

Morphological reflexes of subject extraction in Caquinte

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Abstract: We investigate morphological reflexes of \bar{A} -dependencies in Caquinte, a Kampa Arawak language of southeastern Peru spoken by less than 500 people (Castillo Ramírez 2017; Swift 1988). The language displays three such reflexes in subject extraction contexts: (i) anti-agreement, the loss of subject agreement; (ii) a dedicated exponent of irrealis; and (iii) a special form of aspect marking in intransitive subject extraction contexts. We argue that these morphological effects are best analyzed as a form of *wh*-agreement. Specifically, we show that (i)-(iii) fall out straightforwardly from Baier's (2018) analysis of anti-agreement as morphological impoverishment triggered by *wh*-features, followed by insertion of a less specified morpheme.

Keywords: agreement, anti-agreement, *wh*-agreement, \bar{A} -dependencies, Caquinte

1 Introduction

In this paper we investigate three morphological reflexes of \bar{A} -dependencies in Caquinte,¹ a language of the Kampa branch of the Arawak family spoken in the tropical lowlands of southeastern Peru by fewer than 500 people (Castillo Ramírez 2017; Swift 1988): anti-agreement (Baier 2018; Ouhalla 1993), special irrealis marking, and special aspect marking with intransitive subject extraction.²

Example (1a) is a perfective intransitive verb bearing full subject agreement. When the subject is extracted to form the headless relative clause in (1b), we see several changes in morphology: the subject agreement prefix *i-* is absent; perfective is marked with the suffix *-ankits* instead of *-k*; and irrealis marking shifts to *-ne*. We return to the analysis of the remaining *-i* in this context below.

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¹ Data comes from elicitation and a corpus of approximately 9,500 lines developed by Zachary O'Hagan as part of his ongoing fieldwork in the Caquinte community of Kitepampani begun in 2011. We thank speakers Antonina Salazar Torres, Joy Salazar Torres, Emilia Sergio Salazar, and Miguel Sergio Salazar for their patience, generosity, willingness, and enthusiasm in sharing their language with us, as well as participants at Syntax and Semantics Circle (Berkeley) for feedback. Financial support for fieldwork has come from two Oswald Endangered Language grants (2014, 2015) and an ELDP Individual Graduate Scholarship (2016–2018). Documentary materials are archived with the Survey of California and Other Indian Languages and are available online: <http://dx.doi.org/doi:10.7297/X24M92P6>.

² Epenthetic segments /t/ and /a/, which repair vowel and consonant hiatus, respectively, are not represented in the segmentation. Graphemes correspond to their IPA equivalents, with the exceptions of: = [β]; <ch> = [tʃ]; <j> = [h]; <sh> = [ʃ]. Other abbreviations are: ABL = ablative; AL = alienable; ALL = allative; APPL = applicative; AR = active realis; CAUS = causative; CE = counter-expectational; CNGR = congruent; DISTR = distributive; DUR = durative; EVID = evidential; EXST = existential; F = feminine; FOC = focus; FRUST = frustrative; INCL = inclusive; IPFV = imperfective; IRR = irrealis; LOC = locative; M = masculine; MID = middle; MR = middle realis; NEG = negation; NOMZ = nominalizer; PP = propositional pro-form; PFV = perfective; PL = plural; POSS = possessive; REG = regressive; REL = relativizer; TOP = topic.

- (1) a. Inkorakeke. INTRANSITIVE, NO EXTRACTION
 i- [N]- korake-[k] -[e]
 3M-IRR-COME -PFV-IRR
 He will come.
- b. koraketankitsineka INTRANSITIVE, EXTRACTED SUBJECT
 korake-[ankits]-i-[ne]=ka
 come -PFV -?-IRR =REL
 the one who will come

Each reflex that we discuss has a different distribution as to which sorts of argument extraction trigger it (Table 1).

Table 1: Distribution of Reflexes

	A	S	O
Anti-agreement	✓	✓	✓
Irrealis <i>-ne</i>	✓	✓	
Special aspect		✓	

We argue that all three reflexes are best analyzed as forms of *wh*-agreement that emerge as the morphological result of a head on the clausal spine agreeing with the extracted XP for the feature involved in triggering \bar{A} -movement in *wh*-questions, relative clauses, and focus. We label this feature [OP].³ Specifically, we show that all three reflexes fall out straightforwardly from Baier’s (2018) analysis of anti-/*wh*-agreement as morphological impoverishment triggered by \bar{A} -features, followed by insertion of a more underspecified morpheme.

