

## A'INGAE PIED-PIPING: A Q-BASED ANALYSIS

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### 1 INTRODUCTION

In many languages, the question word (WH-word) must be initial in content questions. Such is the case in A'ingae (or Cofán, iso 639-3: con), which is an Amazonian language isolate. In A'ingae, content questions are formed by dislocating the WH-word from its canonical position towards the left edge of the sentence (1). Movement is represented with a left-pointing arrow ( $\leftarrow$ ). The movement trace is represented with a circled *t* ( $\textcircled{t}$ ).

#### (1) WH-MOVEMENT TO LEFT EDGE

*junguesû=ma -tsû an*  $\textcircled{t}$ ?

what=ACC =3 eat

“What did (s)he eat?”

“Pied-piping” (Ross, 1967, 1986) refers to structures where the fronted constituent contains, but is not identical to the WH-word. In addition to WH-movement, A'ingae also shows pied-piping, including pied-piping by possessor (2).

#### (2) PIED-PIPING BY POSSESSOR

[ *majambe ankhe'sû=ma* ] -tsû an  $\textcircled{t}$ ?

whose food=ACC =3 eat

“Whose food did (s)he eat?”

This talk explores the landscape of A'ingae's various pied-piping structures. A'ingae shows obligatory pied-piping of DPs and optional pied-piping of TPs. Secondary WH-movement is obligatory in DPs, but not in TPs. I analyze the A'ingae pattern in Cable's (2007, 2010a,b) Q-based theory of pied-piping, which models pied-piping

as movement of a phrase headed by a question (Q) particle and correctly predicts the range of A'ingae pied-piping structures.

The rest of the talk is organized as follows. Section 2 present background on the language and its speakers. Section 3 lays out the facts of A'ingae WH-movement and pied-piping. Section 4 provides a Q-based analysis of the A'ingae data. Section 5 discusses the findings and concludes.

### 2 LANGUAGE BACKGROUND

A'ingae (or Cofán, iso 639-3: con) is an indigenous language spoken by ca. 1,500 Cofán people in northeast Ecuador and southern Colombia (Dąbkowski, 2021).<sup>1</sup> Despite spurious, mostly geography-driven, claims about genetic affiliations with

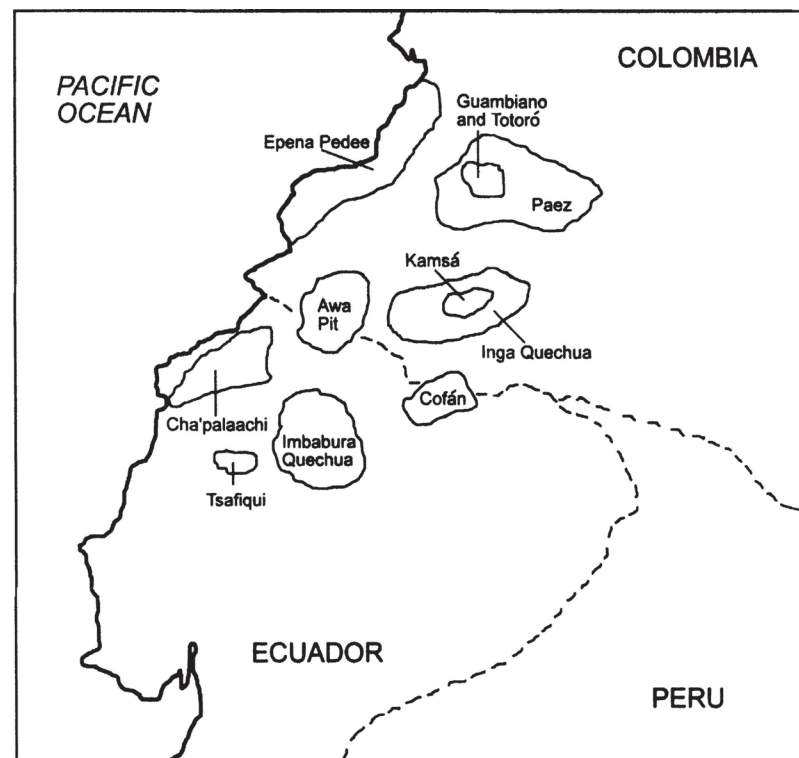


Figure 1: Indigenous languages of southern Colombia and northern Ecuador.

