

THE INTERNAL STRUCTURE OF vP IN JU|'HOANSI AND ≠HOAN*

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Abstract. In this article, I analyze *ki* (≠Hoan) and *ko* (Ju|'hoansi) as heading vP internal functional projections dominating VP and dominated by vP. I show how this analysis provides a natural account for the various possible and impossible word orders in constructions involving locative and instrumental phrases. Lastly, I discuss the general implications of my analysis for the theory of Case checking in Chomsky (2000, 2001a, b).

1. Introduction

In this article, I will investigate the syntax of a vP internal particle¹ in two Khoisan languages: ≠Hoan and Ju|'hoansi.² Examples from these languages are given below:

- (1) a. Uto dchuun-a |Kaece ko n!ama n!ang. (Ju|'hoansi)
car hit-TRANS |Kaece ko road in
'A car hit |Kaece in the road.'
b. Koloi g|on-a ≠'amkoe ki gyeo na. (≠Hoan)
car hit-PERF person ki road in
'A car hit a person in the road.'
- (2) a. Mi ba ||ohm-a !aihn ko |'ai. (Ju|'hoansi)
my father chop-TRANS tree ko axe
'My father chopped the tree with (by means of) an axe.'
b. Gya"msi a-'n≠a"m Jefe ki setinkane. (≠Hoan)
child PROG-hit Jeff ki hand harp
'The child is hitting Jeff with a hand harp.'

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¹ Baker and Collins (2002a) call this morpheme the "linker", and compare the syntax of linker morphemes in Yoruba and Kinande to those found in Khoisan.

² The data in this article represent the Gobabis dialect of Ju|'hoansi. Where relevant I will indicate differences with the Tjum!kui dialect.

- (3) a. Besa komm ||'ama-|'an Oba ko tcisi. (Ju|'hoansi)
 Besa EMPH buy-give Oba ko things
 'Besa bought Oba some things.'
- b. Gya''m-|a'a a-tsaxo-cu 'am gye ki ||a''e. (≠Hoan)
 child-DIM.PL PROG-cook-give my mother ki 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. Here I will focus mainly on constructions with locative phrases.

In (1a) the particle *ko* (Ju|'hoansi) separates the DP theme and the PP locative (see Dickens 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 Ju|'hoansi and *ki* in ≠Hoan. One immediate difference between Ju|'hoansi and ≠Hoan is that Ju|'hoansi has what is called the transitivity suffix *-a* (glossed TRANS). This article will give a syntactic analysis of these grammatical morphemes.

One of my theoretical goals is to show how the Khoisan data can be naturally analyzed in terms of a vP internal functional projection whose specifier acts as the landing site of direct objects and other complements of the verb. I will suggest that the Khoisan languages provide particularly striking evidence for the existence of a vP internal functional projection (see Koizumi 1995, Lasnik 1996, and Collins and Thráinsson 1996 for different proposals about vP internal functional projections).

Lastly, the analyses here will support the Minimalist theory of Case checking in Chomsky (2000, 2001a, b). In particular, a number of structures in Ju|'hoansi exhibit what I call sequential checking, a possibility made available within Chomsky's theory, but not in earlier theories of Case.

In section 2, I will discuss locative phrases following transitive verbs (verbs that have a direct object), and present the main assumptions about vP internal structure adopted in the paper. I will also discuss the inversion of constituents internal to the vP. In section 3, I will discuss locative phrases following intransitive verbs and discuss the Last Resort nature of *ko*. In particular, I will show that *ko* does not appear with intransitive verbs and when verbal complements are extracted. In section 4, I will discuss cases in Ju|'hoansi of sequential valuation/checking of uninterpretable features, and show how these examples support Chomsky's (2000, 2001a, b) analysis of Case checking. Section 5 is the conclusion.

A note on the data is in order. Most of the data in this article come from my own fieldwork on ≠Hoan and Jul'hoansi. Sentences that do not come from my own fieldwork are explicitly noted.

2. Locative phrases with transitive verbs

The following example illustrates a locative phrase following a transitive verb (I return to intransitive verbs in section 3):

- (4) a. Uto dchuun-(*a) |Kaece. (Jul'hoansi)
 car hit-TRANS |Kaece
 'The car hit |Kaece.'
 b. Uto dchuun-a |Kaece ko n!ama n!ang.
 car hit-TRANS |Kaece ko road in
 'A car hit |Kaece in the road.'

These examples illustrate that when a locative phrase follows a transitive verb (*dchuun* 'hit' is transitive), the locative phrase must be preceded by *ko*. Note that the transitivity suffix *-a* is also added to the verb. I will give an analysis of the relationship between the transitivity suffix *-a* and the particle *ko* in section 4. The *ko* can only appear between the theme and the locative, as illustrated below:

- (5) a. *Uto dchuun-a ko |Kaece n!ama n!ang. (Jul'hoansi)
 car hit-TRANS ko |Kaece road in
 b. *Uto dchuun-a |Kaece n!ama n!ang ko.
 car hit-TRANS |Kaece road in ko

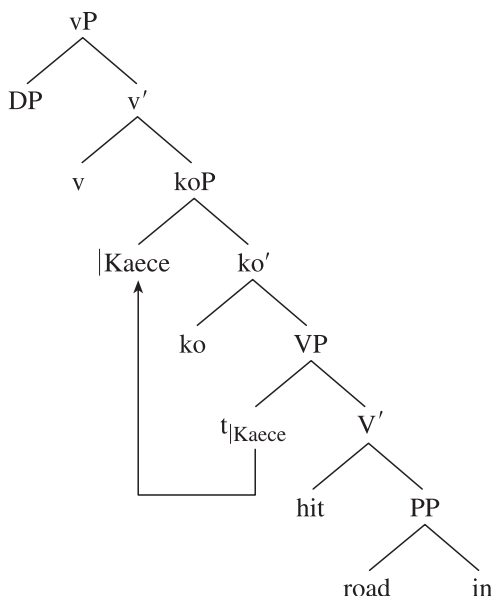
Sentence (5a) shows that *ko* cannot precede both the theme and the locative. Sentence (5b) shows that *ko* cannot follow both the theme and the locative. In summary, there is a fixed position for *ko* in Jul'hoansi: [Verb Theme *ko* Locative] (the inverted order [Verb Locative *ko* Theme] is also possible, as will be shown in section 2.1 below).

