya a- kí- tsa } \text{+e} \] (Hoan)
\[ 3\text{sg prog kí[pl] sleep wake.up} \]
"He is nodding off and waking up alternatively"

b. \[ \text{ya a- (*kí-) tsa} \]
\[ 3\text{sg prog kí[pl] sleep} \]
"He is sleeping"

c. \[ \text{ya a- (*kí-) +e} \]
\[ 3\text{sg prog kí[pl] wake.up} \]
"He is waking up"

The fact that kí[pl] is obligatory in the consecutive verbal compound, suggests that there is an added layer of structure, perhaps an AspP dominating vP, so that we have the structure:

(64)
\[ \text{AgrP} \]
\[ \text{Agr} \]
\[ \text{AspP} \]
\[ \text{Asp} \]
\[ \text{vP} \]

In this structure, Asp plays the role of the pluractional morpheme –tcu in (60a) and (61a). The presence of Asp explains the fact that consecutive verbal compounds (see (58a)) have an obligatory repetitive reading. The agreement morpheme kí[pl] in verbal compounds (58a) agrees with Asp (just as kí[pl] agrees with –tcu in (60a)). How can we explain the fact that this structure including Asp is necessary?

In order to explain the presence of Agr/Asp in (64), I suggest that consecutive verbal compounds such as (58a) be derived from consecutive SVCs, illustrated in (65) below.

(65) a. \[ \text{wo də fufu } \text{du} \] (Ewe)
\[ \text{they cook fufu eat} \]
"they cooked fufu and ate it" (Collins 1997b)

b. \[ \text{wo də fufu } \text{du } \text{pro } \text{du} \]
\[ \text{they cook fufu eat it} \]
Note that in a consecutive SVC the object of the second verb ɖu “eat” is understood to be the direct object of the first verb ɖa “cook”. This is referred to as direct object sharing. Following Collins (1993, 1997b) I analyze direct object sharing in terms of an empty category pro.

Direct object sharing in consecutive SVCs appears to be obligatory (see Baker 1989, Collins 1997b, Baker and Stewart 1999b, 2001). This constraint is illustrated below:

(66) a. *ma ɖu nu no tsi
     1st-fut eat thing drink water
     “I will eat something and drink water”

     b. ma ɖu nu a no tsi
     1st-fut eat thing fut drink water
     “I will drink and eat something”

Example (66a) is unacceptable because two transitive verbs have been combined in a SVC without direct object sharing. Example (66b) is not an SVC (as indicated by the repetition of the future marker), so there is no constraint enforcing direct object sharing.

Consecutive verbal compounds are also subject to a direct object sharing constraint. For example, in (1) it is impossible to have a pronoun following the verbal compound that is coreferent with the object of the first verb.

(67) *ma a- qllhu l’o jo_i ki ya_i ki kx’u na (+Hoan)
     1sg prog pour put.in water part 3sg part pot in
     “I am pouring water into a pot”

Furthermore, if two verbs with two different objects are combined, no verbal compound is possible:

(68) a. ma a- ‘am ɿlːa’e a- tcu jo (+Hoan)
     1sg prog eat meat prog drink water
     “I am eating meat and drinking water”

     b. *ma a- k[i- ‘am tcu ɿlːa’e ki jo
     1sg prog k[i[pl] eat drink meat part water
     “I am eating meat and drinking water (repeatedly)”
Unlike Ewe, and many other languages with SVCs, instrumental verbal compounds involving the verb *lu “take” are impossible. This may also be accounted for by the obligatoriness of direct object sharing:

(69) a. ma a- *lu gllama a- tcxa lla’e (†Hoan) lsg prog take knife prog cut meat “I am taking the knife and cutting the meat”

b. *ma a-(kī-) *lu tcxa lla’e ki gllama lsg prog k[pl] take cut meat part knife

Following Baker and Stewart (1999b, 2001), I suggest that the structure of consecutive SVCs is different in general from the structure of directional SVCs. In directional SVCs, the second verb V2 heads a VP which is the complement of the first verb V1 (22, 32, 45). In consecutive SVCs, there are two vPs, the second of which is an adjunct to the first. This is illustrated below:

(70)  
  ν1P
  ν1P  ν2P

Given this structure it is clear why the AspP is needed in (64). Usually a verbal compound is formed by adjunction of two verbs to a single v. But in a consecutive verbal compound there are two vPs. Therefore, there needs to be a functional head (commanding both the first and second vP) that both the verbs can adjoin to. The derivation is shown below:

(71) a. Asp  v  cook  v  eat
b. Asp  [cook-v]-Asp  t_v  l_{cook}  eat-v  t_{eat}
c. [cook-v]-Asp  t_v  l_{cook}  eat-v  t_{eat}
d. [cook-v]-[eat-v]-Asp  t_v  l_{cook}  t_v  t_{eat}

A few notes on the above derivation are in order. First, I am assuming that right adjunction (of ν2P to ν1P) is possible (contra Kayne 1994). Second, I assume that ν2 cannot adjoin directly to ν1, because ν1 does not c-command ν2. Third, I am assuming that ν1 is closer to Asp than ν2 (for the MLC), since ν2P is adjoined to ν1P (and therefore, ν1P is the sister of Asp). Lastly, I am assuming that the CED does not block movement of ν2 from ν2P, although I do not know the reason for this at the moment (see Collins 1997b, footnote 9).
7 V1 is Transitive and V2 is Intransitive

The type of verbal compound where V1 is transitive and V2 is intransitive is extremely limited in Hoan. Consider the following examples:

(72) a. ma 'a !ani kankan(*kyu) nôoa (Hoan)
    lsg prog carry raise(*rise) stick
    “I carried the stick”

b. mi tca !'ae kankan(*kyu) ya
    lsg fut grab raise(*rise) it
    “I will lift it up”

These examples show that it is impossible for the verb kyu “rise” to appear as the second member of a verbal compound in Hoan. Note that such examples can be found in Ewe (see (11b)), where the verb yi “go” takes the object of the first verb kɔ “take” as its only argument. I will refer to this type of V2 as an object oriented intransitive.

The examples in (72) also show it is acceptable to form a verbal compound using the verb kankan “raise” (the transitive version of kyu “rise”). This suggests that the presence of the transitive kankan “raise” is blocking the intransitive kyu “rise” in Hoan.

Many other examples illustrate a similar point:

(73) a. jo a- l'uco ki kx’u na (Hoan)
    water prog enter part pot in
    “the water is entering the pot”

b. ma a- qllhu l’o(*’uco) jo ki kx’u na
    lsg prog pour put.in(*enter) water part pot in
    “I am pouring water into a pot”

(74) a. g'ai i ki+’o ki tcena na (Hoan)
    snake past exit part hole in
    “the snake exited the hole”

b. ma i ki!xao g'ai ki tcena na
    lsg past remove snake part hole in
    “I removed the snake from the hole”

c. ma lltai !xao(*ki+’o) g'ai ki tcena na
    lsg pull remove(*exit) snake part hole in
    “I pulled the snake from the hole”
In (73b), the transitive \textit{l'o} “put.in” must be used instead of the intransitive \textit{l'uco} “enter”. In (74b), the transitive \textit{kilxao} “remove” must be used instead of the intransitive \textit{ki+x'o} “exit”.

Given the above data, it appears there is something like the following principle:

(75) Let V1-V2 be a verbal compound, where V1 is transitive, and V2 is intransitive, then V2 may be object oriented only if there is no transitive counterpart of V2 (e.g., “raise” is the transitive counterpart of “rise”)

This generalization can be explained in the theory given in section 4. Recall that I assume that both transitive verbs and unaccusative verbs are dominated by a \textit{vP}. This is illustrated below (for simple non-compound verbs):

(76) \begin{itemize}
  \item a. \[ [vP \text{ DP } [v \text{ raise-v } \text{ VP }]] \] (external argument)
  \item b. \[ [vP \text{ rise-v } \text{ VP } ] \] (no external argument)
\end{itemize}

In addition, I suggest that when a verb V is adjoined to a transitive v, its causative form is used if possible. Given these assumptions, the generalization in (75) is easy to derive. Consider the derivation of the example in (72b):

(77) \begin{itemize}
  \item a. \textit{v} \quad \text{grab} \quad \text{rise}
  \item b. \text{grab-v} \quad t_{\text{grab}} \quad \text{rise}
  \item c. \text{grab-raise-v} \quad t_{\text{grab}} \quad t_{\text{raise}}
  \item c'. \text{*} \text{grab-rise-v} \quad t_{\text{grab}} \quad t_{\text{rise}}
\end{itemize}

In (77), the light verb \textit{v} is transitive (it has an external argument and it assigns accusative Case). Therefore, \textit{kankan} “raise” needs to adjoin to \textit{v} in \textit{+Hoan} as in (77c), rather than \textit{kyu} “rise” as in (77c’).

The above analysis predicts that if a verb does not have a transitive variant it should be able to appear as the second verb in a verbal compound. Consider the following example from \textit{+Hoan}:

(78) \begin{itemize}
  \item a. \text{ma} \quad \text{llqa} \quad \text{llhon-lhon} \quad \text{bele-qa} \quad \text{(+Hoan)}
    \text{1sg} \quad \text{past} \quad \text{pound} \quad \text{pounded.up} \quad \text{sorghum}
    “I pounded the sorghum”
  \item b. \text{bele-qa} \quad \text{llh'oon} \quad \text{i} \quad \text{llhon-lhon}
    \text{sorghum} \quad \text{not} \quad \text{past} \quad \text{ground.up}
    “the sorghum is not pounded up well”
\end{itemize}
c. *ma i (ki)-lhon-lhon bele-qa
   1sg past cause-pounded up sorghum
   "I caused the sorghum to be ground up"

Example (78a) shows that *hon-lhon “ground up, pounded up” can be used as V2 with an object orientation in a verbal compound. Sentence (78b) illustrates the use of *hon-lhon as an intransitive verb outside of a verbal compound. Sentence (78c) shows that *hon-lhon cannot be used transitively (even with a causative prefix).

Verbal compounds where an intransitive V2 is object oriented are very common in Jul’hoan (see Dickens 1992: 58). One example is given below:

(79) a. mi m gu tsau ka
     1sg emph take rise 3sg
     “I lifted it”

b. *mi m tsau ka
   1sg emph rise it

What this example shows is that the verb tsau “rise” can be used as the second member of a verbal compound, and it can be object oriented (cf. (72) in Hoan). The principle in (75) predicts that there should be no verb “raise”, which is a causative form of tsau “rise” in Jul’hoan. Indeed, the entry for “raise” in Dickens (1994) is gu tsau “take rise”.

7.1 Event Oriented V2

In both Hoan and Jul’hoan, there are examples where an intransitive V2 in a verbal compound does not modify the object, but seems to modify the event. This is illustrated in (80a):

(80) a. ya i Ooa lo’a tsi
     3sg past kill absent them
     “He killed them off”.

b. *ya i (ki)-lo’a tsi
   3sg past cause-absent 3pl

The example in (80b) shows that the verb lo’a “absent” cannot be used transitively. One analysis of this construction is that lo’a “absent” is modifying the event
argument. An alternative might be that lo’a “absent” is modifying the object, so that the things that were killed are absent. Other examples show that the alternative is not correct:

(81) a. ya i te’eon lo’a tsi (+Hoan)
    3sg past make absent them
    “He finished making them”

    b. ci lo’a
    3pl absent
    “They are absent”

The sentence in (81a) could be said, for example, of a carpenter who has finished making some tables. It does not entail that the tables are absent. This seems like a clear case of V2 modifying the event.

A similar construction exists in Jul’hoan where the verb toan “finish” is used instead of “absent” (see (14b) for a parallel use of the verb “finish” in an SVC in Ewe). This is illustrated below.

(82) ha m kuru toan tafere-si (Jul’hoan)
    3sg emph make finish table-pl
    “He finished making the tables (e.g., that were ordered)”

The examples in (80-82) give strong evidence that the event argument should be represented in the syntax. If not, it is unclear how V2 would be interpreted. Given these assumptions, (81a) has the following syntactic structure:
The question that arises in (83) is what controls PRO. One possibility is that V1 itself controls PRO (with the interpretation that the event of making is finished). Another possibility is that there is an event argument of V1 (not represented in (83)) that controls PRO. I have no data to decide between these possibilities.

8 Benefactives

In both ‡Hoan and Jul’hoan, benefactive phrases (for both transitive and intransitive verbs) are added with the verb “give” as V2 in a verbal compound. This is illustrated below for intransitive verbs:

(84) n’lau-la’a a- kyxai cu ‘am kyxana (*Hoan)
boy-dim.pl prog dance give lsg uncle
“the boys are dancing for my uncle”

(85) nlaqe m ku djxani l’an mi tcu (Jul’hoan)
boys emph asp dancing give lsg uncle
“the boys are dancing for my uncle”

The benefactive is illustrated below for transitive verbs:

(86) gyaqm-la’a a- tsaxo cu ‘am gye ki lla’i (‡Hoan)
child-dim.pl prog cook give lsg mother part meat
“the children are cooking meat for my mother”

(87) de’ebi!oa m ku nloa l’an mi taqe ko lha (Jul’hoan)
children emph asp cook give lsg mother part meat
“the children are cooking meat for my mother”

The derivation of (84) is given below:

(88) a. \( \nu \) dance give
b. dance-\( \nu \) \( t_{dance} \) give
c. dance-give-\( \nu \) \( t_{dance} \) \( t_{give} \)

The above analysis suggests that other instances of benefactive applicative morphemes might be analysed as incorporated verbs (see Baker 1991 for such an analysis). In fact, for many languages the benefactive applicative affix is homophonous with a verb (see Baker 1996: 431 for the relationship between applicative morphemes and the verb “give”).
9 Summary

In this paper, I have presented an analysis of multiple verb movement. This analysis derives verbal compounds from underlying structures that are similar to serial verb constructions.

The analysis suggests strongly that the light verb v is subject to the same kind of [+multiple] parameter found with other functional heads (Comp, Infl, Det). This assumption provides the most natural explanation for the existence of verbal compounds and SVCs.

Furthermore, my analysis of verbal compounds provides evidence that verb movement is subject to the same kinds of locality conditions found in other multiple movement structures. For example, I have provided important evidence for Local Move (yielding “tucking in”) and for the invisibility of a verbal trace.

It may be of interest to see whether the analysis of multiple verb movement presented in this paper extends to other types of multiple verb constructions (including causatives in romance, verbal cluster in Dutch, and perhaps applicative affixes).

Lastly, the analysis in this paper has consequences for the syntax-semantics interface. To see this consider the following schematic structure of an SVC and a verbal compound:

\[
(89)
\]

\[
\begin{array}{c}
\text{DP} \\
\text{vP} \\
v \\
\text{V1P} \\
\text{DP} \\
\text{V1} \\
\text{V2P}
\end{array}
\]

By looking at the class of possible and impossible verbal compounds, it becomes apparent that the possible semantic relations between V1 and V2P are very limited. Essentially, V2P can be a direction (32, 45), a result (78, 83), and a benefactive (84). V2P cannot describe an event that is merely simultaneous with the event described by V1 (49-51). Nor can V2P describe an event that is merely consecutive to the event described by V1 (see section 6 on consecutive compounds).
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Acknowledgments

I would like to thank John Bowers, Yoshi Dobashi and the editors of this volume for very helpful comments. Parts of this paper were presented in my courses on Khoisan syntax (1998, 1999) and a Colloquium talk at Cornell (February 2001).

The research on Jul’hoan in this paper was done during a visit to Namibia during July and August of 1998. I would like to acknowledge the help of my main informants Oba Kamaseb and Besa Abuse.

The research on #Hoan was done during the academic year 1996-1997 (Fulbright) and during July and August of 1999. This research would not have been possible without the help of Jeff Gruber, who made available to me all of his unpublished field notes. I would like to thank my main informants Titi Matshabanega, Leha Rasello and Bistol for their help in that project.

The material in this paper is based upon work supported by the National Science Foundation under Grant No. SBR-9808256.
Contrastive Vowel-Length and Variable Weight Reduplicative Templates in Jul'hoansi

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The Ohio State University

0 Introduction

The Northern Khoisan language Jul'hoansi displays interesting phonological behavior in verbal reduplication. The reduplication is partial: it prefixes a syllable to the full root. The weight of the prefixed syllable is dependent on the tonal shape of the root word. If the root is bitonal, then the reduplicant is bimoraic. However, if the root is monotonal, then the weight of the reduplicant varies according to syllable structure. Miller-Ockhuizen (1999) gives a full Optimality Theoretic account of the reduplication patterns.

Jul'hoansi gives important evidence regarding the types of reduplicative templates which are found cross-linguistically. McCarthy and Prince (1986) argue that Kaingang is a language having a reduplicative template of varying weight. Steriade (1988) argues that variable weight templates are only found in Kaingang because the language has no vowel-length contrast. Jul'hoansi reduplication gives clear phonological evidence for a reduplicant of varying weight. The reduplication evidence shows clearly that all monosyllabic bitonal roots are bimoraic, since these forms require both vowels of bisyllabic roots to be copied in order to have two moras for docking the two tones. However, it does not give us any evidence regarding the moraic status of monotonial roots. There is no evidence from phonological weight phenomena to indicate that these are heavy, and only phonetic duration is available for determining phonological weight in this root type.

Knowing that bitonal monosyllabic roots are bimoraic, I hypothesize that if monotonial monosyllabic roots are also bimoraic, there should be little difference in rime duration between the two root types. In fact, while duration measurements show

* This work was supported by an NSF Dissertation Grant Entitled "Doctoral Dissertation Grant: Phonetics and Phonology of Jul'hoan", SBR 9705334. I am grateful for the support. I would also like to thank my

statistically significant differences between the two root types, the means are overlapping, and the differences are too small to support a categorical vowel-length contrast. I thus propose that contra Dickens (1994) and Snyman (1970, 1975), there is no length contrast in Jul'hoansi, and instead there is an active minimality constraint which leads to all roots being at least bimoraic. This is supported further by the fact that the majority of identified roots in the language are clearly bimoraic.

Having shown that all roots are at least bimoraic, I claim that this is a language having a reduplicative template of varying weight. However, given the minimality constraint, the language also does not show a true vowel-length contrast, since there are no minimal pairs distinguished by length alone. Given Steriade’s claim that light syllable reduplicants are footed with the root cross-linguistically, and heavy syllable templates are footed separately from the root, this predicts that the reduplicant should be footed with the root in monotonal roots, but as a separate foot with bitonal roots. Tests of this prediction will be left for further study.

1 Overview of Jul’hoansi Prosody

Since the shape of the reduplicant in partial reduplication depends on both the shape of the base (root), and the tonal pattern of the base, it is necessary to first gain an understanding of the different types of verbal root shapes and tonal patterns that are attested in the language.

The shape of verb roots in Jul’hoansi is highly constrained. The majority of roots are either monosyllabic, usually containing a long vowel or a diphthong, or bisyllabic with two short vowels, leading to the generalization that the majority of roots are bimoraic. Some roots have a final nasal consonant, [m], which must be moraic, since it bears tone. Additionally, coda [m] never occurs in words that already contain two other vowels, such as CVV words where the vowel is a diphthong, or in bisyllabic words. In

consultants at LXoan N'uru, Namibia for their help, as well as Mary Beckman, Elizabeth Hume and David Odden for comments on an earlier draft of this paper.
addition to these bimoraic shapes, there are a few exceptional cases of trimoraic roots with a heavy syllable initially. Most of these are contain either an interrupted vowel or an epiglottalized vowel within the first syllable. There are two types of epiglottalization within the first syllable, represented by CVV'VCV and CVV'CV respectively. There are also a few trimoraic roots with diphthongs in the first syllable. The attested root shapes are shown schematically in (1), along with examples of each type.

(1) **Attested Root Shapes**

<table>
<thead>
<tr>
<th>Root Shape</th>
<th>Example 1</th>
<th>Example 2</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVV</td>
<td>tshìù</td>
<td>gïìáá</td>
<td>'to laugh'</td>
</tr>
<tr>
<td>CVm</td>
<td>nǐɔʰm</td>
<td>nǐǹm</td>
<td>'to dance'</td>
</tr>
<tr>
<td>CVCV</td>
<td>ʃʰɔrò</td>
<td>ɡʰxɔβá</td>
<td>'to peel'</td>
</tr>
<tr>
<td>CVV'VCV</td>
<td>ɗɔ'ɔβá</td>
<td>ɡlɔ'ɔńí</td>
<td>'to be neat'</td>
</tr>
<tr>
<td>CV'V.CV</td>
<td>kɔɔrò</td>
<td>nɔsùcè</td>
<td>'to tighten'</td>
</tr>
<tr>
<td>CV'V.CV</td>
<td>ɗìì</td>
<td></td>
<td>'to be slow'</td>
</tr>
</tbody>
</table>

The lack of CV roots represented in (1) anticipates my conclusion that there is no vowel-length contrast in roots. Each type of root can have either one or two tones, but roots with interrupted vowels tend to be bitonal. There are four tone levels, but only six of the predicted tonal patterns are attested on verb roots. Verbs bear all four level tone melodies, plus two of the three possible combinations of rising tone melodies. A third tone sequence, H-L, occurs only very rarely on nouns, and over half of these words have been identified as loan words. The complete list of H-L toned words is given in Appendix A. All six of the widely attested tone patterns, and example words exhibiting each pattern, are given in (2) below:

(2) **Tonal Patterns on Jul'hoansi Verb Roots**

<table>
<thead>
<tr>
<th>Tone Pattern</th>
<th>Example 1</th>
<th>Example 2</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monotonal Verbs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL</td>
<td>kɔǔʰ</td>
<td>kɔờ`]ʰ</td>
<td>'to light a fire' 'to praise'</td>
</tr>
<tr>
<td>L</td>
<td>ʃɔì</td>
<td>ʃʰənà</td>
<td>'to spit' 'to be scraped'</td>
</tr>
<tr>
<td>H</td>
<td>nɔ́á</td>
<td>g!úβú</td>
<td>'to cook' 'to bubble up'</td>
</tr>
<tr>
<td>SH</td>
<td>ɗìì</td>
<td></td>
<td>'to move house'</td>
</tr>
</tbody>
</table>

¹ Note that superscripted n indicates nasalization of the preceding vowel, superscripted h indicates breathiness of the vowel(s) preceding the h, ¹ indicates an "interrupted" vowel (Snyman,1977), and superscripted q indicates an epiglottal quality on the preceding vowel(s). Although they are termed "interrupted", the vowels marked by ¹ are not disyllabic. That is the glottalized quality is a feature of creakiness. As we will see later, this is supported by the reduplication data, since both moras of interrupted vowels are copied in reduplication. Data throughout this paper are also marked for syllabification with a period separating syllables.
Reduplication in Jul’hoansi: Tone Determines Weight

Bitonal Verbs

<table>
<thead>
<tr>
<th>SL</th>
<th>L</th>
<th>nɪ̃hʊ́</th>
<th>'to take'</th>
<th>!ʃɪ́</th>
<th>'to color in'</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>H</td>
<td>ɡ̌kx’ʊ́</td>
<td>'to twist'</td>
<td>nɪ̃õβá</td>
<td>'to walk fast'</td>
</tr>
</tbody>
</table>

The SH pattern only occurs on monosyllabic roots. There are no bisyllabic verbs that bear this pattern, although I have uncovered some bisyllabic nouns that exhibit this pattern. Miller-Ockhuizen (1998) discusses the constraints responsible for the severe restrictions on tonal patterns within single morphemes.

2 Reduplication in Jul’hoansi: Tone Determines Weight

In this section, I will review the basic reduplication patterns found in Jul’hoansi, which illustrate that the language has a reduplicative template of varying weight. First I will examine the basic reduplication patterns that are dependent on the root shape, keeping the tonal patterns consistently monotononal. After establishing these patterns, I will turn to the disparate patterns found with bitonal roots. The reader is referred to Miller-Ockhuizen (1999) for an Optimality Theoretic analysis of the Jul’hoansi reduplication patterns.

2.1 Reduplication in Monotonal Verb Roots

First, in (3) we see that when the root is monosyllabic, the reduplicant corresponds to the entire root:

(3) Reduplicated Forms of Monotonal Monosyllabic Roots

nɪ̃hʊ́n ‘to be grumpy’  nɪ̃hʊ́n.nɪ̃hʊ́n ‘to cause to be grumpy’
!
̃hʊ́ ‘to be heavy’  !ñhʊ́.ñhʊ́ ‘to cause to be heavy’
cɔ̀ ‘to be wide’  cɔ̀.cɔ̀ ‘to widen’
tɔ̀n ‘to be finished’  tɔ̀n.tɔ̀n ‘to cause to be finished’
!ɔ̃u ‘to be sick’  !ɔ̃u.ɔ̃u ‘to make ill’
!kx’ɔ̃u ‘to be dry’  !kx’ɔ̃u.kx’ɔ̃u ‘to dry off’

However, as shown in (4), if the root is bisyllabic and monotononal, then the prefixed syllable will be an exact copy of the first syllable of the root. Since the first syllable is almost always light in bisyllabic roots, the reduplicant will also be light.

(4) Reduplicated Forms of Monotonal Bisyllabic Roots

Reduplicant is Causative Morpheme

+?̃̄ʊ́.βi ‘to be crowded’  +?̃̄ʊ́.+?̃̄ʊ́.βi ‘to cause to crowd together’
+̄h.a.mà ‘to take’  +̄h.a. ‘to take’
+̄h.a.mà ‘to cause to take’
xɔ̃.βi ‘to sting (of skin)’  xɔ̃. ‘to cause to sting’
Reduplicated Form Expresses Continuous Motion or Action

- g+huxדו.ד.ד ‘to pour’
- g+huxדו.ד.ד ‘to empty out’
- xד.ד ‘to scrape out’
- xד.xד.ד ‘to scrape continuously’
- !ד.ד ‘to knock on s.t.’
- !ד.ד ‘to knock continuously’
- xד.ע.מ ‘to scrape together’
- xד.xד.מ ‘to scrape all together’
- h+huxדו.ב.ב ‘to boil a long time’
- h+huxדו.ב.ב ‘to boil all of the water out’
- tcדו.ב ‘to give off steam’
- tcדו.tcדו.ב ‘to steam continuously’
- tsxדו.ע ‘to spill’
- tsxדו.tsxדו.ע ‘to spill all over’
- kxו.ג ‘to repair, fix’
- kxו.kxו.ג ‘to move, shift oneself’
- tsxע.ג ‘to flow out’
- tsxע.tsxע.ג ‘to gush out’
- h+huxע.ג ‘to clean’
- h+huxע.ג ‘to clean thoroughly’

The reduplicant is always one syllable in monotonal forms. It is heavy when the root is a heavy monosyllabic, but light when the root is bimoraic and bisyllabic. One generalization which can be drawn from the data for monotonal roots is that the reduplicant in partial reduplication in Julu’hoansi always corresponds to the first syllable of the base. However, as will be discussed in the next section, the facts are different when the root is bitonal. The generalization that the reduplicant always corresponds to the first syllable of the base is not upheld.

2.2 Bitonal Verb Roots

The generalization that the reduplicant corresponds to the first syllable of the root breaks down when the base root is bitonal. If the root is monosyllabic and bitonal, the reduplicant corresponds exactly to the first syllable of the base, as shown in (5a). However, as shown in (5b), if the root is bisyllabic and bitonal, the reduplicated prefix corresponds to both vowels in the base deriving a heavy syllable, even though this requires skipping an intermediate consonant. This is the opposite of what we saw in section 2.1, where monotonal bisyllabic roots had light reduplicants.

(5) (a) Reduplicated Forms of Bitonal Monosyllabic Roots

- g+huxד.ג ‘to move sideways’
- g+huxד.ג ‘to move from side to side’
- nמ.ג ‘to be shiny’
- nמ.nמ.ג ‘to cause to be shiny’

(b) Reduplicated Forms of Bitonal Bisyllabic Roots

- tsxד.ג ‘to grab’
- tsxד.tsxד.ג ‘to grab forcefully’
- xד.ג ‘to poke a hole’
- xד.ג.xד.ג ‘to drill a hole’
- nמ.ג ‘to find something’
- nמ.nמ.nמ.ג ‘to find a lost object’
- xד.ג ‘to fry’
- xד.xד.ג ‘to cause to fry’
- g+huxד.ג ‘to make visible’
- g+huxד.ג ‘to make visible’
- h+huxד.ג ‘to cause to be damp’
- h+huxד.ג ‘to cause to be damp’
These data are exceptions to the generalization that the reduplicant corresponds to the first syllable of the base. However, they lead to a new generalization: that the full tone pattern is always preserved in reduplication. If the base is bitonal, then both vowels will be copied so that there will be two moras that can bear the two tonemes. Reduplication gives crucial evidence regarding the tone-bearing unit. The tone-bearing unit must be the mora, since the copy of both moras is required in order to support a bitonal pattern. If the tone-bearing unit were the syllable, there would be no explanation for the varying weight of the reduplicant.

The key to predicting the different behavior of monotonal and bitonal bisyllabic verbs is in recognizing the differences in their tonal specifications, and in positing a constraint governing tonal faithfulness, separate from segmental faithfulness (Miller-Ockhuizen, 1999).

2.3 Trimoraic Verb Stems

As was noted in Section 2 above, there are two types of trimoraic stems in Ju'hoansi. One type of trimoraic stem has a simple diphthong in the first syllable, and in these roots the first syllable is always monotonal. The other type has non-modal phonation type on the vowel in the first syllable. This type can be divided into two subtypes: (1) those that are monotonal and where the entire first syllable is epiglottalized; and (2) those that are bitonal and the first syllable is either glottalized or partially epiglottalized. The trimoraic stems containing contour tones in the first syllable are very interesting for two reasons. First, there is a proposed difference in tone assignment of bitonal patterns in the two types of trimoraic stems. No strong claims can be made about the two distinct types of roots involving epiglottalization at this time, as the dependencies between the position of the phonation type and the tonal pattern make it difficult to determine whether the tonal melodies are phonologically contrastive, or whether they are dependent on the phonation type contrasts. Second, the tones of the base in trimoraic stems do not always occur on the same mora in the base and in the reduplicant.