<sup>1</sup> map from Curnow and Liddicoat (1998)

other languages (e.g. with Barbacoan in Rivet, 1924, 1952 and Chicham in Ruhlen, 1987), A'ingae remains classified as a language isolate (AnderBois et al., 2019).

Around the 16th century, the Cofán still lived in the Eastern Andean Cordilleras. The history of the Cofán descent to the Amazon Basin finds reflection in their language which retains Andean features, while showing various Amazonian innovations (AnderBois et al., 2019).

A'ingae is endangered and highly underdocumented. However, despite economic, ecological, and political pressures, the Cofán language attitudes towards A'ingae are uniformly positive (Dąbkowski, 2021).

**MORPHOLOGY** A'ingae is an agglutinating language. In matrix clauses, word order is largely free, whereas finite subordinate clauses are verb-final. Functional categories are expressed with suffixes and enclitics.

Verbal dependents are marked for case in a nominative-accusative alignment. Case is expressed with clitics. Case clitics follow the noun phrase, within which word order is free to some extent (3).<sup>2</sup> The language displays extensive pro-drop, with both subjects and objects omitted if contextually recoverable.

(3) WORD ORDER WITHIN DP

- |   |   |
|---|---|
| a. <i>rande tsa'u =ma athe</i><br>large house =ACC see<br>“saw a large house” | b. <i>tsa'u rande =ma athe</i><br>house large =ACC see<br>“saw a large house” |
|---|---|

**DATA** The data used in this paper come from elicitations with a speaker from the Ecuadorian community of Dureno, Sucumbíos.

### 3 DESCRIPTION

#### 3.1 P2 clitics and WH-movement

There are five sentence-level clitics in A'ingae (Table 1). They are optional in declarative matrix clauses and illicit in subordinate clauses. When they are present, they most commonly appear in the second position of the matrix clause, hence *second-position (P2) clitics*.

<i>=ngi</i>	1 (first person subject)
<i>=ki</i>	2 (second person subject)
<i>=tsû</i>	3 (third person subject)
<i>=ti</i>	YNQ (polar interrogative)
<i>=te</i>	RPRT (reportative evidentiality)

Table 1: Second-position clitics.

Three clitics encode matrix subject features: first person *=ngi* 1, second person *=ki* 2, and third person *=tsû* 3. The other two clitics encode reportative evidentiality *=te* RPRT, and polar questions *=ti* YNQ.

The “second position” is understood as the position immediately following the first full constituent. For example, a second-position clitic may surface right-adjacent to the subject (4a), the object (4b), because the A'ingae word order is largely free, but a P2 clitic may also surface right-adjacent also to a full subordinate clause (4c). Second-position clitics are boxed.

(4) POSITION OF P2 CLITIC

- |  |  |  |
|--|--|--|
| a. <i>ña =ngi khuvi=ma panza</i><br>1SG =1 tapir=ACC hunt<br>“I hunted tapir.” | b. <i>khuvi=ma =ngi ña panza</i><br>tapir=ACC =1 1SG hunt<br>“I hunted tapir.” | c. <i>khuvi=ma panza-'ta =ngi avûjatshi-ya</i><br>tapir=ACC hunt-IF.SS =1 happy-IRR<br>“If I hunt a tapir, I will be happy.” |
|--|--|--|

In WH-interrogatives, the word order is not completely free. Specifically, the constituent which is to the immediate left of the clitic must contain the WH-word (5a). The P2 clitic is mandatory (5b). The P2 clitic cannot surface to the right of an element other than the WH-constituent (5c).<sup>3</sup>

<sup>3</sup> Other material may be fronted to the left of the WH-constituent if the WH-constituent carries the clitic (i).

- (i) *kuraga maningae =tsû ja?*  
shaman where =3 go  
“Where did the shaman go?”

<sup>2</sup> The following abbreviations are used: 1 = first person, 2 = second person, 3 = third person, ACC = accusative, BEN = benefactive, DAT = dative, DS = different subject, IF = conditional, INF = infinitive, IRR = irrealis, NEW = new topic, P2 = second-position, POSS = possessive, RPRT = reportative, SG = singular, SS = same subject, WH = content interrogative, YNQ = polar interrogative.

(5) OBLIGATORY WH-MOVEMENT

- a. *maningae* [=tsû] *kuraga ja?*  
 where =3 shaman go  
 “Where did the shaman go?”
- b.?? *maningae kuraga ja?*  
 where shaman go  
 intended: “Where did the shaman go?”
- c. \**kuraga* [=tsû] *maningae ja?*  
 shaman =3 where go  
 intended: “Where did the shaman go?”