2 Agreement, Voice and Reality Status Background

Caquinte is VSO (with preverbal positions for topics and foci), strongly head-marking, and largely agglutinative, with extensive argument-drop. We briefly lay out the important verbal categories that will be central to our discussion of extraction morphology below, as well as our basic analysis of Caquinte clause structure. Verbs in Caquinte are minimally marked for subject φ -agreement (prefixes),⁴ reality status (realis vs. irrealis),⁵ aspect (imperfective vs. perfective),⁶ and voice (active

³ We use [OP] instead of [WH] because these effects are triggered in more than just *wh*-questions. We assume that the class of \bar{A} -features is internally complex and hierarchically structured, and that [OP] is one of these features (see Abels 2012 and Aravind 2017).

⁴ Intransitive verbs additionally exhibit a fluid-S alignment system in which their subjects are expressed either by these prefixes or by a set of suffixes that we do not discuss here (extraction is possible only with the prefixal construction) – see O’Hagan (2015) for details.

⁵ See Michael (2014) for a description of the semantics of reality status in related Nanti.

⁶ The imperfective-perfective distinction is a convenience that we adopt here. In many contexts the two morphemes that we describe behave like aspect markers, but problematic cases lead O’Hagan (2018) to analyze “imperfective” verbs as aspectless and “perfective” verbs as denoting bounded but atemporal eventualities.

vs. middle). In addition, transitive verbs may inflect for object φ -agreement (suffixes), which shows differential marking. A typical VSO sentence is in (2).

- (2) Ari otiakero Shomoshiki inkomerikanate...
 ari $\boxed{o_k}$ -tig -k -i⁸ - $\boxed{ro_j}$ $\boxed{\text{Shomoshiki}_k}$ \emptyset - $\boxed{\text{inkomerikana}_j}$ -te
 PP 3F- cook-PFV-AR-3F Shomoshiki 3F-pepper -POSS
 Then Shomoshiki cooked her *aji* peppers... (naa)

Subject φ -agreement prefixes occur directly before the stem and distinguish person and gender, as does object φ -agreement. We provide the forms of these affixes in Table 2, where forms to the right of the slash occur before vowel-initial stems.

Table 2: Caquinte Agreement Affixes

	1	1INCL	2	3M	3F
SUBJECT	<i>no- / n-</i>	<i>a- / \emptyset-</i>	<i>pi- / p-</i>	<i>i- / y-</i>	<i>o- / \emptyset-</i>
OBJECT	<i>-na</i>	<i>-aji</i>	<i>-mpi</i>	<i>-ri</i>	<i>-ro</i>

A template showing the positions of these categories within the verb is shown in (3). In addition, a position for one of a series of causative prefixes exists between subject φ -agreement and the verb root; and over 15 suffix positions exist between the verb root and aspect.

(3) **Partial Caquinte Verbal Template**

SUBJ.AGR - IRR - V - ASPECT - VOICE+REALITY - (OBJ.AGR)

Following subject φ -agreement, a prefix N- (a placeless nasal), in combination with a suffix described below, expresses irrealis (4b).⁹

- (4) a. Naatimpakea nokijaji ishikoiñaki. REALIS
 naatimpa=kea no-kij -aj - \boxed{i} ishikoiña=ki
 1.TOP =EVID 1- enter-REG-AR school =LOC
 I entered school again. (gtk)
- b. ...“Jeeje, aapani, nonkoraketaje nonkijaje...” IRREALIS
 jeeje aapani no- \boxed{N} - korake-aj - \boxed{e} no- \boxed{N} - kij -aj - \boxed{e}
 yes father 1- IRR-come -REG-IRR 1- IRR-enter-REG-IRR
 ...“Yes, father, I’m going to come back and enter again...” (gtk)

Research in this domain is ongoing.

⁸ In Caquinte and most other Kampa languages, a morphophonological rule exists whereby active realis -i lowers to [e] following perfective -k. We show [e] in the first line of exemplification, and underlying -i elsewhere. For active perfective verbs that lack an irrealis prefix (see below), the reality status contrast is neutralized. Lastly, note that three-letter abbreviations in parentheses at the ends of examples correspond to individual texts in the text corpus (see footnote 1).

⁹ That is, when a voiceless stop or affricate constitutes the first onset in a root. If the root is, for example, /CVCV/, N- will precede the root; if the root is, for example, /VCVCV/, N- will metathesize and precede the initial consonant. In all other environments, N- deletes.

