Morphological and syntactic person restrictions in Caquinte[*]

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1.   Introduction

In this paper, we describe a novel pattern of ditransitive person restrictions in Caquinte, a Kampa Arawak language spoken in southeastern Peru, based on original fieldwork.[1] In Caquinte ditransitives, where both objects are reflected on the verb by agreement suffixes, combinations of two local persons are ungrammatical. All other person combinations, including 3>local configurations, are grammatical. This pattern does not conform to any described variety of the Person-Case Constraint (PCC), which typically rules out combinations of 3rd person indirect objects with local person direct objects (*3>local).

While many PCC patterns have been accounted for entirely in the syntax, we argue that the Caquinte pattern requires a hybrid analysis which derives person restrictions *independently* in the syntactic and morphological component. In basic clauses, *local>local results from competition of vocabulary items to occupy slots in a morphological template. Competition itself does not derive ungrammaticality—we propose an additional constraint, REALIZEPARTICIPANT, which applies at Vocabulary Insertion and requires overt exponence of local person agreement.

(1)   REALIZEPARTICIPANT:
        A [PARTICIPANT] feature within the complex V must undergo Vocabulary Insertion.

This constraint is necessary to capture the basic Caquinte pattern, in which morphological impoverishment repairs ungrammatical person combinations. However, we argue that an extraction asymmetry between direct and indirect objects requires a syntactic person restriction as well, namely a Person Licensing Condition (Béjar and Rezac 2003), which requires agreement with local persons in the syntax. The analysis implemented here differs from other hybrid analyses (e.g., Walkow 2013; Coon and Keine To appear) in that it is fully modular: Agree is responsible for some restrictions, while competition is responsible for others. This more nuanced view of person restrictions provides a lens to understand the wide variety of PCC patterns that have been documented cross-linguistically.

2. The Person-Case Constraint

The Person-Case Constraint (PCC) is a restriction on grammatical person combinations, typically found in ditransitives when both objects are phonologically weak (Bonet 1994). The strong version of the PCC requires that a direct object in such a configuration be 3rd person, as is found in French (2).

(2)   *Strong PCC in French*

   a.   Je **le**   **lui**   ai   présenté.
        1SG 3SG.ACC 3SG.DAT have introduced
        'I introduced him to her.'   (3>3)

   b.   *Je **te lui**   ai   présenté.
        1SG 2SG 3SG.DAT have introduced
        Intended: 'I introduced you to her.'   (*3>2)

On the whole, analyses of person restrictions can be divided into syntactic and morphological theories. Most existing analyses are built to account for the Strong or Weak PCC, which both rule out 3>local; these cannot straightforwardly account for a Caquinte-style pattern, where only local>local is ruled out.

Syntactic analyses of the PCC have relied on relativized probing to capture hierarchical agreement restrictions, with effects arising when a single agreeing head has two accessible DPs in its agreement domain. This configuration will yield ungrammaticality if the probe fails to Agree with both DPs (Béjar and Rezac 2003; Stegovec 2019) or if the probe Agrees with both, but finds conflicting feature specifications (Anagnostopoulou 2003; Nevins 2007; Coon and Keine To appear). In some cases, ungrammaticality is derived by a licensing mechanism, which states that (a subset of) features on nominal arguments must enter into an Agree relation with some functional head (e.g., Stegovec 2019; Béjar and Rezac 2003). Meanwhile, purely morphological analyses place constraints on surface combinations of morphemes (e.g., Bonet 1994; Nevins 2007); these do particularly well in accounting for 3>3 restrictions, such as Spanish "spurious-*se*", which often appear in addition to a canonical PCC pattern.

Recent hybrid analyses (Walkow 2013; Coon and Keine To appear) rely on syntactic and morphological mechanisms to derive person restrictions. However, for both analyses,

the problem that arises in the morphology is inextricably linked to the underlying syntax, predicting *3>local. For Walkow, lack of syntactic person licensing via Agree yields differential morphological exponence. For Coon & Keine, morphological ineffability results when a probe copies back multiple feature values, which only occurs in PCC-violating configurations (like 3>local). In their system, there is no way to rule out only *local>local.