To capture these facts, I propose that *A'ingae* p2 clitics as matrix C-heads and that *A'ingae* has obligatory WH-movement to Spec,CP (Figure 2).<sup>4</sup> I won't go into details here, but I provide more arguments for this analysis in Dąbkowski (to appear).

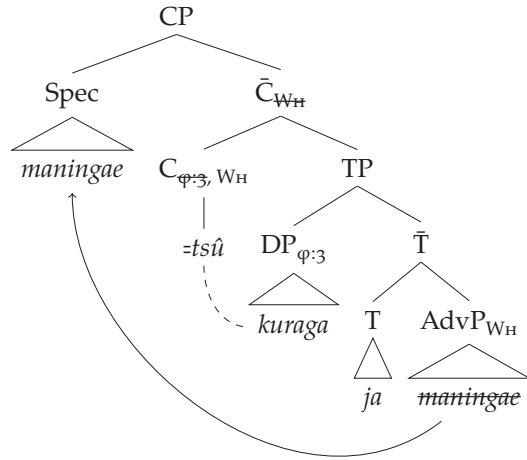


Figure 2: A tree for (5a).

3.2 Pied-piping

POSSESSIVES There are two way to express possession: An unmarked possessor followed an unmarked possessee (6a) and an unmarked possessee followed by a possessor marked with *-mbe* POSS (7a).<sup>5</sup> When the possessor is unmarked, possessee-

possessor order is ungrammatical (6b). When the possessor is marked with *-mbe* POSS, possessor-possessee order is at least somewhat degraded (7b).

(6) UNMARKED POSSESSIVE

- a. *ñā ankhe'sû*  
 1SG food  
 “my food”
- b. \**ankhe'sû ñā*  
 food 1SG  
 intended: “my food”

(7) MBE-MARKED POSSESSIVE

- a. *ankhe'sû ñā=mbe*  
 food 1SG=POSS  
 “my food”
- b.?? *ñā=mbe ankhe'sû*  
 1SG=POSS food  
 intended: “my food”

WH-possessee pied-pipe their possessors. The WH-possessee must be initial in the pied-piped DP. Thus, the *mbe*-marked possessives, where the possessor follows the possessee, are used in pied-piping by possessee (8a). The unmarked possessives are unavailable in WH-questions (8c-8d).

(8) PIED-PIPING BY POSSESSEE

- a. ✓ WH-WORD DP-INITIAL (MBE-MARKED POSSESSOR)  
*junguesû ñā=mbe=ma* [=ki] *an?*  
 what 1SG=POSS=ACC =2 eat  
 “What (thing of) mine did you eat?”
- b. ✗ WH-WORD NOT DP-INITIAL (MBE-MARKED POSSESSOR)  
 \**ñā=mbe junguesû=ma* [=ki] *an?*  
 1SG=POSS what=ACC =2 eat  
 intended: “What (thing of) mine did you eat?”
- c. ✗ WH-WORD NOT DP-INITIAL (UNMARKED POSSESSOR)  
 \**ñā junguesû=ma* [=ki] *an?*  
 1SG what=ACC =2 eat  
 intended: “What (thing of) mine did you eat?”
- d. ✗ WH-WORD DP-INITIAL (UNMARKED POSSESSOR)  
 \**junguesû ñā=ma* [=ki] *an?*  
 what 1SG=ACC =2 eat  
 intended: “What (thing of) mine did you eat?”

MODIFIERS Modifiers are, by and large, freely ordered. For example, they can appear before after the head noun (9a), between a possessor and the head noun (9b-9c), and even before an unmarked possessor (9d).<sup>6</sup> The modifier ordering possibilities are summarized in (10).

<sup>4</sup> I speculate that (i) shows subsequent movement, e. g. to Spec,FocP, or late scrambling.

<sup>5</sup> The homophonous benefactive *-mbe* BEN introduces verbal adjuncts. I analyze it as a distinct marker.

<sup>6</sup> Modifiers are somewhat degraded after a *mbe*-marked possessor (ii).