We assume that the subject φ -agreement probe and reality status ($[\pm\text{IRR}]$) features are located on T.

(5) **Features on T**

- a. Realis T = $[\text{u}\varphi, -\text{IRR}]$
- b. Irrealis T = $[\text{u}\varphi, +\text{IRR}]$

Aspect marking is the first obligatory suffix position, distinguishing imperfective and perfective. In clauses without intransitive subject extraction, imperfective is zero-marked, while perfective is marked with the suffix *-k*. We take aspect to be hosted on an Asp head directly above νP .

(6) **Aspect Marking**

- a. Ikorakeke. PERFECTIVE, NO EXTRACTION
 i- korake-k -i
 3M-COME -PFV-AR
 He came.
- b. Ikoraketi. IMPERFECTIVE, NO EXTRACTION
 i- korake-Ø -i
 3M-COME -IPFV-AR
 He is coming.

Following the aspect suffix, there is a position for suffixes that realize reality status and voice, a category separate from transitivity.

Table 3: Reality Status/Voice Suffixes

	ACTIVE	MIDDLE
REALIS	<i>-i</i>	<i>-a</i>
IRREALIS	<i>-e</i>	<i>-e-mpa</i>

There are two separate suffixes that fuse realis with one of each of the voice categories.

Transitive verbs often end in *-i* in the realis (7a).¹⁰ Such verbs often seem to be detransitivized by switching their suffix to *-a*, as shown with the middle example in (7b). However, verbs with *-a* may take direct objects, as shown with the object φ -agreement and following nominal argument in (7c). We use the term ‘middle’ to refer to the latter two cases, in which the subject is the notionally affected argument regardless of transitivity.

(7) **Voice Distinctions**

- a. Okitsaajiakeri... ACTIVE, TRANSITIVE
 o- kitsaa-jig-k i -ri
 3F-DRESS -PL -PFV-AR-3M
 She dressed them... (kap)

¹⁰ In the irrealis, irrealis and middle voice are exponed separately, via *-e* and *-mpa*, respectively. The evidence for two morphemes – and not one, *-empa*, as is common in the Kampa literature – is that, in Caquinte, they are interrupted by the recipient applicative *-nV*.

- b. ...aisa oroatimpa okitsaaka.
 aisa oroatimpa o- kitsaa-k -**a**
 also 3F.TOP 3F-dress -PFV-MR
 ...she also got dressed. (kap)

MIDDLE, INTRANSITIVE

- c. ...oitsaare okitsaatajaro.
 o- kitsaa-re o- kitsaa-aj -**a** -ro
 3F-dress -NOMZ 3F-dress -REG-MR-3F
 ...[then she grabbed] her *cushma* and put it on [i.e., herself]. (kat)

MIDDLE, TRANSITIVE

Many verbal roots show the productive active-middle alternation; others are invariably active (e.g., *katsima* ‘be angry (at)’) or invariably middle (e.g., *sheka* ‘eat’); others are middle in the realis and active in the irrealis (e.g., *mir* ‘drink’); and all are obligatorily middle in the presence of certain verbal suffixes. That is, the expected range of lexical idiosyncracies is well attested. For space reasons, we abbreviate active realis as AR and middle realis as MR; elsewhere we use ACT and MID as abbreviations for active and middle, respectively.

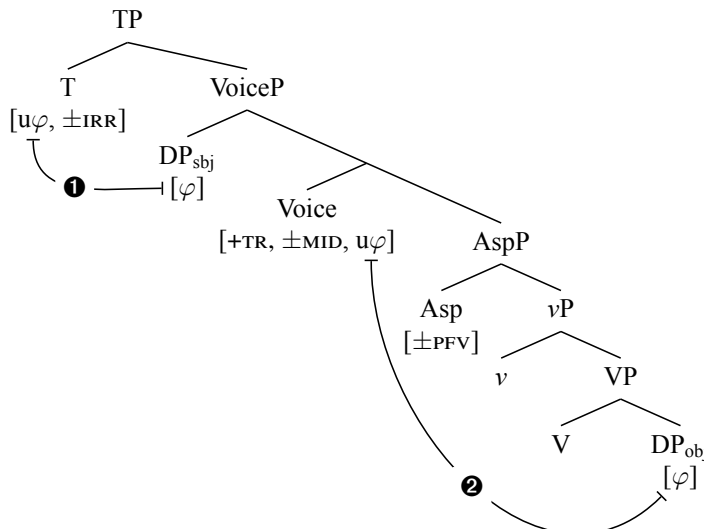
We take the active-middle distinction to be a property of Voice, which also hosts transitivity features, and assume that there are four ‘flavors’ of Voice.

