

Remarks on constituency in Pima

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0 Introduction

Pima is a Uto-Aztecan language spoken in Arizona, closely related to the more extensively studied language Tohono O'odham (Papago). Various studies of O'odham have concluded that the structure of the clause is flat, or at least there is no constituent based on the verb and object. (Jelinek, 1984; Miyashita et al., 2003)

This talk argues for the existence of a VP based on the following:

1. The distribution of the determiner *heg*,
2. a correlated distribution of inflectional affixes,
3. the distribution/interpretation of deictic particles.

First, I show how these factors behave in postpositional phrases, then extend the analysis to the verbal domain.

1 Of PPs and NPs

1.1 Distribution of *heg*

In most contexts, noun phrases are preceded by some kind of determiner. When none of the semantically contentful determiners (demonstratives and certain types of quantifiers) are appropriate, the default *heg* is used. In some positions, *heg* is impossible and nouns are left bare. The object of a postposition cannot carry *heg* if immediately before the postposition, though a determiner must appear if the noun follows (2) or is separated from the postposition (1) (Munro, 1989).

- (1) a. Koji 'o 'an bool wui him.
pig AUX FR:0 ball to go
'The pig walked to the ball.'
- b. Maggie 'o 'an wui him heg Homer.
Maggie AUX FR:0 to go(PF) DET Homer
'Maggie walked to Homer.'

- (2) a. M 'añ hasko LA c San Bernardino shaagid.
 180 AUX:1S somewhere LA and San Bernardino between
 'I'm somewhere between LA and San Bernardino.'
- b. M 'añ hasko shaagid heg LA c heg San Bernardino.
 180 AUX:1S somewhere between DET LA and DET San Bernardino
 'I'm somewhere between LA and San Bernardino.'

The same pattern is found in possessive phrases. If a possessor is found immediately before the possessum, it cannot carry *heg*, but if the possessor is anywhere else, *heg* is necessary. The possessum also has a determiner or not, depending on the typical syntax of noun phrases.

- (3) a. M 'ant wui 'i nod:agi heg Rebecca kalit.
 180 AUX:1S:PF to INC return DET Rebecca car
 'I returned Rebecca's car to her.'
- b. M 'ant wui 'i nod:agi heg kalit -aj heg Rebecca.
 180 AUX:1S:PF to INC return DET car -3S DET Rebecca
 'I returned Rebecca's car to her.'

1.2 Positional Agreement Affixes

The lack of *heg* correlates with certain inflectional properties of postpositions and possessives.

There is a prefix *t-* which can attach to a limited (probably phonologically defined) subset of postpositions to indicate that the object of that postposition is unpossessed. In order of this prefix to appear, the argument must be a singular noun: *t-* does not occur with plurals or pronouns. Furthermore, the noun must immediately precede the postposition. If the noun has been rightward-extrapolated or extracted, *t-* is impossible.¹

- (4) a. M 'o ge s- 'a'ac -ig gogs t- 'ab.
 180 AUX CERT STAT- PL,flea -PART dog UNP- on
 'There's fleas on the dog.'
- b. M 'o ge s- 'a'ac -ig heñ= gogs -ga 'ab.
 180 AUX:IMP CERT ST- PL,flea -PART DET dog -POSS on
 'There's fleas on my dog.'
- (5) a. Cekol 'at 'i gei kui t- 'amjed:.
 squirrel AUX:PF INC fall(PF) tree UNP- from
 'The squirrel fell from the tree.'
- b. *Cekol 'at 'i gei t- 'amjed: heg kui.

In possessive phrases, the possessor is typically indicated with an object clitic attached to the possessum. However, there is a gap in the paradigm at the third person singular, for

¹I gloss *geesh* as 'fall' below, but this is not accurate. This verb means to move very fast in a particular direction, then come to a sudden stop. It can be used for throwing things to stick to the roof or wall as well. However, with the particle 'i, it can only have the meaning "fall".

which no clitic exists. When a third person singular possessor occurs immediately before the possessum, the noun is unmarked. If the noun is post-nominal or a silent pronoun, the suffix *-(a)j* appears on the possessum.

- (6) a. *heg heñ= kalit*
 DET 1S= car
 ‘my car’
- b. *heg Rebecca kalit*
 DET Rebecca car
 ‘Rebecca’s car’
- c. *heg kalit [-aj] heg Rebecca*
 DET car -3S DET Rebecca
 ‘Rebecca’s car’
- d. *heg kalit [-aj]*
 DET car -3S
 ‘her car’

In both domains, the presence or absence of an inflectional element is correlated with a particular type of noun occurring in a particular position. The relevant position is also the one in which *heg* is suppressed.