There are two different types of bitonal patterns in trimoraic verb stems. All trimoraic stems have two moras in the first syllable, with a short vowel in the last syllable. Words with diphthongs in the initial syllable and words with long interrupted vowels in the first syllable have different associations of the two tones. Additionally,
there are roots transcribed as CVV.CV, which implies that the entire vowel is epiglottalized, with no interruption in the vowel. In the case of initial diphthongs, the first syllable bears the first tone of a bitonal pattern on both moras, and the second tone is borne on the second syllable, as shown in (6a) below. The pattern is the same with CVV.CV roots shown in (6b). In words with initial interrupted vowels however, the entire tonal contour is borne on the first long syllable, with the final syllable bearing the same tone as the second half of the contour tone, as in (6c).

\[(6) \quad \text{(a) Bitonal Trimoraic Verbs with Initial Diphthongs} \]
\[
!\ddot{a}.\ddot{u}.\ddot{r}\ddot{u} \quad \text{‘to cut a carrying strip’} \quad |\ddot{a}.\ddot{r}\ddot{a} \quad \text{‘baboon’}
\]
\|[\ddot{a}.\ddot{u}.\ddot{r}\ddot{u}] \quad \text{‘to run (through)’} \quad dzx\ddot{o}.\ddot{a}.\ddot{r}\ddot{a} \quad \text{‘gap between teeth’}
\]
\[k^\ddot{u}.\ddot{u}.\ddot{r}\ddot{u} \quad \text{‘to load off, climb’} \quad !\ddot{a}.\ddot{e}.\ddot{e} \quad rerraria glutinosa
\]
\|[\ddot{u}.\ddot{k}\ddot{u}] \quad \text{‘tessesebe’}
\]

\[(6) \quad \text{(b) Bitonal Trimoraic Verbs with Fully Epiglottalized Vowels} \]
\[!\ddot{a}.\ddot{a}.\ddot{r}\ddot{a} \quad \text{‘hawk, falcon’} \quad d\ddot{o}.\ddot{a}.\ddot{r}\ddot{a} \quad \text{‘to be thin’}
\]
\[n|\ddot{o}.\ddot{a}.\ddot{r}\ddot{a} \quad \text{‘to squeeze’} \quad n^+\ddot{o}.\ddot{a}.\ddot{r}\ddot{a} \quad \text{‘black crow’}
\]

\[(6) \quad \text{(c) Bitonal Trimoraic Verbs with Initial Interrupted Vowels} \]
\[d\ddot{a}.\ddot{a}.\ddot{\beta}\ddot{a} \quad \text{‘to get a fright’} \quad n^+\ddot{a}.\ddot{a}.\ddot{r}\ddot{a} \quad \text{‘to leak’}
\]
\[n\ddot{a}.\ddot{a}.\ddot{r}\ddot{u} \quad \text{‘to sway’} \quad \ddot{f}.\ddot{a}.\ddot{\beta}\ddot{a} \quad \text{‘to be flat’}
\]
\[d\ddot{u}.\ddot{u}.\ddot{r}\ddot{i} \quad \text{‘to slough (skin), peel’} \quad q\ddot{l}.\ddot{u}.\ddot{\beta}\ddot{u} \quad \text{‘to swell, rise’}
\]
\[b\ddot{a}.\ddot{a}.\ddot{\dot{r}}\ddot{i} \quad \text{‘to sprout’} \quad j\ddot{a}.\ddot{a}.\ddot{r}\ddot{a} \quad \text{‘to quench thirst’}
\]
\[n|\ddot{o}.\ddot{a}.\ddot{\dot{b}}\ddot{u} \quad \text{‘to wade’} \quad !\ddot{o}.\ddot{a}.\ddot{\dot{b}}\ddot{a} \quad \text{‘to fasten on’}
\]

I assume that all of these verbs are bitonal. However, the linking of the tones is different in the case of (6)(a) and (b) on the one hand, and (6)(c) on the other hand. That is, as shown in (7), the diphthongs shown in (6a) and the fully epiglottalized vowels shown in (6c) have the first tone doubly linked to both moras, while the interrupted vowels shown in (6b) above have both tones associated to the interrupted vowel.

\[(7) \quad \text{Different Tonal Representations for Trimoraic Verb Roots} \]
\[
\text{Initial Diphthongs} \quad \text{Initial Interrupted Vowel}
\]
\[
\begin{array}{c|c}
\text{SL} & \text{L} \\
\hline
\ddot{a} & \ddot{r} \\
\hline
\ddot{a} & \ddot{r} \\
\hline
\ddot{u} & \ddot{r} \\
\hline
\end{array}
\quad \begin{array}{c|c}
\text{SL} & \text{L} \\
\hline
\ddot{a} & \ddot{r} \\
\hline
\ddot{a} & \ddot{r} \\
\hline
\ddot{u} & \ddot{r} \\
\hline
\end{array}
\quad \begin{array}{c|c}
\ddot{a} & \ddot{a} \ddot{\beta} \\
\hline
\ddot{a} & \ddot{a} \ddot{\beta} \\
\hline
\ddot{u} & \ddot{r} \\
\hline
\end{array}
\]

It is entirely predictable which words have one structure, and which the other. I attribute the distinction to the vowel phonation quality of interrupted vowels, which occur almost exclusively with rising tone. Since the interrupted vowels are made by closing the glottis momentarily which shows up in laryngographic tracings (Traill, personal
communication), this closure may also cause perturbations in pitch. This analysis is supported by the fact that there are no monotonous roots containing interrupted vowels. This physiological dependency between the glottal closure and pitch change overrules the normal propensity to avoid contour tones within a syllable by assigning a single tone to a diphthong in the other kind of trimoraic verbs. This is captured in Miller-Ockhuizen (1999) through the interaction between an articulatory based constraint on tone assignment in interrupted vowels, and a constraint ruling out contour tones on a single syllable.

The data in (8) shows that both moras in the first syllable of trimoraic words are copied in reduplication, regardless of whether the base is a bitonal or monotonous verb.

(8)  
(a) **Monotonal Trimoraic Roots with Initial Diphthongs**

\[+x\text{̀ú.nû}\]  ‘to slip’  \[+x\text{̀û} . +x\text{̀ú.nû}\]  ‘to cause to slip’

(b) **Bitonal Trimoraic Roots with Initial Interrupted Vowels**

\[g\text{̀́ò.òó}\]  ‘to make noise’  \[g\text{̀́ò.òó} . g\text{̀́ò.òó}\]  ‘to make a lot of noise’

\[+\text{̀á.a.òà}\]  ‘to be flat’  \[+\text{̀á.a.òà} . +\text{̀á.a.òà}\]  ‘to cause to be flat’

\[!\text{̀ò.ò.òà}\]  ‘to be neat’  \[!\text{̀ò.ò.òà} . !\text{̀ò.ò.òà}\]  ‘to cause to be neat’

(c) **Bitonal Trimoraic Roots with Initial Diphthongs**

\[+\text{̀ì.òù.òé}\]  ‘to be slow’  \[+\text{̀ì.òù.òé} . +\text{̀ì.òù.òé}\]  ‘to be very slow’

Since there are two moras in the first syllable that act as tone bearers of two distinct tones, there is no discrepancy in the reduplicated forms of monotonous and bitonal trimoraic roots.

Unfortunately, I do not have any reduplicated forms of CVV\text{̀}CV or CV\text{̀}VCV root types. However, the predictions from my analysis of reduplication in general are clear. Since CVV\text{̀}VCV forms always bear rising tones within the first syllable, such roots should reduplicate the entire first syllable only. The prediction is a bit more complex with the CVV\text{̀}CV forms, since the reason for the lack of tonal contours within the first syllable is not clear. If it follows the same pattern as modally voiced trimoraic forms, then only the first syllable should be copied, which should bear both of the tones from the base. Thus, I predict that a root like dòà\text{̀}â.òà ‘to be thin’ should reduplicate as dòà\text{̀}â.òà.òà.òà. However, given the tone-phonation type dependencies, it is quite possible that a rising toned syllable will be ruled out from co-occurring with a fully epiglottalized syllable, resulting in a form like dòà\text{̀}â.dòà\text{̀}â.òà. Recall that CVV\text{̀}VCV forms are always bitonal, with the first mora being either SL or L toned. Either way, since the phonation type pattern in such
roots is distinct, a new constraint can easily be justified in order to account for the patterns found.

3 Vowel-Length and Variable Weight Templates

McCarthy and Prince (1986), in their discussion of the types of reduplicative templates that are possible in natural languages, suggest the possibility of a template of varying weight, exemplified by the language Kaingang. Steriade (1988) argues that this is the case only because Kaingang doesn’t have a phonological vowel-length distinction. In this section, I investigate vowel-length in Jul’hoansi, and show that this language does not have a true vowel-length distinction either. Roots transcribed by Dickens (1994) as long are always bitonal or diphthongal, and the difference in the duration of these root types from monophthongal monotonical roots, while statistically significant, is not large enough to support a categorical vowel-length distinction. I account for the lack of length contrast on roots via a minimality constraint. Since a monomoraic reduplicant doesn’t result in a violation of the minimality constraint on roots, the length contrast emerges in reduplicated forms.

3.1 Contrastive Vowel-Length in Roots: Monosyllabic Roots are Bimoraic

While reduplication gives phonological evidence that bitonal roots are bimoraic, it does not require an analysis of monotonous monophthongal monosyllabic stems as bimoraic. In fact, the default analysis of such stems would be that they are monomoraic. While Hume, Muller and van Englehooven (1997) argue that geminates in the Austronesian language Leti require the separation of length and weight, based on the different phonological phenomena in the language which require reference to both X-slots and moras independently, in Jul’hoansi there is only evidence for moraic positions, given that there is no stress or other phenomena in Jul’hoansi that crucially refer to X slots. I thus assume that moras account for both phonological weight and length in this language. Given that reduplication provides evidence that bitonal monosyllabic stems are bimoraic, this predicts that if monotonous stems are bimoraic, they should have similar duration to bitonal stems (controlling for vowel quality). I show in this section that this prediction is borne out. While there is a significant difference in the duration of monosyllabic monotonous and bitonal stems, the durations are overlapping and are not characteristic of a categorical phonological length distinction. Additionally, there is a
much larger significant difference in the duration of either syllable of monotonal bisyllabic roots compared with the duration of monosyllabic roots. I conclude that this evidence suggests that monosyllabic monotonal roots, like monosyllabic bitonal roots are bimoraic, and there is no evidence at all to support claims made by Dickens (1994) and Snyman (1970, 1975) that there is a vowel-length contrast in Jul’hoansi. All contrasts found in Dickens (1994) are non-minimal with roots transcribed as monomoraic being monophthongal and monotonal, and containing a single voice quality specification, while those transcribed as bimoraic are either diphthongal, bitonal or have a contour in terms of voice quality. I conclude that these authors misinterpreted duration differences associated with articulatory complexity as phonological distinctions.

3.2 The database

The database used in the study of vowel-length was developed by recording the 1445 roots found in Dickens (1994) Jul’hoansi dictionary, which is itself an augmentation of Snyman’s original (1975) dictionary. I also collected an additional 196 root words during the course of my field work at Ixoan N!huru, Namibia. Three speakers produced all 778 noun roots (DK, KK & NC), and a different three speakers produced all 861 verb roots (DX, KX & KG). The database is also augmented by recordings of some morphologically complex forms, produced by four different speakers (XN, NU, NI and PK).

The breakdown of the database by root shape as shown in (9) below, reveals that there are only 5 root shapes in the language. This breakdown anticipates the results of the next section, which shows that there is no vowel-length contrast in Jul’hoansi.

(9) Distribution of Root Types

<table>
<thead>
<tr>
<th>Root Shape</th>
<th>Lexical Frequency in Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVV</td>
<td>743</td>
</tr>
<tr>
<td>CVm</td>
<td>156</td>
</tr>
<tr>
<td>CVCV</td>
<td>640</td>
</tr>
<tr>
<td>CVVCV</td>
<td>129</td>
</tr>
<tr>
<td>CVCVCV</td>
<td>49</td>
</tr>
</tbody>
</table>

The smallest root type is bimoraic, a claim that will be supported by duration measurements. Assuming that Cvm roots are bimoraic, which is supported by the fact
that they bear contrastive tone, the overwhelming majority of roots (1539/1717 = 90%) are bimoraic. This suggests that the canonical root shape is bimoraic.

All of the roots were digitally recorded at a sampling rate of 22,050 Hz. All roots were retranscribed. Any discrepancies between my transcriptions and Dickens’ were investigated with the use of acoustic data to determine the correctness of transcriptions. The generalizations made in this paper hold over the entire database, which is assumed to be representative of the lexicon. Despite the large number of roots represented in the database, the number of roots that are representative of any one specific pattern are often surprisingly low. This is due to the high number of contrastive properties realized on vowels in the language: 4 tone levels and 6 root tone patterns, 4 different voice qualities on vowels, as well as contrastive vowel nasalization. The actual numbers used to investigate any particular phenomenon will thus be given during each relevant section.

3.3 Monosyllabic roots are bimoraic

Previous researchers (Snyman 1970, 1975; Dickens 1994) have claimed that there is a vowel-length contrast in Jul’hoansi, but in this section, I argue that the contrast is between monotonal and bitonal stems, and there is no phonological vowel-length contrast on roots. Since the mora is a unit of phonological length (Hayes, 1989), if Jul’hoansi had a contrast between short and long vowels, these would contrast phonologically as being monomoraic vs. bimoraic. Since only level tones are found on the supposed short vowels, and bitonal sequences are found only on supposed long vowels, this pattern would give evidence for a one-to-one association between tones and moras if there were a vowel-length contrast. Since there is no length contrast on roots, monosyllabic roots might either be all monomoraic or all bimoraic. The default assumption is usually that noncontrastive monosyllabic rimes like the ones in Jul’hoansi are short, since short vowels are considered to be the unmarked case. However, there are many languages where vowel-length contrasts are blocked in monosyllabic forms due to a minimality constraint causing all roots to be at least bimoraic. Since there is no phonological evidence from alternations pointing to the length of monosyllabic roots in Jul’hoansi, I examine phonetic duration evidence which suggests that monosyllabic roots are all long, and roots are minimally bimoraic.

Dickens’ (1994) dictionary lists 177 root words having the root shape CV (including 41 CVN roots which represent nasalized short vowels), and 595 CVV roots
Reduplication in Juhoansi: Tone Determines Weight

(including monophthongs and diphthongs, as well as CVVN roots which represent roots with long or diphthongized nasalized vowels). The entirety of roots listed as CV in Dickens (1994) are listed in Appendix B. These roots are all monotonal, and monophthongal. As shown in (10), almost all near minimal pairs that Dickens (1994) claims contrast in length, also contrast in tone, with the supposed short vowels being monotonal, and the long vowels being bitonal.

(10) **Minimal Contrasts are Two-Way between CV and CVV Roots**

<table>
<thead>
<tr>
<th>CV</th>
<th>CVV</th>
<th>CV</th>
<th>CVV</th>
</tr>
</thead>
<tbody>
<tr>
<td>n!ó</td>
<td>'morning, early'</td>
<td>n!ó</td>
<td>'to yearn for'</td>
</tr>
<tr>
<td>tòh</td>
<td>'to string (beads)'</td>
<td>tòh</td>
<td>'motor car'</td>
</tr>
<tr>
<td>tshí</td>
<td>'to laugh (at)'</td>
<td>tshí</td>
<td>'terrapin'</td>
</tr>
<tr>
<td>täh</td>
<td>'to roll back (eyes)'</td>
<td>täh</td>
<td>'plain, large flat area'</td>
</tr>
<tr>
<td>tûh</td>
<td>'track'</td>
<td>tûh</td>
<td>'to bump'</td>
</tr>
<tr>
<td>g!kx’à</td>
<td>'to be rough'</td>
<td>g!kx’à</td>
<td>'rib'</td>
</tr>
</tbody>
</table>

There are only two monomorpheonic roots transcribed in Dickens (1994) as CVV that contain monotonal, monophthongal, modal vowels. These are kx'á 'to have eaten enough of something' and ṭáá 'scent'. These contrast minimally in Dickens with the roots kx’á 'to wash', and ṭáá 'head wound'. In the absence of additional evidence that there is a vowel-length contrast, I propose that these roots are homophones. Note that the final superscripted 'h' in these roots, and throughout this paper represents breathy voice quality on the preceding vowel.

The supposed contrast between the 177 monophthongal forms transcribed by Dickens (1994) as monomoraic vs. the bitonal monophthongal forms is not apparent at all, as shown by the minimal differences between the mean duration of monotonal and bitonal monosyllabic roots shown in (11) below. Since all roots that Dickens lists as having short vowels are monotonal, this might be the source of the perceived vowel-length difference that Dickens and Snyman transcribe. The chart gives the mean duration and standard deviation of all six speakers' productions of monosyllabic monotonal Càà, as well as bitonal Càá roots.
(11) **Duration of Monotonal and Bitonal Monosyllabic Roots**

<table>
<thead>
<tr>
<th></th>
<th>Number of Tokens</th>
<th>Duration of V1 (s)</th>
<th>Duration of 'm' (s)</th>
<th>Total Rime Duration (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monotonal Caa</td>
<td>107</td>
<td></td>
<td></td>
<td>0.211 (SD = 0.049)</td>
</tr>
<tr>
<td>Bitonal Caa</td>
<td>47</td>
<td></td>
<td></td>
<td>0.260 (SD = 0.045)</td>
</tr>
</tbody>
</table>

There is a statistically significant duration difference between monotonal Caa roots and bitonal Caa roots shown by an ANOVA at the level of p<.01, with an additional effect of SPEAKER, and an interaction between SPEAKER and TONE CONTOUR. However, the ratio of monotonal Caa roots to bitonal Caa roots is only 81%.

There are also monosyllabic roots containing [m] in the coda. Snynman (1970, 1975) and Dickens (1994) claim that there is a contrast between plain 'm' and syllabic 'm', but Snymn (1975) claims that the contrastive feature involved is one of duration. Dickens (1994) notes that CVm roots with supposed syllabic nasals, are always bitonal.

The only vowels which occur in Cvm roots are [a] and [u], which are higher variants of the vowels [æ] and [o] found in open syllables. However, since I am only comparing across roots with the same vowel quality, this disparity should not be important. The mean duration of both monotonal and bitonal Cəm roots is shown in (12) below:

(12) **Duration of Monotonal and Bitonal Cvm Roots**

<table>
<thead>
<tr>
<th></th>
<th>Number of Tokens</th>
<th>Duration of V1 (s)</th>
<th>Duration of 'm' (s)</th>
<th>Total Rime Duration (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monotonal Cəm</td>
<td>124</td>
<td>0.093 (SD = 0.032)</td>
<td>0.120 (SD = 0.036)</td>
<td>0.213 (SD = 0.043)</td>
</tr>
<tr>
<td>Bitonal Cəm</td>
<td>18</td>
<td>0.103 (SD = 0.028)</td>
<td>0.135 (SD = 0.036)</td>
<td>0.237 (SD = 0.041)</td>
</tr>
</tbody>
</table>

The duration facts show that monotonal vs. bitonal Cəm roots exhibit similar duration differences to those found between fully vocalic monotonal and bitonal rimes. ‘m’ in bitonal roots is statistically significantly longer at the level of p<.01 than ‘m’ in monotonal roots as shown by an ANOVA, and the effect of SPEAKER is significant at p<.05. However, the vocalic portions of bitonal Cəm roots are not significantly longer than the vocalic portions of monotonal Cəm roots as shown by an ANOVA, using
SPEAKER as a factor. The total rime duration is significantly different between monotonal and bitonal Cəm roots at the level of p<.01, but in this case the effect of SPEAKER is non-significant, as is the interaction between SPEAKER and TONE CONTOUR. I conclude that the durational differences found in both types of monosyllabic roots is simply due to the fact that tone sequences take longer to be realized than a simple level tone gesture. There is no reason to posit syllable structure in underlying forms to contrast two types of 'm', or monomoraic vs. bimoraic 'm'.

The ratio of monotonal Cəm to bitonal Cəm roots is only 90%.² Ratios of monotonal to bitonal Caa and Cəm roots are too high for this to be a contrast in vowel-length, when compared with the usual V/V: ratios of approximately 50% or 2/3 reported by Lehiste (1970).

Note that in both monotonal and bitonal Caa and Cəm roots, the standard deviations are quite high, showing that there are some monotonal roots of each type which are longer than the bitonal roots. This would be problematic for a theory that referred to these length differences as categorical phonological contrasts. There is thus no support for a contrast between monomoraic and bimoraic monosyllabic stems. All supposed length contrasts are in fact contrasts in contoured vs. non-contoured rimes. Further, almost all monosyllabic roots (615 out of 744 roots in the database - 83%) are contoured for tone, vowel quality or voice quality. This probably helps listeners parse both moras of the root.

It is now clear that there is no length contrast in monosyllabic roots. However, it is still unclear whether these monosyllabic roots are short, and thus monomoraic, or whether they are long, and thus bimoraic within Moraic theory. Comparing the average duration of monosyllabic Cà roots to the duration of both vowels in bisyllabic roots of the type CàCà produced by all three speakers, it turns out that the mean duration of the rime in monosyllabic roots is almost twice as long as that of either vowel of a bisyllabic root, as shown in (13).
(13) **Duration of Monosyllabic Roots compared to Duration of Single Syllables in Bisyllabic Roots**

<table>
<thead>
<tr>
<th>Root Type</th>
<th>Number of Tokens</th>
<th>First Vowel</th>
<th>Second Vowel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cà</td>
<td>77 (24 Roots)</td>
<td>0.223 (SD=0.062)</td>
<td></td>
</tr>
<tr>
<td>CàCà</td>
<td>112 (40 Roots)</td>
<td>0.137 (SD=0.038)</td>
<td>0.129 (SD=0.032)</td>
</tr>
</tbody>
</table>

The ratio of the duration of the first syllable of a bisyllabic root, to the duration of monosyllabic roots is 61%, and the ratio of the duration of the second syllable of a bisyllabic root to the total duration of monosyllabic roots is 58%. These V/V: ratios are both closer to the approximately 1:2 or 2:3 ratios which Lehiste (1970) notes for languages with confirmed vowel-length contrasts. This is supportive of monosyllabic roots all being bimoraic, due to a word minimality constraint.

The histogram in (14) brings together all of this information, and shows clearly that the duration of supposed CV and CVV root types are overlapping, while the duration of a single syllable of a bisyllabic root is only about half of the duration of both types of monosyllabic roots. The histogram shows the frequency count of all words throughout the duration range of the entire rime of CV and CVV root types, as well as the duration of the final syllable of CVCV roots, as produced by all six speakers.
Histogram of the total rime duration of Monotonal Monophthongal "CV" vs. Bitonal Monophthongal "CVV" as transcribed by Dickens (1994) and the final Vowel of CVCV forms

The histogram clearly shows that there is no bimodal distribution found between the roots transcribed by Dickens as CV vs. those he transcribes as CVV, which is what we expect if there is a phonological vowel-length contrast. However, the final vowel of CVCV roots is much shorter than the monosyllabic roots, suggesting that both Dickens' CV and CVV roots are bimoraic, since they are almost twice as long as the final monomoraic vowel in CVCV forms.

I have now established that there are definitely no contrasts in length alone in roots. The main problem in investigating phonological vowel-length, is that a duration difference doesn't necessarily imply a phonological length contrast. There is a distinction between duration differences associated with phonological length contrasts, and duration differences that are associated with the longer duration necessary to articulate a more complex articulatory sequence vs. the shorter duration necessary to articulate a simpler gesture. I argue that duration contrasts found between monotonal vs. bitonal roots on the one hand, and between monophthongal and diphthongal forms on the other hand, are due to the extra duration necessary to articulate tonal and vowel quality contours. This
analysis is consistent with the overlapping duration measurements found within each
group.

There is also a difference between the length of monosyllabic roots in isolation
and the length of monosyllabic roots when they are followed by the plural morph *si*. In a
study of 30 Caa monosyllabic roots produced by four speakers, the duration of
monosyllabic roots in their singular isolation forms is 0.247 seconds, with a standard
deviation of 0.036 seconds. However, when the same Caa roots are followed by the plural
morph *si*, the mean duration of the stems is 0.190 seconds, with a standard deviation of
0.019 seconds. I analyze this as phonetic shortening in roots containing an enclitic, such
as the plural morph *si*. An alternative explanation for this length disparity would be that
there is phonetic lengthening in final position. However, the fact that both vowels in
CaCa forms are fairly equal in duration, with the final vowel being shorter than the first
by a few milliseconds, makes this possibility seem quite unlikely. If the equal duration
were due to final lengthening, parallel to the lengthening found in monosyllabic roots, we
would expect the final syllable to be shortened if it were put in the context of the plural
morph. Unfortunately, there is not sufficient data at the present time to compare
bisyllabic roots in isolation to bisyllabic roots before the plural morph. The average
duration of 0.190 seconds for monosyllabic roots in the plural non-final context is still
longer than the duration of either vowel in bisyllabic forms, showing that the length
associated with these long monosyllabic roots is still maintained. The ratio of the duration
of monosyllabic roots in isolation to the same roots in plural forms is 80%, showing that
this length difference is not as large as the contrast between the first syllable of CVCV
roots to bimoraic monosyllables, but is more like the smaller duration differences found
between monotonal vs. bitonal roots. If there is final lengthening, we would expect the
final syllable of plural forms of CaCa roots to be shorter than it is in singular forms.
However, if there is lengthening in monosyllabic roots, we would expect no difference
between the length of the final syllable in singular and plural forms.

The durational evidence points to all monosyllabic roots being bimoraic, with a
minimality constraint accounting for the fact that there are no monomoraic monosyllabic
roots. This is parallel to Traill's (1985) claim that all roots are bimoraic in the related
language !Xôô. If tones link to moras as the reduplication evidence suggests, there is
always only one tone per T.B.U., and monotonal roots contain a single tone doubly-linked to two moras.

3.4 A Template of Varying weight

Steriade's claim that only languages without contrastive vowel-length can have a template of varying weight is only partially upheld by the Jul'hoansi data. The fact that both vowels of the root are only copied in reduplication when there are two tones leads to real evidence that the weight of the reduplicant is inconsistent. This is a language which, under a templatic view of reduplication, would be seen as having a syllable template of varying weight. The variation in weight is predictable, as is captured in the Optimality Theoretic analysis given in Miller-Ockhuizen (1999). Since the tone-bearing unit in Jul'hoansi is the mora, two moraic positions must be available as docking sites for both tones of a bitonal pattern.

Steriade (1988) claims that languages that only copy a light syllable, affiliate the reduplicant as part of a foot containing the base. Similarly, languages with heavy syllable templates require the reduplicant to be footed separately from the base. Evidence for the presence of feet in this language comes from a minimality constraint which requires roots to be minimally bimoraic. This can be stated elegantly in terms of feet, in a constraint such as WORD=FOOT. The Jul'hoansi data suggests that there is no such requirement on the size of the reduplicant in terms of moras or feet, but only the requirement that it should be a syllable. Monomoraic reduplicants are not ruled out by the minimality constraint, since they do not constitute a separate foot. Thus, the analysis herein predicts that reduplicated forms of monotonal bisyllabic roots should constitute a single foot, while reduplicated forms of bitonal bisyllabic roots should consists of two feet.

4 Conclusion

Reduplication patterns where the weight of the reduplicant varies as in the Jul'hoansi case, are typologically rare. It is important to note that the weight of the reduplicant is predictable in any given word from the tonal pattern and syllable count of the base. In bisyllabic words, only the first vowel is copied in order to avoid skipping intermediate consonants, and to maintain the reduplicant as one syllable. If, however, the base is bitonal, both vowels will be copied, and intermediate consonants will be skipped. Jul'hoansi is the only language, other than Kaingang which has been claimed to have a
reduplicant of varying weight. The Kaingang patterns are in need of further investigation in order to determine whether the weight of the reduplicant is predictable from properties such as tone in that language as well.

Reduplication gives evidence for Jul'hoansi bitonal monosyllables roots being bimoraic, but does not give any clue as to the weight of monotonous monosyllabic forms. I have argued that the durational differences found between monotonous and bitonal monosyllabic forms, are too small to support a categorical vowel-length contrast. I have argued that the duration difference is due to the longer duration necessary to produce a more complex articulatory gesture, and that both monotonous and bitonal monosyllabic roots are phonologically bimoraic. This, coupled with the fact that the majority of roots in the language are bimoraic, argues for a minimality constraint, requiring roots in the language to be at least bimoraic. I have shown independently that the language does not maintain a vowel-length contrast on monosyllabic roots, however, it appears that monotonous monophthongal monosyllabic forms contain long vowels, while each syllable of a monotonous monophthongal bisyllabic root is short. A vowel-length contrast is allowed in the reduplicant, since either pattern respects the root minimality constraint. Since there is no vowel-length contrast in any given position, the data still somewhat support Steriade’s (1988) claim that only languages without a vowel-length contrast can contain reduplicants of varying weight.

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Reduplication in Ju|'hoansi: Tone Determines Weight


Appendix A: Complete List of H-L Toned Words Identified to Date

córá  'smoke'  dámbà  'dam' (< AFR, <KVG)
dcáhà  'edible fruit'  kópì  'cup' (< AFR)
khúkí  'chicken' (<KVG)  mámà  'grandmother'
tchúpò  'innertube' (<AFR)  útò  'car' (<KKG)
lúbè  'shrub species'  lúlú  'spear'
búrò  'drill' (<AFR)  pùni  'pen' (< AFR)
búnù  'stringed instrument'  bòpì  'doll' (< AFR)
ińi  'watch' (<AFR)  gúmì  'rubber eraser'
dómò  'to obliterate'  dísí  'to bewitch' (<Naro)
gúúrò  'to carry on one's head'

Appendix B: Entirety of CV Roots in Dickens (1994)

tʰá  'penis'  tziⁿ  'louse'  tzuⁿ  'nose'
tʃiⁿ  'to cry'  pá  'fine corn meal'  siⁿ  'younger sibling'
ti  'tea'  txúⁿ  'grandmother'  tàⁿ  'container'
tʃiⁿ  'to ask'  txá  'to hit by shooting'  bá  'father'
jú  'people'  zó  'honey'  zá  'to swear at'
g!hú  'temple of ones' head'  njo  'skin, shell'
n!háⁿ  'to happen'  n!ó  'to rumble (thunder)'  |hó  'face'
ná  'to walk'  íhá  'game animal'  |hó  'to chop'
j!húⁿ  'steenbok'  ḥúⁿ  'spitting cobra'  ḥáⁿ  'head wound'
#ú  'joining piece between arrow shaft and tip'  l'kx'á  'heart'
ló  'back'  lóⁿ  'to be hungry'  l'kxúⁿ  'to smell'
xú  'divining blocks'  láⁿ  'side'  ló  'older brother'
'elephant' 'to spread open' 'to owe' 'to close' 'to shelter' 'to wipe clean' 'fuel' 'to arrive' 'to jump' 'to eat' 'to vomit' 'arrow' 'scilla rautanenii' 'earth' 'pot' 'house' 'sweet potato' 'soap' 'breast, milk' hemizygia bracteosa 'gravy' 'medicine' 'hornbill' 'thread' 'to be fat' 'to be straight' 'to say' 'to swell' 'to look for' 'to return' 'to do so' 'to shelter' 'temple (of head)' 'to pull straight' 'to be moist' 'buttock' 'flower' 'beak, bill' 'to pour' 'to stoke a fire' 'to stay' 'to take' 'to do, make' 'buttock' 'to be crazy' 'liver' 'to give' 'pit, well' crinum species' 'debt' 'to close' 'to scrape open' 'to be deflated' 'to gather food' 'to sit and rest' 'to vomit' 'roan antelope' 'to take a pinch of' 'glans of the penis' 'to long for' 'to be related through one's child's spouse' 'path, road' 'baldness' 'to graze' Owanambo knife' 'leadwood tree' 'pain' 'ant lion' 'to follow closely' 'to go ahead' 'arrow poison' 'bead apron' 'to be rough' 'to wear s.t. over' 'to fasten' the buttocks' 'outside' 'thing' 'horn, whistle' 'bone' 'to insert' 'name' 'to step on' 'water, stomach' 'to serve on a platter' 'to sweat' 'to do so' type of indigenous citrus fruit' 'porcupine burrow' 'to flee, run away' 'to defecate' 'to see, get' 'to stick (with glue)' 'arm, strap' 'buffalo thorn' 'tooth' 'track' 'red crested korhaan' 'annual groundclover' 'hat' 'to smear' 'red crested korhaan' 'dust' 'to sleep' 'to dry out' 'to dry out' 'to pop food in mouth' 'place for drying meat' tshu' 'fart'
<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>dcʰᵣⁿ</td>
<td>'semen, vaginal fluid'</td>
<td>!kx'ū</td>
<td>'to be happy'</td>
</tr>
<tr>
<td>kx'ūⁿ</td>
<td>'to be stingy'</td>
<td>ūⁿ</td>
<td>'to question'</td>
</tr>
<tr>
<td>dsʰᵣⁿ</td>
<td>'morama bean'</td>
<td>dʰᵣⁿ</td>
<td>'to skin an animal w/ hands'</td>
</tr>
<tr>
<td>djxₐ</td>
<td>'to swim'</td>
<td>màᵣ</td>
<td>'wind'</td>
</tr>
<tr>
<td>nₐᵃⁿ</td>
<td>'small intestine'</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>n!àⁿ</td>
<td>'to get lost'</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>!kx'ù</td>
<td>burkea africana</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g!ôⁿ</td>
<td>'male'</td>
<td>g+ôⁿ</td>
<td>'food plant'</td>
</tr>
<tr>
<td>g!ôⁿ</td>
<td>'false umbrella acacia'</td>
<td>g</td>
<td></td>
</tr>
<tr>
<td>g!àⁿ</td>
<td>'to burp'</td>
<td>g+à</td>
<td>'to put on a flat plate'</td>
</tr>
<tr>
<td>tcᵃⁿ</td>
<td>'to pour out'</td>
<td>dᵃⁿ</td>
<td>'striped mongoose'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ôⁿ</td>
<td>'gall'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>kx'ā</td>
<td></td>
</tr>
</tbody>
</table>
Hoan and the Typology of Click Accompaniments in Khoisan

Arthur Bell and Chris Collins
Cornell University

Introduction

The goal of this paper is to give a preliminary phonetic description of the click accompaniments in Hoan, a Khoisan language spoken in Botswana south of the Khutse game reserve. Furthermore, we will show how the Hoan clicks are related to the click accompaniments in other Khoisan languages. In particular, we will draw on data from !Xóõ (Ladefoged and Traill 1984, 1994; Traill 1991), lGui (Nakagawa 1995) and Jul'hoan (Ladefoged and Traill 1984, 1994).

Hoan occupies a unique position in the study of Khoisan languages. In vocabulary (Traill 1973) and syntax (Collins 2000) it has clear northern affiliations. However, phonetically, it has clear southern affiliations. For example, Hoan has the bilabial click (ʘ) which is absent from the Central and Northern Khoisan languages.