(8) **Flavors of Voice**

- a. Transitive, active = [+TR, -MID, u φ]
- b. Transitive, middle = [+TR, +MID, u φ]
- c. Intransitive, active = [-TR, -MID]
- d. Intransitive, middle = [-TR, +MID]

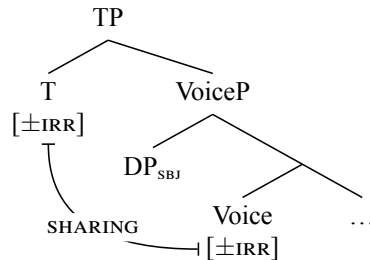
Transitive Voice is [+TR(ANSITIVE)] and carries a φ -probe for object agreement, while intransitive voice is [-TR] and carries no such probe. Active Voice is [-MID(DLE)] and middle Voice is [+MID]. The clausal structure that we assume for Caquinte is given in (9) for a transitive clause.

(9) **Caquinte Clause Structure**



The φ -probe on T agrees with the subject DP in Spec-VoiceP (line ❶). The φ -probe on Voice agrees with the subject DP in VP (line ❷). To derive the fact that Voice also expones reality status, we propose that T shares its reality status feature with Voice, as in (10).¹¹

(10) **Sharing $[\pm\text{IRR}]$ between T and Voice**



V undergoes head movement to T, deriving VSO. The verb is linearized as in (11).

(11) **Linearization after Head Movement**

$T_{[\varphi:\text{SBJ}, \pm\text{IRR}]}$ - V - v - Asp $_{[\pm\text{PFV}]}$ - Voice $_{[\pm\text{TR}, \pm\text{MID}, \pm\text{IRR}, (\varphi:\text{OBJ})]}$

3 Anti-agreement

Caquite has a focus construction in which a DP is fronted to a preverbal position. In such cases, the verb obligatorily lacks agreement morphology corresponding to the focused argument. We illustrate this pattern in (12b) – where the focus is a subject instantiated by one of a series of dedicated focus pronouns – by contrasting it with a subject instantiated by one of a separate series of topic pronouns (12a), which co-occur with agreement. We give a parallel example for objects in (13).

(12) a. Abiatimpa pishinebempojempari... NO EXTRACTION

abiatimpa **pi**-shine -ben -poj -e -mpa-ri
 2.TOP 2- be.happy-APPL-ALL-IRR-MID-3M
 You will like them... (kap)

b. ...“Abirokea anaakena.” EXTRACTED SUBJECT

abiro=kea anag -k -i -na
 2.FOC =EVID defeat-PFV-AR-1
 ...“You’ve defeated me.” (kch2)

(13) a. “Imaika abiatimpa nantsipetakaakempi...” NO EXTRACTION

imaika **abiatimpa** no-N- atsipe-akag-k -e **-mpi**
 NOW 2.TOP 1- IRR-suffer-CAUS-PFV-IRR-2
 “Now I will make you suffer...” (kap)

¹¹ As the mechanism that derives $[\pm\text{IRR}]$ sharing between T and Voice is not crucial to the analysis in this paper, we do not take a position on what it is precisely.

- b. "...abiro noshekatakempa."

EXTRACTED OBJECT

abiro no-sheka-ak -e -mpa
 2.FOC 1- eat -PFV-IRR-MID
 "...I will eat you." (ank)

Note that both pre- and postverbal non-focused arguments control agreement on the verb; only (obligatorily preverbal) focused arguments suppress agreement. Thus the preverbal topic pronouns above pattern with the postverbal nouns in (2) in terms of agreement. Consequently, we take topicalization to not involve the same process of extraction that focus does, even though both topicalized and focused DPs are preverbal in these examples.

Most examples of anti-agreement involve the focus pronouns in (12b) and (13b), but anti-agreement also occurs in *wh*-questions (14) and relative clauses (15). Relative clauses may be headed, as in (15a), or headless, as in (15b).¹²

(14) **Wh-questions**

- a. "Taate katsimatakaakempi?"

SUBJECT *wh*

taa=te katsima -akag-k -i -mpi
 WH =CE be.angry-CAUS-PFV-AR-2
 ..."Who's made you angry?" (kat)

- b. "Taakeate inkajaranki pobetsabaetaka...?"