3. Caquinte person restrictions

Caquinte is a polysynthetic, strongly head-marking language with basic VSO word order and rigidly-ordered morphology. Arguments are reflected on the verb by agreement affixes: we assume that object suffixes arise via agreement with *v*, while subject prefixes arise via agreement with T. Affixes do not reflect number or case, and only the third person affixes reflect gender. The object suffixes are provided in (3).

(3)　　*Caquinte object suffixes*
　　　-na　　1st person　　　　　*-ri*　　3rd person masculine
　　　-aji　　1st person inclusive　*-ro*　　3rd person feminine
　　　-mpi　　2nd person

　　Object suffixes are often the only exponence of an argument due to *pro*-drop, but they can co-occur with overt DP arguments. In (4), the overt 3rd person DO is reflected on the verb by the suffix *-ro*; in (5), the overt 1st person pronoun is doubled by the suffix *-na*.[2]

(4)　　*Yojokakenaro itsogena.*
　　　i-ojok-k-i-na-**ro**　　　**i-tsogena**
　　　3M-give-PFV-AR-1-3F　3M-beak.F
　　　'He gave me his beak.' (ST p.81)

(5)　　*...ikoakokena naatimpa...*
　　　i-koako-k-i-**na**　　**naatimpa**
　　　3M-ask-PFV-AR-1　1PRO
　　　'...he asked me...' (ST&O p.13)

　　The Caquinte verbal template has two clearly defined "slots" for object agreement: the first slot hosts local person suffixes and the applicative head *-nV*, while the second slot hosts 3rd person suffixes. A simplified verbal template is provided in (6).

(6)　　[SUBJ]-...-V- ...-[LOCAL OBJ, APPL]-[NON-LOCAL OBJ]

Each "slot" can only host one affix, so only one suffix of each type (local or 3rd person) may appear on the verb. When two object suffixes are realized in different slots, the result is grammatical; unlike in standard PCC languages, these combinations can be used for local>3 or 3>local configurations. In (7), the suffix sequence *-na-ri* is used to realize 1st and 3rd person objects in either hierarchical configuration.

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[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: <b> = [β]; <ch> = [tʃ]; <j> = [h]; <sh> = [ʃ]. Nonstandard abbreviations are: ABL = ablative; APPL = applicative; AR = active realis; DSTR = distributive; INDR = indirect applicative; IRR = irrealis; MID = middle; PFV = perfective; REG = regressive.

(7)   a.   *Tsioji, pamenagetenari nogepigairikitite.*

            tsioji pi-amen-ge-e-**na-ri**   no-kepigairikiti-te

            sister 2-look.for-DSTR-IRR-1-3M 1-louse.M-POSS

            'Sister, look for my lice for me.' (ST p.98)   (1>3)

    b.   *...yojokabakokenari Joanka.*

            i-ojok-bako-k-i-**na-ri**   Joanka

            3M-give-hand-PFV-AR-1-3M Juan

            '...he gave me to Juan [in marriage].' (ST&O p.13)   (3>1)

When configurations force two suffixes to compete in the same slot (e.g., local>local, 3>3), the results differ for local persons and 3rd persons. Ditransitives that have two local person objects are ungrammatical, as shown in (8). When a clause has two 3rd person objects, however, the IO suffix simply outcompetes the DO suffix (9).[3] The applicative head *-nV* appears in the first suffix slot.[4]

(8)   a.   **Yojokakenampi.*   b.   **Yojokakempina.*

            i-ojok-k-i-**na-mpi**   i-ojok-k-i-**mpi-na**

            3M-give-PFV-AR-1-2   3M-give-PFV-AR-2-1

            Int: 'He gave you to me.' (*1>2)   Int: 'He gave me to you.' (*2>1)

(9)   *...nojokakotajeneri aapani kishokiro...*

        no-ojok-ako-aj-e-nV-**ri**   aapani   kishokiro

        1-give-A:INDR-REG-IRR-APPL-3M father.M cooked.manioc.F

        '...I'll give father cooked manioc...' (ST p.71)   (3M>3F)

