

Pied-piping and optimal order in Kiche (K'iche')

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1 Introduction¹

Kiche (K'iche') is a Mayan language spoken in Guatemala. Its basic constituent word order is head-initial. Consider the following examples, which show that D is initial in DP, N is initial in NP, P is initial in PP, and Q is initial in QP:

¹ Kiche (K'iche') is a Mayan language spoken in Guatemala. The name of this language is spelled Quiché in many sources, and as K'iche' or K'ichee' in the most recent literature. In the dialect of Pedro Garcia Mantanic, however, this word is pronounced /kitʃe/, as is referred to as Kiche in this paper.

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This paper largely uses the conventions of the national orthography, in which <x> = a voiceless alveopalatal sibilant (IPA [ʃ]), <tz> = a voiceless dental affricate (IPA [ts]), <ch> = a voiceless alveopalatal affricate (IPA [tʃ]), <ä> = schwa (IPA [ə]), <q> is a uvular stop and apostrophe = glottal stop (following a vowel) or glottalization (following a consonant). However, Kiche dialects differ in the number of phonemic vowels and in the phonemic status of vowel length. The national orthography distinguishes long and short versions of the five cardinal vowels (thus *a*, *aa*, *e*, *ee*, *i*, *ii*, *o*, *oo*, *u*, *uu*). The Cantel dialect has no length distinction and instead has six phonemic vowels (*a*, *ä*, *e*, *i*, *o*, *u*). I write only these vowels here.

Glosses use the following abbreviations: Abs = absolutive, cl = personal classifier (markers of the age and sex of human referents), com = completive aspect, det = determiner, Erg = ergative, hum = human, inc = incompletive aspect, loc = locational focus (a particle that appears postverbally in sentences with a focussed locative phrase), nhum = nonhuman, p = plural, plain = plain status (a suffix which appears on a phrase-final verb), pass = passive, s = singular, wh = interrogative.

- 1) [DP Le [NP r-ak' l-al Pam]] x-u-tij ixjut.
 DET 3SERG-chicken DET-CL Pam COM-3SERG-eat worm.

‘Pam’s chicken ate a worm.’

- 2) Le tz'i' t'uyl-ik [PP chirij le porta].
 DET dog sit-PLAIN behind DET door

‘DET dog is sitting behind the door.’

- 3) L-a Xwan x-u-tij [QP juntir le kinäq].
 DET-CL Juan COM-3SERG-eat all DET bean

‘Juan ate all the beans.’

At the clausal level, SVO is the most frequent word order in elicitation and in texts.

In texts it is relatively uncommon to have both an overt subject and an overt object. Larsen (1988:348-349) shows that in three texts containing 810 clauses, only 41 have overt subjects and objects. Of these 41 clauses, 20 (49%) have SVO order, 9 (22%) have OVS, 9 (22%) have VSO, and 3 (7%) have VOS.

Larsen (1988:327-383) considers the question in considerable detail and concludes that the most basic word order is probably VOS, with the other orders derived by movement. There may also be a fair amount of speaker variation in the range of acceptable word orders.²

2 Pied-piping with inversion

The head-initial order seen in PP optionally gives way to a head-final order when a subpart of PP is questioned. Consider the following examples.³

- 4) a.) Chuxe' jäs k'o wi le tz'i'?
 under:3SERG WH:NHUM exist LOC DET dog

‘What is the dog under?’

² Broadwell (2000), and Broadwell and Smith (2001) discuss a similar word order problem in the closely related Kaqchikel.

³ In some elicitation sessions, both orders have been accepted. In other sessions, using identical examples, one of the orders (usually the inverted order) is accepted and the other is rejected. My current interpretation is that both orders are grammatical, with a slight preference for the inverted order. However, see appendix 2 for discussion of the possibility that there may be differences among the prepositions in this respect.

b.) Jäs chuxe' k'o wi le tz'i'
 WH:NHUM under:3SERG exist LOC DET dog

‘What is the dog under?’