OBJECT *wh*

taa=kea =te inkajaranki pi-obetsa-bae -ak -a
 WH =EVID=CE previously 2- speak -DUR-PFV-MR
 ..."Who were you speaking to before for so long...?" (vam)

(15) **Relative Clauses**

- a. ..."Imaika teronkaka maasano [nonetsanakeka]." REL

OBJECT RC

imaika teronk-k -a -Ø maasano [CP **Op** no-netsana-k -i =**ka**]
 now finish -PFV-MR-3 everything 1- arrange-PFV-AR=REL
 ..."Now everything I arranged has run out." (kev)

- b. ...ikorakejiake [chookatatsika Pichaki]. REL

SUBJECT RC

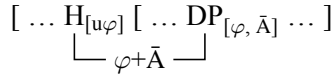
i- korake-jig-k -i [CP **Op** chooka-ats -i =**ka** Picha=ki]
 3M-COME -PL -PFV-AR reside -IPFV-AR=REL Picha=LOC
 ...came those who resided on the Picha River. (ama)

Relative clauses require a relative second-position enclitic =*ka*, which attaches to the verb when the latter is initial inside the RC – we thus assume that =*ka* is a relative C head. The lack of subject agreement in (12)–(15) cannot simply be a co-occurrence restriction between preverbal subjects and overt agreement, as the preverbal topics must be indexed by agreement (cf. 12a). Anti-agreement is triggered by a subset of preverbal \bar{A} -subjects, that is, the feature that is responsible for extraction matters: [OP] requires anti-agreement; [TOP] does not.

¹² We take relative clauses to be formed by null operator movement to Spec-CP. This is not crucial for the analysis here.

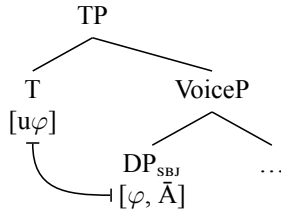
We argue, following Baier (2018), that anti-agreement arises from the configuration in (16), where a φ -probe on H finds a DP with both φ - and \bar{A} -features. In this situation, the probe copies back both $[\varphi]$ and $[\bar{A}]$.¹³

(16) **Configuration for Anti-agreement**

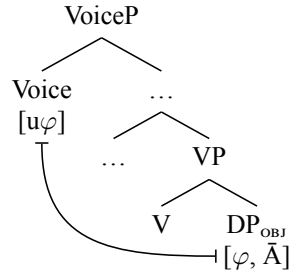


In Caqunte, this configuration will arise for subject extraction (between T and the subject) and for object extraction (between Voice and the object).

(17) **Subject Extraction**



(18) **Object Extraction**



Lack of agreement morphology in this configuration arises because of impoverishment (Bonet 1991; Halle and Marantz 1993; Noyer 1997) of the φ -features in the morphology.

(19) **Caqunte φ -feature Impoverishment**

- a. $[\varphi] \rightarrow \emptyset / [_ , \text{OP}, \text{T}]$
- b. $[\varphi] \rightarrow \emptyset / [_ , \text{OP}, \text{Voice}]$

Rule (19a) derives subject anti-agreement; rule (19b) derives object anti-agreement. Because the rules refer to $[\text{OP}]$ and not $[\text{TOP}]$, we derive the difference between topicalization and operator movement.¹⁴ The impoverishment rule in (19) will result in the following change to T and Voice's feature bundles.

(20) **Results of Impoverishment at T and Voice**

- a. $[\varphi, \pm\text{IRR}, \text{OP}, \text{T}] \rightarrow [\pm\text{IRR}, \text{OP}, \text{T}]$
- b. $[\varphi, \pm\text{TR}, \pm\text{MID}, \pm\text{IRR}, \text{OP}, \text{VOICE}] \rightarrow [\pm\text{TR}, \pm\text{MID}, \pm\text{IRR}, \text{OP}, \text{VOICE}]$

Because impoverishment occurs before vocabulary insertion, the rule in (19) will block an agreement prefix from being spelled out at T – there will simply be no φ -features to realize, resulting in the absence of a subject agreement prefix.

¹³ Baier (2018) implements this idea with the version of Agree developed by Deal (2015). Deal argues that φ -probes copy back more features than they search for.

¹⁴ Note, however, that the φ -probes on T and Voice will copy the $[\text{TOP}]$ from their goal when it is present. The rules in (19) capture that $[\text{TOP}]$ does not trigger anti-agreement.