The morpheme *ki* in ≠Hoan has a similar position:

- (6) a. *Koloi g|lon-a ki ≠'amkoe gyeo na. (≠Hoan)
 car hit-PERF ki person road in
 b. *Koloi g|lon-a ≠'amkoe gyeo na ki.
 car hit-PERF person road in ki

To account for the fixed position of the morpheme *ki* (≠Hoan) and *ko* (Jul'hoansi), I propose the following structure for example (1a) (repeated below):

- (7) Uto dchuun-a |Kaece ko n!ama n!ang. (Ju|'hoansi)
 car hit-TRANS |Kaece ko road in



The structure in (7) largely follows the standard Minimalist analysis of the vP (see Chomsky 1995 and Collins 1997). I assume that structures are built by a succession of Merge operations (either internal Merge, or external Merge). The external argument is introduced in Spec vP. The internal arguments (themes, locatives, etc.) are introduced in VP. Furthermore, I assume following Collins (1997, 2002) that in addition to transitive verbs, both unaccusative verbs and unergative verbs head VPs that are dominated by vP.

In the derivation of (7), after Merge(ko, VP), the DP |Kaece raises up into the specifier of koP. I assume that koP has an EPP feature that forces this movement.³ After the DP |Kaece raises into the specifier of koP (Merge(|Kaece, koP)), the operation Merge(v, koP) takes place, and the light verb v checks the DP's Case feature (see Chomsky 1995, Collins 1997, and Collins and Thráinsson 1996).

I assume that the theory of Case checking in Chomsky (2000, 2001a, b). In Chomsky's theory, the probe P (features of a functional head, either Infl or v) is a set of unvalued phi-features (written [uPhi]) that match the goal G (Match(P, G)). Unvalued phi-features are

³ Epstein and Seely (1999) argue that sentences such as "John seems to build an airplane." do not involve movement through the embedded Spec IP, since the Infl *to* does not have an EPP feature. However, the ungrammaticality of sentences such as "to seem that John likes Mary would be unfortunate" (where the infinitival IP is the subject of the matrix clause) clearly indicate that the Infl *to* does have an EPP feature.

uninterpretable at the LF-interface, and for that reason need to be valued and deleted before the LF-interface. Henceforth, I will use the term *uninterpretable* to mean uninterpretable at the LF-interface. After $\text{Match}(P, G)$ is established, the relation $\text{Agree}(P, G)$ is then formed, valuing the $[\text{uPhi}]$ of P . Chomsky proposes that the uninterpretable Case ($[\text{uCase}]$) feature of the DP is valued as a reflex of the relation $\text{Agree}(P, G)$ (in other words, the goal but not the probe has an uninterpretable Case feature). The strong phase heads are v (more specifically, v with an external argument) and Comp . I assume at the phase level, the sister of v or Comp is spelled out (Chomsky 2001b:5). At Spell-Out, the valued phi-features of Infl/v , and the valued Case feature of the DP are deleted. Thus we have the following order of operations: Match, Agree/Value, Spell-Out/deletion. There is no need to stipulate this order. Match is required for Agree, and Agree is required for deletion at Spell-out. In the example in (7), I assume that v has uninterpretable phi-features ($[\text{uPhi}]$) that enter into an Agree relation with the interpretable phi-features of the DP $|Kaece$ ($\text{Agree}(v, \text{DP})$).

I assume that the verb raises over *ko* to the higher light verb v . There is no violation of the MLC condition here, since *ko* has no verbal feature (cf. Chomsky 1995). In *Ju|'hoansi* and \neq *Hoan*, the verb does not raise to Infl , as shown by the fact that it is possible to have adverbs of various kinds between the subject and the main verb: Subj Adv V (see Dickens 1992:20 on *Ju|'hoansi*).

I propose that in (7) the syntactic function of *ko* in *Ju|'hoansi* (and *ki* in \neq *Hoan*) is to check the Case feature of the following locative phrase. Locative postpositions in \neq *Hoan* and *Ju|'hoansi* are nominal (see Dickens 1992 for *Ju|'hoansi* and Collins 2001a for \neq *Hoan*), so it is reasonable to suppose that they have a Case feature that needs to be checked (valued and deleted). Since the locative postposition is nominal, it should project a NP. In other words, in \neq *Hoan* the phrase *gyeo na* [road in] 'in the road' is a NP (whose head is the noun *na* 'in'). I will continue to use the category label PP for expository purposes. The evidence that locative postpositions are nominal includes the following: First, Collins (2001a) shows that in \neq *Hoan* postpositions have the same plural form as inalienable nouns. Second, Collins (2001a) shows that in \neq *Hoan* postpositions assign genitive Case to the 1sg pronoun (the only pronoun showing Case distinctions).

Since the locative PP has a structural Case to check, it must enter into the relation $\text{Agree}(ko, PP)$ (more precisely, $\text{Agree}(\text{uPhi}_{ko}, \text{Phi}_{PP})$). At this point, the Case feature of the PP is valued. In Chomsky's system, when the probe is finite Infl , nominative Case is valued. When the probe is v (with an external argument), accusative Case is valued. I am proposing that *ko* can value a Case feature as well. I assume that the Case valued by *ko* is similar to the accusative Case feature valued by functional prepositions such as "for", "to" and "of" in English.

I use the label *koP* to avoid having to assign any specific grammatical category to *ko*. One possibility is that *koP* is an instance of *TrP* “transitivity phrase” (see Collins 1997). This analysis is plausible since both *ko* and *Tr* take a *VP* complement, and check Case. Another possibility is that *koP* is a linker phrase *LkP* (in the sense of Baker and Collins 2002a). The real issue is whether *ko* actually has the syntactic category *Tr* or *Lk*, or whether *ko* has no syntactic category other than the uninterpretable features that it contains (the *EPP* feature, and the *[uPhi]*). In other words, is there a syntactic feature *Tr* or *Lk* over and above the set of uninterpretable features that *ko* has? I will leave the issue for now.

To summarize, the Agree relations established in (7) are the following: Agree(*v*, *DP*) and Agree(*ko*, *PP*).⁴ I am assuming that that Agree must obey the Minimal Link Condition (MLC), defined as follows (see Chomsky 2000:122):

(8) Minimal Link Condition

Let *P* be a probe and *G* be a matching goal. Then Agree(*P*, *G*) satisfies the MLC if there is no *G'* matching *P* such that *P* asymmetrically c-commands *G'* and *G'* asymmetrically c-commands *G*.

In (7), the trace of the *DP* *|Kaece* in Spec *VP* does not block Agree(*ko*, *PP*), which suggests that traces do not count for the MLC (see Chomsky 1995:304, 2000:131, 2001a, Collins 2002). This conclusion would follow under the system of Lasnik (1999:207) where A-movement does not leave a trace.

The analysis of *koP* in (7) naturally rules out examples in (5a, b) in *Jul'hoansi* and examples (6a, b) in *≠Hoan*. Consider (5a) (repeated below):

- (9) **Uto dchuun-a ko |Kaece n!ama n!ang.* (Jul'hoansi)
 car hit-TRANS *ko |Kaece* road in

This example is ruled out because no constituent has raised to Spec *koP*, so the *EPP* feature of *ko* remains unsatisfied.⁵ Consider now (5b), repeated below:

- (10) **Uto dchuun-a |Kaece n!ama n!ang ko.* (Jul'hoansi)
 car hit-TRANS *|Kaece* road in ko

I propose that (10) is ruled out because two XPs have been moved to Spec *koP*, while *koP* has only one specifier position (one *EPP* feature).