5) a.) Jachin r-uk' x-e' wi p-le tinamit?
 WH:ANIM 3SERG-with COM-go LOC to-DET town

‘Who did she go to town with?’

b.) R-uk' jachin x-e' wi p-le tinamit?
 3SERG-with WH:ANIM COM-go LOC to-DET town

‘Who did she go to town with?’

The pattern seen in this example is known as pied-piping with inversion (PPI), a term coined by Smith-Stark (1988).

Most Kiche prepositions agree with their objects in number and gender, using the ergative set of agreement markers.⁴ One non-agreeing preposition is *p=* or *pä=* ‘on, in, at’, which cliticizes to the following NP. This preposition does not participate in PPI:

6) Le lej k'o p=le plato.
 DET tortilla exist on=DET plate

‘The tortilla is on the plate.’

7) a.) P=jäs k'o wi le lej?
 on=WH:NHUM exist LOC DET tortilla

‘What is the tortilla on?’

b.) *Jäs=p k'o wi le lej?
 WH:NHUM=on exist LOC DET tortilla

QPs show pied-piping, but without inversion:

⁴ The ergative agreement markers are also used to show agreement between a noun and its possessor. For this reason, and because many prepositions are homophonous with body part nouns, many analyses of Mayan languages refer to such words as relational nouns rather than prepositions. See section 8 below for more discussion of this issue.

- 8) a.) Juntir jäs x-u-tij l-a Xwan?
all WH:NHUM COM-3SERG-EAT DET-CL Juan

‘What did Juan eat all of?’

- b.) *Jäs juntir x-u-tij l-a Xwan?
WH:NHUM all COM-3SERG-EAT DET-CL Juan

However, some Kiche quantifiers may optionally be followed by a prepositional phrase headed by *rech* ‘of’.⁵ If the object of this preposition is interrogative, once again we see optional PPI:

- 9) a.) Juntir jäs r-ech x-u-tij l-a Xwan?
all WH:NHUM 3SERG-of COM-3SERG-eat DET-CL Juan

‘What did Juan eat all of?’

- b.) Juntir r-ech jäs x-u-tij l-a Xwan?
all 3SERG-of WH:NHUM COM-3SERG-eat DET-CL Juan

‘What did Juan eat all of?’

3 An environment where PPI is blocked

Despite the fact that PPI is generally possible (and is even preferred) in prepositional phrases, PPI is not possible if the object of the preposition is complex, where by complex I mean composed of more than one word.

Consider the following examples, which show the effect of making the prepositional object more complex.

- 10) a.) Chuxe’ jäs tem k’o le tz’i’?
under:3SERG WH:NHUM chair exist DET dog

‘Which chair is DET dog under?’

- b.) *Jäs tem chuxe’ k’o le tz’i’?
WH:NHUM chair under:3SERG exist DET dog

⁵ Compare the similar variation between English *all the beans* and *all of the beans*.

- 11) a.) Chuxkut jachin achi' k'o le tz'i'?
 next:to:3SERG WH:HUM man exist DET dog
 'Which man is the dog next to?'
- b.) *Jachin achi' chuxkut k'o le tz'i'?
 WH:HUM man next:to:3SERG exist DET dog

As these examples show, when the object is complex, pied-piping still occurs, but inversion is blocked.

In a number of Mesoamerican languages (Zapotec, Broadwell 2001; Trique, Broadwell and Key, 2004) questions of this sort involve a word order that Broadwell (2001) labels 'disconnected', in which the object of the preposition is split up, with the interrogative specifier before the preposition and the remainder of the object after the preposition. This order is judged ungrammatical in Kiche:

- 12) a.) *Jäs chuxe' tem k'o le tz'i'?
 WH:NHUM under:3SERG chair exist DET dog
 ('Which chair is the dog under?')
- b.) *Jachin chuxkut achi' k'o le tz'i'?
 WH:HUM next:to:3SERG man exist DET dog
 ('Which man is the dog next to?')

4 Is there PPI in noun phrases?

It is difficult to determine whether NPs also display PPI. Cross-linguistically, the most common type of PPI seen in NPs involves questions of the 'whose N' and 'which N' types. However, there are independent restrictions against the first type, and difficulties in determining the correct analysis of the second type.