This paper is based primarily on a set of recordings made by Jeff Gruber in 1973 in Botswana. Other sources for the paper include the fieldwork done by Chris Collins in Botswana during the academic year 1996-1997 and the summer of 1999.

For the most part, we follow Gruber's classification of the clicks. The only two divergences are the following: first, we recognize the existence of delayed aspiration. Second, we believe that at least some instances of Gruber's category "prenasalized voiced velar release" should be described as "voiced uvular." In addition, we use the terminology and notation of Nakagawa (1995) and Ladefoged and Traill (1994), which is the IPA notation.

Hoan has five basic click types: dental (l), alveolar (!), palatal (+), lateral (ll) and bilabial (ʘ). In addition there are thirteen accompaniments. Gruber's complete data set can be heard at: http://instruct1.cit.cornell.edu/courses/ling700/hoan_sounds.htm.

The authors’ names are listed in alphabetical order.

1 Click Consonants of +Hoan

The clicks and their accompaniments are given in table 1. Gaps in Gruber’s data appear in parentheses. It is unclear at the moment whether these gaps are accidental or not. We will not investigate these gaps in this paper. In addition, we should also point out that there are several hand-written changes on Gruber’s typed manuscript that we have not taken into account in this paper.

The IPA notion for clicks specifies the location and release of the anterior closure. The place of the posterior closure (velar or uvular) is indicated before the click symbol. Voicing and nasality are also indicated before the click symbol, representing the fact that voicing and nasality begin prior to the release of the anterior closure.

<table>
<thead>
<tr>
<th>accompaniment ↓ click type→</th>
<th>dental</th>
<th>alveolar</th>
<th>palatal</th>
<th>lateral</th>
<th>bilabial</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) voiceless velar plosive</td>
<td>kl</td>
<td>k!</td>
<td>k⁺</td>
<td>kll</td>
<td>k∅</td>
</tr>
<tr>
<td>(2) voiced velar plosive</td>
<td>gl</td>
<td>g!</td>
<td>g⁺</td>
<td>gll</td>
<td>g∅</td>
</tr>
<tr>
<td>(3) aspirated velar plosive</td>
<td>klh</td>
<td>k!h</td>
<td>k⁺h</td>
<td>kllh</td>
<td>(k∅h)</td>
</tr>
<tr>
<td>(4) voiced velar nasal</td>
<td>nl</td>
<td>n!</td>
<td>n⁺</td>
<td>nll</td>
<td>n∅</td>
</tr>
<tr>
<td>(5) preglottalized velar nasal</td>
<td>?nl</td>
<td>?n!</td>
<td>?n⁺</td>
<td>?nll</td>
<td>?n∅</td>
</tr>
<tr>
<td>(6) delayed aspiration</td>
<td>(nlh)</td>
<td>n!h</td>
<td>n⁺h</td>
<td>nllh</td>
<td>(n∅h)</td>
</tr>
<tr>
<td>(7) glottal stop</td>
<td>l?</td>
<td>l!</td>
<td>l⁺</td>
<td>lll</td>
<td>l∅</td>
</tr>
<tr>
<td>(8) voiceless uvular affricate</td>
<td>q!χ</td>
<td>q!χ'</td>
<td>q⁺χ</td>
<td>qllχ</td>
<td>q∅χ</td>
</tr>
<tr>
<td>(9) affricated uvular ejective</td>
<td>q!χ'</td>
<td>(q!χ')</td>
<td>q⁺χ'</td>
<td>qllχ'</td>
<td>q∅χ'</td>
</tr>
<tr>
<td>(10) voiceless uvular ejective</td>
<td>ql'</td>
<td>q!</td>
<td>q⁺'</td>
<td>qll'</td>
<td>(q∅')</td>
</tr>
<tr>
<td>(11) voiceless uvular plosive</td>
<td>ql</td>
<td>q!</td>
<td>q⁺</td>
<td>qll</td>
<td>(q∅)</td>
</tr>
<tr>
<td>(12) voiced uvular plosive</td>
<td>gl</td>
<td>(g!)</td>
<td>g⁺</td>
<td>gll</td>
<td>(g∅)</td>
</tr>
<tr>
<td>(13) aspirated uvular plosive</td>
<td>qlh</td>
<td>(q!h)</td>
<td>q⁺h</td>
<td>qllh</td>
<td>(q∅h)</td>
</tr>
</tbody>
</table>

Table 1. Click types and their accompaniments in +Hoan.

2 Methodology

Jeff Gruber’s original 1973 recordings consist of isolated utterances of individual words (with no frame sentence). These recordings were made on reel-to-reel tape and were transferred to DAT at Studio Tempo, Montreal in 1995. From the DAT tapes we recorded the data onto a Sun SparcStation™. The digitized speech stream was then
divided into 364 separate tokens. We analyzed the data using Entropic waves+\textsuperscript{TM} speech analysis software. Using Xlabels, we marked the click onset for each token. With this initial label in place, and using several Perl scripts developed by Eric Evans in the Cornell Phonetics Lab, we assigned a uniform Xwindow length of 1 second to all tokens (except where the token was very short).

Other relevant features of the specific tokens, such as voicing onset and prenasalization, were labeled by hand. We then zeroed the start-time in each window, and automatically generated a spectrogram and an F0 contour from the existing waveform. These three separate windows were aligned and printed, one page per token, and we compiled a book of data (totaling 364 pages). For each token below, we present the waveform and the spectrogram, accompanied by a broad phonetic label.

Collins' data was recorded directly onto a Micron TransPort\textsuperscript{TM} Trek, using SIL Speech Analysis Tools. This data was then transferred to the Sun SparcStation\textsuperscript{TM}, where a similar procedure was followed. Collins' data was used to illustrate aspiration, since Gruber's tokens lacked a preceding vowel. This vowel is one of the cues which distinguishes between aspiration and delayed aspiration, as discussed in sections 4.3 and 4.6.

The examples below were chosen in the following way. First, we did not use any tokens with pressed vowels, since these sometimes masked the phonetic characteristics of the accompaniment. Second, we tried to give at least one example of a dental click type with each accompaniment, in order to maintain some consistency throughout the examples. Third, for each accompaniment, we give one example of either a palatal or an alveolar click type (both of which are abrupt non-affricated clicks). The only exception to this is delayed aspiration, where there were no examples of a dental click in Collins' data.

We have left out the tone diacritics since tone is not relevant to the issues discussed in this paper.

3 Descriptions of the Click Accompaniments

In the remainder of the paper, we will examine each combination of click type and accompaniment, giving examples of waveforms and spectrograms and giving preliminary phonetic descriptions.
3.1 Voiceless Velar Plosive \[ [ k\text{I} \quad k! \quad k\text{+$}\quad k\text{II} \quad k\text{O} ] \]

In the production of the voiceless velar accompaniment, the posterior velar closure is released immediately after the anterior closure. The release of the velar closure is inaudible. In addition, it is not visible on either the spectrogram or waveform.

In this section, we give waveforms and spectrograms of all five click types. In the following sections, we will only present two click types with each accompaniment, since the focus of this article is on click accompaniments.

In the dental click (1) the noise crescendos towards maximum intensity, which is seen clearly on the spectrogram at 300ms. We will call this point of maximum intensity the click burst.

(1) klo “to finish”

The alveolar (2) and palatal (3) clicks involve an abrupt, non-affricated burst. The burst of these clicks can be seen at 250ms. Note that the click burst has a greater amplitude than the following vowel in the case of the alveolar click (2), whereas the click burst has a smaller amplitude than the vowel in the case of the palatal click (see (3)). This generalization appears to hold throughout the data (with a few exceptions).
(2) k!oe  "to err"

(3) k+a  "below"

The lateral click (4) is more affricated than either the palatal or the alveolar click, and shows a relatively longer release than the palatal and alveolar clicks.
Finally, the bilabial (5) resembles the dental click in having a long affricated release. It differs from the dental click in having a less intense burst.

The voiceless velar plosive accompaniment is also found in Jul’hoan, !Gui and !Xõõ.
3.2 Voiced Velar Plosive \[ \text{[ gl g! g⁺ gll gØ]} \]

In the production of the voiced velar accompaniment, there is a period of voicing before the click burst. In example (6), the voicing begins at approximately 125ms before the click burst (at 250ms). In (7), the voicing begins at 100ms before the onset of noise produced during the click release. In both examples, the voicing continues through the anterior release of the click, as seen in the voice bar in the spectrogram.

The voiced velar plosive accompaniment is also found in Jul'hoan, lGui, and lXóó.

(6) glï “snake”

(7) gla “to try”
3.3 Aspirated Velar Plosive  \[ \text{kl}h \quad \text{k}h \quad \text{k}h \quad \text{kl}h \quad (\text{kOh}) \]

The onset of aspiration with this accompaniment occurs immediately after the release of the posterior closure, and shows a relatively uniform intensity throughout its duration. This aspiration is audible low-intensity noise. The duration of the low-intensity noise is approximately 100ms in (8), 30ms in (9), and 70ms in (10).

Example (8) shows the token [k!ha] ‘to hunt’ with a preceding vowel [a]. Note the absence of a nasal preceding the click burst, a fact that contrasts with the delayed-aspiration click accompaniment discussed below in section 4.6.

The aspirated velar plosive accompaniment is also found in Jul’hoan, !Gui, and !Xóõ.

(8)  ma ?a k!ha  “I am hunting”
(9) ma kʰi “I am big”

(10) ma ?a klha kllaʔa “I am stuffing something”

3.4 Voiced Velar Nasal $[\eta\}$

Clicks with a voiced velar nasal accompaniment have a period of voicing preceding the anterior release. Perceptually, the nasalization continues through the release of the anterior closure, as clearly illustrated in (12), where the presence of the high frequency noise associated with the dental click overlaps with the nasal voicing. The
duration of the velar nasal preceding the click burst in (11) is approximately 150ms. The duration of the velar nasal preceding the onset of the click noise in (12) is 110ms. The nasalization continues through the click release at least another 30ms until the burst (the point of maximum intensity), which is located at 280ms.

There are three other click accompaniments that involve nasalization in some fashion: preglottalized velar nasal (section 4.5), delayed aspiration (section 4.6), and glottal stop (section 4.7).

The voiced velar nasal accompaniment is found in Jul’hoan, !Gii, and !Xóó.

(11) \( \eta \! a \) “bowl”

(12) \( \eta \! ob \! o \) “to speak”
3.5 Preglottalized Velar Nasal

[ ṭ̣ηl ṭηl ṭη'l ṭηḷ ]

The period of voicing preceding the click with preglottalized velar nasal accompaniments is much shorter than with voiced velar nasal accompaniments (section 4.4). In addition, there is a preceding glottal release that is apparent on the spectrogram, that can be seen by the sudden onset of the voicing and formants of the nasal. The glottal release occurs at 100ms in (13) and 125ms in (14). This glottal release is particularly audible when there is a preceding vowel. The duration of the velar nasal is approximately 50ms in (13), and 30ms in (14) (cf. (11) and (12)).

The preglottalized velar nasal accompaniment is also found in !Xôô, but not Jul'hoan and Gui.

(13) ṭη'loa "to dress"

<table>
<thead>
<tr>
<th>100ms</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
</tr>
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<tbody>
<tr>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
3.6 Delayed Aspiration \[ \eta \eta^! \eta^+ \eta^{llh} (\eta\Omega h) \]

The production of this click involves nasality and aspiration. In isolation, no preceding nasal is audible. However, in a frame sentence, when the previous word ends with a vowel, a voiced velar nasal vowel is clearly audible before the click. This is reflected in the narrow phonetic transcription provided in between the waveform and the spectrogram. The aspiration discussed in this section is different from the aspiration in section 4.3 in that the aspiration slowly increases in intensity after the release of the velar closure, and the release of the velar closure is inaudible.

The nasal in (15) is visible between 500 and 600ms and between 600ms and 700ms in (16). Note further that after the click burst, the aspiration noise starts at a comparatively low intensity (in example (15) at 650ms). The intensity of the noise increases throughout the aspiration. This contrasts with the uniform intensity of the aspiration in velar-audible aspirates (section 4.3).

Delayed aspiration is found in Jul’hoan, lGui, and !Xóö.
In the following examples, we illustrate delayed aspiration (17) and velar-audible aspiration (18) without a preceding vowel. Since there is no preceding vowel, there is no audible nasal preceding the click, as indicated in the transcription. Even without the preceding vowel, the two click accompaniments are easy to distinguish. In (17), the aspiration slowly builds after the click burst, whereas in (18), the aspiration starts immediately after the click burst.
(17) !ham “to close”

(18) !ha “to hunt”

Traill (1991:14) has shown that the production of this click in other Khoisan languages (such as Nama, Ju/'hoan and !Xôô) involves nasal venting. It is this nasal venting (of the pulmonic pressure) which makes the release of the velar closure inaudible. Traill states, “in the case of [ŋIh], involving inaudible release of the velar closure and ‘delayed aspiration,’ nasal flow commences during the vowel just preceding the closure for the click and is sustained beyond the release of the click.”

The delayed aspirated click in Hoan appears to be different from that in !Xôô in at least three ways: First, !Xôô lacks nasalization of the vowel preceding the click (see
Traill 1991:15). Second, the average VOT for !Xóō delayed aspiration is 196 which seems to be longer than the VOT in +Hoan (85 ms in example (17) and 100 ms in (18)). Third, in +Hoan, clicks with delayed aspiration pattern with clicks with a glottal accompaniment, in that both have a preceding voiced nasal. Whereas, in !Xóō, clicks with the glottal accompaniment [?] “never have an audible nasal flow” (Ladefoged and Traill 1984: 17).

These differences (at least the first two) are probably related to the fact that delayed aspiration in !Xóō involves nasally ingressive airflow, while +Hoan probably does not. Further experimental work is needed on +Hoan to confirm this hypothesis.

3.7 Glottal Stop


The release of the glottal stop follows the anterior release of the click, and is clearly indicated by the abrupt onset of the voice bar and formants of the vowel in the spectrogram. The release of the glottal closure is visible on the spectrogram at approximately 290ms in (19) and at approximately 210ms in (20).

The release of the glottal stop follows the click burst by approximately 140ms in (19), and by approximately 110ms in (20). Between the click burst and the glottal release, there is a period of comparative silence.

This click accompaniment is not an ejective. The other click accompaniments involving a glottal closure in +Hoan are the affricated uvular ejective (section 4.9) and the voiceless uvular ejective (section 4.10).

The glottal stop accompaniment is found in Jul’hoan, !Xóō and lGui.
If there is a preceding vowel, it is sometimes possible to hear a short voiced nasal preceding the click. This nasal can be seen between 700ms and 850ms in (21). This nasal is similar to that found in delayed aspiration (discussed in 4.6). In the absence of a preceding vowel, no such voiced nasal is audible. It remains to be investigated whether there are any phonetic indications of nasality even in the absence of a preceding vowel.

We note that a very similar conclusion is reached for lGui by Nakagawa (1995:57): "...slight nasality is occasionally audible when a click with this
accompaniment is preceded by a vowel, indicating that the velum is down. The nasality is not evident when pronounced in citation form.”

(21) ?am ?i ?a “my giraffe”

3.8 Voiceless Uvular Affricate \[ \{ k\dot{x}, k'\dot{x}, k+\dot{x}, k\dot{b}, k\dot{g} \} \]

The posterior closure of this click is released into a voiceless uvular fricative after the anterior release. Although we have no instrumental data bearing on the issue, we follow Nakagawa’s analysis of IGui in analyzing the fricative as a uvular rather than a velar fricative. In (22) below, the fricative lasts about 150ms, and in (23) the fricative lasts approximately 200ms.

Traill and Ladefoged (1994) analyze Jul’hoan and !Xôô as having a voiceless velar affricated accompaniment. Therefore, a click with fricative accompaniment (voiceless uvular or velar) is found in Jul’hoan, IGui, and !Xôô.
3.9 Affricated Uvular Ejective  

[ klχ’ kλχ’ k+χ’ kllχ’ kΩχ’ ]

Hoaan has two ejective click accompaniments: the affricated uvular ejective (this section) and voiceless uvular ejective (section 4.10). The ejected fricative lasts approximately 150ms in (24) and about 200ms in (25). Overall, the affricated uvular ejective and the voiceless uvular affricate (section 4.8) are very similar in their acoustic properties. Impressionistically, we have found them easy to confuse auditorily.
One difference between the two accommodations seems to be that the intensity of the fricative noise is greater just after the click burst with affricated uvular ejective (compare (24) with (22) and (25) with (23)).

Traill and Ladefoged (1994:61) analyze Jul’hoan and (dialects of) !Xóó as having a voiceless affricated velar ejective accompaniment. Therefore, a click with an affricated ejective accompaniment (voiceless uvular or velar) is found in Jul’hoan, lGui, and !Xóó.

(24)  k¡χ’ori  “dirt”

(25)  k¡χ’au  “black”
3.10 Voiceless Uvular Ejective \[ [q'\, q'\, q'\, q\ll\, (q@') ] \]

In the voiceless uvular ejective, the anterior release and the posterior ejected uvular [q'] release are separate auditory events. This is seen in the waveform, where the burst of the anterior release is followed by a second burst of the uvular ejective [q']. This second burst can be seen on the waveforms of (26) and (27) at approximately 10-20ms after the click burst.

After the release of the uvular ejective, the glottal closure is maintained for approximately 150ms in (26) and approximately 130ms in (27). The period during which the glottis is closed is relatively silent (as with the glottal stop accompaniment in 4.7). The glottal closure is released into the following vowel with a hard onset, which is audible. This onset can be seen on the spectrogram of (26) at approximately 220ms and on the spectrogram of (27) at approximately 190ms.

The voiceless uvular ejective accompaniment is found in lGui, but not in Jul'hoan and !Xôô (Ladefoged and Traill 1994:61). The issue is complicated by the presence in !Xôô of the voiceless velar ejective followed by a uvular ejective [k!’q’]. Ladefoged and Traill claim that [k!’x’] and [gk!’x’] in Jul’hoan are comparable with [k!’q’] and [g!’q’] in !Xôô “in the sense that the Zhulhôasi forms occur in !Xôô as dialectal variants...”

(26) q’i “blood

[Image of waveforms and spectrograms]
3.11 Voiceless Uvular Plosive

The difference between the uvulars and their velar counterparts is not only in the location of the posterior release but also in its timing (see section 4.1 on the voiceless velar plosive). The posterior velar release occurs immediately after the anterior release, and therefore is not perceptually separable. With the voiceless uvular accompaniment, the click burst is followed by an audible uvular release. This uvular release can be seen at 180ms in (28), and at 290ms in (29).

The voiceless uvular plosive accompaniment can be found in lGui, and !Xóó, but not Jul'hoan.
3.12 Voiced Uvular Plosive \[ [\text{gl} \quad \text{(g!)} \quad \text{g\#} \quad \text{gll} \quad \text{(gO)} ] \]

This click accompaniment is analyzed by Gruber as a prenasalized voiced velar accompaniment. While this may be plausible for some of his examples, others have an audible uvular release. As noted by Ladefoged and Traill (1994:52): “Perhaps because it is difficult to sustain voicing throughout a uvular stop, voiced clicks of the form [g!] are often prenasalized...”
The uvular release can be seen on the waveform at 200ms in (30), at 220ms in (31), and at 280ms in (32). This click release needs further investigation in +Hoan.

The voiced uvular accompaniment can be found in !X6ő and !Gui. Jul’hoan does not have the voiced uvular accompaniment, since it does not have uvular accompaniments.

(30) glai-si “maiden”

(31) gloi “to ridicule”
3.13 Aspirated Uvular Plosive \[ qlh \ (q\!h) \ q^{\cdot}h \ qllh \ (q\!Oh) \]  

As with the uvular accompaniment, there is an audible uvular release that occurs after the click burst. The uvular release can be seen at approximately 310ms in (33), and just before 200ms in (34). It occurs approximately 30ms after the click burst in (33), and approximately 30ms after the click burst in (34).

The onset of aspiration occurs immediately after the release of the uvular closure, and shows a relatively uniform intensity throughout its duration (see section 4.3). This aspiration is audible low-intensity noise. The duration of the aspiration in (33) is approximately 60ms, and approximately 50ms in (34).

The only examples that Gruber gives where the uvular release is clearly audible are with palatal and lateral clicks. We have included the example 'hoan in (35) which Gruber claims is a variant of q\{hoan\} which has an aspirated uvular release.

The voiceless aspirated uvular plosive accompaniment can be found in lGui, but not in !Xôô nor Jul'hoan. The nearest equivalent in !Xôô seems to be [G\!h], where the uvular accompaniment is voiced.
(33) q¡ha  “women”

(34) q¡hu¡  “grass”

(35) h¡hoan  “a Hoan person, or the Hoan language” (variant of q¡hoan)
4 Conclusions

In this paper we have given a preliminary phonetic description of the various click accompaniments found in +Hoan. Along the way, we have pointed out various ways in which the click accompaniments of +Hoan are related to the click accompaniments found in other Khoisan languages. First, +Hoan patterns with !Xóô (southern) in having a bilabial click (which is absent in Jul’hoan and lGui). Second, +Hoan patterns like !Xóô (southern) and lGui (central) in having uvular accompaniments (absent in Jul’hoan). Third, while many Khoisan languages have delayed aspiration, the delayed aspiration in +Hoan seems unlike that found in !Xóô and more like that found in lGui and Jul’hoan. Fourth, +Hoan possesses preglottalized velar nasals [ŋ] unlike Jul’hoan and lGui, but like !Xóô.

Based on these phonetic data, it appears that +Hoan is typologically most closely related to !Xóô. However, there are also systematic similarities between +Hoan and lGui. For example, in both +Hoan and lGui the aspirated uvular plosive is voiceless. Perhaps these similarities to lGui are due to the geographical proximity of the two languages.

These differences and others are summarized in the chart below:
(36) Typology of Clicks in Some Khoisan Languages

<table>
<thead>
<tr>
<th>Feature</th>
<th>#Hoan</th>
<th>!Xôô</th>
<th>Jul’hoan</th>
<th>lGui</th>
</tr>
</thead>
<tbody>
<tr>
<td>clicks</td>
<td>$! ! \dag \dag \bigcirc$</td>
<td>$! ! \dag \dag \bigcirc$</td>
<td>$! ! \dag \dag \bigcirc$</td>
<td>$! ! \dag \dag \bigcirc$</td>
</tr>
<tr>
<td>voiceless velar</td>
<td>k$^+$</td>
<td>k$^+$</td>
<td>k$^+$</td>
<td>k$^+$</td>
</tr>
<tr>
<td>voiced velar</td>
<td>g$^+$</td>
<td>g$^+$</td>
<td>g$^+$</td>
<td>g$^+$</td>
</tr>
<tr>
<td>aspirated velar</td>
<td>k$^+$h</td>
<td>k$^+$h</td>
<td>k$^+$h</td>
<td>k$^+$h</td>
</tr>
<tr>
<td>voiced velar nasal</td>
<td>$\eta^+$</td>
<td>$\eta^+$</td>
<td>$\eta^+$</td>
<td>$\eta^+$</td>
</tr>
<tr>
<td>preglottalized velar nasal</td>
<td>$?\eta^+$</td>
<td>$?\eta^+$</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>delayed aspiration</td>
<td>$\eta^+$h</td>
<td>$\eta^+$h (ingressive)</td>
<td>$\eta^+$h</td>
<td>$\eta^+$h</td>
</tr>
<tr>
<td>glottal stop</td>
<td>$\dot{\eta}?$</td>
<td>$\dot{\eta}?$</td>
<td>$\dot{\eta}?$</td>
<td>$\dot{\eta}?$</td>
</tr>
<tr>
<td>voiceless uvular affricate</td>
<td>q$^+$χ</td>
<td>k$^+$x (velar)</td>
<td>k$^+$x (velar)</td>
<td>q$^+$χ</td>
</tr>
<tr>
<td>affricated uvular ejective</td>
<td>q$^+$χ'</td>
<td>k$^+$'q' (k$^+$x' dialectal)</td>
<td>k$^+$'q'</td>
<td>q$^+$χ'</td>
</tr>
<tr>
<td>voiceless uvular ejective</td>
<td>q$^+$'</td>
<td>*</td>
<td>*</td>
<td>q$^+$'</td>
</tr>
<tr>
<td>voiceless uvular</td>
<td>q$^+$</td>
<td>q$^+$</td>
<td>*</td>
<td>q$^+$</td>
</tr>
<tr>
<td>voiced uvular</td>
<td>g$^+$</td>
<td>g$^+$</td>
<td>*</td>
<td>g$^+$</td>
</tr>
<tr>
<td>aspirated uvular plosive</td>
<td>q$^+$h</td>
<td>g$^+$h</td>
<td>*</td>
<td>q$^+$h</td>
</tr>
</tbody>
</table>

Table 2. Typology of Click Accompaniments in Khoisan.

References


Acknowledgments:

We would like to thank Eric Evans for valuable help in writing Perl scripts. Bonnie Sands, Amanda Miller-Ockhuizen and Abby Cohn gave us comments on a talk presented at Cornell (Sept. 2000). Eunyong Kang read over a version of the paper and gave us valuable comments. Jeff Gruber graciously made available all of his recordings and unpublished fieldnotes. Tony Traill and Hirosi Nakagawa have discussed the clicks in *Hoan with Chris Collins on several occasions. We would like to thank Titi Matshabanega, Leha Rasello and Bistol for their help in that project.

The research on *Hoan was done during the academic year 1996-1997 (Fulbright) and during July and August of 1999 (NSF). The material in this paper is based upon work supported by the National Science Foundation under Grant No. SBR-9808256. A grant from The Society for the Humanities, Cornell University, made it possible copy Gruber’s materials.
Origins of negative concord in Afrikaans

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Although the repetition of a negative in some form or another is a widespread phenomenon which occurs in many languages, especially popular ones, the origin of the double 'nie' in Afrikaans is a difficulty which up to now linguists have approached with great respect. (Le Roux 1923, 168)

Unlike borrowing, interference through imperfect learning does not begin with vocabulary: it begins instead with sounds and syntax . . . (Thomason and Kaufman 1988:39)

0 Introduction

Afrikaans\(^1\) has its origins in the early years of the Cape Colony established by the Dutch East Indies company (VOC) near Table Bay, on the western cape of southern Africa. It draws its lexicon almost exclusively from Dutch, with some loanwords from English, Bantu, Khoisan, and other contact languages.\(^2\) Structurally, however, Afrikaans appears to diverge significantly from Dutch. These structural differences, and the social context in which Afrikaans arose, form the empirical basis for the argument that Afrikaans is not, in fact, as closely related to Dutch as a surface examination of the lexicon may suggest. In fact, there is a large body of literature, dating back at least as far

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\(^1\) spoken today by nearly seven million people in South Africa, Namibia, and Botswana. Source: [http://www.sil.org/ethnologue/countries/Sout.html#AFK](http://www.sil.org/ethnologue/countries/Sout.html#AFK)

\(^2\) In this paper I adopt the framework for language contact and borrowing proposed in Harris and Campbell (1995). They define language contact generally as "a situation in which the speakers of one language are familiar in some way with another. [. . .] contact itself is not change." (p. 51)
as Hesseling (1899), that proposes some type of creole\(^3\) origin for Afrikaans – that is to say, broadly, an origin in which contact and borrowing\(^4\) influenced the syntax of the language.

If this genesis scenario for Afrikaans has any validity, there should exist structures in Afrikaans that are not consistent with structures in Standard Dutch or Germanic dialects, yet are consistent with structures from a known contact language. Furthermore, as Thomason and Kaufman (1988) (henceforth T&K) point out, it must be shown that the speakers of the contact language in question were present in sufficient numbers to induce the change.

In this paper, I investigate the emergence of one such “non-Dutch” feature in Afrikaans: negative concord (henceforth NC) of the pre-verbal negator (a negative adverb or negative quantifier) with a post-verbal negative particle. While NC is not a feature of Standard Dutch, certain West Flemish dialects show examples of NC (Haegeman 1995, 2000). Negative concord is also found in several of the Central Khoisan languages that are or were spoken around the Cape. Interestingly, the NC pattern in these languages also shows a post-verbal negative particle (Khoisan Syntax Homepage). Through a thorough examination of syntactic and sociolinguistic data, I provide a unified account which shows NC in Afrikaans to be a contact-induced borrowing from Khoisan.

The paper is organized as follows: in section 1.1, I present and briefly discuss relevant historical information; especially relating to the Khoisan peoples inhabiting the Cape. In section 1.2, I review the main theories on the genesis of Afrikaans. In section

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\(^3\) DeGraff (1999, 2000) shows convincingly (contra McWhorter 1998) the problematic nature of a purely structural definition of the ‘typological class’ Creole. I adopt DeGraff’s model of creolization, which essentially takes creoles to be definable as a class only by virtue of the social context in which they arise. In this model there are no “core” structural creole features, nor is there a direct link to a specific substrate grammar, or innate bioprogram (or UG). Instead, the Primary Linguistic Data (PLD) of the first creole “learners” set parameters in the mind/brain of the speaker – through ‘normal’ processes of L1A and L2A – in the ‘abnormal’ social conditions under which creoles were formed.

\(^4\) Borrowing is a mechanism of change in which a replication of the syntactic pattern is incorporated into the borrowing language through the influence of a host pattern found in a contact language (H&C 1995:51)
1.3, I provide a sample of the Afrikaans features that differ from Dutch, and are shown in the literature to be possible cases of borrowing, transfer, creolization, etc. Finally, in section 1.4, I give the model of Afrikaans genesis assumed in this paper, which is based on Den Besten's (1989) "convergence model."

In section 2, I briefly introduce some notions on negation and negative concord, with special attention given to French and the analysis in Pollock (1989). In section 3, I present the data on NC in Afrikaans, and give a basic structural analysis in the Principles and Parameters framework. In section 4, I outline the syntactic and socio-historic arguments for the possible origins of this structure. In addition, I present newly-analyzed corpus data from !Korana speakers of Afrikaans. In section 5, I present a transfer scenario that shows how and when NC entered into Afrikaans from Khoisan. In section 6, I discuss the import of my conclusions to theories of Afrikaans genesis.

1 Afrikaans: genesis theories and social background

1.1 History of the Cape Colony from 1590

The first Dutch trading frontier was maintained as early as 1590 at Table Bay. The Dutch had profitable trade relations with the Cape Khoikhoi\(^5\) from the outset, exchanging tobacco, beads and copper for beef and mutton. As Elphick (1989:12) says, "trade with Khoikhoi was a major concern for the early Dutch commanders." In 1652 the VOC established a trading post at Table Bay. Although the colony was small and slow-growing compared to Caribbean or West/Central African colonies\(^6\), trade was vigorous and the Khoikhoi became more and more dependent on the new economy brought by the Dutch.

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\(^5\) Formerly "Hottentots," these are the speakers of Central Khoisan languages such as Khoekhoe (Nama) and !Korana which will be the subject of further investigation below.

"By the mid-1690s some Khoikhoi were in permanent employment and lived with their families and livestock on the farmers’ land, but in their own huts. In the early eighteenth century, if not before, servants were given space in one of the masters’ main buildings." (Elphick 1989:17)

With increased dependence came increased proximity and greater contact. Considering the ratio of Khoikhoi peoples to Cape Dutch settlers in the early years of the colony (roughly 50:1), there was indeed ample chance for contact. Despite the several wars fought between the two, historians such as Elphick are quick to point out the willing part that the Khoikhoi played in their affiliation with the Dutch, and their continued status as "non-slaves" in the Cape Colony. Nonetheless, by 1790, as Elphick’s chapter heading clearly states, “Khoisan subservience [was] mitigated and confirmed” (35). In 1793 the first European missionaries arrived, and in 1795, with the British invasion of the Cape, the reign of the VOC came to an end.

1.2 Theories of genesis

As I mention above, there is a rich literature — diverse in theoretical approaches — on the genesis of Afrikaans. The four main theories are as follows:

(1) Afrikaans is a variety of Dutch7 (Smith 1955, Kempen 1962, Raidt 1994)

(2) Afrikaans is a semi-creole8 (T&K 1988)

(3) Afrikaans resulted from convergence of a Creole with acrolectal Cape Dutch (Den Besten 1989, Zimmer 1992, Da Kleine 1997)

(4) Afrikaans is a creole (Hessling 1899, Valkhoff 1966)9.

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7 Raidt is one of the ‘philological school’ (Valkhoff 1966) or ‘diachronic purists’ (Roberge 1995) who follow a Stammbaum model of Afrikaans genesis, in which internal change and dialect leveling play major roles. To my knowledge, Raidt has published only in Afrikaans. I know her work from the literature that cites and discusses it.