## (9) POSITIONS OF MODIFIER

- a. *ke ankhe'sû ñutshia=ma [=ngi] in'jan*  
 2SG food good=ACC 1 want  
 "I want your good food."
- b. *ke ñutshia ankhe'sû=ma [=ngi] in'jan*  
 2SG good food=ACC 1 want  
 "I want your good food."
- c. *in'jan [=ndiki] ankhe'sû ñutshia ña=mbe=ma?*  
 want =YNQ=2 food good 1SG=POSS=ACC  
 "Do you want my good food?"
- d. *ñutshia ke ankhe'sû=ma [=ngi] in'jan*  
 good 2SG food=ACC 1 want  
 "I want your good food."

## (10) POSITIONS OF MODIFIER, SUMMARIZED

- a. *(ñutshia) ña (ñutshia) ankhe'sû (ñutshia)*  
 good 1SG good food good  
 "my good food"
- b. *(ñutshia) ankhe'sû (ñutshia) ña=mbe (?ñutshia)*  
 good food good 1SG=POSS good  
 "my good food"

The A'ingae *junguesû*, like the English *what*, can function as a DP or a modifier. WH-modifiers pied-pipe the DP they modify (11a). The WH-modifiers cannot be extracted (11b). The WH-modifier must be initial in the pied-piped DP (11c). If the modified noun is possessed, either an unmarked possessive (11d) or a *mbe*-marked possessive can be used (11e), but the WH-word must be initial.

## (11) PIED-PIPING BY MODIFIER

- a. ✓ WH-WORD DP-INITIAL  
*junguesû ankhe'sû=ma [=tsû] an?*  
 what food=ACC =3 eat  
 "What (kind of) food did (s)he eat?"

- (ii) *?in'jan [=ndiki] ankhe'sû ña=mbe ñutshia=ma?*  
 want =YNQ=2 food 1SG=POSS good=ACC  
 "Do you want my good food?"

## b. ✗ WH-WORD EXTRACTED

*\*junguesû [=tsû] ankhe'sû=ma an?*  
 what =3 food=ACC eat  
 intended: "What (kind of) food did (s)he eat?"

## c. ✗ WH-WORD NOT DP-INITIAL

*\*ankhe'sû junguesû=ma [=tsû] an?*  
 food what=ACC =3 eat  
 intended: "What (kind of) food did (s)he eat?"

## d. ✓ WH-WORD DP-INITIAL (UNMARKED POSSESSIVE)

*junguesû ña ankhe'sû=ma [=tsû] an?*  
 what 1SG food=ACC 3 eat  
 "What (kind of) food of mine did (s)he eat?"

## e. ✓ WH-WORD DP-INITIAL (MBE-MARKED POSSESSIVE)

*junguesû ankhe'sû ña=mbe=ma [=tsû] an?*  
 what food 1SG=POSS=ACC =3 eat  
 "What (kind of) food of mine did (s)he eat?"

As an aside, note that the initiality requirement we have been observing so far is not a lexical idiosyncrasy of *junguesû* 'what,' *maningae* 'where,' etc. These items are indeterminates, which means that they live a double life as indefinites, which need not be fronted (12).<sup>7</sup>

## (12) JUNGUESÛ AS INDEFINITE

- a. *ke kukuya junguesû ña tsa'u=ma da'ñu-'ni-nda, ñukimbitshi-ya*  
 2SG demon what 1SG house=ACC damage-IF.DS-NEW sad-IRR  
 "If some (kind of) demon of yours destroys my house, I will be said."
- b. *ke junguesû kukuya ña tsa'u=ma da'ñu-'ni-nda, ñukimbitshi-ya*  
 2SG what demon 1SG house=ACC damage-IF.DS-NEW sad-IRR  
 "If some (kind of) demon of yours destroys my house, I will be said."
- c. *?junguesû ke kukuya ña tsa'u=ma da'ñu-'ni-nda, ñukimbitshi-ya*  
 what 2SG demon 1SG house=ACC damage-IF.DS-NEW sad-IRR  
 "If some (kind of) demon of yours destroys my house, I will be said."

TP COMPLEMENTS Verbs such as *in'jan* 'want' take infinitival TP complements. Infinitival TP complements may follow (13a) or precede (13b) the matrix verb.

<sup>7</sup> (12c) was judged as unnatural, but possible.

## (13) FREE ORDER OF TP

- a. *in'jan* [=ngi] *ankhe'sû=ma ke ña=nga afe-ye*  
 want =1 food=ACC 2SG 1SG-DAT give-INF  
 "I want you to give me food."
- b. *ankhe'sû=ma ke ña=nga afe-ye* [=ngi] *in'jan*  
 food=ACC 2SG 1SG-DAT give-INF =1 want  
 "I want you to give me food."