3.1   Behavior under Ā-extraction

In Caquinte, focused, relativized, and wh-moved arguments do not show agreement with their selecting verb (10). When the focused object is a full DP, the pre-verbal focus pronoun doubles the full DP. Following Baier and O'Hagan (2019), we formalize Caquinte anti-agreement as ϕ-impoverishment in the context of OP features on *v*.[5]

(10)   *Irio nompeanakempa ashibanti.*

       irio   no-N-peg-an-k-e-mpa(*-ri)   **ashibanti**

       3M.FOC 1-IRR-transform-ABL-PFV-IRR-MID-3M caracara.M

       'It's a caracara that I'll transform into.' (ST p.95)

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[3]The single object suffix that appears in a 3>3 construction must track the IO. To capture this, we could propose that vocabulary insertion begins with the argument that was agreed with first. This is preferable to an analysis that relies on case, since there is no other evidence of case sensitivity in Caquinte.

[4]We analyze *-nV* as the applicative head, as does O'Hagan (2018), given that it appears only in applied object constructions. *-nV* and its cognates have previously been analyzed as default markers of the theme (Swift 1988); however, *-nV* never undergoes anti-agreement (§3.1), suggesting that it does not realize ϕ.

[5]Baier and O'Hagan (2019) assume that OP features are a subset of Ā features, which includes focus, relativization, and wh-movement contexts to the exclusion of topicalization contexts.

3.1.1 DO extraction

The effects of anti-agreement are transparent in local>3 and 3>local configurations, where the base sentences allow both suffixes to surface: when the DO is focused, the corresponding suffix does not appear on the verb, leaving only the local IO suffix (11). If the DO suffix is local, the latent *-nV* applicative appears in the first suffix slot (12).

(11) *Iro namakempi paperi.*
      iro   no-am-k-i-**mpi**   paperi
      3F.FOC 1-bring-PFV-AR-2 book.F
      'It's the book that I brought you.'   (2>3extr)

(12) *Abiro yojokakeneri iritinerijaniki.*
      abiro i-ojok-k-i-nV-**ri**   iri-tinerijaniki
      2.FOC 3M-give-PFV-AR-APPL-3M 3M-nephew
      'It's you that he gave to his nephew.'   (3>2extr)

Crucially, anti-agreement of the DO allows previously ungrammatical local>local configurations to surface. In (13), the DO focus pronoun appears preverbally and only the local IO suffix appears on the verb. Without anti-agreement, this utterance is ungrammatical.

(13) *Abiro yojokakena piraapanite.*
      abiro i-ojok-k-i-**na**   pir-aapani-te
      2.FOC 3M-give-PFV-AR-1 2-father-POSS
      'It's you that your father gave me.'   (1>2extr)

3.1.2 IO extraction

Under IO extraction, we predict that anti-agreement will remove the IO suffix and leave the DO suffix, mirroring the pattern described in the previous section. Instead, extraction of the IO requires anti-agreement for both object suffixes, leaving only the *-nV* suffix. This is shown in (14) for a local>3 configuration: under IO extraction, the verb must appear with *-nV* only, and including a DO suffix is ungrammatical.

(14) *Naro yojokakene irorijanite.*
      naro i-ojok-k-i-nV(*-ro)   iri-orijani-te
      1.FOC 3M-give-PFV-AR-APPL-3F 3M-daughter-POSS
      'It's to me that he gave his daughter.'   (1extr>3)

Curiously, if the remaining DO is a local person, IO extraction is completely ungrammatical. All attempts to extract the IO from local>local are rejected (15); if one local suffix remains, the utterance is unambiguously interpreted as DO extraction, as in (13).

(15) *Naro yojokakenempi.*
      naro   i-ojok-k-i-nV-**mpi**
      1.FOC 3M-give-PFV-AR-APPL-2
      Intended: 'It's to me that he gave you.'   (*1extr>2)

Extracting the IO from 3>local is also ungrammatical (16). This is more surprising than the *local>local case, given that 3>local configurations are grammatical in their base position. In other words, IO extraction creates ungrammaticality in 3>local configurations.