8 In T&K’s terms, Afrikaans resulted from both internally-motivated changes and contact with Khoisan and Malay-Portuguese: "Afrikaans is historically a descendant of Dutch [...] because it preserves a significant portion of Dutch structures in all its grammatical subsystems. [...] But its development into a separate language was in fact heavily conditioned by nonwhites who learned Dutch imperfectly as a second language." (T & K p. 256) Den Besten’s model (see below), proposes a convergence of Cape Dutch and a creolized form of Dutch, resulting in modern Afrikaans.
Much of the early linguistic work on Afrikaans adheres closely to the theory in (1). The *Stammbaum* (family tree) model is clearly illustrated in this passage from the introduction to G. Kempen’s (1962) *Grammar of Afrikaans*:

This volume proves that Afrikaaners have remained infinitely more Dutch than people have realized hitherto. Afrikaans is not different [from Dutch]; it is the same language. (G. Kempen, 1962, cited in Valkhoff, p. 193)

Such *diachronic purists* (Valkhoff’s term) espouse the view that Afrikaans is a dialect of Dutch. A monogenetic model of this nature is forced to assume that any divergences from Dutch arose exclusively through internally-motivated changes or contact with other Dutch or West Flemish dialects. Work on language contact and creolization is by necessity ignored in this framework, a fact which is not lost on Valkhoff (1966), who supports a contrary view:

Now this question of similarity or difference between Dutch and Afrikaans is a matter of the highest importance. If the two are more or less the same language, everything becomes easy: one need not look for special social conditions to explain the rise of Afrikaans, and it is unnecessary to adduce linguistic explanations from outside the field of Dutch and Flemish. If, however, as I would suggest, Afrikaans and Dutch have become two totally different languages, one has to account for the birth of the “Daughter language” [...] and for its separate development. In that case, one is compelled to take into consideration the influence, first of foreign languages at the Cape – even those spoken by Non-Whites – and, later on, of English. (Valkhoff 1966, p.194-195)

When reading the seemingly innocuous comments above, it is important to recall the year of their publication. In 1966, the vast majority of linguists and creolists viewed creoles as morphologically impoverished, derivationally simplex, imperfect or sub-

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9 Valkhoff (1966) suggests a relexification hypothesis for which the substrate (i.e. source of grammar) is a Malay-Portuguese creole purportedly widely-spoken on the Cape. See Lefebvre (1998) for more on the relexification hypothesis and creolization.
standard varieties of their lexifiers.\textsuperscript{10} The pervasiveness of this orthodoxy, which is only today being slowly dismantled (DeGraff 2001), made statements such as Valkhoff's quite inflammatory at the time; especially since Afrikaans was spoken natively by the colonizer (not, as with most creoles, by the colonized).

These considerations aside, T&K rightly point out that socio-historical factors in the early development of Afrikaans make it an unlikely candidate for status as a radical creole, in the sense of Bickerton (1981). From the first years of Dutch presence on the Cape, there has always existed a socially stable core of Cape Dutch speakers. There was not a sufficient measure of social instability in the linguistic community to result in significant changes in the Primary Linguistic Data (PLD) of Cape Dutch children – changes that lead to rapid and significant changes in the language these children acquire, as exemplified in many creole languages. Again in Bickerton’s terms, there was no “radical break” in transmission from one generation to the next that could have led to the birth of a radical creole.

In effect, there is little doubt that the PLD encountered by Cape Dutch children resembled the PLD encountered by Dutch children in most ways, as evidenced by the similarities between modern Dutch and Afrikaans. Still, unless one is willing to side with the diachronic purists in claiming that Afrikaans is Dutch, it is essential to explain the features found in Afrikaans that: (a) do not reflect features in the lexifier (Dutch), and (b) cannot have reasonably occurred through internal change. After all, paraphrasing Valkhoff (1966), this “socially stable” core of Dutch speakers no longer speak Dutch, they speak Afrikaans.

Putting aside the “socially stable core” of Cape Dutch speakers, similarities abound between the social conditions of creolization and those of Afrikaans genesis. We

know, for example, that from the outset of Dutch colonization of the Cape there existed a large percentage of speakers of mixed blood, the children of the first Dutch settlers and their slaves or servants (Zimmer 1992). The writings of a Dutch traveler in the 18th century further confirm that these slaves and servants were the primary care givers, raising Dutch children and teaching them, as the same traveler states, "from the outset a very pitiful Dutch." (T&K 1988:257) There are numerous commentaries of this nature from early travelers, including the following from 1685, taken from the journal of the Baron H.A. van Rheede, then Commissioner-General of the VOC:

There is a custom among all our people that when these natives [i.e. the Hottentots] learn the Dutch language, and speak [then] in their manner very badly and hardly intelligibly, our people imitate them in this, so that as the children of us Dutchmen follow them there, a broken language is founded which it will be impossible to overcome later on, still less to introduce the Dutch language among the Hottentots, although they are not lacking in ability. . . (cited in Elphick 1989:208)

Such early writings provide at least anecdotal evidence of what some would call pidginization of Dutch (followed by creolization). Alternatively, this could be described as imperfect learning of Dutch (T&K 1988), or simply as contact-induced change taking place through L2A of Dutch, and subsequent L1A by children of the first speakers of the altered/pidginized/creolized Dutch. Whichever model one adopts, it must account for the structural differences apparent in Afrikaans vis-à-vis Dutch; differences that I enumerate in the following section.

1.3 Non-Dutch features of Afrikaans

As the theories in (2-4) above suggest, Afrikaans exhibits certain structural features which, arguably, cannot be traced to Dutch influence. These features include, but are not limited to: (i) the periphrastic progressive (T&K 1988); (ii) reductions in verb

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11 These social factors account in part for the "multiple causation" model proposed by Zimmer (1992).
morphology, and changes in VP structure (Da Kleine 1997); (iii) the object marker vir (DenBesten 1989); (iv) reduplication, (Valkhoff 1966, T&K 1988); (v) changes in the pronominal paradigm (Valkhoff 1966, T&K 1988); and negative concord (Valkhoff 1966, Den Besten 1985, 1989). Below I give examples of two of the above.

i. Periphrastic progressive constructions:

(5) ek was aan die skryf  
I was on the write  
'I was writing'  
(T & K 1988:254)

Periphrastics such as that seen in (5) are an innovation in Afrikaans. However, it is unclear from the brief discussion in T&K whether periphrastic progressives can be used with any verb, or whether they have limited distribution or an idiomatic status (similar to English ‘on the go’, ‘on the job’, etc).

ii. Simplification of verbal morphology

<table>
<thead>
<tr>
<th>Afrikaans</th>
<th>Dutch</th>
<th>Guinea-Bissau</th>
<th>Portuguese</th>
<th>Haitian</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg skryf</td>
<td>schrijf</td>
<td>skirbi</td>
<td>escrevo</td>
<td>ekri</td>
<td>écris</td>
</tr>
<tr>
<td>2sg skryf</td>
<td>schrijft</td>
<td>skirbi</td>
<td>escreves</td>
<td>ekri</td>
<td>écris</td>
</tr>
<tr>
<td>3sg skryf</td>
<td>schrijft</td>
<td>skirbi</td>
<td>escreve</td>
<td>ekri</td>
<td>écrit</td>
</tr>
<tr>
<td>1pl skryf</td>
<td>schrijven</td>
<td>skirbi</td>
<td>escrevemos</td>
<td>ekri</td>
<td>écrivons</td>
</tr>
<tr>
<td>2pl skryf</td>
<td>schrijft</td>
<td>skirbi</td>
<td>escrevem</td>
<td>ekri</td>
<td>écrivez</td>
</tr>
<tr>
<td>3pl skryf</td>
<td>schrijven</td>
<td>skirbi</td>
<td>escrevem</td>
<td>ekri</td>
<td>écrivent</td>
</tr>
</tbody>
</table>

*Table 1. Verbal morphology in Afrikaans, Dutch, and other creoles and their lexifiers.*

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12 “Simple morphology” is one of the proposed ‘cluster of traits’ which McWhorter (1998) argues can synchronically define Creoles as a distinct typological class of languages. For another perspective, see DeGraff (2001).

13 It is worth noting that these languages have different behaviors vis-à-vis pro-drop – a fact that, arguably, impacts their relative richness of inflection (i.e. non-pro-drop languages are just as richly inflected when one takes subject pronouns into account). Portuguese is the only language in Table 1 that consistently allows null subject pronouns. Note that both GBC and Haitian normally require subject pronouns, though see DeGraff 1992 for another perspective on Haitian. Afrikaans, like Dutch, has obligatorily-overt subjects.
At first glance there appears to be a close parallel between Afrikaans verbal morphology vis-à-vis Dutch, and the creole/romance data in Table 1. However, while Afrikaans does maintain morphological verbal inflection in other tenses (i.e. past), the creoles in question use post- or pre-verbal particles to denote past. This appears to be further evidence for the semi-creole classification given in T&K. Under this view, Afrikaans moved a certain distance along a hypothetical ‘creole continuum’ toward becoming a ‘fully-developed’ creole, but remains less ‘creole’ than Haitian or Guinea-Bissau Creole due in large part to the above-mentioned ‘socially-stable core’ of Cape Dutch speakers.

1.3 A model for Afrikaans genesis

One theory of Creole genesis (Bickerton 1981, McWhorter 1998) holds that many Creoles (especially radical creoles such as Haitian) developed over a very short period of time (i.e. one generation); the result of a “radical break in transmission.” In the case of Afrikaans, this position is eschewed in favor of a slower developmental model. Part of the evidence for this comes from sociolinguistic data on dialect variation within Afrikaans; data that I discuss below. However, to conclude this section, I present in Table 2 a model of Afrikaans genesis, adapted from Den Besten’s (1989) “convergence model.” This flow chart shows a bi-stratal process of development. In this view, a Dutch Pidgin was (quickly) creolized and developed in relative isolation from the acrolectal Dutch (Cape Dutch). These two separate languages evolved somewhat separately from each other (again as shown in the sociolinguistic data discussed below) for over one hundred years. They were in contact with each other, but were spoken by very different social groups. At some point in the early 19th century the two merged. This merger is documented in several Afrikaans texts from this period, which show a rapid emergence of certain (creole-like) features in Afrikaans that were not present in
Dutch or the Cape Dutch of the 17th and 18th centuries. I discuss these documents in some detail in section 5.

Table 2 (adapted from den Besten 1989, 226)

Note the absence of negative concord (NC) in Dutch, and for that matter in early Cape Dutch. And, as I indicate at the end of the model, the obligatory presence of NC in both dialects and the standard form of Afrikaans by the early part of this century. In the next section, I turn to a more detailed description of NC, and its syntactic realization in Afrikaans.

2 Negation and negative concord

Zanuttini (2000) outlines the four main negation strategies found in the worlds’ languages: (i) a negative marker which has the characteristics of a verb (Polynesian); (ii) a negative marker which has the properties of a finite auxiliary (Siberian); (iii) a negative marker which appears in the form of a particle, adverb, quantifier, etc (Russian, Hungarian, English); (iv) a negative marker that is part of the derivational morphology (Turkish). In this paper, we are concerned with (iii), and in fact with a subset of the languages found in (iii) in which “pre-verbal negative particles are [...] ‘reinforced’ [...] by a post-verbal negative particle” (Zanuttini 2000, 513). When one negative particle (or word) “reinforces” another without giving a ‘double-negative’ reading, it is known as negative concord.
One canonical case of negative concord is Standard French.

(6)  
a. Marie ne mange pas de gateau  
  M. NEG-eat not PREP cake  
  “Mary doesn’t eat cake”  
  
b. Marie ne mange jamais de gateau.  
  “Mary never eats cake”

(7)  
a. Marie n’a rien mangé.  
  M. NEG-has nothing eaten  
  “Mary didn’t eat anything”  
  
b. Rien n’a été mangé.  
  nothing NEG-has been eaten  
  “Nothing was eaten”

As seen in (6) and (7), Standard (formal or written) French requires the presence of at least two negative markers, one which precedes (ne) and one which follows (pas) the verb. Pollock (1989) proposes the following structure for negation in French.

(6a'') French:  
\[\text{NegP} \rightharpoonup \text{Spec} \rightarrow \text{Neg'} \downarrow \text{pas} \rightharpoonup \text{Neg} \downarrow \text{ne}\]

(6a'') IP:  
\[\text{NP} \rightharpoonup \text{I'} \downarrow \text{Marie} \rightharpoonup \text{Infl} \rightarrow \text{NegP} \downarrow \text{ne-mange} \rightharpoonup \text{Spec} \rightarrow \text{Neg'} \downarrow \text{pas} \rightharpoonup \text{Neg} \downarrow \text{VP} \downarrow \text{t} \downarrow \text{V} \rightharpoonup \text{NP} \downarrow \text{t} \downarrow \text{de gateau}\]

Negative words in French form a single constituent, whose maximal projection is NegP. The lexical category, pas in the above examples, is in the specifier position of NegP, while the functional category, ne, is the head of NegP. The underlying Spec-head relation (6a’) is a structural correlate to the single negative reading of bipartite negation in French. At surface structure (6a’’), ne has cliticized to the verb and moved
(obligatorily in French) with the verb to InfI (Pollock 1989). As I show below, Afrikaans shows a strikingly similar pattern of negative concord.

3 Negation in Afrikaans

As mentioned above, Afrikaans uses bipartite negation as the obligatory negation strategy in almost all clause types. The main data on Afrikaans negative concord are given in (8-12) below.

3.1 The data

(8) Sy sluit nooit die deur nie (Afrikaans)
she locks never the door nie
‘She never locks the door’

(9) Jan beweer dat hy niks onthou nie
John claims that he nothing remembers nie
‘John claims that he doesn’t remember anything’

(10) Nêrens voel sy veilig nie
nowhere feels she safe nie
‘Nowhere does she feel safe’

(11) Wie het nie opgedaag nie?
who has not arrived nie
‘Who hasn’t arrived?’

(12) Moenie dit doen nie!
must-not it do nie
‘Don’t do it!’ (Oosthuizen 1998:61-62)14

14 Oosthuizen (1998) presents a detailed syntactic analysis of negation in Afrikaans in the Minimalist framework. He discusses several important facts, such as the iteration of nie and occurrence of nie without a corresponding lexical Neg-word, which are not directly relevant here.
As illustrated above, double negation in Afrikaans occurs across clause types: in simple declaratives (8), embedded clauses (9), topicalization structures (10), Wh-questions (11) and imperatives (12). In addition, as shown in (13), the Negative words (N-words) occurring higher in the clause can be iterated, as in French.

(13) Maar nou’s daar vandag **niks** soft serve vir **niemand nie**.
    but now-is there today no ice cream for nobody **nie**
    ‘But today there is no ice-cream for anybody.’ (Robbers, 37)

The above example serves to illustrate that multiple N-words in a single clause, be they sentential adverbs (**nooit**, ‘never’) or negative quantifiers (**niemand** ‘no one’) license only one phrase-final **nie**. Such clauses maintain their ‘single negative’ reading in Afrikaans through negative concord.

### 3.2 Optionality of **nie**

The distribution and optionality of **nie** is not well-documented in the literature, and there appear to be varying opinions, possibly reflecting different dialects or registers. According to Donaldson (2000), Standard Afrikaans has obligatory double-negation in all but the following contexts:

(i) Intransitive clauses

(14) Ek weet **nie**
    I know **nie**
    ‘I don’t know’

(15) Hy bid nooit (**nie**).
    He prays never (**nie**)
    ‘He never prays’
(ii) **With pronominal objects**

(16) Ek ken hom nie.\textsuperscript{15}

I know him nie.

‘I don’t know him’ \hspace{1cm} (Donaldson 2000:69)

Note that the *nie* in (14) is most likely of the same category as the first *nie* in (11) above, and *nooit* in (15). This can be illustrated by the optionality of phrase-final *nie* in (15), suggesting that in these contexts where bipartite negation is not obligatory, it is the higher negator in the clause that remains. Also, note that Afrikaans exhibits verb-second in the above. I now move to a discussion of the categorial status of N-words in Afrikaans.

### 3.3 Categorial status of N-words in Afrikaans

N-words in Afrikaans belong to two distinct syntactic categories. Both sentential adverbs (*nie* ‘not’, *nooit* ‘never’, etc) and negative quantifiers (*niks*, ‘nothing’ *nèrens* ‘nowhere’) – which always occur in a position above VP -- belong to substantive (or lexical) categories (cf. French *pas* ‘not’, *jamais* ‘never’). As pointed out in Den Besten (1989), the semantic focus of negation lies within these lexical N-words, and their omission normally results in a change of meaning or ungrammaticality. We can further establish that these N-words belong to a substantive category by showing that they can be modified by adverbs, as in (17) below.

(17) Jan sê dat he **absoluut niks** onthou nie

John says that he **absolutely nothing** remembers nie

‘John says that he remembers absolutely nothing’ \hspace{1cm} (Oosthuizen 1998:71)

The phrase-final particle *nie*, on the other hand, is a functional category. Its form is invariant (cf. French *ne*), and it cannot be modified by adverbs, as shown in as in (18).
(18)  *Jan sê dat he niks onthou absolut nie
       John says that he nothing remembers absolutely nie

Finally, the omission of the second nie has no impact on the meaning of, for example, (15) above. The omission of nooit (never) would however change the meaning of this sentence. A tenuous analogy can again be drawn to French, where the functional negator ne is optional (in the spoken dialect)

3.4 Syntactic structure of negation in Afrikaans

Following Oosthuizen's (1998) analysis of nie as a functional item, a natural assumption would be that nie is the functional head of some projection. N-words in Germanic are shown to be in the specifier position of a Neg-phrase in Haegeman (1991, 1995, 2000). Even in Oosthuizen's analysis, in which nie is taken to be the specifier of a Pol(arity) projection, the lexical N-words are in Spec-NegP. Given the correlation between NC in French and Afrikaans, I adopt the analysis for French in Pollock (1989). Under this analysis, phrase final nie would be the head of NegP, while lexical N-words would reside in the Spec position. Adopting such an analysis allows us to maintain the Spec-head relation between N-words and nie, essential in licensing the single negative meaning of a double-negative (NC) construction such as that found in Afrikaans or French. Thus (19a) has the underlying and surface structures given in (19b) and (19c).

(19a)  Sy sluit nooit die deur nie (=8) (Afrikaans)
       she locks never the door nie
       ‘She never locks the door’

15 Paul Washburn (p.c.) suggests that the (possible) existence of clitic pronominal objects in Afrikaans would mean (16) and (14) are actually identical in terms of underlying phrase structure.
Underlying structure (19b) shows the verb inside VP. The verb moves to Infl at surface structure to satisfy Verb-second in Afrikaans. Correct word order for the phrase-final negative particle *nie* is derived using a left-branching Neg'. Such left-branching is a standard assumption for head-final languages, and similar to analyses of, for example, left-branching C in Japanese which allow the question-particle *ka* to appear phrase-finally.\(^{16}\) Left-branching, as noted by Haegeman (1995:300), is problematic in general for the "strictly head-initial approach to Germanic syntax." Of course, within the framework of this paper, we fully expect Afrikaans to exhibit features that are not consistent with Germanic syntax, due to the (semi-)creole status of Afrikaans. In addition to the existence of NC in Afrikaans, the above analysis reveals another divergence of Afrikaans from Dutch – the presence of a head-final functional negator.

\(^{16}\) Oosthuizen (1998) raises several problems with a head-final, or left-branching, analysis of Afrikaans, not the least of which is the general prohibition on non-right-branching structures in the Minimalist Program. Such left-branching structures are allowed in earlier versions of the theory.
3.5 Conclusions from section 3

(i) Final *nie* is a functional head of NegP
(ii) Lexical N-words in Afrikaans are in Spec-NegP
(iii) Afrikaans exhibits two distinct areas of divergence from Dutch vis-à-vis negation: the presence of NC and the position (and overt realization) of the head of NegP

4 Origins of negative concord in Afrikaans

As I state above, I argue in this paper that the development of NC in Afrikaans is not an internally-motivated change. This assumption is partially based on the strength of the data I discuss below. Another central motivation for this assumption is the speed with which NC entered into Standard Afrikaans (see Table 2 above). In this section, I discuss several possible origins for NC in Afrikaans.

4.1. Germanic tag questions

Germanic in general makes use of tag question particles, similar to French *n’est-ce pas* or English *right*. An example is given in (20).

(20) Hij zei toch dat hij *niet* wilde komen, *niet*? (Dutch)
He said MOD that he not wanted come, not
“He said he didn’t want to come, didn’t he?”

On the surface this construction is similar to NC in Afrikaans: a pre-VP lexical N-word (*niks*) is reinforced by a phrase-final negator *niet*. However, this is an unlikely source for double negation in Afrikaans for several reasons. First, it is clear that a tag has a unique discourse function that is wholly unlike a functional head. This is evidenced in, for example, stress and intonation patterns on tags, which normally distance them from the clause. Secondly, one would have to posit a reanalysis of the tag *niet* from Dutch to Afrikaans, and also posit a further process of extension (Harris and Campbell 1995) to all
negative constructions. Given the time frame for the development of Afrikaans, as seen in Table 2 above, this analysis appears implausible. Such internal processes normally occur more on the time-scale of French *ne-pas*, which occurred over a period of several hundred years (Picoche 1989). A more plausible scenario would see *niet* become a marker of yes/no questions, as with the Tibeto-burman particle *ma* (Harris and Campbell 1995:79).

4.2 West Flemish negative concord

West Flemish dialects show negative concord in (embedded) clauses such as (21).

(21) ... da Valère **niemand nie** kent
that Valerie no one not knows.
“...that Valerie does not know anybody.” (Haegeman 1995, 235)

A transfer from West Flemish appears equally unlikely. First, one wonders why the position of the functional head *nie* would shift from right-branching in West Flemish to left-branching in Afrikaans. Secondly, as Haegeman (1995) suggests, this right-branching NC structure has a limited distribution in West Flemish. It may therefore not have been one of the features that made up the PLD for early learners of Cape Dutch, or indeed Creole Dutch.

An even stronger argument against this scenario comes in the form of population data of the early years of the Cape settlement from 1657 to 1662. During these early years, Dutch and German settlers outnumbered West Flemish speakers nearly 15 to 1 (Valkhoff p. 15). These demographic facts make a West Flemish borrowing scenario even less plausible. As T&K rightly point out, it is not enough that structure exists in a dialect of the lexifier on some other continent. One must show that speakers of this dialect were in fact present -- and present in sufficient numbers to have a marked effect on the development of the language -- before one can begin to claim any type of language contact or borrowing.
Below are the relevant syntactic structures as discussed in this section.

(22) Dutch: \[\text{[NP} \text{[Neg}_{L,F} \text{[VP]]]}\]
(23) W. Flemish: \[\text{[NP} \text{[Neg}_{L} \text{[Neg}_{F} \text{'nie'} \text{[VP]]]}\]
(24) Afrikaans: \[\text{[NP} \text{[Neg}_{L} \text{[VP} \text{[Neg}_{F}]]}\]

(adapted from den Besten 1989, 228)

As illustrated in (22-24) above, there was no direct borrowing of a syntactic head of NegP from Dutch or West Flemish into Afrikaans, since no such structure exists in Dutch or West Flemish. However, the existence of a semantically parallel construction in West Flemish could have, despite the limited contact, been a positive influence toward Cape settlers adopting such a double negative. That is to say, the structure “made sense” semantically in at least one dialect of Dutch.

4.3 Khoisan languages

A few linguists, especially those who lend some credence to a borrowing hypothesis for the development of NC (and other non-Dutch features) in Afrikaans, have searched outside Germanic for possible syntactic influences. Den Besten (1977, 1985, 1989) presents an analysis of possible syntactic influences on the development of Afrikaans from a variety of languages. He argues at various points that many Afrikaans structures, including genitive marking, Wh-movement, the object marker vir, and the sentence-final negation particle which concerns us here, are in fact interference features from either Malay-Portuguese or Khoisan.

Den Besten’s strongest argument for Khoisan as a substrate of Afrikaans comes from his insight into the typological parallels that exist between many Khoisan languages that were spoken on the Cape\(^{17}\), and the creolizing Dutch dialect that would become

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\(^{17}\) As I show below, this typological parallel is true for the Central Khoisan languages, while the Southern Khoisan languages are predominantly SVO.
Afrikaans. Both were (and are) underlyingly SOV.\textsuperscript{18} Harris and Campbell (1995) examine this so-called “structural-compatibility constraint”, and suggest that “in principle it ought to be easier to borrow constructions that are similar to existing ones (or at least do not conflict with the borrowing languages basic structure” (124). However, they also point out that counterexamples exist, and “therefore any insistence that grammatical borrowing happens only in situations of shared structural similarity is simply wrong” (124). At most, we can say that similar word-order typology is one contributing factor to a borrowing scenario of grammatical features from Khoisan.

In Table 3 I present a survey of 9 Khoisan languages: their word-order typology, their negation strategy, and the syntactic position of their N-words. Note that the prime candidates for influence from Khoisan, in terms of ‘typological fit’, are Khoekhoe (Nama) and !Korana (!Ora).

<table>
<thead>
<tr>
<th>Khoisan Language</th>
<th>Word Order</th>
<th>Neg.-Verb Order</th>
<th>Negation Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandawe</td>
<td>SOV</td>
<td>V-Neg (suffix)</td>
<td>particle 'chu'</td>
</tr>
<tr>
<td>Ju’hoan</td>
<td>SVO</td>
<td>Neg-TA-V</td>
<td>negative particles: (wa, wi, \mu, ao)</td>
</tr>
<tr>
<td>!Hoan</td>
<td>SVO</td>
<td>Neg-TA-V</td>
<td>particle: 'ho’on'</td>
</tr>
<tr>
<td><strong>Central</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Khoekhoe (Nama)</td>
<td>SOV</td>
<td>(Neg)-V-Neg</td>
<td>particles 'tama, tite, te' also neg.cop. 'if'</td>
</tr>
<tr>
<td>Naro</td>
<td>SOV</td>
<td>V-Neg</td>
<td>particle</td>
</tr>
<tr>
<td>!Korana</td>
<td>SOV</td>
<td>(Neg)-V-Neg</td>
<td>particles 'tama, tite'</td>
</tr>
</tbody>
</table>

\textsuperscript{18} By \textit{underlying} I mean at a level of structure (i.e. D-structure) present before movement operations such as V2 take place.
Both Khoekhoe and !Korana, in addition to their typological fit with Afrikaans, also show a post-VP negative particle. In the next section I give data on this particle from both Khoekhoe and !Korana, and attempt to show the strong structural parallel between the two.

4.4 Negation in Khoekhoe (Nama)

Khoekhoe has post-verbal negative particles, as seen in (20):

(25) a. horaga ti ûi hâb !na ta ge ||na !äsa mû tama hâ (Khoekhoe) 
    entire my life in I Decl that city seen Neg ASP
    ‘In my entire life, I have not seen that city.’

    b. sadu ge ||ëisa ma tite
       you(pl) Decl her give Neg. Fut
       ‘You should/will not give (to) her’

    (Den Besten 1985:33)

In addition, Khoekhoe uses a bipartite negative construction similar to that in Afrikaans, when the N-word is fronted such as in (26) below.

(26) a. kñoi-xareî ge ||nati mî tama ha
    man-NEG Decl so say NEG ASP
    ‘No one says this’
b. tatsets ge ||kawa homi tite\textsuperscript{19} 
not-you Decl again lie NEG FUT
'Never again will you lie' (ibid.)

Both (25) and (26) illustrate a post-verbal negative particle with the same position as that found in Afrikaans.\textsuperscript{20} This phrase-final negator can stand alone as a sentential negator of an entire clause (25), or “reinforce” a pre-verbal or fronted N-word (26). These data are the first indication that Khoi speakers of Afrikaans are the primary source for the transfer of a head-final functional N-word, and concomitant NC, from Khoi into Afrikaans.

An interesting counter-argument to this scenario is put forth by Den Besten (1989). He argues that such a transfer is unlikely since the semantic field of negation is found above the VP in Afrikaans (and Germanic in general), while data such as (25) appear to show that the semantic field for negation is below VP (or phrase-final). However, I believe this fact actually strengthens the argument for transfer from Khoisan. As shown below, Khoisan speakers were some of the first to use this construction. Indeed, if the semantic field of negation is phrase-final in Khoisan, we would expect Khoi speakers of Afrikaans to feel the lack of negative force in a clause lacking a phrase-final negator. Den Besten argues as much in an earlier paper, when he states that Khoi speakers acquiring Afrikaans "could not forget their own order" of negation constituents (Den Besten 1985:46). Valkhoff makes a similar claim:

When the Hottentots learned to speak Cape Dutch, they adopted the pre-verbal nie(t), but at the same time they looked for a means to maintain their usual construction with a post-verbal negation. To fill this hiatus they introduced another nie(t) behind the verb. (Valkhoff 1966:17)

\textsuperscript{19} Den Besten also makes the important point that, while tite is a free morpheme and has verbal status ('negatives Hilfswort'), tama is a suffix on the verb, and thus presumably cannot be modified or moved, and does not have the same categorial status as tite.

\textsuperscript{20} I am currently working on a more developed syntactic analysis of Central Khoisan languages Khoekhoe and !Korana that will show more systematically the parallels between the two structures.
The structural evidence provided above adds empirical weight to claims made by Valkhoff and others.

4.5 Negation in !Korana

Further evidence of borrowing comes from a recently-analyzed corpus of !Korana, a Central Khoisan language that became extinct around 1940. The corpus, gathered in the 1930s by the South African anthropologist Englebrecht, includes 14 short texts narrated by the last surviving speakers of !Korana, !hamarib (Benjamin Kats) and |||ob (Andires Walter Bitterbos). It totals roughly 2250 words. Both speakers were bilingual in Afrikaans and !Korana, and Bitterbos, purportedly the best speaker of the language, provided the interlinear translations of the !Korana text into Afrikaans. Englebrecht describes these translations as “fairly literal, but not wholly so” (Englebrecht 1936:212). As we will see below, these interlinear translations are very revealing when considering the head-final position of the functional negative marker nie in Afrikaans. Englebrecht goes on to describe the sociolinguistic situation of these !Korana speakers as follows.

Owing to the prominent part Afrikaans, or some form of it, plays in the daily life of the Korana, it became the medium in which most of our conversations were carried on, and this has partly suggested the method of translation adopted here (Englebrecht 1936:203).

This statement is revealing in several ways. First, Englebrecht suggests a difference in dialects for the !Korana speakers, calling their speech “some form of” Afrikaans. Secondly, we see that Afrikaans played a large role in the daily lives of the !Korana, whose language, we should recall, was eventually utterly subsumed by Afrikaans.
In the corpus itself, there are 25 negative sentences. A preliminary analysis reveals the distribution of the negative markers in Afrikaans and !Korana, and is given in Table 4.

<table>
<thead>
<tr>
<th>!Korana text</th>
<th>#</th>
<th>Afrikaans gloss</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>post-verbal particle ‘tama’</td>
<td>18</td>
<td>post-verbal ‘nie’</td>
<td>17</td>
</tr>
<tr>
<td>pre-verbal particle</td>
<td>7</td>
<td>pre-verbal ‘nie’</td>
<td>7</td>
</tr>
<tr>
<td>Neg. sentences (total)</td>
<td>25</td>
<td></td>
<td>24</td>
</tr>
</tbody>
</table>

*Table 4. Negation in a corpus of !Korana texts (with Afrikaans glosses by the speaker)*

As seen in Table 4, there appears to be an almost one-to-one correlation with the placement of the negative marker in the two languages. Recalling that the Afrikaans is not a morpheme-by-morpheme gloss, but a “fairly literal” translation, this appears to be convincing evidence of the similarity of the underlying grammars of the two languages in these speakers, for this particular structure.

Examples (27) and (28) below are taken from the corpus. The top line is an English gloss of the !Korana. The middle line is !Korana, and the bottom line is the Afrikaans interlinear translation, which I have attempted to align exactly as it is on the page in the original document.

(27) game ASP killed (if) FOC men

xamareb ta !amhe o, itje doroxaku

As wild sal doodgemaak word, het ingewyde-manne

DIM-game eat NEG rabbit FOC eat NEG

|a-xamare ≠ʔu tama !ʔasas tje ≠ʔu tama,
kleine-wild geëet nie haas eet hulle nie,
“If game had been killed, the full-blooded men did not eat small game; they did not eat the hare, the jackal or (any kind of cat).”

“He did not touch water, nor would raw meat enter that home.”

In the above examples, I have attempted to maintain the relative spacing found in the original text. I refer the reader to Englebrecht (1936) for a complete viewing of the corpus. Below are the relevant syntactic structures as discussed in this section.