⁴ In *!Xôô* (a Khoisan language) the *kV* particles corresponding to *ko* (*Jul'hoansi*) show overt agreement with the following *DP* (see Traill 1985, 1994).

⁵ The presence of the *EPP* feature of *ko* can be seen as a consequence of the MCC. In other words, if *ko* were not generated with the *EPP* feature, the derivation would crash (see (38)).

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

- (11) a. *Uto dchuun-(a) |Kaece ko. (Jul'hoansi)
 car hit-TRANS |Kaece ko
 b. *Uto dchuun-(a) ko |Kaece.
 car hit-TRANS ko |Kaece

Since *dchuun* 'hit' is a transitive verb in (11), it follows that the light verb *v* has [uPhi] (Case checking feature). If the light verb *v* checks the Case feature of the DP |Kaece, then *ko* will not have its uninterpretable features checked, and the derivation will crash. Then sentence (11b) is unacceptable for similar reasons (I return to an example similar to (11b), but involving an intransitive verb, in section 3, see (32)).

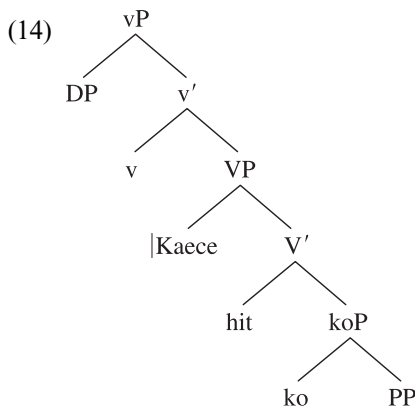
Similar facts hold for ≠Hoan.

- (12) a. *Koloi g||on-a Jefe ki. (≠Hoan)
 car hit-PERF Jeff ki
 b. *Koloi g||on-a ki Jefe.
 car hit-PERF ki Jeff

Why are there no morphemes such as *ko* (Jul'hoansi) and *ki* (≠Hoan) in English? As mentioned above, the postpositions in Jul'hoansi are definitely nominal in nature. Since the postpositions are nominal, they need to have their Case features checked, and that is what *ko* in Jul'hoansi and *ki* in ≠Hoan do. Therefore, I predict that morphemes such as *ko* will only appear in languages that have nominal postpositions:

- (13) A vP internal Case checking functional head (such as *ko* in Jul'hoansi and *ki* in ≠Hoan) may only appear in languages with nominal adpositions.

An alternative analysis of *ko* in Jul'hoansi (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:



In this diagram, the Case feature of the nominal PP is checked by *ko*. One difference between (7) and (14) is that in (14) the complement of *ko* is no longer VP; rather it is a nominal PP.⁶ As I will show in section 4.2, the instrumental preposition [*xoa*] behaves differently from *ko* in a number of ways that suggest that (14) is not the right analysis of *ko* (but it is right for [*xoa*], see (55) below).

One piece of evidence that argues against (14) is that [*ko* PP] never undergoes movement, as might be expected if [*ko* PP] were an XP constituent. This is illustrated below:

- (15) a. Uto m dchuun-a |Kaece ko n!ama n!ang. (Ju|'hoansi)
 car EMPH hit-TRANS |Kaece ko road in
 'The car hit |Kaece in the road.'
 b. *Ko n!ama n!ang komm uto dchuun-a |Kaece.
 ko road in EMPH car hit-TRANS |Kaece

Similar facts hold for ≠Hoan, as illustrated below:

- (16) a. Koloi g||on-a ≠'amkoe ki gyeo na. (≠Hoan)
 car hit-PERF person ki road in
 'The car hit the person in the road.'
 b. *Ki gyeo na koloi g||on-a ≠'amkoe.
 ki road in car hit-PERF person

The above analysis of *ko* in Ju|'hoansi raises the following general question. How does the child know that the right constituent structure is [_{koP} *ko* VP] and not [_{koP} *ko* DP], given the limited evidence available? Generalizing from the discussion of *ko*, I propose that the only case where a sequence X-DP forms a constituent is when X assigns a theta-role to the following DP. In other words, external Merge (Merge that is not associated with movement) of a (non-expletive) DP is always associated with theta-role assignment (see Chomsky 2001b:9 and Kayne 2001).⁷

In the case at hand, after hearing sentences such as (1–3), the child will conclude that *ko* assigns no theta-role to the following DP. In fact *ko* is composed solely of features that are uninterpretable at the LF-interface (EPP, [uPhi], phonological features). Given the assumption that *ko* assigns no theta-role to the following DP, Merge(*ko*, DP) would be impossible. Kayne (2001) reaches a similar conclusion in his discussion of the French causative. He claims that the sequence *à*-DP in French

⁶ Very strong evidence against (14) and in favor of (7) comes from Kinande, where the linker morpheme (a vP internal functional head which checks Case like *ko* in Ju|'hoansi) agrees with its specifier. Such agreement would be impossible on an analysis like (14). See Schneider-Zioga (1995), Hualde (1989), and especially Baker and Collins (2002a) for much further discussion.

⁷ A reviewer points out the following sentence "Mary seems that John is sleeping." is also ruled out both by Full Interpretation and by the proposed condition on external Merge.

causatives does not form a constituent, rather, the preposition *à* takes a VP or AgrP complement.

2.1. *Inversion*

Perhaps the strongest evidence in Jul'hoansi for the structure in (7) (and against the structure in (14)) is inversion, where we have the order [V Locative ko Theme] (instead of [V Theme ko Locative]). This is illustrated below:

- (17) a. Uto dchuun-a |Kaece ko n!ama n!ang. (Jul'hoansi)
 car hit-TRANS |Kaece ko road in
 'A car hit |Kaece in the road.'
 b. Uto dchuun-a n!ama n!ang ko |Kaece.
 car hit-TRANS road in ko |Kaece
 'A car hit |Kaece in the road.'
- (18) a. Ha ku ||ohm-a !aihn ko g|ui. (Jul'hoansi)
 3SG ASP chop-TRANS tree ko forest
 'He was chopping the tree in the forest.'
 b. Ha ku ||ohm-a g|ui ko !aihn.
 3SG ASP chop-TRANS forest ko tree

The examples in (17b, 18b) illustrate the following order: V Locative ko Theme. I will sometimes refer to this word order as inversion (see also Dickens 1992:21 and Heikkinen 1987:98). Inversion is also possible with instrumental constructions, as shown below (from Dickens 1992:22):

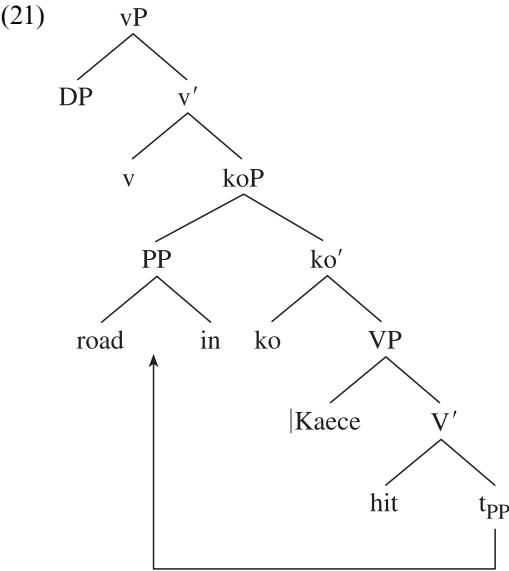
- (19) a. Ha gu-a tju ko ||'aisi. (Jul'hoansi)
 3SG build-TRANS house ko grass
 'He built the house with grass.'
 b. Ha gu-a ||'aisi ko tju.
 3SG build-TRANS grass ko house
 'He built the house with grass.'