4.1 'Whose N' questions

Pied-piping with inversion for 'whose N' questions is not seen in Kiche because the language apparently does not allow 'whose N' as a constituent. One Kiche equivalent of such a question is formed by moving only the interrogative possessor to preverbal position, leaving the possessed N behind.

- 13) Jachin x-t'ixjn le r-al?
 WH:HUM COM-sneeze DET 3SERG-son

'Whose son sneezed?'

There is apparently no grammatical way to form this question that has 'whose son' as a constituent. Thus all of the following alternatives were judged ungrammatical:

- 14) a.) *Jachin r-al x-t'ixjn?
 WH:HUM 3SERG-son COM-sneeze

'Whose son sneezed?'

- b.) *Jachin al x-t'ixjn?
 WH:HUM son COM-sneeze

'Whose son sneezed?'

- c.) *Jachin le r-al x-t'ixjn?
 WH:HUM DET 3SERG-son COM-sneeze

'Whose son sneezed?'

In the appendix to this paper, I discuss in greater detail how Kiche forms 'whose N' questions.

4.2 'Which N' questions

Kiche does show pied-piping of 'which N' type questions, and also shows an order in which the interrogative is initial in the NP:

- 15) a. [Jäs tz'i] x-tiyo-w l-a Xwan?
 WH:NHUM dog COM-bite-AF DET-CL Juan

'Which dog bit Juan?'

- b. *[Tz'i jäs] x-tiyo-w l-a Xwan?
 dog WH:NHUM COM-bite-AF DET-CL Juan

However, it is difficult to decide whether the order shown in these phrases is special to

interrogatives.

For ‘which N’ questions, the answers are typically of two kinds. The answer usually further specifies the N with an adjective or a demonstrative. So the following might be answers to the question above:

16) a.) le tz’i’ le’
 DET dog that

‘that dog’

b.) le nim tz’i’
 DET big dog

‘the big dog’

Demonstratives in Kiche are indicated by the combination of an article (such as *le* ‘the’) before the N and a demonstrative (such as *le’* ‘that’) after the noun. The interrogative equivalent has a single word before the N:

17) jäs tz’i’
 WH:NHUM dog

‘which dog’

A typical approach to determining the part of speech category of an interrogative uses comparison to the category of the corresponding non-interrogative. But is *jäs* ‘which’ an interrogative demonstrative or an interrogative article? On one analysis, there is PPI and on another analysis there is not.

Adjectives also precede the noun, so if we take *jäs* ‘which’ to be an interrogative adjective, then we see no evidence of PPI.

4.3 Comparison

It is thus not clear whether Kiche shows PPI in NPs. In this respect, Kiche is notably different from many other Mesoamerican languages, including the closely related Kaqchikel.⁶ In Kaqchikel, we do find PPI in ‘whose N’ questions, as in the following example:

⁶ Kaqchikel is a neighboring and closely related Mayan language. The Kaqchikel examples are written in the same orthography as the Kiche. I thank Alberto Esquit Choy, who provided this Kaqchikel data.

- 18) ¿Choj tata' x-u-tz'et ri a Juan?
 WH:HUM father COM-3S_{ERG}-see DET CL Juan

‘Whose father did Juan see?’

Future research on Kiche may clarify the issue of whether it is best to posit PPI in ‘which N’ type questions. For the moment, I will take the position that a PPI analysis is not well-motivated in Kiche.

5 Is PPI an instance of wh-movement?

Aissen (1996) proposed an analysis of Tzotzil PPI in which there are two instances of wh-movement. First the pied-piped constituent (DP or PP) moves to [Spec, CP], then the interrogative word undergoes a further leftward movement into the [Spec, DP] or [Spec, PP] position.

Consider a sample Tzotzil sentence and Aissen’s analysis of it.

- 19) Buch'u s-tot av-il-be?
 who 3S_{ERG}-father 2S_{ABS}-SEE-IND_{OBJ}

‘Whose father did you see?’