4 Exponence of [+IRR] in Subject Extraction Contexts

In non-extraction contexts, reality status is exponed as a suffix. If the clause is irrealis, there is also a prefix (under the right conditions).¹⁵ Recall further that reality status features are generated on T. After φ -feature impoverishment takes place, they are still present on T.

(21) **Results of Impoverishment at T**

$[\varphi, \pm\text{IRR}, \text{OP}, \text{T}] \rightarrow [\pm\text{IRR}, \text{OP}, \text{T}]$

Although the feature $[\pm\text{IRR}]$ remains on T after impoverishment has taken place (21), the prefix N- does not appear in irrealis subject extraction contexts. Instead we find an alternative exponent $[\text{+IRR}]$, *-ne*, which occurs in the final suffix position in the verb. Compare the realis transitive verb in (22a) with the *irrealis* transitive verb in (22b). Both verbs lack subject prefixes due to subject extraction; the irrealis verb in (22b) is marked with *-ne*.

(22) a. ...iriokea aagetanajiro inchakijipae.

irio =kea ag -ge -an -aj -**i** -ro inchakiji=pae
 3M.FOC=EVID take-DISTR-ABL-REG-AR-3F stick =PL
 ...they gathered the sticks back one by one. (shm)

b. “Narokea aanakerine ontaniki...”

naro =kea ag -an -k -**e** -ri -**ne** ontaniki
 1.FOC =EVID take-ABL-PFV-IRR-3M-IRR over.there
 “I will take him over there...” (kap)

We propose that *-ne* is an exponent of an irrealis T head with an OP- feature, as shown in (23). This vocabulary item will only surface in configurations where T has agreed with a subject that has $[\text{OP}]$.

(23) **Vocabulary Item for -ne**

$[\text{+IRR}, \text{OP}, \text{T}] \leftrightarrow /-ne/$

5 Aspect and Voice Morphology with Intransitive Subject Extraction

Intransitive subject extraction has two peculiar effects on aspect and voice morphology in Caquinte. When an intransitive subject is extracted, the form of aspect suffixes is different, as shown in (24). However, the form of aspect morphology does not change in transitive clauses, cf. (14a).

(24) **Aspect with Intransitive Subject Extraction**

a. Ikorakeke.

PFV, NO EXTR

i- korake-**k** -i
 3M-COME -PFV-AR
 He came.

¹⁵ See footnote 9. We refer the reader to example (4) for illustration.

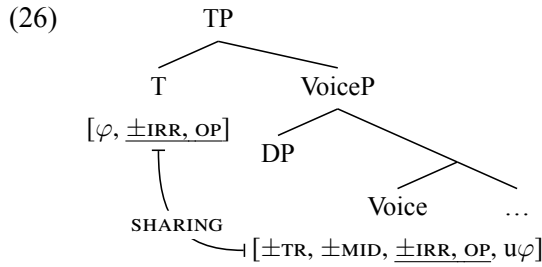
- b. Irio koraketankitsi. PFV, SUBJ EXTR
 irio korake-**ankits**-i
 3M.FOC come -PFV -AR
 He came.
- c. Ikoraketi. IPFV, NO EXTR
 i- korake-**Ø**-i
 3M-COME -IPFV-AR
 He is coming.
- d. Irio koraketatsi. IPFV, SUBJ EXTR
 irio korake-**ats**-i
 3M.FOC come -IPFV-AR
 He is coming.

In addition to the alternation in aspect morphology, the reality status/voice suffix becomes invariable under intransitive subject extraction. As seen in (25), it only occurs as *-i*, regardless of the notional reality status/voice of the clause. We first contrast active clauses without and with extraction; then we contrast middle clauses in the same way, noting that middle clauses with extraction appear active.

(25) **Voice with Intransitive Subject Extraction**

- a. "...osheki pitaseake..." NO EXTR, ACT
 osheki pi-taseg -**k** -**i**
 much 2- be.hungry-PFV-AR
 "...you're very hungry..." (pik)
- b. "...abiroitari taseankitsi." EXTR, ACT
 abiro=tari taseg -**ankits**-**i**
 2.FOC=CNGR be.hungry-PFV -AR
 "...you're hungry." (pik)
- c. Oshianakakea sotsiki... NO EXTR, MID
 o- shig-an -**k** -**a**=kea sotsiki
 3F-RUN -ABL-PFV-MR=EVID outside
 She ran outside... (kap)
- d. "Aato ichookataji shiagetanankitsika." EXTR, "ACT"
 aato i- chooka-aj -i shig-ge -be -an -**ankits**-**i**=ka
 NEG 3M-EXST -REG-AR RUN -DISTR-FRUST-ABL-PFV -AR=REL
 "No one will escape." (ttk)

What causes alternative forms of aspect and the leveling of reality status/voice distinctions, and why does this only happen with intransitive subjects? The intuition that we pursue here is that [OP] may trigger impoverishment of features other than [φ]. Specifically, we propose that [OP] is shared between T and Voice along with [\pm IRR], and that [OP] triggers impoverishment of [\pm IRR] when Voice is intransitive. The sharing step is shown in (26).