There is some dialectal variation in the scope of inversion. In the Gobabis dialect (which forms the basis of this article), inversion is not allowed with benefactives:

- (20) a. Besa komm ||'ama-|'an Oba ko tcisi. (Jul'hoansi)
 Besa EMPH buy-give Oba ko things
 'Besa bought Oba some things.'
 b. *Besa komm ||'ama-|'an tcisi ko Oba.
 Besa EMPH buy-give things ko Oba

It has also been reported that inversion is not allowed with benefactives in Bantu languages (see Baker 1988:370). In the Tjum!kui dialect, inversion is allowed with benefactives. I have no explanation for this difference between the Tjum!kui and Gobabis dialects.

Given the structure in (7), either the DP or the PP could potentially move into Spec koP. This yields the freedom of word order found in the above examples. As I mentioned earlier, I am assuming that koP has an EPP feature, which motivates movement into its specifier. Under these assumptions, if PP raises to Spec koP, we obtain the following structure for (17b):



In this structure, after Merge(v, koP), v checks the Case of PP (in the relation Agree(v, PP)), and ko checks the Case of the in-situ DP (in the relation Agree(ko, DP)), and PP satisfies the EPP feature of ko (which we can write EPP(ko, PP)). Comparing the derivation in (21) to the derivation in (7) we have the following sets of relations:

- (22) a. No inversion (7): EPP(ko, DP), Agree(ko, PP)
 b. Inversion (21): Agree(ko, DP), EPP(ko, PP)

In both cases, a single functional head (ko) checks several features. Consider in more detail how these relations need to be formed. In Minimalist syntax, Agree(P, G) is based on Match(P, G). The former relation values the uninterpretable features of P (e.g., phi-feature) and G (e.g., Case). The relevant properties of Match are given below (see Hiraiwa 2001:68, Chomsky 2000:122).

- (23) Match(P, G) (P a probe, G a goal)
- a. Matching is feature identity (not identity of feature values)
 - b. G is in D(P) (the domain of P, which is the sister of P)
 - c. Locality reduces to closest c-command

I assume that every $\text{Match}(P, G)$ relation formed must result in some uninterpretable feature being satisfied (EPP, phi, Case, etc.). Lastly, I assume that the EPP feature of a probe *P* can be satisfied by *G* if *P* matches *G*. Given these assumptions, consider the following point in the derivation of (21):

(24) $[_{\text{koP}} \text{ko} [_{\text{VP}} \text{DP} [_{\text{V}'} \text{V PP}]]]$

The functional head *ko* has an EPP feature and $[\text{uPhi}]$. After $\text{Merge}(\text{ko}, \text{VP})$, the probe (the $[\text{uPhi}]$ of *ko*) starts to search for the closest matching goal and locates the DP, forming $\text{Match}(\text{ko}, \text{DP})$. Since *ko* has an EPP feature, it continues to probe for the next closest goal, forming $\text{Match}(\text{ko}, \text{PP})$. At this point in the derivation, the features of *ko* need to be satisfied (*ko* has no other uninterpretable features that could trigger further Match operations). Since both $\text{Match}(\text{ko}, \text{DP})$ and $\text{Match}(\text{ko}, \text{PP})$ have been formed, both DP and PP are available to satisfy the features of *ko*. In the derivation in (21), DP values the $[\text{uPhi}]$ of *ko*, and PP satisfies the EPP feature of *ko*. In the non-inverted derivation⁸ in (7), DP satisfies the EPP feature of *ko*, and PP values the $[\text{uPhi}]$ of *ko*.

I will call this process Multiple Match (which is a slight modification of Hiraiwa's (2001) notion of Multiple Agree). It is unclear to me whether Multiple Match is universally available for any *X* (functional head) having two uninterpretable features, or whether it needs to be parametrically specified. Furthermore, I only address the case where a head *X* has uninterpretable EPP and $[\text{uPhi}]$ features. Whether Multiple Match extends to other types of uninterpretable features on a head *X* is beyond the scope of this article.⁹

The process of Multiple Match described above allows an apparent violation of Relativized Minimality. The movement of the PP in (21) seems to violate Relativized Minimality (Rizzi 1990), because the DP $[\text{Kaece}]$ (occupying an A-position) intervenes between the PP $n\text{'ama } n\text{'ang}$ 'in the road' and its trace. One way to explain the violation of Relativized Minimality is to claim that the DP and the PP are equidistant,¹⁰ since they are in the minimal domain of the V *dchuun* 'hit'. Although this equidistance solution seems quite attractive, it is not needed given the mechanism of Multiple Match (see also the arguments in Chomsky (2001a:28) and Hiraiwa (2001) against equidistance). In the example

⁸ On the Multiple Match analysis, we no longer need trace invisibility to allow the derivation in (7), since $\text{Match}(\text{ko}, \text{PP})$ can be established before the DP moves to Spec koP .

⁹ Kawashima and Kitahara (2002) have independently formulated an operation of Multiple Match to account for scrambling. Their proposals have much in common with mine, but I will not take up a comparison for reasons of space.

¹⁰ See Collins (1997:26) and Ura (2000:56). The argument in Collins (1997) for equidistance (based on locative inversion) is based on the assumption that locative inversion is only possible with unaccusative verbs. Levin and Rappaport (1995:251) argue at length that locative inversion is also possible with unergative verbs. *Ju'hoansi* does not allow locative inversion for reasons that are unclear to me.

(24) above, Match(ko, PP) is not blocked, because it is part of the same operation as Match(ko, DP) (see Hiraiwa (2001) for similar examples involving Multiple Agree in Japanese).