Examples (24-26) illustrate the exact match in negation typology between Afrikaans and Khoekhoe/!Korana. If one discounts the tense and aspect markers, which in some cases occur after the negation particle in Khoisan, the structures are completely analogous. This, coupled with the word-order facts, is a convincing argument for structure transfer.
4.6 Sociolinguistic data

Sociolinguistic data also argue for Khoisan as a probable candidate for the borrowing of negative concord structures into Afrikaans. Valkhoff (1966) cites studies on early Afrikaans texts (1826-1844) in which the “Hottentots” (presumably Khoekhoe or !Korana speakers) had a final *nie* in 54% of their negative sentences, while the Whites showed only 16% final *nie*. This is shown in Table 5.

<table>
<thead>
<tr>
<th>origin of speaker</th>
<th>Total number of negative sentences</th>
<th>Total with second <em>nie</em></th>
<th>double negation used:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khoe</td>
<td>107</td>
<td>54</td>
<td>54%</td>
</tr>
<tr>
<td>Dutch</td>
<td>45</td>
<td>7</td>
<td>16%</td>
</tr>
</tbody>
</table>

*Table 5. Double negation in Khoe and Dutch speakers of Afrikaans, 1826-1844.*

Finally, there is a good deal of anecdotal evidence which precedes more structured syntactic analyses of negative concord in Afrikaans and its Khoisan substrates. Two examples are given below, again for completeness sake.

“I do not think that it is mere chance that in the history of Afrikaans the double negative occurs first, as well as most frequently, in the mouths of the Hottentots.” (Valkhoff 1966, 131)

5 Negative concord as a Khoisan interference feature

5.1 The merger of Creole Dutch with Cape Dutch

As suggested in Flow Chart 1 above, Creole Dutch and Cape Dutch merged sometime around the turn of the 19th century. Evidence for this merger is found in several texts from the period, including one discussed in Roberge (1993):

“Acrolectal Cape Dutch [...] is preserved in the diary fragment of Johanna Duminy. [from 1797] The Duminy diary is no less important for the hallmark Afrikaans features that it does not show: the double negation (*nie . . . nie*) the demonstrative pronoun ‘herdie’ (*this*), reduplication, [...] etc.” (Roberge 1995:78-79, my emphasis)
The structures that Roberge mentions as being absent from the Duminy diary are all presently features of Standard Afrikaans. Thus one can hypothesize that they entered the dialect at some point after the writing of the diary.

5.2 Summary of findings

(i) Khoisan and Afrikaans negative concord structures are parallel
(ii) word-order typology is compatible
(iii) Early Cape Dutch writings show little evidence of the phrase-final *nie*
(iv) There is evidence that, in the 19th century, Khoe speakers of Afrikaans used this construction more readily than did Dutch descendants.

5.3 A transfer scenario

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Table 6

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Negative concord becomes a valid strategy in Pidgin Dutch</td>
</tr>
<tr>
<td>2</td>
<td>Negative concord takes hold as the dominant strategy in Creole Dutch</td>
</tr>
<tr>
<td>3</td>
<td>Simplex negation remains the dominant strategy in Cape Dutch</td>
</tr>
<tr>
<td>4</td>
<td>Negative concord transfers into Standard Afrikaans from the Creole</td>
</tr>
<tr>
<td>5</td>
<td>Negative concord obligatory in Standard Afrikaans</td>
</tr>
</tbody>
</table>

(adapted from den Besten 1989, 226)
6 Conclusions

Based on the available sociolinguistic and syntactic data, it appears that negative concord in Afrikaans is an interference feature from the central Khoisan languages, namely !Korana and Khoekhoe. Both of these languages were widely spoken in and around the Cape from the arrival of the Dutch onward, and both show a pattern of Negative concord and a Neg-Phrase structure similar to those observed in Afrikaans. Corpus data strengthen this claim, showing a direct correlation between Kho speakers of Afrikaans and the use of the construction, and between the phrase-final Kho construction and phrase-final nie. The presence of pre-verbal bipartite negation in West Flemish dialects (which had limited contact with early Cape Dutch) could have rendered the Khoisan interference more felicitous.

Acknowledgements

Many thanks to John Bowers, Abby Cohn, Rachel Hastings, Carol Rosen and Paul Washburn for their help and suggestions. Thanks also to Wayne Harbert and John Whitman, whose Historical Syntax course got me started on Afrikaans. Finally, thanks to Chris Collins for discussions, encouragement.

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The Khoekhoe and/or the San: Gathering the Afrikaans Substrate Languages

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1 Introduction

When the Dutch Vereenigde Oostindische Compagnie (henceforth: VOC) decided to start a refreshment station at the Cape of Good Hope in 1652, the Khoekhoe1 -- later called Hottentots by the European colonizers -- were a people present in much of southern Africa (Giliomee & Elphick, 1982:3). The VOC officials and deputies also mention the San (generally referred to as Bosjesman (Bushmen)). The latter were of a similar origin as the Khoekhoe,2 basically distinguished from them on economic grounds.3 Initially, contact by the European seafaring nations at the Cape of Good Hope was in trade with the Khoekhoe. Reportedly, some Khoekhoe already spoke a ‘broken Dutch’4 in the earliest days of the settlement. This ‘broken Dutch’ must be classified as a trade or barter jargon. The linguistic aptitude of the local population of the Cape has often been commented on (cf. Nienaber 1963, Scholtz 1980:38). There are equally many remarks about how notoriously difficult it was for the Europeans to

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1 Previously also spelled K(h)oik(h)oi. In 1970 this spelling was officially changed to Khoekhoe. Cf. Nienaber 1994a:180-209.

2 Although nowadays the San are identified to be of different ethnicity than the Khoekhoe.

3 Cf. Penn’s (1995:3) comment: “[W]ords like “Khoikhoi” and “San” are not timeless ahistorical categories but historical categories and social constructions. It is precisely the dynamic realities that lie behind Khoisan terminology that cause so many of the problems associated with the use of the words. Leaving aside, for a moment, the question as to whether “Khoikhoi” is a better word than “Hottentot”, or “San” a better word than “Bushman”, one still has to unravel that “Gordian knot of South African ethnography” -the relationship between Khoikhoi and San. Many skillful fingers have picked at this knot, some tightening it, others loosening it, but whatever the nature of the relationship it obviously differs according to its historical content. The word “Khoisan”, for instance, which has become the convenient generic name for both the Khoikhoi and San peoples, implies that there is a relationship between them. But it means one thing when used in the pre-colonial context and another thing in the colonial context. In the former context the processes the word implies are those which relate to the transition of societies or individuals from a predominantly hunting and gathering mode of existence to a predominantly pastoralist mode of existence -and vice versa. In the colonial context, however, the dynamics of Khoikhoi and San interaction were fundamentally altered by the presence of Europeans who first exerted an influence through trade and later by direct settlement and conquest” (cf. Traill 1997, Nienaber 1989:626, 830-837).

4 Also some English words, see Bredekamp 1982, Den Besten 1987; part of this legacy can be retrieved from the Website of the CreolList Archives. [http://www.ling.su.se/Creole/].
master a single syllable of a Khoekhoe language, as these are strikingly rich in ‘click’ sounds. In the literature, the influence of the Khoekhoe languages in the development of Afrikaans has only been marginally accepted (Raidt 1982:167, Scholtz 1980:37,100, Nienaber 1953, Ponelis 1993). At the same time, other non-European languages such as Creole Portuguese, (Pasar) Malay and Malay- or Indo-Portuguese -- brought in by the slaves acquired by the VOC -- must have been influential on the spoken language in these formative years. An exact ranking, however, is an intricate task. This is due in part to the ethnonymic labeling used both by the Europeans and indigenes of the day, which is discursive and exceedingly flexible in reference.

The legacy of linguistic data can be collated for a few specific groups of the population. A few sentences, elaborated on in Den Besten (1987, 1988, 2000b) from both Khoekhoe and slaves are characterized as pidginized Dutch. Furthermore, although of a heterogeneous nature, the Cape Dutch Vernacular (henceforth: CDV) is classified separately. Part of this vernacular is the Cape Dutch of the French Huguenots (independently discussed in the literature).

Oosgrens Afrikaans is deemed to be an independent development under the Trekboere, largely free of any substrate influence. It is claimed to be the exclusive forerunner of present day standard Afrikaans (Van Rensburg et al, 1989:37).

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5 Fredrickson (1981:11) states that the general opinion of the colonizers was that through an age-long process of de-humanization the Hottentots had lost the ability to talk like humans. The Europeans perceived their speech only as sobs and sighs. They were equally disgusted by the personal hygiene and eating habits of the Hottentots (Bredekamp 1982:3ff., Nienaber 1963:8ff.).

6 The Khoesan languages distinguish five different click-sounds, nowadays orthographically represented as: / dental click, ! alveolar-palatal click, # alveolar click, // lateral click, 0 labial click.

7 In creole studies, since the 1970s a separate discipline in historical linguistics, pidgins are distinguished from creole languages, under the following definitions: a pidgin is an auxiliary language that arises when speakers of several mutually unintelligible languages are in close contact. It is a contact vernacular (jargon) which, by definition, has no native speakers. A creole is a language which comes into existence when children acquire a pidgin as their native tongue; theoretically this process can occur at any stage in a pidgin’s history. As such, a pidgin is a (highly) impoverished language system. It is the product of second language acquisition (SLA) with restricted access to the target language. A creole, on the other hand is the product of first language acquisition generally assumed on the basis of a pidgin. In these terms the difference between pidgins and creoles (henceforth: P/Cs) is in terms of nativization (cf. Bickerton 1981, 1984). Creoles are further subdivided into a gradual scale of the basilect, the mesolec and the acrolect. The latter is defined as the variant closest to the target language (the superstrate), the basilectal form as the furthest away from it; the mesolects are stages in between. When all three stages can be simultaneously identified (usually on sociolinguistic variables) we speak of a creole continuum.

8 Amongst the sources for the Cape Dutch Vernacular, such as diaries and other reports is a corpus of texts from the Cape Town Archives, which were culled by Mr. L.C. van Oordt for Prof. Scholtz on Dutch developments towards Afrikaans peculiarities, known as die Kaapse Taalargief [KT].

9 Their vernacular is well documented in a study by Pheiffer (1980).
On geographical grounds, from a century later, the Orange River Afrikaans of the Basters and Oorlamst can be demarcated. Contemporary Orange River (henceforth: ORA) is regarded to be a post-creole language: “its synchronic reflex, [...] is widely thought to have descended from a creole ancestor, though its prehistory remains poorly understood” (Roberge 1993:45). In its earliest form Orange River Afrikaans was a Dutch/Afrikaans vernacular. It was established in an area to the north and the south of the Grootrivier (Orange River) towards the end of the eighteenth century. Van Rensburg, et al. (1989:37) characterize it as the lingua franca of the Cape Colony’s northwestern frontier along the Orange River en die uitgestrekte aangrensende gebiede: ’n baie groter gebied as waar Afrikaans vandag gepraat word. Dié soort Afrikaans het waarskynlik die grootste geografiese besetting in die geskiedenis van Afrikaans gehad. It was probably based on a variety of the CDV which met with strong influence of the Khoesan languages (Nienaber 1994a, 1994b, Van Rensburg 1984).

It has been brought forward in the literature that the idiosyncrasies of ORA are neither Dutch nor particularly Afrikaans (Van Rensburg 1984:399). However, according to Van Rensburg (op.cit.:47) none of its syntactic singularities are completely ruled out in Standard Afrikaans:

Verder kan daar uit die toetsresultate [of ORA (in particular Griqua Afrikaans) constructions] bepaal word watte konstruksies na die oordeel van die respondente standaardkonstruksies is en watte konstruksies op die ander punt van die aanvaarbaarheidskaal, glad nie in Afrikaans voorkom nie. Nie een van die konstruksies kom glad nie in Afrikaans voor nie [emphasis added].

In reconstructing the changes Afrikaans has made away from the Dutch superstrate, the following question arises: Is ORA an independent development amongst speakers living in remote areas of the northwestern Cape and beyond the Orange River? Or is it rather a continuation of earlier developments that emerged from the contact situation of the colonizer with the indigenous people in the earliest days?

10 Oorlam, (C)Malay orang lama (datang), which means “someone who came long ago (to the East)”, i.e. someone who knows the land, the people and their customs and therefore will not make offence to any sensitive conventions), in the first instance does not denote an ethnic group, it rather refers to those people from various cultural and/or racial groups, that had acquired a higher standard of acculturation within the colonial setting. In southern Africa, around the middle of the eighteenth century it denotes a new, higher class, that emerged from several groups of indigenous people (the Khoekhoe or Hottentots, as well as the imported slaves). Most of them were proud to claim with good certainty, varying degrees of “white” blood in their veins (Nienaber 1989:25). This new elite can be seen as a result of the acculturation of the local population, the bonded servants and the colonizing European forces.

11 And the vast bordering territory: a far larger area as where Afrikaans is spoken today. This type of Afrikaans may well have covered the largest geographical area in its entire history.

12 Further from the testing results [of ORA (in particular Griqua Afrikaans) constructions] it can be determined which of the constructions, according to the respondents is a standard construction and which ones lie on the other end of the scale of acceptability, being entirely ungrammatical in Afrikaans. Not one of the constructions [in ORA] is entirely absent (impossible), in Afrikaans.
2.1 Demographics of the Cape Colonial Society

The number of Khoesan in the Cape peninsula and beyond in the early days of the Dutch colony is unclear, as they lived largely in migratory patterns. Seventeenth century descriptions of these Khoekhoe tribes by European travelers to southern Africa have been evaluated in Nienaber (1989). 13 19 different tribes are identified between the Orange River in the north and the Kei River in the west in the earliest days of the refreshment station (op.cit.: xxxi). However, references to the size of the tribes are scarce. Population estimates by Van Riebeeck anno 1662 for the Goringhaikuwa and Gorachouquwna14 (Caep mans ‘Cape men’ and Tabacdieve ‘Tobacco thieves’, respectively), are “buijen vrou ende kinderen om trent 300 weerbare copper” (besides women and children 300 able men), and, for the latter “6 a 700 weerbare manne, buijen vrou ende kinderen” (6 to 700 able men besides women and children), (Nienaber 1989:410, 402). The Coccoquwna, also referred to as Saldanhars ‘Saldanha [Bay] inhabitants’ or Koekemans (also Cogmans, Kogmans; likely a topographically based ethnonym, see Nienaber 1989:277), from further north, possibly the Company’s major cattle suppliers, “was den allergrootsten [stam] van al de Hottentoos,... gemeent wort deselve wel 17 à 18 duizend zielen stercq zijn...” (was the biggest tribe of all the Hottentots; it is estimated that they may be 17 to 18 thousand souls in number), (op.cit.:265). Another group who initially served as translators and go-between, (numerically negligible yet highly present ), were the impoverished Goringhaikon -- better known as Strandlopers (Beach combers) or Watermans (Water men). Their number is estimated by Van Riebeeck “behalven vrou en kinderen niet boven 18 man sterk” (except for women and children no more than 18 men strong), in 1662 (op.cit.: 407). Wagenaer anno 1666, reports:

deselve waren op mijn aencomste alhier eerst niet boven de 30 copper sterck, maer hebben naderhant een aenhank van diergelijkhen geboepte uijt ’t land daer bij geecregen, die nu met vrouwen en kinderen wel een rott van 70 of 80 off meer copper zullen cunnen uijtmaken15 (Nienaber 1989:408).

The latter report also shows that Khoekhoe tribes were not necessarily based on kinship relations, but also resulted from socio-economic circumstances, as in this particular case.

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13 See also Bredekamp 1982.


15 On my arrival here, at first these [the Goringhaikon] were no more than 30 head strong, but afterwards they acquired followers from kindred scoundrels from the land. Nowadays, together with women and children could they make up an army (gang) of 70 or 80 or more heads.
The demographic figures of the Europeans are well documented. In the first decades of the refreshment station at the Cape of Good Hope, the dearth of European women is often reported on. Van Ginneken (1928:206) specifies that in 1688, thirty-six years after the station had been started, only 88 adult European women resided at the Cape, compared to 254 men and 231 children.\textsuperscript{16} Thereafter, a number of French Huguenots found their refuge at the Cape, and in 1694 the total number of Europeans was 1159. Slaves entered the Cape from 1658 onwards.\textsuperscript{17} They originated from West- and East-Africa (Mozambique), the Indonesian Archipelago, the Indian sub-continent, Madagascar and the Mascarenes. In the beginning they arrived in numbers no larger than 200 to 500 per year, but from 1712 onwards these numbers steadily increased (Shell 1994:12).

In the early Cape settlements, from demographic data as sketched above, we can surmise a situation where there was room for both language change with normal transmission (language evolution) and for a process identified as abrupt language change (creolization; cf. Thomason & Kaufman 1988, Romaine 1988, Arends et al. 1995). Bearing in mind the vastness of the settlement territory, relatively small groups of people settled down quite isolated from each other. We can therefore assume that different processes of language change could have operated simultaneously at different locations. In statistical terms, all the ingredients to provide for the emergence of a prototypical creole language (cf. Bickerton 1981, 1984) are in place. The reason why this never happened is suggested by the demographic settlement patterns and the vastness of the territory (Giliomee & Elphick 1982). According to these comparative assessments, social stratification along the lines of the so-called plantation situation (as attested in the Caribbean) or even the prototypical fort creole situation, never existed in southern Africa.\textsuperscript{18}

2.2 Linguistic stratification

Eighteenth century reports never fail to remark that Hollands was the target language of the inhabitants of the Colony (infra). Although, as Valkhoff (1966, 1972) hypothesized, there certainly may have been room for the existence of a creole-Portuguese medium\textsuperscript{19} between the colonizer and the workforce. But the details of such a hypothesis are conflicting. Shell (1994:29) quotes an English visitor to the Cape in 1777, who notes that the slave-owners were

\textsuperscript{16} Giliomee & Elphick (1982:44) specify that in the year 1679 there were “259 vry persone, van wie 55 vroue en 117 kinders” (259 free burghers, of which 55 women and 117 children).

\textsuperscript{17} Raidt (1982:96) mentions earlier (small) imports from Madagascar, since 1654.

\textsuperscript{18} The demographic picture that emerges could be classified as a “homestead society” (Mufwene 1996:91).

\textsuperscript{19} Creole-Portuguese is an umbrella term for varieties of a Portuguese lingua franca which presumably existed since the earliest days of the sea-faring European people. Cf. Valkhoff, 1966, 1972. Conspicuously hardly any Iberian based creole languages have survived to date (cf. Holm, Lorenzino & De Mello 1999:3).
obliged to learn the slaves' *lingua franca* (presumably based on Malay-Portuguese), and not the other way around.\(^{20}\) Other reports reflect a complete tower of Babel, from which a new *lingua franca*, based on Dutch and "intelligible to all", emerged as early as 1740 (Shell 1994:30).\(^{21}\) Yet, it is unknown which language is meant: Dutch, Afrikaans, or an early combination of both. It is far from established at which date we can speak of 'Afrikaans' (see Roberge 1994). Systematic changes towards a new variant cannot uniformly be demarcated in the development of Afrikaans. Although, as early as 1685, first mention is made of a vernacular which was fundamentally different from the metropolitan example.\(^{22}\) Evidently the children in this community had already accommodated themselves to a novel form of Dutch. From an entry in Van Rheede's diary in 1685 we learn that there were "many small children, white as well as black, speaking the Dutch language without any exception" (cf. Ponelis 1993:27), with a further classification of this 'Dutch' language as:

...; hier is een gewoonten onder al ons volck, dat lerende dese inlanders de Nederduydsche spraek, en dat dese, die op haer manieren seer krom en bij nae onverstandelijk spreken, soo volgen de onse haer daer in nae, ja soodanigh, de kinderen van onse Nederlanders haer dat mede aenwendende een gebroken spraek gefondeert werd,...\(^{23}\)

However, further characterization or documentation of this particular change in speech has not yet been uncovered (cf. Den Besten 2000b). Neither can the endpoint of this development be established. In the literature it has been postulated that by the beginning of the nineteenth century a language essentially different from metropolitan Dutch,\(^{24}\) highly likely in a

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20 Quoting Kindersley (1777:66) "What seems extraordinary is that the slaves do not learn to talk Dutch, but the Dutch people learn their dialect, which is called Portuguese, and is a corruption of that language, some of them are called Malays, brought from the country of Malacca and the islands to the eastward of India."

21 Referring to Mentzel (1921-44, 1:56). Sparrman (1777, 1:58) anno 1770 remarks: "At mealtimes, various European dialects, together with the languages used in commerce with the Indians, viz. the Malay, and a very bad kind of Portuguese were spoken at one time, so that the confusion was almost equal to that to the tower of Babel." And, a Persian visitor to Cape, Mirza Abu Taleb Khan (1810, 1:72-73) reports that "besides the Dutch, there are to be found at the Cape people of many other nations, and at least seven or eight languages are spoken here."

22 Note that the Dutch standard language was not socially diffused before the late 19th century (see Van der Wal 1992, Ponelis 1993:123).

23 [H]ere there is a habit under our nation, teaching the natives the Dutch tongue, and these [ones] in their way, speaking [it] very awry and nearly incomprehensible, so that our people consequently have followed them in this, yes [in] such [a way], that as the children of our Dutch people use it as well, the foundations for a broken tongue are laid... Anno 1685. Kommissaris-generaal H.A. van Rheede - Journal of his stay at the Cape of Good Hope, (Cape Language Archives).

24 The biography of missionary Anderson, based on archival material from the LMS, relates: "It was not always easy [...] to understand all that was being said around them. Many conversed at great speed in Dutch. "Many of these Colonists have strange accents, but you'll get used to it," whispered van der Lingen. "those of us from Holland speak a purer Dutch."" (P. Anderson 1995:15, quoting the Dutch missionary A.A. van der Lingen in answer to the English new arrivals in Cape Town, missionary William Anderson and James Read, 1800.)
number of varieties, was fully in place. This conforms to the evaluation in Roberge (1993:52), that "there was not enough room, or rather too much space for the development of a coherent single creole."\(^{25}\)

3 The role of the Khoesan languages

It is generally conjectured that the Khoekhoe at the Cape spoke chiefly Nama and Korana, while it is clear from contemporaneous comments that Hollands, (or perhaps rather the Cape Dutch Vernacular), was the target language. However, the exact nature of other language(s) and/or dialects which the Khoekhoe (and the San) spoke in the previous centuries, in particular their grammars, are impossible to reconstruct. From the word-lists that have survived Haacke (1998)\(^{26}\) established that seventeenth century Cape-Khoe shares 69% of its vocabulary with present day Nama as spoken in present day Namibia. Cape-Khoe shares an equal amount (69%) with !Gora (also spelled !Ora or Koran(n)a), as documented from the 1930s. The vocabularies of !Gora and Nama share 80% of the lexicon surveyed. Over a time-span of more than 300 years and approximately 2000 square kilometers on the African continent this is an impressive result. Regardless of the fact that nothing can be known about the particular syntactic traits, the continuation seems evident. Note the equal proximity of Cape-Khoe with both Nama and !Gora, contrary to the general opinion in the literature that Cape-Khoe had a greater affinity with !Gora than Nama (cf. Nienaber 1989:235). Hahn (1881:55,102) refers to definite differences between Nama and Cape-Hottentots in the beginning of the nineteenth century, while Nienaber (1989:674-675) speaks about broad dissimilarities between Nama, Korana and Cape “Hottentot dialects”. However, the common practice of using the present day Nama grammar as a comparative model for the analysis of the syntactic structure of Afrikaans requires further elaboration. Besides the lexical and spelling variation, the intricacies of the ethnonymic designations have often been ignored. Mistakes have been made and have been carried over by subsequent authors.

The number of tribes, groups and clans accounted for in the 900 odd pages of Nienaber’s *Khoekhoense Stamname* (1989), speaks for itself as an indication of the linguistic and cultural diversity of the Khoekhoe. The South African Khoesan languages are standardly divided into two linguistically unrelated groups. The !Kwi group, a branch of the southern

\(^{25}\) On such considerations, Roberge (1993, 1995) argues for a continuum of intericts in existence at the Cape. A situation where people were more or less fluent in the metropolitan target and/or creolized variants until far into the nineteenth century. For the ease of this exposition I will refer to all of these varieties as the Cape Dutch Vernacular (CDV) on geographical merit.

\(^{26}\) Haacke (1998) compares the listing by Wrede in *Eenige Hottentotse Woorden*, Wrede’s *Hottentotsche Taal, gebuikelick by de Natien, op en omtrent de Caab de goude Hoop*, Kolb’s list of Cape Khoekhoe and !Gora (Korana) data according to Meinhof (1930), Engelbrecht (1928) and Wuras (1963), with present day Nama.
Bushman (San) languages, with lXam and lNg as South African examples is entirely extinct in South Africa. Only a few recordings, made in the 1930s, remain. The second group is the Khoekhoe group, consisting of !Ora (!Gora, Koran(n)a), Gri, Nama, and the southern and eastern Cape Khoekhoe dialects. Of these, only Nama survives today (Traill 1997:2).

From Traill (1997) it becomes clear that languages from these groups were often mutually unintelligible, even within the group. For example from the !Kwi language group, Ku lKhaasi and Khomani do not appear to have been mutually intelligible: “not only was this Story’s [ms., approx. 1940] impression but the last three people to retain some knowledge of Khomani could not understand a word of this [monologue by Kabara, 1936] Ku lKhaasi recording” (op.cit.:6).

Similar details emerge from the seventeenth century. Vedder (1938 [1966]:11) quotes from the log of the Dutch East India Company’s ship Bode, which sailed from the Cape to South West Africa in 1677 that “[t]he natives [about one mile inland of the coast of South West Africa] tried to talk and, because these people could only understand our Hottentots [‘who had accompanied the captain from Cape Town’] with difficulty. I took them with me to the shore, where our boats lay, and showed them every kindness by giving them tobacco and brandy...” [emphasis added].

However, as Haacke (1998) demonstrates for the lexicon of the Khoekhoe group of languages, “although there are many differences between !Ora and its surviving linguistic relative Nama, in pronunciation, grammar and vocabulary, a Nama speaker will be able to grasp bits of [!Ora]” (Traill 1997:23). Furthermore, the influence of the San languages is difficult to deny. On the retention of the Germanic word order in eighteenth and nineteenth century Orange River Afrikaans, Den Besten (2000a:7) concedes that “the many lXam speakers who were absorbed by ORA or pidgin speaking Khoekhoe communities may have been instrumental as well.”27

In summary, the preference of the population throughout the centuries for ‘Dutch’ is clear. However, exactly which other languages contended with their Hollands is very unclear. Regardless of the question of what exactly constitutes Nama, both as the epithet for the people as well as the language,28 it is certain that other Khoekhoe languages must have influenced both the CDV and ORA. In addition it is noted that there are no letters of this particular population group (the Oorlams or the Basters) attested in our Cape corpora, whereas it is known that the

27 With reference to Traill 1996.

28 Cf. the abstruseness in the association of the word Baster with different population groups through time. In the late eighteenth century the Griqua called themselves Basters, but this appellation was changed on the advice of missionary Campell in 1815. In the 1860s a new group calling themselves Basters emerged on the scene, specifically distinguished from the Oorlam, who settled down in the vacant territory around Rehoboth (the forefathers of the present day Rehoboth Basters in Namibia). In the twentieth century, in turn, the Khoekhoe Korana also adopted the ethnonym Griqua.
Oorlam-Nama originated from the Cape. Presumably people learned to read and write, but few of them afforded themselves correspondence as a pastime (infra).

Returning to the question whether nineteenth century ORA was an independent development or a continuation of the developments at the Cape, history reveals that the speakers of nineteenth century ORA, who came to be known as the Oorlam, (Oorlam-Hottentots, Basters; see footnote 10), were people (and their descendants) who migrated north from the Cape and introduced Hollands (cq. the CDV) to these areas. It is doubtful that the CDV (Hollands) in contact with the Namaland Khoekhoe took an entirely different route of language formation than the one which was already established by the contact of the Cape Khoekhoe and the colonizers. The possibility remains open, however, as there are no traces comparable to the Cape Dutch pidgin(s) in the nineteenth century Namibian corpora. Unfortunately, there are no letters, which I have been able to find, from Namaland Khoekhoe which are not signed with zyn teken (‘his sign(ature)’) as a cross. Nienaber (1989:801) also suggests that there is a continuation between the eighteenth century Khoekhoe and their descendants on the northern Cape borders, again contending that the acculturating Khoekhoe wanted to speak nothing but Dutch. Furthermore, it was not uncommon to find Cape-Oorlams who had to learn Nama as a second language:

Die opvallendste teken van Oorlamskap was die toëwing van Hollands as die eie taal. Daar was allerlei grade in die kennis van die eie taal, party het Nama glad nie meer geken nie, ander eger kon dit nog praat maar was nie trots op die kundigheid nie. Party van die Oorlamkapeins het botweg geweier dat die sendelinge die kinders in Nama of deur Nama onderrig mag gee. Krölein 1834:86 in Quellen 10 vertel dat sy gemeente in Berseba meestal uit Oorlamme bestaan het en “sich erst in späteren Jahren die Hottentotten-Sprache angeeignet haben. Sie sprechen daher herzlich schlecht, und Tibot, mein Dolmetscher, wohl am schlechtesten.”

For example Amraal Lambert, Jonker Afrikaner’s cousin: “Jonker Afrikaner ist sein Vetter und Landesmann, denn die Afrikaner stammen auch aus dieser Gegend [Tulbagh region, cl]” (J.A. was his cousin and lord, because the Afrikaners also originate from this region), quoted from the Berichte der Rheinische Missionsgesellschaft. nr 22, dd. 1855:237 in Nienaber 1989:565. Also Daniel Dauseb (co-author of the ORA extract in (1) below), who was attached to the mission station at Hoachanas mostly as a schoolteacher, was reportedly brought to Namibia from the Cape by missionary Olpp as a young man or boy (Heywood & Maasdorp 1995:230).

Budack (1977) draws parallel lines on identity of the Cape Khoekhoe in the seventeenth century (based on travelers accounts) with the twentieth century Nama KhoekhoeTopnaars regarding eating and fishing habits (op.cit.20, 28ff.), and methods of preserving foods (op.cit.26). See also Den Besten 2000b, ratifying a qualified continuation between the CDV and diachronic ORA data.

The most striking feature of being an Oorlam was the appropriation of the Dutch language. They had some knowledge of their own language to varying degrees, some didn’t know any Nama anymore at all, others however, could still speak it a little, but were not proud of this ability. Some Oorlam-captains apparently simply refused to let the missionaries instruct their children in Nama. Krölein 1834:86 in Quellen 10 narrates that his Station in Berseba consisted chiefly of Oorlams and that “[they] only acquired the Hottentot language in later years. Therefore they speak it terribly, and Tibot, my translator must speak it the worst of all.”
Notwithstanding all reservations about the syntax of Nama as a primary source for comparative purposes, Khoekhoe influence cannot be denied. Despite this fact, in the case of the nineteenth century Oorlamts it remains hard to determine which letters are the work of scribes. Except for those instances where the author signs with an X, some formal education does not seem to have guaranteed the use of metropolitan Dutch, as illustrated in (1) -- a joint effort between a Nama-Khoekhoe leader Manase, the local schoolmaster (born in the Cape; see footnote 29) and the magistrate.