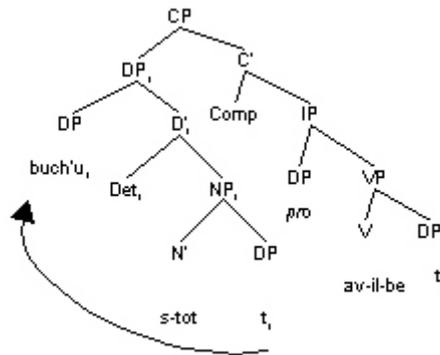


Figure 1 Aissen’s analysis of PPI

In Aissen’s analysis, the movement is triggered by the need for the interrogative to pass its referential index up to the DP₁ that contains it (via Head-Spec indexing and feature sharing of the head and the phrase). If the interrogative remained in NP₁, it would not be able to pass its index

to the [+wh] [Spec, CP].⁷

I believe this analysis is problematic when applied to Kiche. There are at least four reasons to think that the linguistic principle responsible for inversion is not the same as ordinary wh-movement.

First, the optional inversion seen in the PP complements to quantifiers does not actually succeed in putting the wh-word in anything that could reasonably count as a specifier of QP, since the interrogative remains after the QP. Thus the PPI within PP complements to quantifiers doesn't do anything to make the index of the interrogative accessible to features in [Spec, CP].

Second, ordinary wh-movement is obligatory (20), but inversion is optional:

- 20) a.) Jachin x-a-wil-o?
 WH:HUM COM-2SERG-see-PLAIN?

 ‘Who did you see?’

 b.) *X-a-wil-(o) jachin?
 COM-2SERG-see-(PLAIN) WH:HUM

Third, wh-movement and pied-piping is obligatory with prepositional phrases whose object is of the type ‘which N’ (21). However, inversion is blocked in such cases (22):

- 21) a.) Jäs pwi’ x-u-loq’?
 WH:NHUM hat COM-3SERG-buy

 ‘Which hat did he buy?’

 b.) *X-u-loq’ jäs pwi’?
 COM-3SERG-buy WH:NHUM hat
- 22) a.) Chuxe’ jäs tem k’o le tz’i’?
 under:3SERG WH:NHUM chair exist DET dog

 ‘Which chair is the dog under?’

 b.) *Jäs tem chuxe’ k’o le tz’i’?
 WH:NHUM chair under:3SERG exist DET dog

⁷ Though Aissen’s analysis is not phrased in terms of the Minimalist Program, one could easily reinterpret it to say that the interrogative moves so that it can check the [+wh] feature of the [Spec, CP].

Fourth, wh-movement does not normally strand a preposition in Kiche. If inversion in pied-pied prepositional phrases were an instance of wh-movement, however, they would be instances of preposition stranding:⁸

- 23) *Jäs k'o [PP chuxe' ___] le tz'i'?
- WH:NHUM exist under DET dog⁹
- *Jäs k'o le tz'i' [PP chuxe' ___]?
- WH:NHUM exist DET dog under

(What is the dog under?)

For all these reasons, I believe that an analysis of PPI as pied-piping followed by wh-movement is not tenable.

6 An optimality-theoretic approach

I believe that PPI is best treated in an optimality theoretic framework which treats the inversion as an effect of the competition between two types of constraint.

The first type of constraint tries to align the interrogative with the left edge of the clause, and can be formulated as follows:

- 24) Align (WH, L, CP, L) = Wh-Left
Align the left edge of an interrogative with the left edge of CP

The second type of constraint tries to align the head of a phrase with the left edge of the phrase. So for the types of phrases we are considering here, the relevant constraints are

- 25) Align (Q, L, NP, L) = Q-Left
Align the left edge of Q with the left edge of QP.
- 26) Align (P, L, PP, L) = P-Left
Align the left edge of P with the left edge of PP.

We can account for the optionality of PPI in prepositional phrases through constraint weighting. I will adopt the stochastic OT viewpoint of Boersma (1998) and Hayes and Boersma (1999) and assume that the strength of each constraint can be stated as varying with some range. On any particular instantiation of the constraint, some value within this range will be chosen, but these

⁸ There is, however, apparent P-stranding in relative clauses. This needs more investigation.