When an infinitival TP contains a WH-interrogative DP, the DP can be extracted (14a), or the entire TP can be pied-piped (14b). Configurations where the P2 clitic is not immediately adjacent to the WH-fronted DP or the pied-piped TP are ungrammatical (14c).

## (14) (OPTIONAL) PIED-PIPING OF TP

- a. ✓ P2 CLITIC RIGHT-ADJACENT TO DP  
*junguesû=ma* [=ki] *ña ke=nga afe-ye in'jan?*  
 what=ACC =2 1SG 2SG-DAT give-INF want  
 "What do you want me to give you?"
- b. ✓ P2 CLITIC RIGHT-ADJACENT TO TP  
*junguesû=ma ña ke=nga afe-ye* [=ki] *in'jan?*  
 what=ACC 1SG 2SG-DAT give-INF =2 want  
 "What do you want me to give you?"
- c. ✗ P2 CLITIC RIGHT-ADJACENT TO A NON-CONSTITUENT  
 \**junguesû=ma ña ke=nga* [=ki] *afe-ye in'jan?*  
 what=ACC 1SG 2SG-DAT =2 give-INF want  
 intended: "What do you want me to give you?"

Importantly, the WH-interrogative need not be initial within the pied-piped TP (15).<sup>8</sup>

## (15) ✓ WH-WORD NOT TP-INITIAL

- a. *ña junguesû=ma ke=nga afe-ye* [=ki] *in'jan?*  
 1SG what=ACC 2SG-DAT give-INF =2 want  
 "What do you want me to give you?"
- b. *ña ke=nga junguesû=ma afe-ye* [=ki] *in'jan?*  
 1SG 2SG-DAT what=ACC give-INF =2 want  
 "What do you want me to give you?"

However, the WH-word must be fronted within the DP within the pied-piped TP. WH-possessee must precede the possessor (16a-16b) and cannot be extracted (16c). But the interrogative DP need not be initial within the TP (16d).

## (16) PIED-PIPING OF TP BY POSSESSEE

- a. ✓ WH-WORD DP-INITIAL, TP-INITIAL  
*junguesû ña=mbe=ma ke=nga afe-ye* [=ki] *in'jan?*  
 what 1SG-POSS=ACC 2SG-DAT give-INF =2 want  
 "What (thing of) mine do you want (me) to give you?"
- b. ✗ WH-WORD NOT DP-INITIAL  
 \**ña junguesû=ma ke=nga afe-ye* [=ki] *in'jan?*  
 1SG what=ACC 2SG-DAT give-INF =2 want  
 intended: "What (thing of) mine do you want (me) to give you?"
- c. ✗ WH-WORD EXTRACTED  
 \**junguesû ke=nga ña=mbe=ma afe-ye* [=ki] *in'jan?*  
 what 2SG-DAT 1SG-POSS=ACC give-INF =2 want  
 intended: "What (thing of) mine do you want (me) to give you?"
- d. ✓ WH-WORD DP-INITIAL, NOT TP-INITIAL  
*ke=nga junguesû ña=mbe=ma afe-ye* [=ki] *in'jan?*  
 2SG-DAT what 1SG-POSS=ACC give-INF =2 want  
 "What (thing of) mine do you want (me) to give you?"

Likewise, WH-modifiers must precede the head noun they modify (17a-17b) and cannot be extracted (17c). But the interrogative DP need not be initial within the TP (17d).

## (17) PIED-PIPING OF TP BY MODIFIER

- a. ✓ WH-WORD DP-INITIAL, TP-INITIAL  
*junguesû ankhe'sû=ma ke=nga afe-ye* [=ki] *in'jan?*  
 what food=ACC 2SG-DAT give-INF =2 want  
 "What (kind of) food do you want (me) to give you?"
- b. ✗ WH-WORD NOT DP-INITIAL  
 \**ankhe'sû junguesû=ma ke=nga afe-ye* [=ki] *in'jan?*  
 food what=ACC 2SG-DAT give-INF =2 want  
 intended: "What (kind of) food do you want (me) to give you?"
- c. ✗ WH-WORD EXTRACTED  
 \**junguesû ke=nga ankhe'sû=ma afe-ye* [=ki] *in'jan?*  
 what 2SG-DAT food=ACC give-INF =2 want  
 intended: "What (kind of) food do you want (me) to give you?"