(16) *Irio nojokakene abiatimpa.*
      irio   no-ojok-k-i-nV   abiatimpa
      3M.FOC 1-give-PFV-AR-APPL 2.TOP
      Intended: 'It's to him that I gave you.'   (*3extr>2)

3.2   Interim summary

In short, only local>local configurations are ungrammatical in basic (i.e., non-extracted) clauses. These configurations are essentially rescued by extraction of the DO, which triggers DO anti-agreement. IO extraction, on the other hand, forces anti-agreement for both objects, and creates ungrammaticality when the DO is a local person.

IO	DO	Basic	DO extraction	IO extraction
1	3	✓	✓	✓
2	3	✓	✓	✓
1	2	*	✓	*
2	1	*	✓	*
3	1	✓	✓	*
3	2	✓	✓	*
3	3	✓	✓	✓

Table 1: Summary of Caquinte ditransitive person restrictions

4.   A hybrid analysis

We argue that two distinct mechanisms are at play in Caquinte, which conspire to ensure recoverability of local person arguments. The first is a morphological requirement that [PART] features copied back to a probe must be realized overtly, formalized as a constraint on Vocabulary Insertion. This constraint, in combination with a strict morphological template, derives the ungrammaticality of local>local while allowing an anti-agreement repair. The second is a Person Licensing Condition, which captures the extraction pattern by requiring agreement with local persons in the syntax. The co-occurrence of these two types of restrictions within a single language, each with different hallmarks, suggests that person restrictions do not necessarily require a single unified analysis; they can be derived in multiple ways. We argue against one type of unified syntactic analysis in §5.

4.1 REALIZEPARTICIPANT

To capture the intuition that unrealized 3rd persons are tolerated while unrealized local persons are not, we propose a morphological REALIZEPARTICIPANT constraint, which requires that local person arguments show ϕ-agreement on the verb (17). This constraint places a requirement on Vocabulary Insertion rather than feature licensing in the syntax.

(17) REALIZEPARTICIPANT:
 A [PART] feature within the complex V must undergo Vocabulary Insertion.

The other key ingredient is a strict morphological template, where only only one vocabulary item may be realized in a particular slot. If multiple vocabulary items are co-indexed with the same slot, the result is competition—a winner must be chosen from the competing vocabulary items by some predetermined algorithm. We argue that it is only in combination with an additional constraint that ungrammaticality will arise from this competition.

 The *local>local restriction is derived post-syntactically by imposing two competing requirements on the exponence of object suffixes: a morphological slot may only host one suffix, and REALIZEPARTICIPANT requires exponence of local person ϕ-features on the verb. To illustrate, three possible strings for a local-on-local construction are provided in (18). The first string violates the template by realizing two suffixes in the same slot; the second violates REALIZEPARTICIPANT because there is no agreement with the local DO. The third string violates REALIZEPARTICIPANT for the same reason, demonstrating that the constraint must be formulated to require overt agreement, not just overt exponence.

(18) 'He gave you to me.'

 a. *i-ojok-k-i-**na**-**mpi**
  3M-give-PFV-AR-1-2 (violates template)

 b. *i-ojok-k-i-**na**
  3M-give-PFV-AR-1 (violates REALIZEPART)

 c. *i-ojok-k-i-**na** **abiatimpa**
  3M-give-PFV-AR-1 2PRO (violates REALIZEPART)

By contrast, REALIZEPARTICIPANT does not apply to 3>3 constructions because there are no [PART] features. Therefore, the string with two 3rd person suffixes will be ruled out by the morphological template, but a string with only one suffix will be grammatical.

(19) 'He gave it to her.'

 a. *i-ojok-k-i-nV-**ri**-**ro**
  3M-give-PFV-AR-APPL-3M-3F (violates template)

 b. i-ojok-k-i-nV-**ro**
  3M-give-PFV-AR-APPL-3F

Finally, REALIZEPARTICIPANT allows for an anti-agreement "repair" for local>local. Assuming that both objects are agreed with in the syntax, extraction of the DO will impoverish one set of ϕ-features on v^0, leaving only the features of the IO. Then, when it comes time to insert vocabulary items, there is only one [PART] feature on v^0, which is realized grammatically in the morphological template.