The \neq Hoan data pose a problem for the Multiple Match account. It is not possible to have inversion in \neq Hoan.¹¹ This is illustrated below for locative constructions:

- (25) a. Koloi g||on-a \neq 'amkoe ki gyeo na. (\neq Hoan)
 car hit-PERF person ki road in
 'The car hit the person in the road.'
 b. *Koloi g||on-a gyeo na ki \neq 'amkoe.
 car hit-PERF road in ki person
- (26) a. Gya''msi a-'n \neq a''m Jefe ki !oa na. (\neq Hoan)
 child PROG-hit Jeff ki house in
 'The child is hitting Jeff in the house.'
 b. *Gya''msi a-'n \neq a''m !oa na ki Jefe.
 child PROG-hit house in ki Jeff

Similarly, inversion is not possible with instrumental constructions in \neq Hoan:

- (27) a. Gya''msi a-'n \neq a''m Jefe ki setinkane. (\neq Hoan)
 child PROG-hit Jeff ki hand harp
 'The child is hitting Jeff with a hand harp.'
 b. *Gya''msi a-'n \neq a''m setinkane ki Jefe.
 child PROG-hit hand harp ki Jeff

In example (25a), the DP \neq 'amkoe 'person' occupies the specifier of kiP, and satisfies the EPP feature of *ki*. The Case feature of the PP *gyeo na* 'in the road' is checked by *ki* as well. Based on the data in (25, 26, 27), I propose that in \neq Hoan the first element that matches a feature of *ki* must satisfy the EPP feature of *ki*. Consider the derivation of (26) more closely. *Ki* in \neq Hoan is a functional head with an EPP feature and [uPhi]. At the point where *ki* is merged with VP, the probe (the [uPhi] of *ki*) starts to search for the closest matching goal and locates the DP, forming Match(*ki*, DP). Since *ki* has an EPP feature, the DP must satisfy the EPP feature of *ki*. Subsequently, *ki* continues to probe for the next closest goal, forming Match(*ki*, PP) and Agree(*ki*, PP) (valuing the Case feature of the PP).

In other words, in \neq Hoan the element which satisfies the EPP feature of *ki* must be found as early as possible. I consider this to be a low-level parameter of variation between languages.

¹¹ Baker and Collins (2002a) show that whereas Kinande does allow inversion (similar to Jul'hoan), Yoruba does not (similar to \neq Hoan).

3. Locative phrases with intransitive verbs

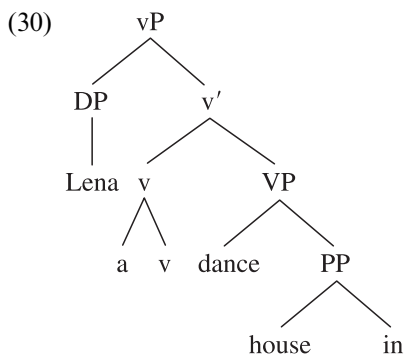
According to Dickens (1992), in *Ju|'hoansi*, if a locative phrase is added to an intransitive verb, the verb must have the transitivity suffix *-a*. An example is given below:

- (28) a. *Ha ku u.* (Ju|'hoansi)
 3SG ASP go
 'He was going.'
 b. *Ha ku u-a Tjum!kui.*
 3SG ASP go-TRANS Tjum!kui
 'He was going to Tjum!kui.'

In effect, the transitivity suffix *-a* 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:

- (29) a. *Ha ku ||ohm !aihn.* (Ju|'hoansi)
 3SG ASP chop tree
 'He was chopping the tree.'
 b. *Da'ama n \neq au |Aotcha.*
 child head.toward |Aotcha
 'The child headed toward |Aotcha.'

How does the transitivity suffix make a transitive verb out of an intransitive verb? I propose that the transitivity suffix has [*uPhi*] that can enter into an agreement relation with the interpretable phi-features of a DP/PP (Agree(-a, DP)). As a result, the transitivity suffix checks the Case feature of the following DP/PP. I propose that the transitivity suffix is based generated adjoined to the light verb *v*, as in the following diagram (of the sentence in (32a)):



In this structure, the verb *djxani* 'dance' moves and adjoins to the complex [_v a v] (also satisfying the suffixal property of the transitivity

suffix *-a*). The relation Agree(*-a*, PP) is established, checking the Case features of the locative PP.

The transitivity suffix *-a* in Ju|'hoansi has a distribution similar to the particle *ki* in ≠Hoan, as illustrated below:

- (31) Tsi a-kyxai ki !oa na. (≠Hoan)
 3PL PROG-dance ki house in
 'They are dancing in the house.'
- (32) a. Lena koh djsxani-a tju n!ang. (Ju|'hoansi)
 Lena PAST dance-TRANS house in
 'Lena danced in the house.'
- b. *Lena koh djsxani-(a) ko tju n!ang.
 Lena PAST dance-TRANS ko house in

In the ≠Hoan sentence (31), if the verb *kyxai* 'dance' is followed by a locative phrase, the locative phrase must be preceded by the particle *ki*. In Ju|'hoansi (32a, b), if the verb *djsxani* 'dance' is followed by a locative phrase, the verb has to have the transitivity suffix *-a*. It is impossible for the locative phrase following an intransitive verb to be preceded by *ko* (as shown in (32b)), whether or not the transitivity suffix is present.

A similar paradigm illustrating the difference between Ju|'hoansi and ≠Hoan is illustrated below with the locative copular construction:

- (33) a. Oba m ge-a tju n!ang. (Ju|'hoansi)
 Oba EMPH COP-TRANS house in
 'Oba is in the house.'
- b. Titi 'a ki !oa na
 Titi COP ki house in
 'Titi is in the house.'

In Ju|'hoansi (33a), *ko* is not used, rather the transitivity suffix is used. In ≠Hoan, the particle *ki* is used obligatorily after the copular verb in (33b).

3.1. *ko* as a Last Resort

The data in the previous section and section 2 support the following generalization: In Ju|'hoansi, *ko* can appear when a locative phrase follows a transitive verb, but not when a locative phrase follows an intransitive verb. The data is summarized below:

- (34) a. Lena koh djsxani-a tju n!ang. (Ju|'hoansi)
 Lena PAST dance-TRANS house in
 'Lena danced in the house.' (see (32a))
- b. Uto dchuun-a |Kaece ko n!ama n!ang.
 car hit-TRANS |Kaece ko road in
 'A car hit |Kaece in the road.' (see (1a))

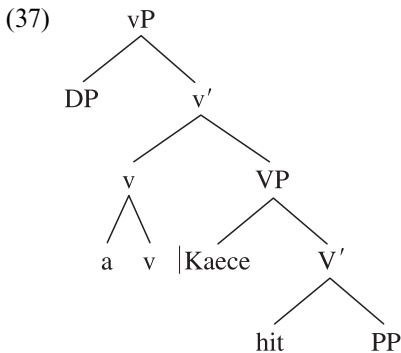
The following data show that not only is *ko* possible when a locative phrase follows a transitive verb, but that *ko* is obligatory (data provided by Amanda Miller-Ockhuizen):

- (35) a. *Uto dchuun-a |Kaece n!ama n!ang. (Ju|'hoansi)
 car hit-TRANS |Kaece road in
 ‘A car hit |Kaece in the road.’
 b. *Mi ba ||ohm-a !aihn !'ai.
 1SG father chop-TRANS tree axe
 ‘My father chopped the tree with (by means of) an axe.’