<sup>8</sup> This might be because of TP-internal movement past the WH-constituent, which is independently attested (i). Thus, there is no evidence to conclusively determine whether a WH-interrogative DP undergoes movement within the pied-piped TP.



d. ✓ WH-WORD DP-INITIAL, NOT TP-INITIAL

*ke=nga junguesû ankhe'sû=ma afe-ye [ki] in'jan?*  
 2SG=DAT what food=ACC give-INF =2 want

“What (kind of) food do you want (me) to give you?”

In interim summary, we saw that WH-words in A'ingae obligatorily pied-pipe DPs and optionally pied-pipe TPs. In declarative contexts, the word order is largely free. In WH-interrogative contexts, the WH-word must appear at the left edge of the DP it pied-pipes, but it need not appear at the left edge of a pied-piped TP.

4 ANALYSIS

To analyze the A'ingae pattern, I adopt Cable's (2007, 2010a,b) account of pied-piping. Cable proposes that the target of what is known as WH-movement is not the WH-word properly speaking, but rather a projection (QP) headed by a question (Q) particle (18). In English, the Q-particle is silent.

(18) WH-MOVEMENT AS QP-MOVEMENT

$[_{QP} \emptyset_Q \text{ what } ] \text{ do you want } (\text{t})?$

Cable's account of pied-piping has two essential components: (i) the Q-particle can attach to a phrase larger than that WH-word itself and (ii) the Q-particle may have to agree with the WH-word, which restricts word order possibilities within the QP.

First, Cable proposes that pied-piping arises when the Q-particle attaches to a phrase which contains but is itself not identical to the WH-word (19).

(19) PIED-PIPING AS QP-MOVEMENT

$[_{QP} \emptyset_Q \text{ in what way } ] \text{ is he a better candidate } (\text{t})?$

Furthermore, in some languages, the Q-particle needs to agree with the WH-word in its complement. This may give rise to further word order restrictions in pied-piped constituents.

To see the operation of the agreement between the Q-particle and the WH-word, consider English possessives. English has two ways of expressing possession. The possessor can be either in Spec,DP (20a) or a complement to N (20b). Assuming that DPs are phases and only phase edges are accessible to probing, Cable's account predicts that only the first strategy is possible in pied-piping by possessor (21). Probing is represented with a dashed line (---). The probe is represented with a

double down-pointing arrow ( $\Downarrow$ ). The material inaccessible for probing is demarcated with an arc ( $\frown$ ). Failure to probe past the edge of a phase is represented with a cross ( $\times$ ).

(20) POSSESSIVE STRUCTURES IN ENGLISH

- a. *John's pictures*
- b. *pictures of John*

(21) PIED-PIPING BY POSSESSOR IN ENGLISH

- a.  $[_{QP} \emptyset_Q \text{ whose } \frown \text{ pictures } ] \text{ did you buy } (\text{t}) \text{ on the internet?}$
- b.??  $[_{QP} \emptyset_Q \text{ pictures } \frown \text{ of whom } ] \text{ did buy } (\text{t}) \text{ on the internet?}$

(Cable, 2013, p. 133)

Secondary WH-movement is the movement of the WH-word within the pied-piped constituent. If the Q-particle must agree with the WH-element and only phase edges are accessible for probing, Cable's model predicts that movement within the pied-piped phrase may be necessary. And this prediction is borne out by the A'ingae data.

First, the Q-particle account captures A'ingae pied-piping by possessee. Recall that there are two possessive constructions in A'ingae (6-7). Only the one with the possessor at the DP edge is available in interrogatives (22). I'm assuming here that linear order correlates with structural height.

(22) PIED-PIPING BY POSSESSEE

- a.  $[ \emptyset_Q \text{ junguesû } \frown \text{ ña=mbe=ma } ] \text{ [ki] an } (\text{t})?$   
 what 1SG=POSS=ACC =2 eat  
 “What (thing of) mine did you eat?”
- b. \*  $[ \emptyset_Q \text{ ña } \frown \text{ junguesû=ma } ] \text{ [ki] an } (\text{t})?$   
 1SG what=ACC =2 eat  
 intended: “What (thing of) mine did you eat?”

Second, the Q-based account predicts the word-order facts in pied-piping by modifier (23a). Note that the movement of the WH-word within the DP is not triggered by WH-agreement with the Q-particle. The movement is possible outside of WH-contexts (9-10). However, in WH-contexts the movement is obligatory in order to avoid a derivational crash (23b).



and why is still an open question; the study of other Amazonian languages may shed more light on these issues.

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