(1) Hoaxa!nas 9 Maart 1880

<table>
<thead>
<tr>
<th>No.</th>
<th>Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ik wilde de U met dezen kliene briefje sommigen</td>
</tr>
<tr>
<td></td>
<td>I wanted the you with this small letter some</td>
</tr>
<tr>
<td>2</td>
<td>regelen te schryven, en wy hebben uwen brief hel ont-</td>
</tr>
<tr>
<td></td>
<td>lines to write and we have your letter whole</td>
</tr>
<tr>
<td>3</td>
<td>vangen en [ ] dankbaar daarover (. ) in de verledenen maan hebben</td>
</tr>
<tr>
<td></td>
<td>received and grateful for this in the past month have</td>
</tr>
<tr>
<td>4</td>
<td>[ ] zelf in de Damaraland geweest als spijend, in !Uri -</td>
</tr>
<tr>
<td></td>
<td>self in the Damaraland been as spies in -</td>
</tr>
<tr>
<td>5</td>
<td>! khubib geweest,</td>
</tr>
<tr>
<td></td>
<td>Urikhubib been</td>
</tr>
<tr>
<td>6</td>
<td>en nu verzoeken wy dat u toch ons mog helpen,</td>
</tr>
<tr>
<td></td>
<td>and now request we that you may help</td>
</tr>
<tr>
<td>7</td>
<td>omdat u lieden traktaat hoofden zyn, zoo verzoeken [ ] u</td>
</tr>
<tr>
<td></td>
<td>for you treaty chiefs are so request you</td>
</tr>
<tr>
<td>8</td>
<td>dat ons u verhoor, om ons toch schietgoede [ ] helpen na</td>
</tr>
<tr>
<td></td>
<td>that us you hear for us MOD shooting-goods help after</td>
</tr>
<tr>
<td>9</td>
<td>te trakdat van ulieden ( . ) wy verzoeken Capitien als weest</td>
</tr>
<tr>
<td></td>
<td>the treaty of you we request captain as orphans</td>
</tr>
<tr>
<td>10</td>
<td>kinderen er is niemand wat wy vertrouw kunnen dan u</td>
</tr>
<tr>
<td></td>
<td>- there is no-one what we trust can than you</td>
</tr>
<tr>
<td>11</td>
<td>alleen, om ons klag stem te verhooren, om dat de ulieden</td>
</tr>
<tr>
<td></td>
<td>alone for our lament voice to answer for the you</td>
</tr>
<tr>
<td>12</td>
<td>traakdat hoofden [ ] zoo smeekende en vertrouw te schryven</td>
</tr>
<tr>
<td></td>
<td>treaty chiefs so imploring in trust to write</td>
</tr>
</tbody>
</table>

---

32 Hoachanas, March 9, 1880. Dear Captain Moses Witbooi. With this small letter I wanted to write you some lines and we have received your letter in good order and are grateful. In the past month we went ourselves as spies to Damaraland; we went to !Uri!khubib. [...] and now we ask you if you could please help us, for you are Treaty-captains. Thus we ask you to credit us with shooting materials, after the letter of the Treaty. We implore you as orphans Captain, there is no-one we can trust but you to hear our lament, for you are Treaty-captains. Thus pleading, we write you this letter in good trust, to receive an answer returned with this messenger from the honorable Captain. With this hope I close my letter. I am (your) friend, Manase and schoolmaster Daniel Daus, with warm regards and Magistrate Abraham !Galleib." NA. ACC003. Index ‘Vedder collection’, no.39.

33 Probably Urihuib, old name for Witkrans, south of Rehoboth (Nienaber & Raper 1980 [1977]:748).
wy deze brieft, om toch in de zelfde man\textsuperscript{34} antwoord van
we this letter for MOD in the same man answer from
Eerwaarde Captain te ontvangen(,) met deze hoop sluit ik
honoroble captain to receive with this hope close I
mynen brief my letter

\begin{center}
Ik ben vriend Manasa en Schoolmeester Daniel Daus\textsuperscript{35}
met hartelyk groetenissen en Magestraat Abraham !Galleib
\end{center}

From the use of \textit{wij} (‘we’) for the first person plural, nominative Case, (Afrikaans: \textit{ons}, ‘we’), we can infer that the metropolitan standard was their target. However, the subject is just as easily left out (In.4, In.7; indicated by the empty square brackets). Secondly, the choice of prepositions can hardly be characterized as either Dutch or Afrikaans. Besides this, the word order in line 8 cannot be related to the Germanic word-order meaning “we request that we listen to you”, but must be intended as “we request that you listen to us”. Thus, this word order, where the object precedes the subject, is rather analyzed as an unmarked Nama pattern than a stylistic alternative. Rust (1965:57) shows that Nama has two basic word orders (\textit{Grundformen der Wortfolge}):\textsuperscript{36} Stellung A (order-A) and Stellung B (order-B) as illustrated in (2).

\begin{enumerate}
\item[(2a)] \textbf{STELLUNG A}
\begin{itemize}
\item subject - (\textit{ge subj.}) object - temporal particle - verb
\item subject - (\textit{ge subj.}) - temporal particle - verb with object suffix
\end{itemize}
\item[(b)] \textbf{STELLUNG B}
\begin{itemize}
\item object - subject suffix - (\textit{ge subj.}) (subject) - temporal particle - verb
\item verb with object suffix - subject suffix - (\textit{ge subj.}) (subject) - temporal particle
\end{itemize}
\end{enumerate}

Accordingly, In.8 in (1) can be analyzed as a standard Nama Stellung-B, relexified with Dutch vocabulary items. Furthermore, the use of the infinitival marker \textit{te} (In.2, In.12) is ungrammatical in both Dutch and Standard Afrikaans. Other telling features are hypercorrected.

\textsuperscript{34} Alternatively: \textit{maand}, ‘this month’, but compare ln.3.

\textsuperscript{35} Manasse (\textit{!Noreseb}), (disputed) successor of Barnabas as leader of the Nama-Khoekhoe Red Nation. Daniel Dausab was attached to the mission station at Hoachanas mostly as a schoolteacher. He was brought to Namibia from the Cape by missionary Olpp as a young man or boy (Heywood & Maasdorp 1995:230). Abraham !Galleib could not be traced.

\textsuperscript{36} One would argue that Stellung-A is the base order and Stellung-B, preposing the object, involves some sort of markedness. Haacke (p.c.) is of the opinion that there is no basic word order in Nama, that the topic element will always appear sentence initially. Cf. also Rust (1965) on clause initial XPs.

\textsuperscript{37} The ‘ge subjectivum’, (\textit{ge subject particle}), appears in main clauses and reinforces the subject (Rust 1965:7), or, can be described as a clause-type indicator, as it can only appear in main declarative clauses. Note that both word orders are equally acceptable in main clauses and in embedded clauses (Haacke p.c.).
forms such as *spiejond* ln.4 (Dutch: *spioen*, ‘spy’), *brief*, *briefje* ln.1, ln.15 (Dutch: *brief*, *briefje*, ‘letter’), and *weest kinderen* in ln.9 (Dutch: *weekkinderen*, ‘orphans’). The erroneous use of the definite articles (ln.1, ln.4, ln.11) can be explained by the fact that NPs in Nama do not feature articles. Therefore, they are often absent or overused. This is shown in (3), where “in the this path” must be analyzed as a combination of a calque on Nama — on the grounds that in Nama demonstratives follow the syntax of adjectives (Rust 1965:43) — with the addition of the Dutch article *het* to reinforce the notion of definiteness.

(3)  
Ons reigoed is laam in het deze pad  
Our riding-goods (horses?) are lame in this path  
(Jafta F. Booi, 18.11.(approx.)1868 - NA A237, Vol.II)

Arguing from the point of view that in the eighteenth and nineteenth century there existed a linguistic continuum in southern Africa, on political and geographical grounds, it is not unreasonable to assume that only subsequently, in the twentieth century, developments took a different course. In the developments leading to the present day aberrations from the standard language that typify ORA, the standardization process (and the subsequent *vernederlandsing* (‘Dutchification’; cf. Uys 1983, Wafer 1994) remains a weighted factor. At the same time we must be very careful contributing structures to Nama influence. While it is uncontested that ORA is the variety of Afrikaans which has had the largest influence of the Khoesan languages (Van Rensburg et al 1989:37), data such as that in a corpus of nineteenth century ORA,\(^{38}\) as late as 1889, shows only two attestations of the Afrikaans double negation. This is unexpected in light of the claim\(^{39}\) that this innovation in the Afrikaans grammar resulted from a combination of Germanic syntax with Nama grammar. Moreover, in present day ORA the double negation remains optional.

On the other hand, typical characteristics of nineteenth century ORA, which are analyzed as reticulated solutions based on Nama in contact with the Dutch grammar — for example the suspension of the finite auxiliary or the duplication of auxiliary verbs — can be observed in the CDV as well as in contemporary ORA.\(^{40}\) In a narrative diary by Susarha Nel, retelling her incarceration in the Mafikeng concentration camp during the Anglo Boer war (1899-1902) — which was probably written within the decade after her ordeal (Bottomley & Luijks 1998) — the suspension of the temporal auxiliary is not unusual either. It is evident that her background can hardly be classified as “Oorlam”.

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\(^{39}\) See Den Besten 1978, 1985, 1986, recently reiterated by Bell (this volume).

\(^{40}\) Notably the suspension of the finite verb also occurs with regularity in the German vernaculars that are spoken in present day Namibia (Ana Deurter, p.c.).
4 Conclusion

Although earliest attestations of an extraterritorial form of Dutch in southern Africa have been identified as pidginized forms of language, subsequent developments seem obfuscated by the inevitable reliance of the emerging language on the Dutch orthography. It must further be thought that the level of literacy was in an uneven distribution along social scales, and that those who learned to read and write were automatically exposed to the metropolitan Dutch orthographical standard (cf. Carstens 1982:38). This means that a large part of our documentation is sooner representative of the standard of schooling of the author than of developmental factors in the formation of Afrikaans. At the same time these facts emphasize how history withholds the role of the Khoe and the San in these developments. Still, studying the individual syntactic traits of the present day outcome in particular areas of the grammar, the Khoesan languages can readily be identified -- but as a secondary reinforcing factor. As a massive loss of inflectional morphology is virtually universal among languages in a contact situation, generally classified as pidgin and creole languages (cf. Goodman 1971:253, Mühlhäuser 1986:152, Roberge 1995:79-80), it follows that there arises a tendency towards disambiguating strategies. ‘Innovations’ ensue, be it restrictions or novelties (cf. Muysken 1995:352). Thus it cannot be ruled out that positive grammaticality judgements on ORA constructions by standard Afrikaans speakers are relics of earlier variation, which resulted from the convergence of ‘competing’ grammars -- those of people in a society in flux -- but which lost out on recognition when Afrikaans became standardized at the turn of the twentieth century.
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Borrowing & Diffusion as a source of lexical similarities in Khoesan

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0  Introduction

The role of areal convergence and contact across Khoesan groups is more and more becoming a point of focus for researchers interested in the history of these languages (cf. Traill & Nakagawa, (In Press), Güldemann (1998)). This is in direct contrast with some previous works which fail to address the possible role of convergence or borrowing in contributing to lexical similarity across Khoesan, e.g. Greenberg (1963), Ruhlen (1994). Other works, e.g. Honken (1998), Traill (1986, 1978), Sands (1998) note that lexical similarities occur between synchronically non-contiguous languages, thus complicating any account of borrowing as the source of most lexical similarities. Rather than looking at borrowing as a complication in the identification of reflexes of Proto-Khoesan roots, it should be seen as a valuable source of information about the Khoesan linguistic history.

A key element in identifying borrowing across Khoesan groups is comparison of different dialects. This paper will present examples of how dialect data can aid in the study of borrowings, and will survey possible points of contact across Khoesan groups. Because there is much confusion in the identification of particular languages, an updated survey of the Khoesan languages is given in the Appendix.

1  Known points of contact

The following points of contact between Khoesan groups have been previously noted:
• Khoekhoegowab loans in Jul'hoan (Tsumkwe dialect) (Dickens 1994, in passim, 85 words in Snyman 1974, Köhler 1963)

• Khoekhoegowab loans in !Xóó (Traill 1994, in passim)

• Khoekhoegowab loans in !Xegwi (Schapera 1926)

• Khoe (!Gora?) loans in !Xam (8 words, Maingard 1935)

• Naro loans in Jul'hoan (Tsumkwe dialect) (23 words, Amanda Miller-Ockhuizen, p.c.)

• Jul'hoan (Dikundu dialect) and Kxoe (150 words in Köhler 1973/74) (it is possible that the words are not specific to Kxoe, but are from a different Central Khoesan language)

• !Gui & !Xóó (Kagcæ and Kang area, 275 common items, or 10% of vocabulary, Traill & Nakagawa, (in press))

• Hadza & Sandawe: Apart from a few striking word sets (e.g. 'to vomit' /kwalha-/ Hadza, /wanl'â/ Sandawe), most of the common items come from Nilotic, Cushitic, or Bantu languages. The direction of borrowing with Cushitic is not always clear. A fairly large set of words is shared with Kuliak (possibly Nilo-Saharan), but the direction of borrowing is, again, not clear (cf. Elderkin 1983).

The following areas of contact are known to occur:

• Naro & ǂAuleisi bilingualism (Ghanzi area)

• Jul'hoan, Angolan !Xung & Kxoe contact in Namibia's Caprivi strip & Schmidtsdrift, RSA

• !Gui & ǂHoan bilingualism (Traill & Nakagawa, in press)

• Naro & !Xóó bilingualism (Traill & Nakagawa, (in press))

• Khoekhoegowab & l'Auni bilingualism (Traill 1995: 10, 14)
Traill & Nakagawa, (in press) note that 'borrowing' is not the best term to describe situations in which lexical items are incorporated in large numbers in both directions, as in the !Gwi - !Xóó situation. We will probably find that lexical diffusion best describes other cases of cross-Khoesan language contact as well.

Contact with socially dominant Khoekhoe groups did not appear to involve lexical diffusion, but led to unidirectional borrowing from Khoekhoe, and language replacement, in some cases. Khoekhoe dialects have influenced nearly every other Khoesan language.

2 Uncovering possible points of contact between Khoesan groups

Although two languages from different Khoesan groups are not currently contiguous, that does not mean that contact may not have occurred between these, or related languages, in the past. First of all, the relative isolation and impoverishment of certain groups seen at the time of European contact may not be indicative of pre-colonial patterns of trade and contact. That is, speakers may have had contact over greater distances than often presumed possible. Secondly, because speakers may shift from one language to another, we cannot presume that the historically documented language situation corresponds directly to the pre-colonial language situation, i.e. there is no a priori reason to assume Northern Khoesan languages have never been spoken in what is now South Africa, or that Southern Khoesan languages were never spoken north of the Kalahari.

Throughout the past century, contact may have occurred between speakers of different language groups in urban areas, along trade routes, market centers, in mines, or,
tragically, in jails. The persistent image of "Bushmen" as isolated hunter-gatherers (cf. Gordon (1984, 1992), Wilmsen (1989)) belies historical evidence to the contrary. Though the involvement of the Dobe !Xung in larger regional networks prior to the late 1800s is hotly debated (cf. Barnard 1992; Wilmsen & Denbow 1990; Solway & Lee 1990), it is clear that most groups of Khoesan speakers have been in close contact with speakers of other languages for well over a century or more.

Sporadic testimony to the mobility of Khoesan speakers can be found throughout the ethnographic and historical literature. For instance, the now-Khoekhoegowab speaking Hai!om were once power-brokers in north-central Namibia, playing important roles in Ovambo politics and intelligence, engaging in trade networks and controlling a copper mine (Gordon 1992: 25-32). Their historical range thus puts them in probable contact with Northern Khoesan speakers from the Angolan !Xung, to the Grootfontein area !Xung, to Gobabis !Xung. Areas such as Grootfontein and Ghanzi attracted part-time and full-time farm workers from the bush, leading to many opportunities for individuals from "isolated" communities to come into contact with people from other groups. Some movement from eastern Namibia to western Botswana was conditioned by part-time cattle herding. Trade, access to mongongo groves, and visiting with relatives (e.g. from Tsumkwe as far as Gobabis), have all been motivations for social mobility. Recent job opportunities have also occured for long-distance travel; (Non-Khoekhoe) Khoesan speakers from Botswana have worked in South African mines, and Kxoe and !Xung worked for the SADF in Angola, trained in Namibia's Caprivi Strip, and some are now in Schmidtsdrift, South Africa.
2.1 Possible other Khoesan speech communities

It is widely assumed that Khoesan languages were once spoken from southern Africa continuously to eastern Africa. Oral tradition speaks of "Bushmen" or Twa in Zimbabwe and elsewhere, and the Twa (Kwadi) of southwestern Angola became extinct only recently. The presence of Sandawe-type words in the Cushitic language Dahalo of coastal Kenya is clear evidence Khoesan languages once had a greater distribution. But even within the "Khoesan" area of southern Africa, we must not assume that the Khoesan groups were limited to their historically-attested distribution. Central Khoesan has obliterated traces of former languages in Namibia, and very likely, also in Botswana and South Africa.

Populations of peoples who were not culturally Khoekhoe adopted Khoekhöegowab in many parts of what is now Namibia. The cultural and physical characteristics of these peoples led observers to class them as "Bushmen," and it is very likely they once spoke Khoesan language(s) other than Khoekhöegowab. The clearest case of this is the Haiïlom who once lived north of Etosha Pan, and as far south as the Epukiro river. Werner (1906) and Doke (1925) documented bits of "Old Haiïlom," the language they spoke before completely switching to the Haiïlom dialect of Khoekhöegowab. Because the Haiïlom were culturally similar to various !Xung groups, and because of a few common lexical items, "Old Haiïlom" is usually classed as a Northern Khoesan language. The Keddi, Chwagga and other groups in north central Namibia were similarly questionably "!Xung," and now speak Ovambo (Bantu). The presumption that these northern groups are "!Xung" seems hasty, as earlier ethnographers struck by the many cultural similarities between the !Auleisi and the Naro might have classed them together had they not spoken languages belonging to separate Khoesan groups.
Northern Khoesan speakers once lived almost as far east as Lake Ngami in Botswana and it is not improbable to think they may have lived even further east. Schwarz (1926) refers to a group of people 'belonging to the Qung' (i.e. !Xung) in central Botswana at the Mababe depression. He may have mislabelled the group; Köhler (1981: map) marks pockets of Kxoe in this area, along with Ts'ikha and Shuakhoe, all Central Khoesan languages. But the Mababe depression would be an attractive hunting area, and one not such a great distance from current Northern Khoesan areas, either by following the Okavango southeast from the Caprivi Strip, or by following river(beds) northeast from Lake Ngami.

Other remnant populations may once have spoken Southern Khoesan languages, bringing Northern and Southern Khoesan languages into closer contact than is now apparent. Since we know nothing of the languages once spoken by these groups, it is possible that they represented families that are completely unknown to us. There were five distinct groups of Khoekhoegowab speakers in the southwest of what is now Namibia:ǂGanin (Glanin), ǂGeinin, ǂKoma, ǂHuinin, and ǂObanen (Westphal 1956). The ǂGabe, Kakuya and Haiǂguin were distinct groups in the Nossop River area of central Namibia. Another group lived near Sesfontein. Certainly, the Kwadi of southwestern Angola spoke a Khoesan language, but that language may be a very distant branch of one of the other Khoesan families, perhaps Central Khoesan. Any of these extinct languages may have belonged to any of the known Khoesan families, or have constituted an additional one.

Here we should also mention the Damara. They are ethnically distinct Khoekhoegowab speakers, living in various parts of Namibia. Nothing is known about what language(s) they may have once spoken, though it is usually assumed not to have
been a Khoesan language. They may represent the "non-click" language that Westphal (1962a,b) hypothesized influenced Central Khoesan.

Any "third" language could contribute lexical items to two unrelated languages, making them look as if they share items in common. Bantu languages and Khoekhoegowab, in particular, are now being spoken by descendants of groups who once spoke other languages, so we must presume there was once substantially greater diversity of Khoesan languages than now exists.

3 Use of dialect data in accounting for similarities across Khoesan groups

For a small number of lexical items, we now have good data on differences between dialects and closely related language varieties. There is Snyman's (1997) survey of Northern Khoesan !Xung and Jul'hoan varieties, Haacke et al.'s (1997) survey of Khoekhoegowab dialects, and Vossen's (1997) Central Khoesan comparison. For most semantic fields, and for many Southern and Central Khoesan languages, it is not clear whether the lack of a cognate in any particular language or dialect is due to a lack of data, or due to an actual absence of a form. Nevertheless, good dialect information allows for hypotheses about language contacts that would not have been noticed previously. Patterns of lexical similarities are noted below.

3.1 Roots with restricted distribution in Khoekhoegowab dialects

In Naro, and in the three north-central Khoekhoegowab dialects (ǂAkhoe, Haillom and Ghaub), the meaning 'to lie, tell an untruth' is expressed with a compound (e.g. tshūnǂôa) based on the roots [tsū] 'bad' [ǂhôa] 'disclose, announce'. It is interesting that these compounds only appear to occur in varieties in closest likely contact with Northern
Khoesan. They occur in Naro which is contiguous with †Aulleisi, and in north central Namibia, near NK roots such as [tʰu] 'to lie' found in Northern NK, which is phonetically similar to the first part of the compound, and roots such as [ɑ̃a], [i] 'speak' (Okongo !Xung) similar to the last part of the compound. The [tʰu] 'to lie' form is possibly cognate with!Xung/Jul'hoan, †Hoan [jɪŋ ʒɪ] forms, and to the!Xóō [sɪˈje] 'tell lies'.

†Hoan: 'lie, fib' [sɪ]
!Xung/Jul'hoan 'tell a lie' (Snyman 1997)

Southeastern: Tsumkwe [ʒɪ] Kameeldoring [ɔŋ]
Omatako S [jɪŋ] Omatako N [ʒɪ]
Lister farm [ʒɪ]

Central: Tsintsabis [jɪŋ] Leeunies [ʃi]
Ovambo !Kung [ɑ̃nu shuá] (Lebzelter 1937)

Northern: Mpunguvlei [tʰu] Cuito/Cubango [tʰu]
Cuando/Cuito [tʰu] Ok,ongo [tʰiŋ]

Naro: 'tell a lie' [tsu u̯ hoa, tʃūn+ʊ̯a]

KKGdia:
†Akhoe: 'tell a lie' [tsū+həa] (no other synonym listed)
Haiilom: 'tell a lie' [tsū+həa, tʃi+həa, tsū+həa]
Ghaub: 'tell a lie' [tsū+həa]

A root such as guni 'to hunt' is found throughout Northern Khoesan, but has a more limited distribution in Central Khoesan and is not attested in Southern Khoesan as far as I know. Within Khoekhoegowab, it is found only in the northern †Akhoe, Haiilom dialects, as well as the Topnaar dialect on the central-Namibian coast. It is tempting to suggest the root's presence in †Akhoe and Haiilom is due to a Northern Khoesan substratum. Perhaps there was a Northern Khoesan influence on Kxoe and Naro, which are short distances from present-day Northern Khoesan-speaking populations, and which share many other items in common with Northern Khoesan. Shua languages with this
root, such as Deti and Danisi, were located directly east of the Okavango swamps in central Botswana, an area which may once have had Northern Khoesan speakers. Rather than taking the presence of a root is several sub-branches of Central Khoesan as evidence that the root is a reflex of a Proto CK root, it may instead reflect diffusion from a number of different, but similar sources. Unfortunately, for our purposes of sorting out the language contacts, extensive, reliable data only exists for those languages in direct contact with Northern and Southern Khoesan languages, i.e. Kxoe, Glwi, Naro, and Khoekhoe/!Gora.

'to hunt'
!Xung/Jul'hoan 'to hunt' (Snyman 1997)
Southeastern: Tsumkwe [gùñĩ], Kameeldoring [gùñǐ]/1
Central: Tsintsabis [gùñĩ ] Leeunes [gùñĩ ]
Northern: Mpunguvlei [gùñĩ] Cuito/Cubango [gùñĩ]
Cuando/Cuito [gùñĩ] Cuando/Cuito [gùñĩ]
Kxoe: 'to hunt' [gùñĩ ]
Kxoe lgs.: to hunt' guni
Shua lgs. : 'to hunt' guni
Naro: 'to hunt' [gòné , xone] (possibly influenced by form such as xore/xure 'to hunt' in KKG dialects: ♦Akhoe, Haillom, Topnaar)

3.2 Roots derived from Proto Central Khoesan

Of course, a large number of Central Khoesan roots have made their way into Northern and Southern Khoesan languages. Traill (1978) notes that the typical situation is that if there are cognates in !Xung (Northern Khoesan), Kxoe (Central Khoesan) and !Xóó (Southern Khoesan), then this entails cognates in Naro and lGwi (Central Khoesan). A Central Khoesan root has many opportunities to spread -- both through Khoekhoegowab cultural dominance, and through close contact with immediate neighbors such as Naro (in the case of NK ♦Aulleisi) and lGwi (for SK !Xóó). A study of
Khoekhoe influence would need to focus on roots and/or phonological reflexes characteristic of Khoe and not non-Khoekhoe Central Khoesan.

Northern Khoesan has received Central Khoesan words both from Khoekhoegowab and from non-Khoekhoe sources. The word [kxará] 'impala' is only cited in one dialect of Jul'hoan, and several other lexical items are used to refer to antelope species. The root is found in 3 Central Khoesan branches. The loss of the initial affricate in Khoekhoegowab (and the distance of Jul'hoan from !Gora), makes it likelier that a Kxoe language was the source of the Jul'hoan word.

'impala'
Jul'hoan: 'rooibok' [kxará]
KKG: 'black-faced impala' ara.b

It is not clear why some apparent Central Khoesan loans into Northern Khoesan have spread more widely and regularly than others. There are several cases where a form is nearly identical across a dozen or more Northern Khoesan languages, and in the future we expect to be able to show that these correspondences are skewed. It is likely that words such as these were adopted into a Proto-Northern Khoesan stage. For example, the form lam 'sun' appears in 11/13 !Xung/Jul'hoan varieties with identical pronunciation (it has low rather than high tone in the other two varieties). Because only non-Khoekhoe Central Khoesan has reflexes of *lá'm 'sun', (Khoekhoe has sore.s), the forms probably date from a time before the Khoekhoe innovation.

A root such as 'urine, urinate' *lxam occurs in all branches of Central Khoesan, and varies little in pronunciation, making it difficult to pinpoint the source of the loans into !Xung. !Xung has several other synonyms, but we do not have the data to determine which synonyms are the most widespread. Postulating that the root came from
Central Khoesan makes the form [um-kʰʰamɔ] in isiXhosa and isiZulu easy to account for.

Okongo !Xung: 'urine'  [ɡl̥am]
Dikundu !Xung: 'urine'  [lx̌am]
KKG: 'urinate (of: anim.)'  lkham
Naro: 'urinate'  [jx̌am]
PCK: 'urine, urinate'  *lx̌am (Vossen 1997: 499)
cf. isiXhosa: 'urine'  [um-kʰʰamɔ]

The root 'forget' *l'udu has reflexes in all Central Khoesan branches, but the similar word [tʰɛrụ] is less widespread in !Xung/Jul'hoan than another root with the same meaning. The presence of a similar form [l'ụru] in ±Hoan raises the possibility that the root could go back to a Proto-±Hoan-!Xung-Jul'hoan. Without the test of regular, repeated sound correspondences to back it up, and with the forms being almost "too" similar, such a claim seems weaker than the hypothesis that the languages received Central Khoesan loans separately.

±Hoan: 'forget'  [l'ụru]
Ovambo !Kung 'forget'  [tʰári]
Jul'hoan: 'forget'  [tʰàri]
Okongo !Xung: 'forget'  [tʰɛrụ], [tʰàrì]
Naro: 'forget'  [l'ụru]
KKG: 'forget'  luru
PCK: 'forget'  *l'udu (Vossen 1997: 450)

There are a few instances where the Northern !Xung varieties appear to be the sole Northern Khoesan recipients of words from Central Khoesan. The [l'ụhărụ] 'wild dog' is restricted to Northern NK, unlike the more widespread [ɡx̌uú] root. There must have been a separate (Naro group?) Central Khoesan influence on Northern NK after the Proto-NK period. The form [ina:rub] 'Cape hunting dog' (Shortridge 1934) for Haillo
hints at a common period of development (or 3rd language influence) for Hailom and Northern NK.

Northern !Xung: 'Cape hunting dog' (Snyman 1997: 45)
Mpunguveli [ʹháːrû]
Cuito/Cubango [ʹhálû]
Cuando/Cuito [ʹhalû]
Okongo !Xung [ʹháːrû] 'wild dog' (Heikkinen 1986)

Naro: 'wild dog' [ʹarû] (Visser 1994); [ʹaru] (Barnard 1985)
PCK: (Löffelhund) *l'a (Vossen 1997: 464)

ǂHoan: 'stone' [ʹhóː' a]
Okongo !Xung: 'stone' [sûn+] KKG: 'stone, mountain' lui-
PCK: Vossen p. 495 A1, A2, E12, E13 *lui (PNK, PWK, POK *lîgoa ~ *lînoa) (no NK cogns., this latter one)
!Xôô: /mûle/ 'stone'

3.3 Third-language sources?

In the case of 'ostrich', it seems possible that both Khoekhoe and various !Xung/Jul'hoan languages borrowed from an unidentified language. Forms such as l'ámí 'ostrich' occur in Khoekhoe and !Gora, but not in the rest of Central Khoesan, where forms related to *lîgado predominate (Vossen 1997: 496). In Northern Khoesan, we have a dental click in one Tsumkwe Jul'hoan form, but palatal [ǂ] clicks in a similar looking stem in all but some of the Northern NK varieties. A similar-looking root with a non-click initial nasal occurs in Central area varieties, and in the Northern area varieties that neighbor them. Several other synonyms for 'ostrich' occur across Northern Khoesan, so there is no need to assume the similar roots derive from a Proto NK source. This
assumption would be difficult to show, as the forms do not have the regular reflexes of PNK *ŋ, *n and *l. Rather, it may be that some NK varieties and Khoekhoe varieties independently borrowed ǂamm 'ostrich' from (an) unidentified Khoesan language(s), with Jul'hoan subsequently reborrowing [lamm] from Khoekhoegowab. Perhaps loss of a click is one strategy speakers use for dealing with doublets in which there is a mismatch of click type -- such a scenario may have faced NK speakers in the central area, as they were in closer contact with Khoekhoegowab speakers than were NK speakers further north in Angola, or further east in the Kalahari bush.

'ostrich'
Northern Khoesan 'ostrich' (Snyman 1997: 81)
Southeastern: Tsumkwe [jamm, gǂamm] Omatako S [ǂ∂m̩ ꞉ ꞉]
Kameeldoring [ǂ∂m̩ ꞉ ꞉]
Central: Tsintsabis [nàm̩ ꞉] Leeunes [ǂ∂m̩ ꞉ ꞉, nàm̩ ꞉ ꞉]
Grootfontein-East [kǂam]
Northern: Mpunguvlei [ǂ∂m̩ ꞉ ꞉, nàm̩ ꞉ ꞉] Okongo [ǂàm̩ ꞉ ꞉, nàm̩ ꞉]

KKG 'ostrich' lami-

3.4 Southern Africa area lexical diffusion

Some lexical items are distributed widely across southern African Khoesan such as 'sheep'. Such items often make their way into the Nguni (Bantu) languages which have had extensive contact with Khoesan, e.g. isiXhosa igusha 'sheep'. Some animals (possible trade goods?) and cultural artefacts occur quite widely across southern African Khoesan.

'sheep'
ǂHoan: 'sheep' [gù]
Jul'hoan: 'sheep' [gùù]
Okongo !Xung: 'sheep' [gùù]
Borrowing & diffusion as a source of lexical similarities in Khoesan

KKG: 'sheep' [gū-i]  
Naro: 'sheep' [gùù]  
Kxoe: 'sheep' [gū]  
IGui, IIGana: 'sheep' [gū]  
!Xóô: 'sheep' [kūu]

4 Conclusion

Much work needs to be done to tease apart the many different patterns of lexical convergence and borrowing across Khoesan groups. Further data collection on dialects and specialized vocabularies will certainly help this effort, as will comparison and reconstruction of closely related languages and dialects. The widespread occurrence of a root in a given language family should not be taken as conclusive evidence that the root was inherited rather than borrowed or diffused from another language family, as we can expect multiple points of contact between Khoesan families.

References


Traill, Anthony. (1986). Do the Khoi have a place in the San? New data on Khoisan linguistic relationships. Sprache und Geschichte in Afrika, 7.1: 407-430.


Appendix 1: Explanation of the classification

Khoesan is a label used for the "click" languages of Africa which do not belong to any of the other African language stocks, i.e. Afroasiatic, Nilo-Saharan, Niger-Congo. Two of the Khoesan languages, Hadza and Sandawe, are spoken in East Africa (Tanzania), while the rest are spoken in Southern Africa (Angola, Botswana, Namibia, South Africa, Zimbabwe). Both comparative (Sands 1998) and typological (Güldemann, p.c.) studies indicate that Hadza lacks many features shared by the remainder of the languages, and is very unlikely to share a unique common origin or period of shared development with them. The linguistic genetic unity of the rest of Khoesan remains unproven, leaving at least 4 separate groups: Sandawe, Northern Khoesan, Southern Khoesan, and Central Khoesan. A list of Khoesan languages is given in Table I.

The Northern Khoesan family includes the closely related !Xung/Ju'hoan cluster, and probably also includes Eastern &Hoan (Chris Collins, p.c., Westphal 1974). While the
current subgrouping of (non-ǂHoan) Northern Khoesan into 3 main geographical subgroups clearly reflects patterns of lexical similarity, it does not entirely account for phonological patterns. A tripartite division of (non-ǂHoan) Northern Khoesan is widely recognized (e.g. Köhler (1981a), Bleek (1929, 1956), Snyman (1997)), though researchers do not agree on all details. A linguistic genetic subclassification of Northern Khoesan awaits further data collection and analysis of the lesser known varieties (particularly of those in the Central area). The classification of Eastern ǂHoan as Northern Khoesan has yet to be proven with the comparative method, and the source of the language's many similarities with Southern Khoesan (cf. Traill 1973, 1974) needs to be elucidated.