1.3 Deictic Expressions in Locative Phrases

The deictic expressions are bimorphemic particles, where the first morpheme indicates distance and the second indicates direction. (The particles are conceptually similar to polar coordinates in geometry.) They canonically adjoin to the left edge of postpositional phrases, though they can also be alone before the verb if the postposition is rightward extraposed. (Hale et al., 1977) The following table was adapted from Saxton and Saxton (1969).

	m ‘facing away’	n ‘facing side-ways’	b ‘facing for-wards’	‘out of sight’
‘i ‘here’	‘im	‘in	–	
‘a ‘there’	‘am	‘an	‘ab	
ga ‘over there’	gam	gan	gab	gad:
gaa ‘way over there’	gaam	gaan	gaab	

The particles require two points for interpretation. The “deictic center” is the individual that serves as the base point (origin) for determining distance and direction; the “mark” is the individual that is being located. Deciding the identity of the deictic center and mark is complex (and becoming more complex the more I study it). For present purposes, we can say that the deictic particle relates at least one argument of the postposition phrase to other individual (not necessarily in the sentence).

- (7) a. Gogs 'o 'an bool daam keek.
 dog AUX FR:90 ball on stand
 'The dog is standing on the ball (off to my side).'
- b. Gogs 'o 'an bool daam keek.
 dog AUX FR:90 ball on stand
 'The dog is standing on the ball (facing sideways).'
- c. Gogs 'o 'ab Homer ba'ic keek.
 dog AUX FR:0 Homer in.front stand
 'The dog is standing in front of Homer (who is facing me).'
- d. Pam 'o cikpan 'ab 'e= miish 'ab.
 Pam AUX work FR:0 ANA= table at
 'Pam is working at her desk (facing it).'

The deictic particles typically occur at the left edge of their constituent, as seen above. PPs can be moved after the verb, and when this happens, the deictic particle can be optionally stranded. The following two sentences are acceptable alternatives of (7a).

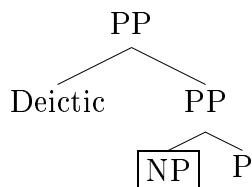
- (8) a. Gogs 'o keek 'an bool daam.
 b. Gogs 'o 'an keek bool daam.

1.4 Interim Summary

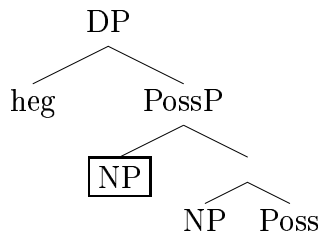
The preceding discussions leave us with the following picture: heads can occur in local structural configurations with their dependents. These configurations are necessary conditions for certain types of morphosyntactic expressions. Inflectional elements on the head are controlled by the type of dependent occurring in the configuration. More importantly for present concerns, the size of the structure of the dependent is reduced.

The deictic particles optionally attach to the postpositional variety of the configuration, and depends on an argument (or more) of that constituent for its interpretation. Note that the argument need only be a semantic argument of the postposition, it need not actually occur inside the PP (7b).

(9)



(10)



2 Verbs

The next step is to apply the facts above to verbs and their arguments.

2.1 Distribution of *heg*

Virtually all arguments of a verb are preceded by a determiner. There are two contexts in which a noun can be bare. The first is if the noun phrase occurs as the first word of the sentence. This seems to be a purely phonological effect, not a syntactic one, because the second noun of a coordinated phrase must still have the determiner. (Fitzgerald (1994))

- (11) a. John 'o ñe'ovin heg Bill.
John AUX argue DET Bill
'John is arguing with Bill.'
- b. John c heg Bill 'o ñe'ovin.
John and DET Bill AUX argue
'John and Bill are arguing.'

In a small number of cases, the direct object can occur immediately in front of the verb without a determiner. The following three sentences almost exhaustively illustrate the possible types: the first is an idiom, the second a generic sentence, the third involves some kind of "measurement" noun. The fourth is harder to describe.

- (12) Va t o hem= daak bij.
UNCRT PF IRR 2S= nose cross
'Someday you won't want to eat it anymore.'
- (13) 'e'eshadam 'o mangina ha= memel -cud.
farmers AUX PL,machine 3P= PL,run -TRNS
'Farmers drive tractors.'
- (14) Kavhi 'at o piish hem= kovlant.
coffee AUX:PF IRR dollar 2S= charge
'The coffee will cost you a dollar.'
- (15) Heñ= KUUSVA bei 'at.
1S= neck grab(PF) AUX:PF
'He grabbed my neck.' 'He choked me.'