Intuitively, this is an economy effect; *ko* is a Last Resort mechanism, similar to do-support in English. Collins (2001c:46) defines Last Resort as follows:

- (36) An operation OP may apply only if the derivation would otherwise result in an ungrammatical representation (at PF or LF).

In order for the Last Resort account of *ko* to work, we need some account of why the transitive sentences in (35) without *ko* are not grammatical. Consider the structure of the vP of sentence (35a):



In this structure, the light verb *v* is transitive, so it checks the Case of either DP |*Kaece* or PP, and the transitivity suffix *-a* checks the Case of the other. Now suppose that the complex functional head [_v a v] counts as one functional head for the purpose of Multiple Matching (I return to evidence supporting this assumption in section 3.2). Given this assumption, [_v a v] is a complex functional head with two sets of uninterpretable phi features (one set for *-a* and the other for *v*). At the point in the derivation in (37), a probe (the [uPhi] of *v*) starts to search for the closest matching goal and locates the DP, forming Match(*v*, DP). Since [_v a v] has another set of [uPhi], it continues to probe for the next closest goal, forming Match(*-a*, PP). At this point in the derivation, the features of [_v a v] are valued ([_v a v] has no other uninterpretable features that could trigger further Match operations). In (37), DP values the [uPhi] of *v*, and

PP values the [uPhi] of $-a$. Thus it appears that Multiple Matching leads to the wrong result, since (37) is ill formed. I would like to propose the following condition at Spell-Out to account for (35):¹²

(38) Multiple Case Condition (MCC)

By Spell-Out VP can contain no more than one argument with a (valued) undeleted Case feature.

The MCC is a uniqueness condition on deleting Case features at Spell-Out. Only one Case feature can be deleted. Given the MCC, (37) is unacceptable because even though Agree(v, DP) and Agree($-a$, PP) have been formed (valuing the Case features of DP and PP), at Spell-Out two Case features internal to the VP need to be deleted (recall that uninterpretable features are valued under Agree and then deleted at Spell-Out).

Given this background, I propose the following condition in *ko* in Jul'hoansi:

(39) Merge(*ko*, VP) is a Last Resort operation which is only allowed when there would otherwise be a violation of the MCC.

In effect, Merge(*ko*, VP) provides a landing site for one of the constituents internal to the VP to escape the VP. The Last Resort condition in (39) explains why *ko* always has an EPP feature in Jul'hoansi, since the structure [_{koP} *ko* [_{VP} DP [_{V'} V PP]]] is only projected to allow either DP or PP to raise out of the VP.

The Last Resort nature of *ko* is related to the existence of a transitivity suffix in Jul'hoansi. If there were no alternative way of checking the Case of a DP when *ko* was not present, *ko* would be necessary. Crucially, the use of the transitivity suffix $-a$ is not subject to a Last Resort condition. The asymmetry between the transitivity suffix $-a$ and the free morpheme *ko* seems to be related to the economy constraint was proposed by Emonds (1994:162) "The most economic realization of a given deep structure minimizes insertions of free morphemes".

The Last Resort nature of *ko* is not consistent with the Local Economy condition proposed in Collins (1997). One relevant observation is that the main function of *ko* is to introduce an EPP feature into the derivation. Chomsky (2001a:36, 2001b:11) proposes that such optionality is generally allowed: ". . . OCC should be available only when necessary: that is when it contributes to an outcome at SEM that is not otherwise expressible." The optional introduction of OCC (= EPP) features is precisely what allows successive cyclic movement in Chomsky's system.

¹² This condition is taken from Alexiadou and Anagnostopoulou (2001:216). See also Chomsky (2001a:20, example (25)) for a related principle.

Consider more closely the acceptable sentence (34b):

- (40) Uto dchuun-a |Kaece ko n!ama n!ang. (Ju|'hoansi)
 car hit-TRANS |Kaece ko road in
 a. [_{VP} V PP] → (Merge theme DP)
 b. [_{VP} DP [_{V'} V PP]] → (Merge *ko*)
 c. [_{koP} ko [_{VP} DP [_{V'} V PP]]] → (Move theme DP)
 (Match(*ko*, DP), Match(*ko*, PP), EPP(*ko*, DP), Agree(*ko*, PP))
 d. [_{koP} DP [_{ko'} ko [_{VP} t_{DP} [_{V'} V PP]]]] → (Merge *v*)
 e. [_{VP} V [_{koP} DP [_{ko'} ko [_{VP} t_{DP} [_{V'} V PP]]]]] → (Merge external arg.)

The reason why Merge(*ko*, VP) is acceptable (forming (40c)) is that Merge(*v*, VP) would have led to a violation of the MCC. We now have an account of the following contrast between Ju|'hoansi and \neq Hoan (repeated from (31) and (32) above):

- (41) a. Tsi a-kyxai ki !oa na. (\neq Hoan)
 3PL PROG-dance ki house in
 'They are dancing in the house.'
 b. *Lena koh djxani-(a) ko tju n!ang. (Ju|'hoansi)
 Lena PAST dance-TRANS ko house in

Sentence (41b) in Ju|'hoansi is ruled out since there is only one constituent (the locative PP) internal to the VP. Therefore, there is no reason to project *koP*. Sentence (41a) is acceptable, since *ki* in \neq Hoan is not subject to the Last Resort condition (39) (ultimately because there is no transitivity suffix in \neq Hoan).

3.2. Extraction of verbal complements

The MCC makes the prediction that if one of the constituents in the VP is extracted out the VP by A'-movement, the structure should be acceptable with no *koP*. This prediction is borne out, as illustrated below:

- (42) a. |Kaece komm uto dchuun-a (*ko) n!ama n!ang. (Ju|'hoansi)
 |Kaece EMPH car hit-TRANS ko road in
 '|Kaece, the car hit in the road.'
 b. N!ama n!ang komm uto dchuun-a (*ko) |Kaece.
 road in EMPH car hit-TRANS ko |Kaece
 'In the road, the car hit |Kaece.'

I have checked the above paradigm against quite a few examples (including instrumental constructions, and using various types of movement including question formation, relativization and topicalization), and it is very general. The generalization that emerges from this data is that if the theme (42a) or the locative phrase (42b) is extracted, then *ko* must disappear.

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

- (43) a. Koloi g||on-a ≠'amkoe ki gyeo na. (≠Hoan)
 truck hit-PERF person ki road in
 'The truck hit the person in the road.'
 b. ≠'Amkoe koloi g||on-a ki gyeo na.
 person truck hit-PERF ki road in
 'The person, the truck hit in the road.'
 c. Gyeo na koloi g||on-a ki ≠'amkoe.
 road in truck hit-PERF ki person
 'In the road, a truck hit a person.'