To capture the leveling of reality status/voice distinctions in intransitive subject extraction contexts, we propose the impoverishment rule in (27), which deletes the Voice feature, $[\pm\text{MID}]$, and reality status feature, $[\pm\text{IRR}]$, from an intransitive ($[-\text{TR}]$) Voice head when that head bears $[\text{OP}]$.

- (27) **Caquite Voice Impoverishment**
 $[\pm\text{MID}, \pm\text{IRR}] \rightarrow \emptyset / _ [-\text{TR}, \text{OP}, \text{Voice}]$

The result of this impoverishment rule is shown in (28).

- (28) **Results of Impoverishment at Voice**
 $[-\text{TR}, \pm\text{MID}, \pm\text{IRR}, \text{OP}, \text{Voice}] \rightarrow [-\text{TR}, \text{OP}, \text{Voice}]$

We argue that the exponent that surfaces in these contexts, *-i*, is in fact the default realization of the head Voice, and spells out only that categorical feature. The necessary VI is shown in (29); it ensures that *-i* will spell out Voice when it lacks a $[\pm\text{MID}, \pm\text{IRR}]$ specification.

- (29) **VI for *-i* in Caquite**
 $[\text{Voice}] \leftrightarrow -i$

Finally, we suggest that alternative aspectual marking (*-ats* in the imperfective and *-ankits* in the perfective) is conditional allomorphy of the head Asp in the context of a Voice head with the features $[-\text{TR}, \text{OP}]$. This analysis is shown in (30) for imperfective aspect and (31) for perfective aspect.

- (30) **Imperfective Allomorphy**
 a. $[\text{IMPF}, \text{Asp}] \leftrightarrow -\text{ats} / _ [-\text{TR}, \text{OP}, \text{Voice}]$
 b. $[\text{IMPF}, \text{Asp}] \leftrightarrow -\emptyset$
- (31) **Perfective Allomorphy**
 a. $[\text{PFV}, \text{Asp}] \leftrightarrow -\text{ankits} / _ [-\text{TR}, \text{OP}, \text{Voice}]$
 b. $[\text{PFV}, \text{Asp}] \leftrightarrow -\text{k}$

In the current analysis of reality status/voice leveling and aspectual allomorphy, the two effects are formally distinct. Therefore, we predict that the same sort of aspect allomorphy displayed in (30)–(31) can occur with a different pattern of reality status/voice leveling. This prediction is borne out by Matsigenka, a related Kampa language, as shown in (32).¹⁶ Compare the marking of the verbs in (32a)–(32b) to the marking of the verbs in (32c)–(32d): special aspect marking occurs and

¹⁶ Matsigenka examples are based on Vargas Pereira, Vargas Pereira, Michael, Beier, and O’Hagan (2013).

reality status distinctions are leveled (both as in Caquinte), but, unlike Caquinte, the active-middle distinction remains (*-i* for active, *-a* for middle).

(32) **Matsigenka Intransitive Subject Extraction**

- a. Ipokake sonkivinti pankotsiku... NO EXTR, ACT
 i- pok -**ak**-**i** sonkivinti panko-tsi=ku
 3M-COME-PFV-AR bird.sp. house-AL=LOC
 The *sonkivinti* bird came to the house...
- b. ...iriro-tari pokankitsi... EXTR, ACT
 iriro=tari pok -**ankits**-**i**
 3M =CNGR COME-PFV -AR
 ...it's because he's coming...
- c. ...irirori iponiaka Pichaku. NO EXTR, MID
 irori=ri i- poni -**ak**-**a** Picha=ku
 3M =TOP 3M-COME.FROM-PFV-MR Picha=LOC
 ...he came from the Tambo River.
- d. ...virakochaegi poniankicharira parikoti... EXTR, MID
 virakocha -egi poni -**ankich**-**a** =rira parikoti
 white.man-PL COME.FROM-PFV -MID=REL far
 ...white men who would come from far away...