⁹ This string is grammatical with the reading 'What is under the dog?'

values may vary over instantiations.

So optionality is implemented by letting the constraints Wh-Left and P-Left have overlapping ranges. (I'll indicate this in the conventional way by using a dotted line between the constraints):¹⁰

		Wh-Left	P-Left
a.	☞ [Jäs chuxe'] k'o le tz'i'? WH:NHUM under exist DET dog		*
b.	☞ [Chuxe' jäs] k'o le tz'i'? under WH:NHUM exist DET dog	*	
c.	K'o le tz'i' [jäs chuxe']? exist DET dog WH:NHUM under	***	*

In the case of the proclitic $p= \sim p\ddot{a}=$ 'in, on, at', we can account for the unavailability of PPI by positing a constraint that aligns this clitic with a following DP:

27) Align ($p=$, R, DP, L) = Align Clitic.

This constraint dominates the Wh-Left constraint to give the following tableau:

		Align Clitic	Wh-Left	P-Left
a.	[Jäs =p] k'o le lej? WH:NHUM on exist DET tortilla	*		*
b.	☞ [P= jäs] k'o le lej'? on WH:NHUM exist DET tortilla		*	

As we have seen, PPI is not found in non-prepositional complements of QP. This can be modelled by having the Q-Left constraint strictly dominate the Wh-Left constraint:

¹⁰ In these tableaux I have counted one violation of Wh-L for each word that intervenes between the left edge of CP and the interrogative.

		Q-Left	Wh-Left
a.	☞ [Juntir jäs] xutij la Xwan? all WH:NHUM eat DET Juan		*
b.	[Jäs juntir] xutij la Xwan? WH:NHUM all eat DET Juan	*	
c.	La Xwan xutij [juntir jäs]? DET Juan eat all WH:NHUM		****

PPI may optionally reappear in the PP complements to quantifiers, as shown in the following tableau:

		Q-Left	Wh-Left	P-Left
a.	☞ [Juntir jäs rech] xutij la Xwan? all WH:NHUM of eat DET Juan		*	*
b.	☞ [Juntir rech jäs] xutij la Xwan? all of WH:NHUM eat DET Juan		**	
c.	[Rech jäs juntir] xutij la Xwan? of WH:NHUM all eat DET Juan	*	*	
d.	[Jäs rech juntir] xutij la Xwan? WH:NHUM of all eat DET Juan	*		*

7 Blocking of PPI

Recall that PPI is blocked when the object of a preposition is complex:

- 28) a.) Chuxe' jäs tem k'o le tz'i'?'
under:3SERG WH:NHUM chair exist DET dog

'Which chair is the dog under?'

- b.) *Jäs tem chuxe' k'o le tz'i'?'
WH:NHUM chair under:3SERG exist DET dog

Previous work (Aissen 1996 for Tzotzil; Broadwell 2003 for Zapotec; Broadwell and Key 2004

for Copala Trique) has documented a restriction like this in other languages that have PPI.

Consider the phrase structure tree that would result if a sentence like (28b) were grammatical:

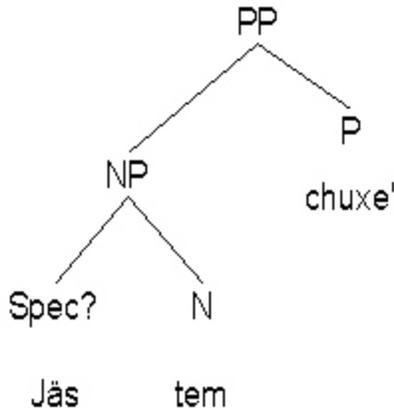


Figure 1 Prohibited PPI configuration

I want to argue that a tree of this sort violates a constraint on permissible branching types, modifying an idea originally due to Longobardi (1991). We can state the restriction as follows:

29) Consistency

If a phrase XP is right-headed, then a constituent which is located on a left branch of XP may not branch.