Following Chomsky (2000, 2001a, b), I will assume that extraction out of vP must first pass through Spec vP (the edge of the phase). Given this assumption, the derivation of (42a) is as follows (v_a stands for v with an adjoined transitivity suffix *-a*).

- (44) |Kaece komm uto dchuun-a n!ama n!ang. (Ju!hoansi)
 |Kaece EMPH car hit-TRANS road in
 a. [_{VP} V PP] → (Merge theme)
 b. [_{VP} DP [_{V'} V PP]] → (Merge v_a)
 c. [_{VP} v_a [_{VP} DP [_{V'} V PP]]] → (Merge external argument)
 d. [_{VP} DP [_{V'} v_a [_{VP} DP [_{V'} V PP]]]] → (Move theme to Spec vP)
 (Match(v , DP), Match(-a, PP), Agree(v , DP), Agree(-a, PP),
 EPP(v , DP))
 e. [_{VP} DP [_{V'} DP [_{V'} v_a [_{VP} t_{DP} [_{V'} V PP]]]]]

The derivation involving extraction of the locative is similar:

- (45) !ama n!ang komm uto dchuun-a |Kaece.
 road in EMPH car hit-TRANS |Kaece
 a. [_{VP} V PP] → (Merge theme)
 b. [_{VP} DP [_{V'} V PP]] → (Merge v_a)
 c. [_{VP} v_a [_{VP} DP [_{V'} V PP]]] → (Merge external argument)
 d. [_{VP} DP [_{V'} v_a [_{VP} DP [_{V'} V PP]]]] → (Move locative to Spec vP)
 (Match(v , DP), Match(-a, PP), Agree(v , DP), Agree(-a, PP),
 EPP(v , PP))
 e. [_{VP} PP [_{V'} DP [_{V'} v_a [_{VP} DP [_{V'} V t_{PP}]]]]]

Consider the derivation with locative extraction in more detail. At the point in the derivation in (45d), the probe (the [$u\Phi$] of v) starts to search for the closest matching goal and locates the DP, forming Match(v , DP). Since [v a v] has another set of [$u\Phi$] (those of the transitivity suffix *-a*), these features may continue onward to search for the next closest goal, forming Match(-a, PP). At this point in the derivation, the features of [v a v] need to be valued. Since both Match(v , DP) and Match(-a, PP) have been formed, DP values the [$u\Phi$] of v (Agree(v , DP)), and PP

satisfies the [uPhi] of *-a* (Agree(-a, PP)). Importantly, (45) does not violate the MCC (Multiple Case Condition) (38), because PP has been removed from the VP before Spell-Out.

In the extraction sentences in \neq Hoan in (43), *ki* is always necessary, since *ki* is not subject to Last Resort (39).

4. Sequential checking and the relation $\text{agree}(-a, ko)$

How can we explain the presence of the transitivity suffix in (1b) (repeated below)?

- (46) Uto dchuun-a |Kaece ko n!ama n!ang. (Jul'hoansi)
 car hit-TRANS |Kaece ko road in
 'A car hit |Kaece in the road.'

In this sentence, *v* checks the Case feature of the DP [*Kaece* and *ko* checks the Case feature of *n'lama n'ang* ‘‘in the road’’ (a nominal postpositional phrase). The transitivity suffix *-a* does not appear to check the Case feature of any DP. This conclusion is problematic because in examples involving intransitive verbs (see 28b, 32a, 33a), there is straightforward evidence that the transitivity suffix *-a* does check the Case feature of the following PP.

One possibility would be to say that *-a* and *ko* form a movement chain (*-a*, *ko*) in (46). 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*)?

I propose that the relationship between *-a* and *ko* involves Agree, not movement. In particular, the transitivity suffix in (46) is base generated in (adjoined to) *v*, and enters into the relation Agree(-a, *ko*). I will give an Agree analysis in the framework of Chomsky (2000, 2001a, b). Recall that I assume that both *ko* and *-a* have unvalued phi-features ([uPhi]). Given this analysis, we have the following relations in (46):

- (47) Uto dchuun-a [koP |Kaece ko [vP t|Kaece [v' V n!ama n!ang]]
- Step 2 Step 1

In Step 1, the unvalued phi-features of *ko* enter into an Agree relation with the phi-features of *n'ang* 'in': Agree(*ko*, PP). 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(*-a*, *ko*). Note that we are crucially assuming that [uPhi] (of both *-a* and *ko*) are not deleted until the strong phase level (vP). I will refer to the above process as sequential checking (or sequential valuation). I am also crucially

assuming that valuation of the [uPhi] features of *ko* does not render *ko* inactive.¹³

One important question about Step 2 is why the DP |*Kaece* does not intervene to block Agree(-a, *ko*) by the MLC (the transitivity suffix -a c-commands the DP and the DP c-commands *ko*, see the definition of the MLC in (8)). I propose that the DP does not intervene to block Agree(-a, *ko*), because *ko* is the head of koP. Recall that in Bare Phrase Structure, the label of koP is the lexical item *ko* itself (and not just a set of syntactic features). In effect, the [_v a v] (containing the transitivity suffix -a) and *ko* are sisters, thus the DP in Spec koP does not block the relation Agree(-a, *ko*). There is no need to redefine the MLC to allow this situation.

If the analysis above is correct, it provides striking confirmation of Chomsky's (2000, 2001a, b) view of Case. Under the (pre-Minimalist) Principles and Parameters theory of Case assignment, (46) would seem to be an example of a Case assigner (e.g., the transitivity suffix -a) assigning a Case to another Case assigner (e.g., *ko*), which is absurd.

4.1. *The causative construction*

Another case of sequential checking in Ju|'hoansi may be the causative constructions illustrated below:¹⁴

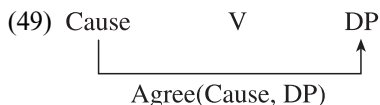
- (48) a. Mi n \neq ai tjin-(a) Oba. (Ju|'hoansi)
 1SG CAUSE cry-TRANS Oba
 'I made Oba cry.'
 b. Mi m n \neq ai glaoh-(a) tju tzi.
 1SG EMPH CAUSE strong-TRANS house mouth
 'I strengthened the door of the house.' (as a carpenter would)
 c. Mi m n \neq ai |'hom-(a) mi tju.
 1SG EMPH CAUSE beautiful-TRANS 1SG 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 affixed to the second verb (see Dickens (1992:59)). I will give an account of these facts in terms of sequential checking. I assume that the causative morpheme *n \neq ai* introduces an argument (the causer) and has [uPhi] (and thus checks Case). Similarly, the transitivity suffix -a has [uPhi] (see section 3). When the transitivity suffix is absent, I

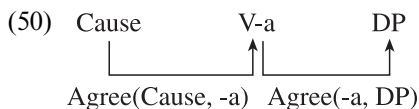
¹³ Contrary to Chomsky (2001a:6) who assumes a valued Case feature renders a goal inactive.