We propose that this difference is due to a difference between the impoverishment rules targeting intransitive Voice in Caquinte and Matsigenka. While in Caquinte that rule deletes both the voice feature and reality status feature, in Matsigenka, only reality status is deleted. The Matsigenka rule is shown in (33), and this rule results in the feature bundle in (34).

(33) **Matsigenka Voice Impoverishment**

$[\pm\text{IRR}] \rightarrow \emptyset / _ [-\text{TR}, \text{OP}, \text{Voice}]$

(34) **Result of Matsigenka Voice Impoverishment**

$[-\text{TR}, \pm\text{MID}, \pm\text{IRR}, \text{OP}, \text{Voice}] \rightarrow [-\text{TR}, \pm\text{MID}, \text{OP}, \text{Voice}]$

Thus, in Matsigenka, the voice feature $[\pm\text{MID}]$ will still be available for spell-out. Therefore, the two VIs in (35) can potentially be inserted at Voice.

(35) **VIs for *-i/-a* in Matsigenka**

- a. $[\text{Voice}] \leftrightarrow -i$
 b. $[\text{+MID}, \text{Voice}] \leftrightarrow -a$

We assume that *-i* is still the default realization of Voice in Matsigenka, as it is in Caquinte. The middle realis morpheme *-a* spells out only one more feature, namely $[\text{+MID}]$. While Matsigenka exhibits a different pattern of Voice leveling than Caquinte, the same aspect allomorphy surfaces. Under the current analysis, this is expected: Matsigenka also possesses the VIs in (30)–(31), leading to the same pattern of allomorphy at that head. All that is required is the presence of $[-\text{TR}, \text{OP}]$ on Voice to condition the alternation.

6 Conclusion

We have described and offered an analysis for three reflexes of extraction in Caquinte: anti-agreement, special irrealis marking, and special aspect marking with intransitive subject extraction. The mechanisms that we have proposed to account for these reflexes are summarized in (36).

(36) Mechanisms Underlying Reflexes of Extraction in Caquinte

- a. *Anti-agreement*
[OP] triggers φ -impoverishment on T or Voice
- b. *Reality status/voice leveling*
[OP] triggers impoverishment of [\pm MID, \pm IRR] on [-TR] Voice
- c. *Aspect allomorphy*
[-TR, OP] on Voice conditions insertion of special VI

Each of these reflexes, or effects, can be thought of as a form of *wh*-agreement. In each case, the presence of [OP] on a specific head on the clausal spine has an effect on clausal morphology. In the case of anti-agreement and reality status/voice leveling, [OP] triggers impoverishment of another feature, leading to the insertion of a more general morpheme. In the case of aspect allomorphy, the presence of [OP] on an adjacent head triggers the insertion of a particular VI.

The set of effects that we have detailed for Caquinte are present in the other Kampa Arawak languages as well. However, as we saw for Matsigenka, the details may differ slightly. In that language, reality status is leveled, but voice distinctions are not. Our approach locates this type of variation in the morphological component: Matsigenka has a different impoverishment rule that targets intransitive Voice. We take this to be a strength of our analysis, as variation is not located in the syntax proper, a general goal of the Minimalist Program (Chomsky 1995).

Lastly, in all languages in which extraction interacts with reality status marking, and in which subject extraction triggers an effect different than that in non-subject extraction, there is a tendency for realis marking to emerge with subject extraction. For example, in Akɔɔse (Bantu), subject extraction requires realis marking even if the clause would otherwise be marked as irrealis due to other factors, such as negation (Zentz 2012).¹⁷ While intransitive subject extraction in Caquinte does not *suppress* irrealis marking as in Akɔɔse, it is intriguing that exponents of reality status level to the realis exponent in this context. While more work is needed to understand the interaction of extraction and reality status crosslinguistically, we note that Baier's (2018) analysis of anti-agreement as φ -impoverishment in the context of \bar{A} -features can fruitfully be extended to the impoverishment of reality status and voice distinctions, and that such impoverishment in the context of \bar{A} -features may be a more general process crosslinguistically.

¹⁷ Akɔɔse differs from Caquinte in two ways. First, *transitive* subject extraction also induces realis marking. Second, non-subject extraction requires *irrealis* marking. These differences are noteworthy, though we still think that Caquinte fits into the picture of subject extraction that induces realis marking (at least in part of the paradigm).

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