A first guess about (15) is that the noun is incorporated. This is probably not correct. This noun can be possessed. The possessor can occur immediately before the noun, and lacks a determiner, as expected of this position. Even if *kuusva* 'neck' were incorporated, we would still need to explain why the possessor could occur without *heg*.

- (16) Marge 'at Homer kuusva bei.
Marge AUX:PF Homer neck grab
'Marge grabbed Homer's neck.' 'Marge choked Homer.'

In a move that is not otherwise possible, the possessor can be extracted across the sentence. When this happens, the possessor gains a *heg* and the possessum is suffixed with *-(a)j*. This morphological/inflectional complexity is not typically of incorporated objects across the Uto-Aztecan family.

- (17) Marge 'at kuusva -j bei heg Homer.
 Marge AUX:PF neck -3S grab(PF) DET Homer
 'Marge grabbed Homer's neck.' 'Marge choked Homer.'

Though this borders on idiomatic, it is too compositional to be placed in that category. My suggestion is that while the neck is literally the object of the verb, the individual being affected is Homer, not the neck (except incidentally). Thus, the meaning may be closer to (18). In the English, just like the Pima, the body part must be interpreted as possessed by Homer.

- (18) Marge grabbed Homer by the neck.

In all these cases, it is the direct object that loses its determiner. While it is possible to swap the position of most arguments without changing the meaning, this is not possible in these contexts.

- (19) a. Mamshcamdam 'o ha= ñeid heg 'o"ohan.
 PL,student AUX 3P= read DET PL,book
 'Students read books.'
 b. 'o"ohan 'o ha= ñeid heg mamshcamdam.
- (20) a. Mamshcamdam 'o 'o"ohan ha= ñeid.
 PL,student AUX PL,book 3P= read
 'Students read books.'
 b. *'o"ohan 'o mamshcamdam ha= ñeid.

What this suggests, is that there is a particular (semantically conditioned) configuration that can hold between verbs and their objects. Like with possessives and postpositions, an argument in this position does not have the determiner *heg*.

2.2 Deictic Particles

Deictic particles are often found to the left of verb phrases. While some of these are the result of stranding when a postposition is extraposed, many appear to be genuine modification of the verbal domain. As with the postpositional cases, the particle depends on at least one argument of the domain it modifies, and this argument can be the object of the head or an external argument.

- (21) a. Homer 'at 'ab 'i'iho.
 Homer AUX:PF FR:0 cough(PF)
 'Homer coughed (facing me).'
- b. Homer 'o 'an daadag heg gogs.
 Homer AUX FR:90 pet DET dog
 'Homer is petting the dog (which is beside him).'
- c. Maggie 'at 'ab ceesh heg gogs.
 Maggie AUX:PF FR:0 ride(PF) DET dog
 'Maggie is riding the dog (which is facing me).'

The particles can be added to sentences that have determiner-less objects. In these situations, the particle occurs to the left of the object.

- (22) Marge 'at 'ab kuusva -j bei heg Homer.
 Marge AUX:PF FR:0 neck -3S grab(PF) DET Homer
 'Marge grabbed Homer's neck (while facing the speaker).'

2.3 Summary of verbs

The gross structure of the configurations discussed in the verbal domain appears to be something like (23). Arguments in this context are not accompanied by *heg*, and the deictic particle occurs to the left of the configuration.



3 Further remarks and Conclusion

The configurations in which *heg* is suppressed is remarkably similar across three different syntactic domains: the determiner-less noun is always immediately in front of the head, be it postposition, possessed noun, or verb. It seems reasonable, then, to impose a similarity in syntactic structure, wherein the head and its argument form a constituent.

All the bare nouns occur outside the inflectional morphology on the head. According to some views of syntax, the head would have to move to a higher inflectional position outside of its base constituent. If this is the case, then the bare nouns must also be in a position external to the base position of the head. If this line of reasoning is followed, it would

imply that this evidence does not support the existence of VPs, but rather the existence of a constituent of a different category. This requires further thought and evidence.

Questions must also be answered about why *heg* should have this peculiar distribution. Suggestions have been made by Sportiche (1999) and Mahajan (2001) for other languages that may be applicable here, though it is not yet clear to me how to make the specifics of the proposals work for Pima.

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