¹⁴ In the Gobabis dialect the transitivity suffix in (48a, b, c) is optional. In the Tjum!kui dialect it is obligatory absent in (48a), and obligatorily present in (48b, c). I have no account of this variation. For some speakers, there is also optionality in the presence of the transitivity suffix -a in sentences where a locative follows a transitive verb, such as (1a). I leave the issue of what factors underlie this optionality to future work.

suggest that the [*uPhi*] of the causative morpheme are valued by the interpretable phi-features of the DP, as illustrated below:



When the transitivity suffix *-a* is present, I suggest that the [*uPhi*] of the transitivity suffix *-a* are valued by the interpretable phi-features of the DP, and the [*uPhi*] of the causative morpheme are valued by the valued phi-features of the transitivity suffix *-a* as illustrated below:



The above facts bear on another issue. I have been implicitly assuming throughout that the transitivity suffix is not a type of applicative affix, in the sense of Baker (1996:427): “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 also be taken to describe the transitivity suffix *-a* in *Ju|'hoansi*. In spite of the similarity between the transitivity suffix *-a* and applicative morphemes, what is important to note is that no language uses an applicative suffix in the way that the transitivity suffix *-a* is used in (48) (in combination with a causative morpheme). The reason for this is simple. In (48) the causative morpheme itself introduces the causer, so there is no reason for the applicative morpheme to be added.¹⁵

Given the existence of sequential checking, consider once again (4a), repeated below:

- (51) Uto dchuun-(**a*) |Kaece. (Ju|'hoansi)
 car hit-TRANS |Kaece
 ‘The car hit |Kaece.’

The question that this example raises is why it is impossible for *v* (transitive) to enter into an Agree relation with the transitivity suffix (Agree(*v*, *-a*)), and for the transitivity suffix *-a* to enter into an Agree relation with the following DP (Agree(*-a*, DP)). This kind of sequential checking should be possible, just as in (46) and (48). I propose the following anti-locality condition on sequential checking:

- (52) Let *X* (a syntactic head) have features *F1* and *F2*. Then *F2* cannot value *F1*.

¹⁵ \neq *Hoan* has a causative construction similar to the examples in (48), but predictably no transitivity suffix is present (since \neq *Hoan* does not have a transitivity suffix).

This condition rules out Agree(v, -a) in (51), since both v (with [uPhi]) and -a (with [uPhi]) are part of the same syntactic head. This condition would naturally rule out cases where a single syntactic head had several transitivity suffixes (e.g., V-a-a-a-a). In fact, such cases are absent in my fieldnotes and in the texts that I have examined.

4.2. *The instrumental particle* |xoa

There are certain cases of sequential valuation that are blocked. In this section, I will discuss such a case involving the instrumental morpheme |xoa 'with'. One difference between the locative and instrumental constructions in Ju|'hoansi is that there is an alternative way of realizing instrumental phrases using the morpheme |xoa 'with'. This is illustrated below (example from Dickens 1992):

- (53) Ha gu-|xoa tju ko ||'aisi. (Ju|'hoansi)
 3SG build-with house ko grass
 'He built the house with grass.'

≠Hoan does not have any morpheme with the same range of syntactic positions that |xoa has. In addition to the above word order noted by Dickens (1992:22), I have found that it is possible in the Gobabis dialect (but not the Tjum!kui dialect) for the |xoa to be non-adjacent to the verb. This paradigm is illustrated below:

- (54) a. |Kaece goaq≠an gu-a tju ko ||'aisi.
 |Kaece yesterday build-TRANS house ko grass
 'Kaece built the house with grass.'
 b. |Kaece goaq≠an gu-(*)a-|xoa tju ko ||'aisi.
 |Kaece yesterday build-TRANS-with house ko grass
 'Kaece built the house with grass yesterday.'
 c. |Kaece goaq≠an gu-(*)a tju |xoa ||'aisi.
 |Kaece yesterday build-TRANS house with grass
 'Kaece built the house with grass yesterday.'

The sentence in (54a) shows that if an instrument is added, and |xoa is not present, then the verb has the transitivity suffix -a. In (54b), the particle |xoa has been added as a suffix. As can be seen, the transitivity suffix -a is not possible here. Lastly, in (54c), the particle |xoa is not adjacent to the verb. I should point out that the preferred word order seems to be the one where |xoa is adjacent to the verb. I assume that where |xoa is adjacent to the verb, it has been moved to the left away from its complement, although I will not try to formulate a precise analysis.

What is of interest in (54c) is that the transitivity suffix -a is not possible. I assume that |xoa 'with' checks the Case feature of the DP complement [|xoa DP]. In the system of Chomsky (2000, 2001a, b) this entails that |xoa 'with' has [uPhi]. The sentence in (54c) shows that the

[uPhi] of the transitivity suffix *-a* cannot be valued by the [uPhi] of *|xoa*. This suggests that [_{PP} *|xoa DP*] forms a phase. If [_{PP} *|xoa DP*] were a phase, the [uPhi] of *|xoa* would be deleted by the time the derivation reached the light verb *v*.

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

- (55) a. Mi ||'ama-*|xoa* tcisi ko mari. (Ju|'hoansi)
 1sg buy-with things ko money
 'I bought some things with money.'
 b. Mi ||'ama-*|xoa* mari ko tcisi.
 1sg buy-with money ko things
 c. Mi ||'ama tcisi *|xoa* mari.
 1sg buy things with money
 d. *Mi ||'ama mari *|xoa* tcisi.
 1sg buy money with things

Sentences (55a, b) illustrate that when *|xoa* is adjacent to the verb, inversion is possible. Sentences (55c, d) illustrate that when *|xoa* is not adjacent to the verb, inversion is not possible. While it is not entirely clear to me what the structure of (55a, b) is (when *|xoa* has been moved leftwards), these sentences do indicate that *|xoa* 'with' and *ko* have an entirely different status. The particle *ko* is the head of a functional projection (taking a VP complement). The preposition *|xoa* forms a constituent with the instrument forming the structure [_{PP} *|xoa DP*].

5. Conclusion

I have analyzed *ki* (≠Hoan) and *ko* (Ju|'hoansi) 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 general support for a class of proposals concerning vP internal structure (see Lasnik 1995, Koizumi 1995, Collins and Thrainsson 1996). In these proposals, there is a layer of functional structure dominated by vP and dominating VP.

The analysis of vP internal structure in Ju|'hoansi and ≠Hoan supports the Minimalist analysis of Case checking in Chomsky (2000, 2001a, b), which allows sequential checking. Lastly, the MCC (Multiple Case Condition) rules out cases where there are two undeleted Case features in a single VP at Spell-Out.

This type of particle that appears between vP internal constituents 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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