4.2   Syntactic person licensing

The REALIZEPARTICIPANT constraint does not capture the anti-agreement of both arguments under IO extraction, nor does it account for the ungrammaticality that results when the remaining DO is a local person, as in (15) and (16). We argue that the extraction pattern privileges syntactic locality and thus should be analyzed as a syntactic restriction, implemented here using a Person Licensing Condition (PLC).

(20)   *Person Licensing Condition:*   (Béjar and Rezac 2003:53)
       An interpretable 1st/2nd person feature must be licensed by entering into an Agree
       relation with a functional category.

To account for the loss of all agreement under IO extraction, we adopt an Interaction-Satisfaction model of Agree (Deal 2015). We suggest that the probe on v^0 interacts with all features F, and is satisfied by [Ā] features. In an IO extraction context, the probe on v^0 will interact with all features F of the IO, which includes an [Ā] feature. The probe is satisfied by this feature and stops probing (21). After extraction and impoverishment, there are no features left on v^0 to expone: the features of the IO have been deleted, and the features of the DO were never copied back to begin with.

(21)   [$_{vP}$ v-{INT:F, SAT:Ā} [$_{ApplP}$ IO-{F, Ā} [Appl [$_{vP}$ V DO-{F}]]]]

In non-extraction contexts, neither object carries an [Ā] feature so the probe will agree with both, ensuring that both objects can be reflected by verbal suffixes. Furthermore, in DO extraction contexts, the probe will collect the features of the IO and, not finding [Ā] features, will look past the IO to copy back the features of the DO as well. This captures the asymmetry between DO and IO extraction.

   The PLC only becomes relevant in IO extraction contexts, where the probe on v^0 does not Agree with all arguments. In these configurations, v^0 does not Agree with the DO; if that DO is a local person, its [PART] feature goes unlicensed and violates the PLC, yielding ungrammaticality. Meanwhile, IO extraction contexts with a 3rd person DO will surface grammatically with no object agreement.

5.   Against a syntactic analysis

We argue that a purely syntactic analysis is untenable for Caquinte because it cannot simultaneously capture i) the grammaticality of 3>local configurations, and ii) the asymmetry between IO and DO extraction. The local>local restriction in Caquinte is closest to the

Strong PCC; the grammaticality of 3>local in Caquinte, not predicted by any Strong PCC analyses, could be explained by scrambling of the DO over the IO, as Stegovec (2019) proposes for Slovenian.[6] This movement, which occurs before probing takes place, essentially turns 3>local configurations into local>3 configurations for the sake of Agree.[7]

To begin with, object scrambling does not appear to be available in Caquinte given the linear order of full DP arguments: the IO must precede the DO, which can be taken to reflect structural hierarchy. Still, if we assume that scrambling is available despite this linear order, the larger issue arises when we apply scrambling to the extraction pattern. The anti-agreement pattern under extraction is easily understood if the IO is always the first argument encountered by a higher probe, blocking agreement with the DO. However, if we allow object scrambling, it could occur in extracted contexts as well to make either object more local to a higher probe. If this is so, we predict no differences in the available agreement patterns for IO and DO extraction—this is clearly not the case, as shown in (22).

(22)   a.   *Abiro yojokakeneri iritinerijaniki.*
            abiro   i-ojok-k-i-nV-**ri**   iri-tinerijaniki
            2.FOC 3M-give-PFV-AR-APPL-3M 3M-nephew
            'It's you that he gave to his nephew.'   (3>2extr)

       b.   *Abiro nojokakene notinerijaniki.*
            abiro   no-ojok-k-i-nV(*-ri)   no-tinerijaniki
            2.FOC 1-give-PFV-AR-APPL-3M 1-nephew
            'It's to you that I gave my nephew.'   (2extr>3)

One possible alternative is that scrambling can only be used as a "last resort" to repair an ungrammatical derivation. However, this does not appear to be the case either. IO extraction with a local person DO (e.g., *3extr>2) is ungrammatical, as in (23), but DO scrambling could rescue this derivation by moving the 2nd person DO higher than the 3rd person IO. A lack of repair suggests that scrambling is not available, even as a last resort.