The Southern Khoesan group includes the !Wi and Taa families, but it has not yet been demonstrated that these share a common linguistic genetic origin. In fact, there are great disagreements as to the internal structure of the group. For instance, l'Auni, Kihazi, Khatia are classed with ǂKhomani by Köhler (1981a), but with the Taa languages by Westphal (1971). It is hard to evaluate the criteria used to establish Southern Khoesan and its subgroups because these are typically not made explicit by researchers (e.g. Bleek (1929, 1956), Westphal (1971), Köhler (1981a)).

Only the Central Khoesan group has been firmly established (cf. Vossen 1997), though it is not clear whether the Kwadi language belongs to this group.

The classification of Kwadi (Kwepe, Kwisi, Koroka) is uncertain (Hirschberg 1975) places it with Northern Khoesan but Ehret (1986) contends that it is Central Khoesan.

Appendix 2: Khoesan languages (extinct languages noted with ‡, moribund with ‡‡)

Hadza
Hadza
(Alternate names include: Tindiga, Kindiga, Wahi, Wahadzabe, Hadzapi, Hatsa (Wanege & Kanjegu also appear to refer to the Hadza))
(Dialects include: Mangolanibite (Mang'ola area), Tl'i'ikanibite (Isanzu area), Dunduwinibite (Shinyanga/Sukuma area)

Sandawe
Sandawe
(Dialects include: Bisa, Tehla) (Ten Raa 1970)
Northern Khoesan (cf. Treis (1998) for additional sources)

‡‡ ♦Hoan (Köhler's (1981a) ‡Amkoe group, lists dialects: ♦Hoan of Dutlwe and Tshasi of Khutse); (also known as Eastern ♦Hoan to distinguish from the dialect of !Xóó (Taa) called ♦Huang (♦Hoan)) (J. Gruber, field notes)

Non-♦Hoan (i.e. !Xung/Jul'hoan cluster)

Central
‡? Grootfontein-West !Xung
(Dialects/sources include: Ghaub Farm !Xung (near Tsumeb) (Vedder 1910/11))

Grootfontein-East !Xung
(Dialects/sources include: Leeunes Farm !Xung (Snyman 1997); Neitsas/Nurugas !Xung (Doke 1925))

Omuramba Owambo !Xung
(Dialects/sources include: Tsintsabis !Xung (Snyman 1997); lKeibeb Farm !Xung (Lebzelter 1937))

Northern
Okongo !Xung
(Dialects/sources include: Okongo !Xung (Snyman 1997); E. Okongo !Xung (Heikkinen 1986, 1987); W. Okongo !Xung (Heikkinen 1986, 1987))

Mpungu !Xung
(Dialects include: Mpungu(vlei) !Xung (Snyman 1997))

Angolan !Xung (subgrouping of this group is underdetermined)
(Alternate names include: (Ma)sekele, Cassequele, Vasekela, Kwankhala, Ovakwankale)
(Dialects/sources include: Cuito/Cubango !Xung (Snyman 1997); Cuando/Cuito !Xung (Snyman 1997); Cuando/Cuito !Xung (Snyman 1997); Angolan !Xung (Snyman 1980); Maligo !Xung (Angolan) (Westphal 1965); !o!ung (N3) (Angolan) (Bleek 1928, 1927/29, 1956); Serpa Pinto Sekele (Angolan) (Traill & Vossen 1997))

Southeastern
Jul'hoan
(alternate names and spellings include: Zhu, Zul'hoäsi, Kung, !Kung, Qhung, Zno-cgan, Ssuúgnassí, Dzu’oasi)
(Dialects/sources include: Tsumkwe Jul'hoansi (Snyman 1997, Dickens 1994); Dikundu !Kung/Jul'hoan (Köhler 1971, 1981b); Ts'ane/Tsh'aku Jul'hoansi Maingard (1957); !Xung 15 km west of Dobe (Werner 1906); Lister farm Jul'hoansi (Snyman 1997); Gobabis !Xung (van der Westhuizen 1972))

**Omuramba Omatako !Xung**

(Dialects/sources include: Otjiuo !Xung (Wilhelm 1921/22); Omatako !Xung (Snyman 1997) (south of Kanovlei); Omatako !Xung (Snyman 1997) (north of Kanovlei); Kameeldoring Jul'hoansi (Snyman 1997); Otjomavara Haillom ("Old Haillom") (Werner 1906); Nogau (Lebzelter 1934) (data collected after group moved to between the Omatako and the Epukiro); Otjimavare !Xung (Doke 1925))

‡Kxaullei

(alternate spellings include: Auen, ‡au kwe, llAullen, llk"au-l-len, Xk'au-xen, ‡Aulleisi, lAukwe, X'aoxeisi, ‡Auin, ‡Ao-ëi, Kaukau, koko, Makaukau)

(Dialects/sources include: llAullen (Bleek 1928, 1929, 1956); ‡Kxaullei (Westphal 1965))

Other

**Mangetti Dune !Xung**

(Miller-Ockhuizen & Sands 1999 & unpublished field notes)

‡?"!Xung"2

(!Xung spoken by !Nanni and Tamme in Bleek & Lloyd 1911, Bleek 1935, 1956, 1929)

**Central Khoesan**3 (based on Treis (1998); Vossen (1997: 280), cf. Winter (1981) for complete list of older sources)

Khoekhoe group (formerly, "Hottentot")

‡ Xiri (i.e. Khiri, Xri, Gri, Griqua)
‡ !Gora (i.e. !Ora, !Kora, Korana)
‡ Cape Khoe dialects (possibly !Gora varieties)

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1This is possibly an Angolan (Northern NK) variety, as the consultant's parents were from Angola.
2This is possibly a Grootfontein-West dialect.
3cf. Treis (1998: 469-486) and Köhler (1981a) for additional sources, terms and spelling variants referring to Central Khoesan languages.
**Khoekhoegowab** (i.e. Khoekhoe) (Haacke et al. 1997)
(Dialects include: ǂAkhoe, Haillom, Gaub Damara, Sesfontein, Namidama, Central Dama, Topnaar, Central Nama, Gobabis, Bondelswarts)

Non-Khoekhoe

**West Khoe**

**Kxoe group**⁴ (i.e. Khoe, Kwe, Khwe)

**Kxoe**
(alternate names & dialects include: Ts'ao-kxoe, Buma-kxoe, ǁXom-kxoe, ǁXokxoe, Xuu(-kxoe), Makwengo, Mbarakwengo, Zama, Hukwe, Chukwe, Xûkhwe)

ǁAni(khoe)
(spelling variants include: Tannekwe, ǁTannekwe, Maxganikhwe, Kanikwe)

**Naro-ǁGana group**

**Naro**
(alternate referents include: Nharo, Naron, ǁAikwe, Qabekhoe, ǁAi San, !Ai San, !ginkwe); (Nlhaintse, Ts'aoakhoe, Ts'aumkhoe may refer to distinct varieties)

ǁGana (Tshila, or Tshera, may be a distinct variety)

ǁGui (ǁGwi, Gcwi)

ǂHaba

**East Khoe**⁵

**Shua Group**

**Cara**

ǂDeti

ǁXaise

**Danisi**

Ts'iixa (i.e. Xu-khoe, Handa-khoe, Ts'exa, Ts'ikha)

⁴Buga(khoe) and ǁGanda(khoe) may or may not be separate languages in this group.

⁵Additional Eastern Khoekhoe groups and their locations are given in Treis (1998: 481-482). The linguistic identification of these groups is uncertain, as they are mainly known through ethnographic literature. Additional languages/dialects may exist.
Tshwa Group
May include: Kua, Cua, ‡ Tsua, Tshwa


Taa

!Xóó group (those dialects with non-place names are given here)
eastern dialects: !Xóó; ?? ≠ Huang, Tshasi (cf. Traill 1994, 1975); ≠ Khakhea (Kakia)
(Bleek 1929)
western dialects: ?? ≠ Nu-ll'en7 (Nusan) (Bleek 1929); ?? ≠ Namani (cf. Traill 1994, 1975)

!Kwi (cf. Köhler (1981a))

IXam group
≠ IXam (IXam, lXam-ka!ke) (Bleek 1929)
≠ !Khuai (Lichtenstein 1912)

lGang!Ne-Seroa group8
≠ lGang!Ne (Anders 1934/1935)
≠ Seroa (Arbousset & Daumas 1842)

lNg-!e9
≠ lNg-!e (Bleek 1929)

lXegwi10
≠ lXegwi (IXegwi, Lake Chrissie Bushmen) (Lanham & Hallowes 1956a,b, Ziervogel 1955)

≠ Khomani group
++ ≠ Khomani (Doke 1936; Maingard 1937)

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6 This includes groups referred to as Hiechware (Hie), Tati, and Nata River Bushmen.
7 This may be the same language as the !Ko of Kongowa (tša科教) (Treis 1998).
8 Group may also include extinct Lesotho variety (Maluti?) (Westphal 1971).
9 Westphal (1971) considers it part of the "Khomani group.
† ‡ Ky'au (kyxa) (Meinhof 1928/29)
† ‡ Ku-ll'e (Bleek 1956)
† ‡ Kunkwe (Meinhof 1928/29)
‡‡ l'Auni (Bleek 1929, 1937)
‡ Kilhazî (Kihaasi) (unpublished field notes of Robert Story, Bleek 1956)
‡ Khatia (Xatia) (Bleek 1929)

Classification uncertain

Kwadi

† Kwadi (i.e. Kwepe, Coroca, Kwandu, Twâ) (Estermann 1976), (de Almeida 1965),
(Köhler 1967, 1975), (Westphal 1971)

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11 Westphal (1971) considers it part of the Gang'Ne-Seroa group.
12 Listed by Westphal (1971) as Taa (Xôô) group language.
13 l'Auni may include dialects: ‡ nusa (Hahn 1870), ‡ kaurure linaii (Schinz 1891), ‡ Nîhuki (Westphal 1962a, b).
14 Listed by Westphal (1971) as Taa (Xôô) group language.
15 Listed by Westphal (1971) as Taa (Xôô) group language.
Evidence for the Genetic Unity of Southern Khoesan

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0 Introduction

Dorothea Bleek played a key role in shaping current thinking about Khoesan genetic relationships when, in her Comparative Vocabulary [1929b] and Dictionary [1956], she grouped the Southern African Khoesan languages into Southern, Northern and Central groups. Although Bleek did not claim that these groups represented families, this has been the working hypothesis adopted by the majority of Khoesan scholars (e.g. [Greenberg 1966], [Sands 1995], [Güldemann 1999]). Most of the debate on genetic relationships and Khoesan has focused on whether Central Khoesan is related to Northern and Southern Khoesan (see [Traill 1986] and [Westphal 1971] for different perspectives on this debate), or on whether the East African Khoesan languages are related to the rest ([Honken 1977], [Ehret 1986], [Sands 1995]). There has also been some debate over the relatedness of Northern and Southern Khoesan ([Traill 1973, 1974] and [Westphal 1974] discuss the possible role of +Hoan in establishing this link). A family tree illustrating Greenberg’s [1966] optimistic vision of genetic relationships is given in (1).

(1)

```
  Khoesan
    /\                     /
   /   \                   /
  Hadza Southern  Sandawe
           African     Khoesan
                 /\          /
            Northern Central
                /\         /
            Julhoan  Nama
                  /\      /
                |Xam  |Auni
                  |  |X66  +Khoni
                        ...
```

Among the many contested branches in this tree, it is the Southern group (bold-faced) which is the focus of this paper. Of the three groups of Southern African Khoesan

Thans to Chris Collins for teaching a Cornell seminar on Khoesan linguistics which inspired many of us to further pursuits in this area. Thanks also to Arthur Bell, Chris Collins and John Whitman for comments on earlier drafts of this paper, to the editors of this volume, and to Bonny Sands for furnishing some unpublished material.

A. Bell and P. Washburn (eds.),
Cornell Working Papers in Linguistics, Volume 18, pp. 225-246
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languages, the genetic unity of the Southern group is the least well-established, and even has been explicitly rejected by Westphal [1971]. Little, in fact, has been done to demonstrate its genetic unity in a systematic way.

This study attempts to make concrete some of the bases for assuming that the Southern Khoesan languages are indeed genetically related. While some of the data immediately indicate a strong affinity between languages, others require further analysis, or may represent areal features or typological coincidence. In this regard, the discussion here is preliminary, and I am not yet able to provide a full assessment of the extent to which the available evidence can be considered “proof” of genetic unity. With that eventual goal in mind, however, I outline here the syntactic and morphological evidence found in the available grammatical sketches, and the phonological and cognate evidence found in a comparative 100-word vocabulary list. Though little is known about migration patterns and the extent of language contact in this region, the possibility that similarities between languages are due to areal effects always exists, and is addressed explicitly in [Güldemann 1997]. In this paper I attempt to limit the influence of such effects by identifying similarities in sub-systems within the morpho-syntax of the languages involved (as discussed in, for instance, [Nichols 1996] on the Comparative Method), and by seeking likely cognates in more than two languages from randomly selected basic vocabulary.

The languages discussed here were spoken from present-day southwestern Botswana (ǃXóõ, ǂKhomani, ǀAuni) to the southwestern region of South Africa (ǀXam). With the exception of ǃXóõ, which Traill [1994] estimates to have about 2000 speakers, the languages all became virtually extinct in the early to mid 1900’s. Although I have chosen these four languages based on availability of materials, they are also good representatives of the breadth of Southern Khoesan. According to Westphal’s 1971 classification, Southern Khoesan is divided into two genetic groupings, the ǀWi and the Taa. Westphal lists ǀXam and ǀAuni as members of the ǀWi family, and ǂKhomani and ǃXóõ as Taa languages, though later authors have, probably more accurately, placed ǀAuni in the ǀWi family, reflecting its apparently close relationship to ǂKhomani (e.g. [Traill 1995]). (Another possibility mentioned by Westphal is that ǀXam is an isolate, and should be listed as its own family.)

In the next section I review past research on Southern Khoesan languages, and discuss my principal sources. In Section 3, I discuss some morphological evidence, in-
including noun classes and plurality. In Section 4 I discuss the 100-word list compiled in the Appendix, assessing the presence of possible cognates and sound correspondences. Section 5 is the Conclusion.

1 Review of Sources

The first Khoesan language to be studied in depth was |Xam, which was the focus of field work by Wilhelm H.I. Bleek from 1870 until his death in 1875. Although he himself published little in the way of grammatical or phonological descriptions of |Xam, a book of folktales transcribed by Bleek and his sister-in-law L. Lloyd ([W.H.I. Bleek & Lloyd 1911]) represents an important corpus of Southern Khoesan data. The grammatical description of |Xam written by Dorothea Bleek, daughter to W.H.I. Bleek, ([D. Bleek 1929a]) is based largely on the Bleek/Lloyd corpus. These two works, along with D. Bleek’s Vocabularies [1929b] and Dictionary [1956], constitute the |Xam sources in this study.

Dorothea Bleek was a Khoesan scholar in her own right, and did her own fieldwork on a number of languages. She published a brief description of |Auni grammar together with several short tales and a word list in [D. Bleek 1937]. There are also |Auni entries in her Dictionary and Vocabularies. Although her combined works represent a tremendous contribution to Khoesan studies, many later scholars have criticized D. Bleek’s work as rife with error of transcription and translation. Furthermore, her attempt to include all available sources in the compilation of her dictionary resulted in long lists of apparent synonyms and homonyms, often without indication of context, nor of distinguishing features. For this reason, my vocabulary lists only draw upon her Comparative Vocabularies [1929b] and |Auni wordlist which, although far less extensive than her Dictionary, are derived from more limited sources, principally just her own work and that of her father and aunt. Nonetheless, it must be expected that these materials contain errors and any analysis making use of them should ideally provide a substantial quantity of strong evidence in order to make a convincing case. This is one reason my search for cognates is conservative in a number of ways, as described in the Appendix.

My #Khomani data comes from the grammatical description provided in [Maingard 1937], which also includes a few folktales. Although some #Khomani vocabulary does appear in Bleek’s compilations, in [Maingard 1937] and in [Doke 1937], I do not include #Khomani in my wordlist (see Appendix) because of the difficulty in finding sufficiently
many vocabulary items.

The available information on !Xóõ is far superior in quality to that on the other Southern Khoesan languages. In the recent dictionary by Traill ([Traill 1994]), transcriptions are highly detailed, and the brief introductory grammatical sketch highlights a number of interesting syntactic paradigms, from which some data for this paper is taken. Unfortunately, as Traill reports, !Xóõ is the "last vital Southern Bushman language." Thus we cannot await further data of this quality before investigating the genetic unity of the Southern Group.

Although these are my primary sources for this paper, there are a few other studies of Khoesan in general which should be mentioned here. The extreme position against the genetic unity of Southern Khoesan outlined by Westpal [1971] has already been mentioned. The other extreme is represented by Greenberg [1966], who claims that all the Khoesan languages, including Sandawe and Hadza, are genetically related. The methodology (of mass comparison) adopted in Greenberg's work is somewhat haphazard, however, and involves the location of isolated cognates between a wide range of Khoesan languages, and the mention of some common morphemes, without a truly systematic approach.

Finally, Sands' 1995 thesis provides a careful and considered comparison of Khoesan languages in general. Sands is very strict about her criteria for the quality of data, and hence the only Southern Khoesan language which she includes in her study is !Xóõ. She also makes two comments of special relevance to this current paper. One is a warning of the problem I have already mentioned, that D. Bleek's work contains "serious errors of transcription and translation," and that "data based on her studies must be treated with extreme skepticism." This is sobering, and I have already discussed the use I make of this data, with these limitations in mind. On the other hand, Sands also states that "[the] Northern, Central and Southern [Khoesan] groups are commonly accepted as valid family units, though the evidence for the unity of the Southern Group is not entirely satisfactory." It is this remaining uncertainty regarding the unity of this Group which motivates this paper.

2 Syntax and Morphology

In this section I survey the morphological and syntactic evidence for the genetic unity of Southern Khoesan. I begin by describing some simple morphological and typo-
logical facts. I then discuss in greater detail some evidence to be found in the systems of pronouns, noun classes and plurality.

Southern KhoeSan languages all strongly exhibit an SVO word order, and have very little in the way of case morphology. Nominative and Accusative forms of nouns are identical, although !Xam also has an emphatic nominative form which I will discuss later in connection with plurality. All four languages in this study form the possessive by adding to the possessor a suffix which has the shape (given as lists of allomorphs) -ka, -ga, -ta (!Xam); -ka, -ga (!Auni); -ka (±Khomani); -IV (!Xóó). (This last is based on the !Xóó concordial system, which will be discussed more later. Essentially, the noun class of the possessed noun determines the shape of the vowel V.) The basic form of the allomorphs in the first two groups is -ka. Since the dental click in the !Xóó form has, of course, a velar stop as its second point of articulation, a common origin of all these forms may have had the shape -kV or -IV.

All four languages make use of verb compounds and in each there is some uncertainty concerning the existence of the category Preposition. Here I expand briefly on these typological similarities. D. Bleek [1929a] states that in !Xam there is only one true preposition (au). Indeed, this word does appear in a wide range of contexts, translated as ‘with’, ‘about’, ‘at’, ‘inside’, etc., though these meanings are often also expressed by compound verbs. Specifically, in an approximately 2700-word sample of text from two folktales in [Bleek & Lloyd 1911], I found 100 uses of au, of which 27 were arguably prepositional (followed by a nominal). The range and distribution of these “prepositional” uses of au indicate that au functions as a generalized oblique marker in clauses having two post-verbal nominals (e.g. direct object and oblique). In cases in which an oblique nominal follows the verb directly (is not preceded by a direct object), au is not present, but rather the nature of the oblique relationship is expressed via a (compounded) verb.

In !Xóó, Traill [1994] does not include Preposition in his inventory of word-level categories, but rather refers to “particles” or “verbal particles,” and his examples also include compound verb constructions (for instance, with ‘enter’ taking the meaning of ‘into’). Traill does identify a “transitivity marker”, having the form kV (here, the concord is with the following nominal), which precedes direct objects or obliques in some sentences.

\[1\text{Au can also introduce a clause, in which case it is adverbial-forming and generally translated as 'while'.}\]
Although in its distribution and breadth of meaning, $kV$ is reminiscent of $au$ in $\text{lXam}$, unlike $au$, $kV$ often directly follows the verb (i.e. is not limited to marking obliques which are already separated from the verb by a nominal).

In $\text{\textdaggerKhomani}$, Maingard [1937] recognizes the important role of verb compounding but does not mention the existence of prepositions. There is apparently a verb with the meaning ‘to be with’, taking the form $lka$, $lga$, $ga$ (Maingard p.254), which also appears in a wide range of contexts, but examples allowing an analysis of its distribution are simply not available.

$\text{lAuni}$ is the least well documented with respect to compound verbs and prepositions, and neither of these constructions is discussed by D. Bleek [1937]. Her word list includes prepositions but in some cases these are also attributed with verbal translations (e.g. $u^2$ ‘up, to lift up, away, to go away, take away’). Furthermore, also found in the wordlist is $ki$ ‘to, on, at, in, by’ and its “synonym” $ke$ ‘in, to, of, for’, whose multiplicity of interpretations is again reminiscent of $au$ and $kV$ above. The evidence is insufficient, however, to determine the true syntactic role of these lexical items.

In sum, all four languages make use of compound verbs in (semantic) place of prepositions. If they had a common ancestor with this same property, it appears that in $\text{lAuni}$ certain verbs from compounded constructions may have become reanalyzed as prepositions. Of course, much more textual data would be necessary to demonstrate this point. Although $\text{lXam}$, $\text{!Xôô}$, and $\text{lAuni}$ all contain particles or prepositions with very general meanings (or perhaps just functional syntactic roles) it is not easy to immediately relate the forms between the various languages.

Southern Khoesan pronouns, noun classes, and plurality are interrelated and shed interesting light on one another. $\text{!Xôô}$ has five noun classes, with Class 1 containing only singulars and Class 4 containing only plurals, but both number categories also showing up in other classes. Most singular borrowings end up in Class 3, and plural borrowings in Class 4. Many, but by no means all, nouns could be classified correctly by means of the final segments of the noun root. Traill’s assignment of noun classes is based on the concordance patterns triggered by each noun. For instance the direct object of a transitive verb triggers the appearance of certain concordial suffixes on its adjectival and/or relative clause modifiers and on the verb itself.

\footnote{Bleek indicates high or low tone as $\sim$ or $\sim$ respectively, preceding the syllable in question.}
Evidence for the Genetic Unity of Southern Khoesan

In lXam, lAuni and Khomani there may not be an active system of noun classes, and third person pronouns are limited almost entirely to a simple singular and plural distinction. The exceptions are to be found in lXam, in which D. Bleek [1929a] identifies two noun "classes" whose members are distinguishable via their corresponding third person and relative pronouns. Here, Class 1 contains only singular nouns but Class 2 contains both singular and plural nouns. Very few examples of the crossover nouns are given by Bleek. With respect to this peculiarity of Class 2, she reports:

This looks as if there had been two classes of nouns in the singular, and that the plurals of both had been the same, and now outwardly agree with the second classes singular, that is to say as far as the pronouns are concerned. There is no distinguishing feature in the nouns themselves. Some of these are: _llgai_ shoulderblade, _tu_ skin, _llna_ kareeboom, _lneip_ hut, _hor_ eggshell. They are all things, not persons, but the majority of things belong to the first class.

Given these few examples I have looked for cognates among the other languages to see if these peculiarly classified forms are themselves unique to lXam (and not part of the parent language, if there is one). In fact, the form for 'skin' has a likely lXoö cognate _tüm_ (lXoö Class 2), whose plural patterns optionally with Class 2 or Class 4. The lXam form for 'shoulderblade' is likewise similar to its lAuni equivalent _llgaë_, which presumably follows the regular singular/plural classification scheme. Furthermore, as seen in the 100-word list, 'hut' has potential cognates in both lAuni (_lln_) and lXoö (_lnaë_, Class 3 in singular and plural). I have not identified the lAuni or lXoö words for 'kareeboom', and have not found likely cognates for 'eggshell'. These few facts lead me to tentatively agree with D. Bleek (though not necessarily adopting her analysis) that lXam could be showing the traces of an earlier, more complicated system of noun classes. In fact, we will see that lXoö and Khomani independently show evidence of such a past.

To make concrete some of the bases for noun classification, I summarize in Table 1 the third person pronominal system of the four languages being studied here. The lXoö pronouns listed are the so-called "intra-sentential" pronouns, which appear as apparent resumptives in trace positions, obligatory in the case of topicalization but otherwise optional (this is Traill's description of their distribution). There are also inter-sentential pronouns which appear in regular subject positions.³

³It is interesting to note that the three inter-sentential pronouns cut across the Noun Classes, representing instead the categories of animate singular (_et_), animate plural (_u_ and _i_). I will not be able to give an analysis of inter-sentential pronouns here, however.
Table 1: Third person pronouns

<table>
<thead>
<tr>
<th>Xam</th>
<th>Auni</th>
<th>#Khomani</th>
<th>!Xóó</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Cl.1:</td>
<td>ha,</td>
<td>3sg: ka, kwa, ku, ha, hā</td>
<td>3rd Cl.1: ıh</td>
</tr>
<tr>
<td>3rd Cl.2:</td>
<td>hī,</td>
<td>3pl: ca, cen, ke, ku, ke, ha, hŋ</td>
<td>3rd Cl.2: āh</td>
</tr>
<tr>
<td></td>
<td>hī</td>
<td></td>
<td>3rd Cl.3: ēh</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3rd Cl.4: ūh</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3rd Cl.5: ř</td>
</tr>
</tbody>
</table>

Among the Xam, Auni and #Khomani third person pronoun systems we see fairly clear similarities. The inventory of #Khomani apparent allomorphs is extensive, but it is enlightening to note that in Maingard's analysis of 'to go' he refers to the forms ka, can, cen, cen, cen as variants of the same verb (c representing a voiceless palatal plosive). This variation, and that seen in Table 1, could thus both be the result of phonological conditioning. This seems to suggest that in fact #Khomani third person pronouns have fewer basic forms than indicated in the table, with basic shapes kV and hV in both the singular and kV and ha in the plural (with an added nasal under some circumstances). This in turn might indicate that there is a more complex noun class system in #Khomani, or at least a two-Class system which is not simply broken down by number category. The presence of ha and ku in both lists makes this a strong possibility. However, I have not uncovered specific patterns of pronoun use in Maingard's three #Khomani tales to confirm this.

I complete the inventory of pronominal systems in Table 2.

Table 2: First and second person pronouns

<table>
<thead>
<tr>
<th></th>
<th>Xam</th>
<th>Auni</th>
<th>#Khomani</th>
<th>!Xóó</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>ŋ,</td>
<td>n,</td>
<td>n, n, n, m</td>
<td>ŋ</td>
</tr>
<tr>
<td></td>
<td>ka</td>
<td>na</td>
<td>na</td>
<td>n</td>
</tr>
<tr>
<td>2sg.</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>āh</td>
</tr>
<tr>
<td>1pl. (incl.)</td>
<td>i</td>
<td>i, e</td>
<td>i</td>
<td>řh, īsī</td>
</tr>
<tr>
<td>1pl. (excl.)</td>
<td>si</td>
<td>si, se</td>
<td>sa, si</td>
<td></td>
</tr>
<tr>
<td>2pl.</td>
<td>u</td>
<td>u, du</td>
<td>pa, ba, u</td>
<td>uh</td>
</tr>
<tr>
<td>1 dual</td>
<td></td>
<td></td>
<td></td>
<td>řnáí</td>
</tr>
<tr>
<td>2 dual</td>
<td></td>
<td></td>
<td></td>
<td>řnům (two)</td>
</tr>
</tbody>
</table>
These pronominal paradigms straightforwardly appear to be part of a single system, but there are nonetheless some differences to explain. D. Bleek reports that for the !Xam first person, "ŋ is far more often used than ka, which often, though not invariably appears in subordinate clauses." With this one exception, however, the first person singular pronoun of a parent system seems likely to have been *n or possibly a nasal with unspecified place of articulation. That the variation which is seen among the nasal forms in !Auni is likely to be phonetically conditioned is supported by the form for 'my daughter', which is m ʘpu:xe (lit. 'I daughter,' the possessive suffix often being dropped in the case of inalienable possession) and 'my mother', which is n ʰkhaijo ('I mother').

It is similarly natural to propose the proto-language second person singular as *a and plural as *u. The additional forms found in !Auni and +Khomani do not appear in the available texts, so I am unable to comment on their conditioning.

The first person plural is equally straightforward, with the parent system in all likelihood distinguishing the inclusive and exclusive 'we' through the i/si contrast seen here. The forms have apparently collapsed in !Xóó since Traill does not indicate any distinction between the two.

The dual forms seen in !Xóó may derive from #num, 'two'. The form #ndi (1 dual inclusive) might also incorporate the singular pronouns meaning 'I' (n) and 'you' (ah).

To summarize thus far, all four Southern Khoesan languages have almost identical pronominal systems in first and second person, and in the third person they have in common pronouns of the form hV or Vh, where the vowel depends on noun class or number. There is some evidence in the pronominal systems of !Xam and +Khomani that a parent system involved a larger number of noun classes.

Further evidence in support of a more complex system of noun classes can be found through an analysis of plurality in the various languages. None of the Southern Khoesan languages studied here has an easily stated and productive method of plural formation. I will briefly summarize each method in turn.

From Maingard's description of plurality in +Khomani it is clear that the basic mechanism for plural formation involves prefixation or suffixation. The particular prefixes and suffixes involved are quite variable. Maingard focuses mainly on forms involving numbers, though from his discussion it can be inferred that the relevant singulars and plurals can also stand alone. For example, the word 'bird' is lkwi or lkwisí, with the
optional singularity suffix 

\[ -si \]. The plural ‘birds’ is \[ lwike \], with plurality suffix \[ -ke \]. When numbers are involved, the form of the expression is apparently Noun\+particle\+Number (though Maingard simply gives examples and does not discuss the nature of the particle at all). Thus, ‘one bird’ is \[ lwisi e lkoe \] (lit. ‘bird-sg. particle one’). The particles can vary for an individual noun between singular and plural, and they also vary between nouns.

In \[ !Auni \], D. Bleek notes that many singular nouns end in one of \[ ri, sa, ba \], and many plural nouns end in \[ ke, ki, te, ti, si, n, ni \]. Often, too, the root vowel changes in the plural. In number expressions, one of several particles will appear between noun and number, as was the case in \[ +Khomani \], again apparently varying with the noun and with the number. The \[ !Auni \] particles given by D. Bleek are not clear cognates of those in \[ +Khomani \], however.

In \[ !Xoó \] the basic mechanism for plurality is like that in \[ !Auni \] in that some suffixation occurs, and there are typical noun endings associated with singular and plural, but there is also a great deal of irregularity. The most common plural suffix is \[ -tê \], but other possibilities include \[ -ni \], and \[ -sà \]. Their use is often accompanied by changes in the root. Sands [1995] follows Traill [1985] in analyzing these “root” changes as indicative of an earlier system of plurality which also involved suffixation. For example, given the pair \[ lnjê, lnjêm-tê \] (‘night/nights’), she identifies \[ -e \] as the original singular suffix and \[ -m \] as the original plural suffix. Based on an inventory of the noun forms appearing in Traill [1994], the analysis is essentially that the fairly regular root alternations as well as the more obvious and productive plural suffixes, are in fact an indications that the language is descended from an ancestor with about thirty noun classes. Under this analysis, the current system of only five noun classes would represent a collapse of those classes, and the unproductive root-ending changes in the plural would thus be a vestige of the old system.

Sands lists 23 original endings often associated with singular nouns, and 11 original endings associated with plural nouns. Among the plural endings (which, I repeat, initially appear to be root modifications, and can co-occur with \[ -tê \]) mentioned by Sands, none overlap with the \[ !Auni \] plural suffixes. However, note that there is a strong correspondence between the more productive series \[ -tê, -ni \], and \[ -sà \] in \[ !Xoó \] and the \[ !Auni \] plural suffixes, \[ ke, ki, te, ti, si, n, ni \].