This constraint works to limit the amount of left branching that a language may contain. If we add Consistency as an undominated constraint in our tableaux, we correctly predict a lack of PPI when the object of the preposition is branching:

		Consistency	Wh-Left	P-Left
a.	[Jäs tem chuxe'] k'o le tz'i'?	*		*
b.	☞ [Chuxe' jäs tem] k'o le tz'i'?		*	

There are a number of additional considerations for the proper statement of Consistency in Kiche, but I will not pursue them here.

8 Non-contexts for pied-piping without inversion

It should be noted that it is specifically the *wh*-interrogative context that triggers PPI in Kiche. There are other contexts in which constituents are pied-piped to a position before the verb, but these do not trigger PPI. One of these contexts is movement of a focussed constituent.

30) a.) [Che l-a Xwan]_{PP} x-n-loq' wi le wuj,
 from DET-CL Juan COM-1SERG-buy LOC DET book

n-che-t l-al Mrij.
 NEG-from-NEG DET-CL Maria

‘It was from Juan that I bought the book, not Maria.’

b.) *[L-a Xwan che]_{PP} x-n-loq' wi le wuj,
 DET-CL Juan from COM-1SERG-buy LOC DET book

n-che-t l-al Mrij.
 NEG-from-NEG DET-CL Maria

The yes-no interrogative of this question does not show PPI:

31) a.) A che l-a Xwan x-u-loq' wi le wuj?
 Q from DET-CL Juan COM-1SERG-buy LOC DET book

‘Was it from Juan that he bought the book?’

b.) *A l-a Xwan che x-u-loq' wi le wuj?
 Q DET-CL Juan from COM-1SERG-buy LOC DET book

(Was it from Juan that he bought the book?)

Similar to this is the fronting in negative contexts, which shows pied-piping but not PPI:

32) Ni jun x-chp-o le ek'.
 NEG one COM-catch-PLAIN DET chicken

‘No one caught the chicken.’

- 33) a.) R-uk' ni jun x-u-chip wi kar l-a Jeff.
 3SERG-with NEG one COM-3SERG LOC fish DET-CL Jeff
- 'Jeff didn't catch fish with anyone.'
- b.) *Ni jun r-uk' x-u-chip wi kar l-a Jeff.
 NEG one 3SERG-with COM-3SERG LOC fish DET-CL Jeff

These examples show that inversion is not an optional feature of any pied-piping construction, but is specific to *wh*-interrogatives. In some other Mesoamerican languages (e.g. San Dionisio Ocotepéc Zapotec, Broadwell 2001), the negative focus context also triggers PPI.

9 Pied-piping as a diagnostic for categorial status

A benefit of a better understanding of PPI is that it can serve as a diagnostic for categorial status in Kiche.

A long-standing issue in the grammar of Mesoamerican languages is the relationship between prepositions and nouns for body parts. There is often considerable overlap between these two groups. For example, the preposition 'behind' may turn out to be homophonous or morphologically related to a noun meaning 'back'. In some analyses of Kiche (López Ixcoy 1997), as well as of other Mesoamerican languages (e.g. Copala Trique, Hollenbach 1992; Kaqchikel, Garcia Matzar and Rodriguez Guaján 1997) there is no separable part of speech category for prepositions. Instead they are treated as relational nouns – a subclass of the noun category.

Heinz (2004) has argued against this analysis in Kiche, and Lillehaugen (2003) has made a similar argument against this analysis in Tlacolula Zapotec.

Evidence from pied-piping with inversion provides another area of syntax in which prepositions and nouns diverge from each other, and the difference in their behavior strengthens the conclusion that they are distinct parts of speech.

Recall that in Kiche, PPI is optional for PP, but obligatory for NP. Furthermore pied-piping of 'whose N' is ruled out in Kiche. That has clear implications for the correct analysis of examples like the following:

- 34) a.) [Chuxe' jachin] k'o wi le tz'i'
 under:3SERG WH:HUM exist LOC DET dog
- 'Who is the dog under?'
- b.) [Jachin chuxe'] k'o wi le tz'i'
 WH:HUM under:3SERG exist LOC DET dog
- 'Who is the dog under?'