(23)   *Irio nojokakene abiatimpa.*
       irio   no-ojok-k-i-nV   abiatimpa
       3M.FOC 1-give-PFV-AR-APPL 2.TOP
       Intended: 'It's to him that I gave you.'   (*3extr>2)

Without scrambling, it is difficult to see how standard syntactic PCC analyses can capture the basic *local>local pattern of Caquinte. For this reason, we maintain that the basic pattern is morphologically driven, while the extraction pattern is derived in the syntax.

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[6]Thank you to Emily Clem for suggesting the application of this analysis to Caquinte.

[7]A number of syntactic analyses have been proposed for the Strong PCC, but the choice of analysis here is not crucial—problems will arise as long as ungrammaticality is syntactically-derived. Object scrambling is compatible with any of these syntactic analyses, as long as the relevant probe is above both arguments.

6.   Conclusion

The analysis presented here has two larger implications. Firstly, post-syntactic person restrictions are attested and derivable without referencing surface forms. Secondly, person restrictions can be derived in multiple ways, even within the same language. Given the diversity of documented PCC patterns, it is worth questioning whether a single syntactic analysis should be responsible for all of them. Constraints on local>local configurations—the only difference between the Strong and Weak PCC—may be more fruitfully attributed to the morphology in order to simplify the necessary syntactic mechanisms.

References

Anagnostopoulou, Elena. 2003. *The Syntax of Ditransitives*. Berlin: Mouton de Gruyter.

Baier, Nico, and Zachary O'Hagan. 2019. Morphological reflexes of subject extraction in Caquinte. In *Proceedings of WSCLA 23*, ed. Daniel Reisinger and Roger Yu-Hsiang Lo, 1–14. Vancouver: UBC Working Papers in Linguistics.

Béjar, Susana, and Milan Rezac. 2003. Person licensing and the derivation of PCC effects. In *Romance Linguistics: Theory and Acquisition*, ed. Ana Pérez-Leroux and Yves Roberge, 49–62. Amsterdam: John Benjamins.

Bonet, Eulàlia. 1994. The Person-Case Constraint: A morphological approach. In *The Morphology-Syntax Connection*, ed. Heidi Harley and Colin Phillips, 33–52. Cambridge, MA: MIT Working Papers in Linguistics.

Coon, Jessica, and Stefan Keine. To appear. Feature gluttony. *Linguistic Inquiry* .

Deal, Amy Rose. 2015. Interaction and satisfaction in ϕ-agreement. In *Proceedings of NELS 45*, ed. Thuy Bui and Deniz Ozyildiz, 179–192. Amherst, MA: GLSA.

Nevins, Andrew. 2007. The representation of third person and its consequences for person-case effects. *Natural Language & Linguistic Theory* 25:273–313.

O'Hagan, Zachary. 2018. The syntax of Matsigenka object marking. *Berkeley Papers in Formal Linguistics* 1.

Salazar Torres, Antonina, and Zachary O'Hagan. 2019. Tsabetsatsarentsipae itionkantajitakaroka igenketsatsare kakinte. Ms., University of California, Berkeley.

Salazar Torres, Antonina, Joy Salazar Torres, Emilia Sergio Salazar, Miguel Sergio Salazar, and Zachary O'Hagan. 2019. Tsabetsatsarentsipae itionkantajitakaroka igenketsatsare kakinte. Ms., University of California, Berkeley.

Stegovec, Adrian. 2019. Taking case out of the Person-Case Constraint. *Natural Language & Linguistic Theory* 38:261–311.

Swift, Kenneth E. 1988. *Morfología del Caquinte*. Lima: Instituto Lingüístico de Verano.

Walkow, Martin. 2013. A unified analysis of the Person Case Constraint and 3-3-Effects in Barceloní Catalan. In *Proceedings of NELS 40*, ed. Seda Kan, Claire Moore-Cantwell, and Robert Staubs, 239–252. Amherst, MA: GLSA.

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