Finally, \[ !Xam \] endings are also very varied but in a rather different way. Reduplica-
tion is of enormous importance in the formation of |Xam plurals, with the exact shape of
the reduplicant varying (apparently) unpredictably. This is the only extensive redupli-
cation I have found among these languages. The |Xam plural formation strategies, involving
both suffixation and reduplication, overlap in a curious way with the |Xam system of “em-
phatic” (to use W.H.I. Bleek’s terminology from [Bleek & Lloyd 1911]) nominative forms.
These emphatics are formed with the suffix -kən, which has allomorphs -gən (after a long
vowel) and -tən (after a front vowel). The emphatic suffix becomes -η after a diphthong
or nasal vowel. (These generalizations are due to D. Bleek.)

Now, the common plural suffix in |Xam has exactly the same phonetic shape as
the emphatic suffix. Thus, the additional mechanism of reduplication is often crucial to
distinguishing between the emphatic form and the plural form of a noun.

D. Bleek gives examples of a number of different categories of plural formation.
Just a few of these examples are tabulated in Table 3.

<table>
<thead>
<tr>
<th>description</th>
<th>English</th>
<th>Singular</th>
<th>Emphatic</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple redup.</td>
<td>hand</td>
<td>ᵃk’a</td>
<td>ᵃk’a-kən</td>
<td>ᵃk’a-kən</td>
</tr>
<tr>
<td>Redup. of emphatic</td>
<td>thing</td>
<td>ti</td>
<td>ti-kən</td>
<td>ti-kәnti-kən</td>
</tr>
<tr>
<td>Redup. with -kən</td>
<td>beast of prey</td>
<td>ᵢkei-kei</td>
<td>ᵢkei-kei-tən</td>
<td>ᵢkei-tənⁿ ᵢkei-tənⁿ</td>
</tr>
<tr>
<td>Redup. + -kən</td>
<td>face</td>
<td>xu:</td>
<td>xu:-kən</td>
<td>xu:xu:-kən</td>
</tr>
<tr>
<td>Redup. of root</td>
<td>star</td>
<td>kwatən</td>
<td>kwatə-kən</td>
<td>kwatə-kən</td>
</tr>
</tbody>
</table>

Clearly this is a complicated system in need of phonological analysis. For the moment,
however, I speculate with regard to historical processes that the suffix -kən may have
been the plural ending in some ancestor of |Xam, and later took on a secondary, emphatic
(singular) meaning. The host of reduplicative variants which iconically identify the plural
was perhaps at that point a disambiguation strategy in the evolution of the language. This
is consistent with the fact that although the |Xam’s suffixation plural-formation strategy is
shared by other Southern Khoesan languages, the reduplication element of |Xam plurality
is apparently an innovation of that language (though a common one cross-linguistically).

What does all this tell us about plural formation in the possible common ancestor
of Southern Khoesan? Whether or not the Traill/Sands theory of a 30-Class ancestor of
|Xöö is correct, it appears that the break-up of Southern Khoesan took place at a time in
which the secondary plural formation system was already functioning. That is, it seems that the -kan, -gon, -tan, -n system of |Xam; the -té, -ní, -sá system of !Xoõ; the -ke, -ki, -te, -ti, -si, -n, -ni of !Auni; and the suffixation system of ±Khomani (of which the only forms cited by Maingard are -ke and -ce) are all modern-day reflexes of the same set of proto-language plural suffixes. The similar shapes of the suffixes cross-linguistically provide support for this theory.

3 Vocabulary and Sound Correspondences

This section focuses on the data found in the 100-word list provided in the Appendix. The list includes |Xam, !Auni (from two sources due to D. Bleek, possibly representing two dialects4) and !Xoõ. The equivalent data was not available in ±Khomani5. The vocabulary items selected were not chosen based on the existence of cognates among the languages, but were randomly selected within the constraints imposed by the availability of data in all three languages. The method for compiling the list is discussed in the Appendix.

Differences in orthographic convention, and the likelihood of errors in transcription, especially in D. Bleek’s |Xam and !Auni data, are obvious barriers to interpreting any Southern Khoesan comparative wordlist. For example, D. Bleek seems not to have distinguished between velar and uvular click accompaniments (assuming, as seems likely, that both did indeed exist in |Xam). Furthermore, D. Bleek did not seem to consistently mark tone, so any effect this might have had on phonological conditioning will have been lost. In general, the click accompaniments are apparently not recorded by Bleek in sufficient detail to capture all contrastive segments (based on typically extensive segment inventories for other Khoesan languages). For these reasons, my identification of possible cognates are quite conservative. This approach has the advantage of producing relatively convincing-looking cognate sets, but this conservatism may obscure the presence of regular sound-changes. In some cases, the insights in [Traill 1995] with regard to the (sometimes

4The first column of !Auni data, labeled ‘CV’, is from Bleek’s Comparative Vocabularies, and the data was collected by D. Bleek in 1911 [D. Bleek 1929b]. The second column, labeled ‘WL’ is taken from [D. Bleek 1937] and derives from Bleek’s 1936 fieldwork.

5I was in fact able to locate 43 of the wordlist entries in [Maingard 1937] and [Doke 1937], and of these as many as 14 seemed to have possible cognates in all three of the other languages. However, much of this vocabulary came from Maingard’s deliberate compilation of ±Khomani/|Xam cognates, so cannot be viewed as a random selection among the 100 wordlist items.
consistently erroneous) transcriptional conventions adopted by the Bleeks and Lloyd assist in the identification of a cognate set. Any such cases, in which I do not take the original transcription at face value, I indicate individually in footnotes.

Of the 100 vocabulary items, there were 16 cases in which likely cognates were found in all three languages. For convenience of assessment, the proposed 16 3-way cognates are copied into a second table at the end of the Appendix, along with the !Khomani version of the same words (in the 14 cases where I was able to find the relevant word in [Maingard 1937]). It is encouraging to note that all 14 of these !Khomani items also seemed to be likely cognates of the forms already identified in the other three languages. This confirmation makes it seem quite likely that the items in this list may all be modern reflexes of common proto-language words. Note further that the presence of these reflexes in four Southern Khoesan languages makes them less likely to represent recent borrowings.

In addition to the set of 16 3-way possible cognates, there were 25 more possible cognate pairs in !Xam and !Auni, and 12 more pairs in !Auni and !Xόó. There were 7 more pairs to be found between !Xam and !Xόó. These sets are indicated in the final column of the first table. Note that these numbers seem consistent with the view that !Xam and !Auni are members of the !Wi sub-family of Southern Khoesan, while !Xόó is more distantly related, belonging to the Taa branch of the Southern Khoesan Group.

There is an inherent difficulty in identifying sound changes among languages with unusually large segment inventories (making the occurrences of any individual segment correspondingly rare). Perhaps for this reason, not many studies have focused on the existence of evidence for such changes ([Traill & Vossen 1997] is an exception, reviewing and analyzing evidence for certain cases of systematic click loss). Despite this problem, and the drawbacks associated with the data quality, I will briefly mention here two apparent sound correspondences which emerge from the wordlist data. These are given as initial evidence for regular sound changes among the languages discussed here, and are certainly not an exhaustive representation of all candidates for correspondences. A more detailed search for regular sound changes, which should probably go along with a broader search for cognates among related semantic fields and less obviously cognate forms, will be left for future research.

First, there seems to be a correspondence between the back glide /w/ following the
initial consonant in !Xam, and Ø in !Auni. In Table 4, the !Xam words containing a back glide w are listed along with their !Auni possible cognates (!Xöö possible cognates are also given, where one has been proposed).

<table>
<thead>
<tr>
<th>English</th>
<th>!Xam (w)</th>
<th>!Auni (Ø)</th>
<th>!Xöö</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 breast</td>
<td>!kwei</td>
<td>Økëisi</td>
<td>—</td>
</tr>
<tr>
<td>13 to cry</td>
<td>k&quot;wa⁶</td>
<td>k&quot;a:, +kai</td>
<td>kxʻaa, g!kxʻāā</td>
</tr>
<tr>
<td>16 to drink</td>
<td>k&quot;wā, k&quot;wē, k&quot;a:a</td>
<td>k&quot;āā, k&quot;ē</td>
<td>kxʻāhā *</td>
</tr>
<tr>
<td>34 hartebeest</td>
<td>!k?wa</td>
<td>!k?e, !ga:</td>
<td>—</td>
</tr>
<tr>
<td>44 hyena (brown)</td>
<td>!gwāi</td>
<td>!kāin</td>
<td>—</td>
</tr>
<tr>
<td>97 water</td>
<td>!khwa:</td>
<td>!kha, -kha:, -khaā -khai, !kha:a</td>
<td>!qhāa</td>
</tr>
<tr>
<td>100 young</td>
<td>-Øpwa, !kwā</td>
<td>Øpwai</td>
<td>Øa, !quu</td>
</tr>
</tbody>
</table>

Note that it is only in the last entry in this table, ‘young’, that !Auni also exhibits a back glide. Furthermore, where !Xöö apparent cognates have been located, these words also do not have a back glide, possibly indicating that the w is an innovation in !Xam (although more investigation would be required to establish the environment which triggered the glide).

A fairly regular sound correspondence that emerges from study of the possible !Auni/!Xöö cognates involves the vowels o and u. The relevant data are shown in Table 5. The !Xam forms are also shown, when they are proposed cognates.

<table>
<thead>
<tr>
<th>English</th>
<th>!Xam</th>
<th>!Auni (o)</th>
<th>!Xöö (u)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 ear</td>
<td>!nuntu</td>
<td>+næ, +nui</td>
<td>+nàhā</td>
</tr>
<tr>
<td>50 leopard</td>
<td>!kauē</td>
<td>lkʻaru, !kōū</td>
<td>!ūi</td>
</tr>
<tr>
<td>52 lungs</td>
<td>—</td>
<td>lkʻomti, !kōnukē</td>
<td>!ūn-tē</td>
</tr>
<tr>
<td>57 mouth</td>
<td>—</td>
<td>+ku:, +ku</td>
<td>+ūe</td>
</tr>
<tr>
<td>63 nose</td>
<td>!nuřu</td>
<td>lu:, lnō</td>
<td>lnühna</td>
</tr>
<tr>
<td>65 one</td>
<td>—</td>
<td>—</td>
<td>+Ō</td>
</tr>
<tr>
<td>69 porcupine</td>
<td>—</td>
<td>lū, lō</td>
<td>lnūu</td>
</tr>
<tr>
<td>78 shade</td>
<td>—</td>
<td>səm</td>
<td>sūm</td>
</tr>
<tr>
<td>91 tired</td>
<td>—</td>
<td>!hubu</td>
<td>!hūu</td>
</tr>
</tbody>
</table>

⁶In her Comparative Vocabularies, D. Bleek describes k' as k with “glottal closure”, and k" as this same sound with “very strong glottal closure".
Among the 28 suggested cognate pairs between the two languages, 10 of the !Xoö forms have u as the first vowel. Of these, three retain the u in !Auni, and the rest have (at least optionally) a corresponding o or ə. Note that the proposed !Xam cognates of these words pattern more closely with !Xoö, and thus the !Auni o could be an innovation of that language.

These apparent sound correspondences, while suggestive of regular sound changes that could have led to the synchronic diversity of these languages (although of course we are actually comparing languages across a span of 120 years), are certainly not sufficient to allow us to break up Southern Khoesan into a more highly articulated tree. On the other hand, the appearance of a reasonably large number of apparent cognates shared by all three of the languages surveyed (and ±Khomani, too) does seem to strengthen the argument in favour of the hypothesis of genetic unity.

4 Conclusion

In this paper I have summarized evidence that the Southern Khoesan language group should legitimately be considered a single genetic unit, based on similarities seen in the syntactic systems, morphological systems, and vocabularies of Southern Khoesan languages which are spoken now, or which have only recently become extinct. I have found a high degree of similarity among the pronoun, possessive, and plural systems of the four languages in these studies. A conservative search for cognates among the 100 entries in the wordlist has uncovered 16 possible cognates shared by !Xam, !Auni and !Xoö, and these possible cognates were further found to resemble the corresponding ±Khomani forms, where these could be found. The result is, I hope, a more complete profile of the Southern Khoesan group, and perhaps a step towards establishing this group as a family. Although I believe the case for genetic unity to be fairly strong, more work needs to be done to investigate the relative effects of genetic and contact influences in order to understand fully the interplay of these two aspects of linguistic similarities.

Despite the dearth of material, there is much work that still could usefully be done on Southern Khoesan. Of course most desirable would be to obtain further accurate documentation of living languages in this group, both !Xoö and possibly others which may still have speakers. However, even the existing documentation on extinct languages can provide additional valuable evidence. The written corpus on !Xam has not been thor-
oughly exploited. I believe that a more complete understanding of Southern Khoesan is important not only for its own sake, but also in order to address the question of the genetic unity of Khoesan as a whole. In the ongoing debates on this topic, Southern Khoesan should ideally be understood based upon the full diversity of its member languages, and the likely characteristics of the proto-language, and not simply through any single modern representative.
APPENDIX

This list of 100 words in three languages has been compiled from the Comparative Vocabularies (CV) [D. Bleek 1929b] on |Xam and |Auni, the |Auni wordlist (WL) [D. Bleek 1937], and the |Xöö dictionary [Traill 1994]. Since the |Auni sources seem to represent dialect variants I have included them in different columns in the chart. However, I have freely used either source in my cognate count, depending on the available data.

The 100 words listed here were selected by first scanning the English entries in Bleek’s Comparative Vocabularies for items of (roughly defined) “basic” vocabulary. Among these words I entered in the list all of those for which translation into |Xöö and |Auni could be found, until I had 100 entries. To reduce the likelihood of finding false cognates by chance, I have not pursued wider searches within the semantic field. However, when several forms were listed under the desired entry, among these I did scan for possible cognates. In most cases I have listed synonyms in the chart, too, with the proposed cognate first so the reader may get an idea of the extent of the scanning involved. In cases where this was unrealistic due to space constraints, I have indicated with an asterisk that other non-cognate forms have been omitted. The result is a list of 28 bodyparts, 19 nature-related nouns, 23 basic verbs, 12 animals, 6 adjectives, and 12 others (human-related nouns, numbers, etc.).

In the final column I have listed the number of likely cognates I have identified among the three languages treated here. Roughly, when two words share three of the following features I identify them as likely cognates: initial click (।, ḋ, ḫ, ǂ, ʘ, or ʘ), initial place of articulation or nasality, glottalization or aspiration of initial consonant, first-syllable vowel, non-initial liquid, non-initial nasal.

<table>
<thead>
<tr>
<th>List 1: 100-word list</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
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<tr>
<td>8</td>
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<tr>
<td>9</td>
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<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>14</td>
</tr>
<tr>
<td>15</td>
</tr>
</tbody>
</table>

*Indicates that not all synonyms from the original source have been listed.
†Indicates forms relevant to Traill’s [1995] insight that the Bleeks’ and Lloyd’s transcriptions of an |Auni or |Xam plain click (click followed immediately by a vowel) is likely to be correctly rendered as click + †. Hence ḍa: in the wordlist is phonetically ḍa:, etc.
<table>
<thead>
<tr>
<th>English</th>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
<th>#cog.</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 to drink</td>
<td>k'wà, k'wè</td>
<td>k'a:a</td>
<td>k'áá, k'è</td>
<td>kx'áha *</td>
</tr>
<tr>
<td>17 dry</td>
<td>k'crok</td>
<td>l'k'om</td>
<td>lqáa</td>
<td>2ab</td>
</tr>
<tr>
<td>18 dust</td>
<td>l'ai</td>
<td>l'ai</td>
<td>qöhöli</td>
<td>2ab</td>
</tr>
<tr>
<td>19 ear</td>
<td>luntu</td>
<td>ná, nui</td>
<td>nūhá</td>
<td>3</td>
</tr>
<tr>
<td>20 earring</td>
<td>l'kam</td>
<td>l'kánu</td>
<td>mū-l'naa-ná</td>
<td>2ab</td>
</tr>
<tr>
<td>21 egg</td>
<td>l'kau</td>
<td>_lui, _ui, *</td>
<td>_guá</td>
<td>2ab</td>
</tr>
<tr>
<td>22 eye</td>
<td>ts'axá</td>
<td>ts</td>
<td>ts'a:xu, tsóo</td>
<td>l'ài</td>
</tr>
<tr>
<td>23 eyebrow</td>
<td>l'kíl'í, l'kém</td>
<td>pwoi</td>
<td>l'álo</td>
<td>-</td>
</tr>
<tr>
<td>24 face</td>
<td>xu:</td>
<td>lka</td>
<td>sáa</td>
<td>-</td>
</tr>
<tr>
<td>25 fire</td>
<td>l'í</td>
<td>l'í</td>
<td>l'áa</td>
<td>2ab</td>
</tr>
<tr>
<td>26 fly</td>
<td>l'áó</td>
<td>zë</td>
<td>dzáhi</td>
<td>-</td>
</tr>
<tr>
<td>27 to fly</td>
<td>l'khou, lxau</td>
<td>l'ka</td>
<td>s'á</td>
<td>-</td>
</tr>
<tr>
<td>28 foot</td>
<td>l'kai</td>
<td>l'k'ai</td>
<td>s'á</td>
<td>-</td>
</tr>
<tr>
<td>29 forehead</td>
<td>xu:</td>
<td>lka</td>
<td>s'á</td>
<td>-</td>
</tr>
<tr>
<td>30 gemsbok</td>
<td>l'kwi</td>
<td>lxa</td>
<td>xá:a</td>
<td>2bc</td>
</tr>
<tr>
<td>31 grass</td>
<td>lke:</td>
<td>lkarí</td>
<td>l'k'axáa</td>
<td>-</td>
</tr>
<tr>
<td>32 hair</td>
<td>l'ku</td>
<td>l'ko</td>
<td>l'khoó</td>
<td>2ab</td>
</tr>
<tr>
<td>33 hand</td>
<td>l'k'a</td>
<td>l'k'a</td>
<td>l'k'an *</td>
<td>l'k'axá</td>
</tr>
<tr>
<td>34 hartebeest</td>
<td>l'k'wa</td>
<td>l'k'e</td>
<td>l'gá, l'naí</td>
<td>2ab</td>
</tr>
<tr>
<td>35 to have</td>
<td>l'ki</td>
<td>l'ke:i</td>
<td>l'k'u, l'q'áa *</td>
<td>2ab</td>
</tr>
<tr>
<td>36 head</td>
<td>l'na:</td>
<td>l'na:</td>
<td>l'na, _xuu</td>
<td>l'nan</td>
</tr>
<tr>
<td>37 to hear</td>
<td>tum, tu; tuui</td>
<td>taá, ta:a</td>
<td>tu:, tuui</td>
<td>táa</td>
</tr>
<tr>
<td>38 heart</td>
<td>l'í, l'í, +l'ka</td>
<td>l'q'an</td>
<td>2ac</td>
<td></td>
</tr>
<tr>
<td>39 heavy</td>
<td>koe:n</td>
<td>geite</td>
<td>l'naú</td>
<td>-</td>
</tr>
<tr>
<td>40 hill</td>
<td>l'kóo</td>
<td>l'wa</td>
<td>l'hm</td>
<td>-</td>
</tr>
<tr>
<td>41 honey</td>
<td>l'khou</td>
<td>l'ko:</td>
<td>l'qhuje</td>
<td>2ab</td>
</tr>
<tr>
<td>42 to be hot</td>
<td>l'kam</td>
<td>l'kam</td>
<td>l'qhuje</td>
<td>2ab</td>
</tr>
<tr>
<td>43 house</td>
<td>l'nei, l'neiñ</td>
<td>l'lan</td>
<td>l'na</td>
<td>3</td>
</tr>
<tr>
<td>44 hyena (brown)</td>
<td>l'gwái</td>
<td>l'k'ain</td>
<td>l'nu:u, g'qhu-flat</td>
<td>2ab</td>
</tr>
<tr>
<td>45 hyena (spotted)</td>
<td>l'nauítan, l'xauru</td>
<td>l'gí</td>
<td>l'gáhú</td>
<td>-</td>
</tr>
<tr>
<td>46 jackal</td>
<td>l'ko</td>
<td>opo sa</td>
<td>l'has, l'laa</td>
<td>l'ao-se</td>
</tr>
<tr>
<td>47 knee</td>
<td>l'noaj</td>
<td>lkoilkoi</td>
<td>g'xú, l'ñú</td>
<td>-</td>
</tr>
<tr>
<td>48 knife</td>
<td>l'gwara</td>
<td>góa</td>
<td>lóo</td>
<td>-</td>
</tr>
<tr>
<td>49 leg</td>
<td>l'kwa:</td>
<td>l'ka</td>
<td>l'qhála</td>
<td>-</td>
</tr>
<tr>
<td>50 leopard</td>
<td>l'kaué</td>
<td>l'k'alu</td>
<td>l'uí</td>
<td>3</td>
</tr>
<tr>
<td>51 to listen</td>
<td>-tum-i, lañ-a</td>
<td>tu:ho</td>
<td>l'q'óle, l'üle</td>
<td>2ac</td>
</tr>
<tr>
<td>52 lungs</td>
<td>l'so:</td>
<td>l'komti</td>
<td>l'k'olñu</td>
<td>l'ñ'nté</td>
</tr>
<tr>
<td>53 to marry</td>
<td>l'hañ</td>
<td>u'ku, _k'u</td>
<td>l'hañ</td>
<td>2ac</td>
</tr>
<tr>
<td>54 meat</td>
<td>l'k'óe, l'q'óe, l'pwi</td>
<td>l'áje, l'ñu</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>55 moon</td>
<td>l'k'aro</td>
<td>l'kói</td>
<td>lq'Hán</td>
<td>-</td>
</tr>
<tr>
<td>56 mouse</td>
<td>l'kabi</td>
<td>l'kói</td>
<td>lq'Hán</td>
<td>-</td>
</tr>
<tr>
<td>57 mouth</td>
<td>tu:</td>
<td>tu, thu, tu</td>
<td>ñ'te</td>
<td>2ab, bc</td>
</tr>
<tr>
<td>58 much</td>
<td>l'k'a:ja</td>
<td>l'kari</td>
<td>l'k'ú, l'kú</td>
<td>2ac</td>
</tr>
<tr>
<td>59 name</td>
<td>l'ké</td>
<td>l'ké, l'kén</td>
<td>l'ui</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>#cog.</td>
</tr>
<tr>
<td>-------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>neck</td>
<td>!khou</td>
<td>+kői</td>
<td>+kői</td>
<td>+kxˈaʊ</td>
</tr>
<tr>
<td>night</td>
<td>ɪlgaː</td>
<td>ɪlga</td>
<td>ɪnje</td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>kˈauki</td>
<td>ɪka</td>
<td>ˈɪ, ˈɪ</td>
<td>-</td>
</tr>
<tr>
<td>nose</td>
<td>ɪnuːɾu</td>
<td>ɪnuː</td>
<td>ɪnːo</td>
<td>ɪnːuːna</td>
</tr>
<tr>
<td>nostrils</td>
<td>ɪnulnuːtu</td>
<td>ɪnoituke</td>
<td>ɪnːuːna</td>
<td>ɪlqai</td>
</tr>
<tr>
<td>one</td>
<td>ɪkwaiː</td>
<td>-+ʊ́</td>
<td>-</td>
<td>+ˈʊ́a</td>
</tr>
<tr>
<td>ostrich</td>
<td>koː</td>
<td>koː, tői</td>
<td>qʊje</td>
<td></td>
</tr>
<tr>
<td>palm (hand)</td>
<td>ɪkˈa</td>
<td>ɪkkai</td>
<td>luma</td>
<td>+ˈʊm tshoe</td>
</tr>
<tr>
<td>path</td>
<td>ɪxaaːra, ɪkauːo</td>
<td>ɪlane</td>
<td>+kˈoːa</td>
<td>+oːlo, dʒeba</td>
</tr>
<tr>
<td>porcupine</td>
<td>ɪxoː</td>
<td>lʊ́</td>
<td>lʊ́</td>
<td>ɪnʊʊ</td>
</tr>
<tr>
<td>pot</td>
<td>ɪkˈoːa</td>
<td>+kˈɔa, +am</td>
<td>lgo</td>
<td>ˈnːaːna</td>
</tr>
<tr>
<td>puffadder</td>
<td>ɪguːkɔn</td>
<td>ɪka</td>
<td>ɪgaː</td>
<td>ɪkˈaːi</td>
</tr>
<tr>
<td>to rain</td>
<td>-kāu</td>
<td>_khaː;</td>
<td>_lkːaːa</td>
<td>ɪa *</td>
</tr>
<tr>
<td>red</td>
<td>ɪlkiː</td>
<td>tsɔː</td>
<td>lǎhna, lʊ́ *</td>
<td>-</td>
</tr>
<tr>
<td>root</td>
<td>ɪkauːi</td>
<td>lnuma</td>
<td>gɪkˈxəbʊ</td>
<td>-</td>
</tr>
<tr>
<td>to run</td>
<td>ɪkatan, ɪkuːxe</td>
<td>ɪkʊɲ, ɪkǎ</td>
<td>lɪnʊ (sg.), lɪgaba (pl.)</td>
<td>2ab</td>
</tr>
<tr>
<td>to sell</td>
<td>ɪkwːiː</td>
<td>lleːjaː</td>
<td>+ʊho</td>
<td>-</td>
</tr>
<tr>
<td>to sew</td>
<td>+ʌm</td>
<td>-+khaiː</td>
<td>-</td>
<td>_lụː</td>
</tr>
<tr>
<td>shade</td>
<td>_lan</td>
<td>_sam</td>
<td>sʊm</td>
<td>2bc</td>
</tr>
<tr>
<td>shoe</td>
<td>ɪkuː</td>
<td>labo</td>
<td>labo, lnabo</td>
<td>ˈlnahu</td>
</tr>
<tr>
<td>to sing</td>
<td>ɪkurːan</td>
<td>llnan, ɪkə</td>
<td>+aːdi</td>
<td>_lnɛ</td>
</tr>
<tr>
<td>skin (n.)</td>
<td>tʊː; ɪlgo</td>
<td>_luː</td>
<td>_tʊm</td>
<td>2ac</td>
</tr>
<tr>
<td>to skin</td>
<td>ɪkˈəoː</td>
<td>+kɔə</td>
<td>_nːho, ləˈa</td>
<td>-</td>
</tr>
<tr>
<td>to sleep</td>
<td>ɔp⁵ːen, lʊŋ</td>
<td>ɔp⁵ːwa: aːi</td>
<td>ɔp⁵ːwɔi</td>
<td>ɔ́ːn</td>
</tr>
<tr>
<td>star</td>
<td>ɪkwɔːtan</td>
<td>ɪhaː</td>
<td>l⁵ːnə</td>
<td>-</td>
</tr>
<tr>
<td>stick</td>
<td>ɪkkha</td>
<td>+num, ɪkkɔː</td>
<td>ɪnɔː, +naui</td>
<td>ɪlnaː</td>
</tr>
<tr>
<td>stomach</td>
<td>ɪkoː, ɪxoː</td>
<td>+keː</td>
<td>lʊhä, ɪlkxˈan</td>
<td>2ac</td>
</tr>
<tr>
<td>sun</td>
<td>ɪkˈoŋ̥</td>
<td>ɪkɔi, ɪkɛː</td>
<td>ˈɪkɛ, ɪkɛn</td>
<td>ˈlˈan</td>
</tr>
<tr>
<td>tail</td>
<td>ɪkʰwi</td>
<td>ɪkˈa</td>
<td>+kwːi</td>
<td>lʊ́u</td>
</tr>
<tr>
<td>thigh</td>
<td>tɛ</td>
<td>dɛi</td>
<td>ḵʊl̥a</td>
<td>2ab</td>
</tr>
<tr>
<td>to be thirsty</td>
<td>ɪlɔːŋ̥</td>
<td>ɪkˈɛ</td>
<td>l⁵ːn</td>
<td>2ac</td>
</tr>
<tr>
<td>tired</td>
<td>ˈlkuː</td>
<td>ɪlhubu</td>
<td>_l⁵ːn</td>
<td>2bc</td>
</tr>
<tr>
<td>tooth</td>
<td>ɪlkɛ</td>
<td>ɪlkɛi</td>
<td>ɪlqhɔ</td>
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<tr>
<td>two</td>
<td>ɪkˈuː</td>
<td>_lkam</td>
<td>+num</td>
<td>-</td>
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<td>to walk</td>
<td>_tai, _tæː</td>
<td>tɔi, ɪkɔusi tɛi</td>
<td>tɛi, tɛi, tæːi</td>
<td>ˈl⁵ːnaː (sg.), l⁵ːqhil (pl.)</td>
</tr>
<tr>
<td>water</td>
<td>ɪkhwaː</td>
<td>ɪkkha</td>
<td>-khaː, -khaː</td>
<td>ɪlqhɔa</td>
</tr>
<tr>
<td>wood</td>
<td>ɔ⁵ːhoː</td>
<td>ɔp⁵ːwoa:</td>
<td>ɔbwːaː, ɔbwːaː</td>
<td>ˈnɔːje *</td>
</tr>
<tr>
<td>to work</td>
<td>_tʊba</td>
<td>ɪlkari</td>
<td>ɪgáː</td>
<td>-</td>
</tr>
<tr>
<td>young</td>
<td>_ɔpwa, ɪkwə</td>
<td>ɔpwa</td>
<td>ɔ˪a, ɪlqwu</td>
<td>3</td>
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</table>
List 2: Vocabulary items having possible cognates in !Xam, !Auni and !Xoö
(Shown with +Khomani forms where available)

<table>
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<tr>
<th>English</th>
<th>!Xam</th>
<th>!Auni</th>
<th>+Khomani</th>
<th>!Xoö</th>
<th>#cog.</th>
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</thead>
<tbody>
<tr>
<td>6 bow (n.)</td>
<td>hou</td>
<td>lha, lhnn, lháá</td>
<td>lkhou</td>
<td>lhóé</td>
<td>4?</td>
</tr>
<tr>
<td>13 to cry</td>
<td>k'wa</td>
<td>k'æ: , +kái</td>
<td>kx'á</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>15 to die</td>
<td>la:</td>
<td>lalan</td>
<td>la</td>
<td>l'áá</td>
<td>4</td>
</tr>
<tr>
<td>16 to drink</td>
<td>k'wà, k'wê</td>
<td>k'æ:a, k'æã, k'ê</td>
<td>kx'ã, kx'ēi</td>
<td>kx'áá</td>
<td>4</td>
</tr>
<tr>
<td>19 ear</td>
<td>!nuntu</td>
<td>+naë, +nuí</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>33 hand</td>
<td>lk'á</td>
<td>lk'á, lk'æ, lk'an</td>
<td>lkx'á</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>36 head</td>
<td>lna:</td>
<td>lna:, lna:, -xuû</td>
<td>lña</td>
<td>lña</td>
<td>4</td>
</tr>
<tr>
<td>37 to hear</td>
<td>tum, tu:, tu:i</td>
<td>ta:á, ta:a, tu:, tu:i</td>
<td>tu:, tj'hu</td>
<td>táá</td>
<td>4</td>
</tr>
<tr>
<td>43 house</td>
<td>lnei, lneiŋ</td>
<td>lían, lín, lňŋ, lnoŋ</td>
<td>lňŋ</td>
<td>lņéø</td>
<td>4</td>
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<tr>
<td>50 leopard</td>
<td>lkaué</td>
<td>lk'aru, lkóû</td>
<td>(not avail.)</td>
<td>lûí</td>
<td>3</td>
</tr>
<tr>
<td>59 name</td>
<td>lkè</td>
<td>lkè, lkèn</td>
<td>(not avail.)</td>
<td>lăû</td>
<td>3</td>
</tr>
<tr>
<td>63 nose</td>
<td>luřu</td>
<td>lnu:, lnõ</td>
<td>lñutu</td>
<td>lnùhna</td>
<td>4</td>
</tr>
<tr>
<td>83 to sleep</td>
<td>Opoen, lʊŋ</td>
<td>Opwa: āí, Opwóí</td>
<td>O'wōo, O’wonna</td>
<td>Oán</td>
<td>4</td>
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<tr>
<td>87 sun</td>
<td>lkoiŋ</td>
<td>lkoi, lkè, - Ikè, lken</td>
<td>lľ'uí</td>
<td>lľ'an</td>
<td>4</td>
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<td>97 water</td>
<td>!kwa:</td>
<td>lkha, -kha, -khaã -khai, lkh:a</td>
<td>!kha</td>
<td>!qhàa</td>
<td>4</td>
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<td>100 young</td>
<td>-Opwa, !kwà</td>
<td>Opwai</td>
<td>O'kõ (small)</td>
<td>Oâa, lľqu</td>
<td>4?</td>
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