Suppose we did not recognize a category P in Kiche. Then two things would be very difficult to explain about examples like these. First, both pied-piped and non-pied-piped orders are acceptable here, in contrast to the usual case with NP, where only PPI is good:

- 35) a. [Jäs tz'i'] x-tio-w l-a Xwan?
 WH:NHUM dog COM-bite-AF DET-CL Juan
 'Which dog bit Juan?'
- b. *[Tz'i' jäs] x-tio-w l-a Xwan?
 dog WH:NHUM COM-bite-AF DET-CL Juan

Second, if we try to interpret a sentence like (34) above as containing a possessed noun, then it would be paraphrased as something like 'The dog exists at whose bottom?', where the interrogative is the possessor of a relational noun 'bottom'.

But we have seen above that Kiche bans questions of the 'whose N' type. It would very surprising if Kiche banned sentences like (36) but allowed 'whose N' questions in (34).

- 36) a. *Jachin (l-)uq'äb' x-k'at?
 WH:HUM (DET-)arm COM-burn
 (Whose arm burned?)
- b. Jachin x-k'at (l-)uq'ab'?
 WH:HUM COM-burn (DET-)arm
 'Whose arm burned?'

Pied-piping can also be useful in determining the categorial status in some other doubtful cases. Consider the following example:

- 37) X-ki-tze'j n-wuch.
 COM-3PERG-laugh 1SERG-face
 'They laughed at me.'

In this example, is *nwuch* to be interpreted as a noun phrase 'my face' or as a prepositional phrase 'at me'? The question form shows that *-wuch* cannot be pied-piped in a question. Therefore, it is presumably a noun, despite the prepositional translation.

- 38) Jachin x-ki-tze'j u-wuch?
 WH:HUM COM-3PERG-laugh 3SERG-face

‘Who did they laugh at?’

- *Jachin u-wuch x-ki-tze'j?
 WH:HUM 3SERG-face COM-3PERG-laugh

Another doubtful case is the conjunction *rchi'l* ‘and, with’. Like a preposition or noun it shows ergative agreement with the phrase that follows:

- 39) Are' x-e' p=le tinimit r-chi'l l-a Xwan.
 s/he COM-go to=DET town 3SERG-with DET-CL Juan

‘She/he went to town with Juan.’

However, it cannot be pied-piped, and is thus presumably not a preposition:

- 40) *Jachin r-chi'l x-e' p=le tinimit?
 WH:HUM 3SERG-with COM-go to=DET town

(Who did she/he go to town with?)

- *R-chi'l jachin x-e' p=le tinimit?
 3SERG-with WH:HUM COM-go to=DET town

(Who did she/he go to town with?)

10 Conclusion

It is possible to account for the word order found in Kiche pied-piping with inversion by using a relatively small number of constraints. The majority of these constraints seek to align some element with edge of a constituent.

From the perspective of Optimality Theory, what we call pied-piping with inversion arises from ranking the Wh-L constraint equal to or higher than one of the constraints which position heads in the language.

The Optimality-theoretic treatment may also help us in accounting for the fact that PPI is an areal feature of Mesoamerican languages (Smith-Stark 1988). From the perspective of OT, the widespread distribution of PPI suggests that some language area phenomena may arise from similar constraint rankings in neighboring languages, and that a convergence in constraint rankings may be an effect of language contact and bilingualism.

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12 Appendix 1 – Expressing ‘whose N’ questions

In section 4 above, I noted that Kiche appears to disallows questions of the ‘whose N’

sort where the possessor and the possessed noun form a surface constituent. That naturally raises the question of how such questions are expressed.

As mentioned above, one Kiche equivalent of such a question is formed by moving only the interrogative possessor to preverbal position, leaving the possessed N behind.

- 41) Jachin x-t'ixjn le r-al?
 WH:HUM COM-sneeze DET 3SERG-son

‘Whose son sneezed?’

I will refer to this as the N-stranding option.

Another very common alternative for such questions uses a cleft sentence:

- 42) Jachin ajchq'el l-aq'al le x-t'xjn-ik?
 WH:HUM possessor DET-child REL COM-sneeze-PLAIN

‘Who is the parent (lit. ‘possessor, owner’) of the child that sneezed?’

I analyze this as a copular sentence containing a relative clause ‘the child that sneezed’. This analysis is indicated by the presence of *le* ‘the; relative marker’ before the verb.

With intransitive verbs, the N-stranding option is apparently always possible. It does not depend on the unergative/unaccusative status of the verb, since N-stranding is possible with both highly agentive and highly non-agentive subjects:

- 43) Jachin x-km l-u-nan?
 WH:HUM COM-die DET-3SERG-mother

‘Whose mother died?’

- 44) Jachin jin k-k'oq' le r-ma ek'?
 WH:HUM PROG INC-crow DET 3SERG-male chicken

‘Whose rooster is crowing?’

There are a number of verbs which are idiomatically accompanied by a reflexive *r-ib* ‘himself, herself’, such as those shown in (45) and (46) below. These verbs also seem to count as intransitive by this test, and allow N-stranding:

- 45) Jachin x-u-k'iaq r-ib' le r-ak'?
 WH:HUM COM-3SERG-throw 3SERG-self DET 3SERG-chicken

‘Whose chicken jumped?’

- 46) Jachin x-u-tzaq r-ib' l-u-chaq?
 WH:ANIM COM-3SERG-lose 3SERG-self DET-3SERG-younger.brother

‘Whose younger brother got lost?’

This is somewhat surprising, since the verbal agreement in this example is from the ergative set, indicating a morphologically transitive verb.

However, ordinary transitive verbs do not allow N-stranding of either subjects or objects:

- 47) *Jachin x-u-tij le r-ak' ixjut?
 WH:HUM COM-3SERG-eat DET 3sErg-chicken worm

‘Whose chicken ate a worm?’

- 48) *Jachin x-u-chip l-a Sameer le r-ak'?
 WH:HUM COM-3SERG-catch DET-CL Sameer DET 3SERG-chicken

‘Whose chicken did Sameer catch?’

For transitive verbs, only the clefted versions are grammatical:

- 49) Jachin ajchq'el le ek' le x-u-tij ixjut?
 WH:HUM possessor DET chicken REL COM-3SERG-eat worm

‘Who is the possessor of the chicken that ate a worm?’

- 50) Jachin ajchq'el le ek' le x-u-chip l-a Sameer?
 WH:HUM possessor DET chicken REL COM-3SERG DET-CL Sameer

‘Who is the possessor of the chicken that Sameer caught?’

I will leave formalization of the constraints that prevent a.) questions of the ‘whose N’ type or b.) that restrict N-stranding to intransitive subjects for future research.

13 Appendix 2 – Differences among prepositions?

The generalization that PPI optionally applies to all prepositions is based on the following subset:

ruk' ‘with’
 chuxe' ‘under’

chuchi' 'in front of'
 chrij 'behind'
 chuxkut 'beside'
 pwi' 'on, above'
 cho 'on'

 rma'l 'by'

 chpam 'inside'

 rech 'to, of'

 che 'to'

 chixo'l 'between'

An issue not addressed in this paper is whether there are differences among the prepositions in their preference for pied-piping with and without inversion.

Preliminary data suggests that the PPI order is more strongly preferred with the prepositions *rma'l* 'by', *pwi'* 'on, above', *cho* 'on', and *che* 'to'. In many examples only the PPI order was judged good:

51) a.) Jäs cho k'o wi le retrat?
 WH:ANIM on exist LOC DET picture

'What is the picture on?'

b.) *? Cho jäs k'o wi le retrat?
 on WH:ANIM exist LOC DET picture

It may well be significant that the prepositions where PPI is (near) obligatory are all monosyllabic.

There are some monosyllabic prepositions with which PPI is optional (*chrij*, *chpam*) but these forms are probably derived in the Cantel dialect from bisyllabic forms (*chirij*, *chupam*) by a rule of penultimate syncope. Other dialects retain the bisyllabic forms of these prepositions, and bisyllabic pronunciations seem to sometimes be an option for Mr. Garcia U. Mantanic's dialect as well.

The difference in the acceptability of uninverted orders with some prepositions suggests the possibility of additional constraints on this construction – perhaps phonological in origin. This is a matter that requires further investigation.

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