A feature-based analysis of the Ch'ol (Mayan) person paradigm

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1 Introduction

This paper investigates first person plurals in Ch'ol, a Mayan language of southern Mexico. The Ch'ol absolutive markers are given in Table 1.[1]

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Table 1: Absolutive markers in Ch'ol

1	2	3	1 INCL	1 EXCL	2 PL	3 PL
-oñ	*-ety*	Ø	*-oñ* =la	*-oñ* =loj-*oñ*	*-ety*= la	*-ob*

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At first glance it seems that the clitic =*la* (in boxes) shows up in the inclusive plural and second person plural forms. However, a closer look at the paradigm reveals that the exclusive plural form *oñ=loj-oñ* is derived by adding *-oñ*, the first person form, to the inclusive form *oñ=la*. There is vowel assimilation of *a* to *o* in the participant pluralizer *la*, and a [h] (orthographically *j*) is added to break up the vowel hiatus in the exclusive form. Effectively, the exclusive plural is derived by adding the first person marker to the inclusive form.

This data brings up two questions: (i) Why does the exclusive form contain the inclusive form? (ii) Why is it that Ch'ol derives the exclusive by repeating the first person marker *oñ* to the inclusive form? In this paper, I aim to answer these questions. To do so, I

[1] Glosses: 1 = first person; 2 = second person; 3 = third person; A = Set A markers (ergative/possessive); B = Set B markers (absolutive); IMPF = imperfective; IV = intransitive verb; PART = participant; PL = plural; PREP = preposition; PROG = progressive; PRF = perfective aspect; REA = realis. Ch'ol uses a Spanish-based orthography: ' = [ʔ]; ä = [ɨ]; b = [ɓ] ch = [tʃ]; j = [h]; ñ = [ɲ]; ty = [t̪]; x = [ʃ]; y = [j]; C' = ejective consonant.

take a closer look into the morphology of the two first person plural forms and the contexts in which these two forms occur (§2). Based on empirical generalizations from the usage of the two first person plural forms, I recategorize the inclusive as a general first person plural and the exclusive as a specified exclusive form that explicitly excludes the hearer. As the data will provide evidence for below, the exclusive form is both morphologically and semantically more complex. In §3, I formalize the person paradigm in Ch'ol with binary features (e.g. Noyer 1992, Bobaljik 2008, Watanabe 2013). I argue that a binary feature approach with a [±hearer] feature can better capture the Ch'ol data as it can explicitly exclude the hearer from the representation. In §4, I argue that the Ch'ol data poses challenges for privative feature approaches, like feature geometries (e.g. Harley & Ritter 2002, Cowper & Hall 2005) as these privative systems do not have a way to explicitly exclude a [hearer] feature. I summarize and conclude in §5.

2 Morphology and distribution of first person forms

2.1 Morphology of person markers in Ch'ol

Person in Ch'ol is indexed on the predicate (noun or verb), with two sets of person markers known as set A for ergative/possessive forms and set B for absolutive forms. Set A and set B morphemes are given in Table 2.

Table 2: Person markers and pronouns in Ch'ol

	1	2	3	1 INCL	1 EXCL	2 PL	3 PL
Set A	*k-/j-*	*a(w)-*	Ø	*k-/j-*...=*la*	*k-/j-*...=*loj* -*oñ*	*a(w)-*...=*la*	*-ob*
Set B	*-oñ*	*-ety*	Ø	*-oñ* =*la*	*-oñ* =*loj* -*oñ*	*-ety*=*la*	*-ob*
Pron.	*joñ-oñ*	*jaty-ety*	*jiñ*	*joñ-oñ* =*la*	*joñ-oñ* =*loj* -*oñ*	*jaty-ety*=*la*	*jiñ-ob*

Human-denoting nouns and some animate nouns can be pluralized with -*ob*. The clitic =*la* marks participant plurals. =*La* undergoes vowel assimilation when -*oñ* attaches to it in the exclusive (*laj*+*oñ* → *lojoñ*). Ch'ol pronouns are based off the Proto-Maya form *ha'- with vowel assimilation of the root to the vowel of the suffix. The forms *joñoñ* and

jatyety are probably derived from **ja'-oñ* and **ja'-ety* (Hopkins et al. 2008). These forms are related to the *jiñ(i)* determiner in Ch'ol. Since the third person absolutive is null, its pronominal form is consequently *jiñ*.

While the set A markers are agreement markers (Coon 2013), I take the set B absolutive markers to be pronominal enclitics in Ch'ol as per Coon (2013:45). Following conventions in previous work (Coon 2013, Vázquez Álvarez 2011), I will still indicate absolutive markers with a hyphen '-', instead of '='.

Ch'ol has been described as having an inclusive and exclusive distinction (e.g. Kaufman & Justeson 2003, Law 2009, Coon 2010, Vázquez Álvarez 2011). In Ch'ol, the exclusive form is morphologically more complex than the inclusive and is formed by adding the first person marker *-oñ* to the inclusive form (Mora-Marín 2009:108). Effectively, the exclusive form contains the inclusive form. In §2.3, I will provide evidence that the inclusive is not a traditional inclusive form (speaker and hearer), but in fact a general first person plural form, unspecified for inclusion of hearer. The exclusive, on the other hand, is morphologically and semantically more specified to exclude the hearer.

2.2 Morphology of participant plurals in Ch'ol

Participant plurals in Ch'ol are marked with the =*la* clitic and set A or set B markers. The participant pluralizer can occur as enclitic on the predicate like in 1 where it appears on a verb (1a) or a noun (1b), marking first person inclusive.

(1)   a.   Tsa' majl-i-yoñ=**la**.   b.   k-otyoty=**la**
            PRF go-IV-B1-**PART.PL**   A1-house=**PART.PL**
            'We left.'   'our house'

The =*la* clitic can also also appear as a proclitic on its host as in 2.

(2)   **la**=k-otyoty
        PART.PL=A1-house
        'our house' (compare 1b)

Similarly, the exclusive marker, =*loj-oñ*, composed of the participant plural and the first person clitic, can also be an enclitic or a proclitic. It surfaces in its full form as an

enclitic in 3.

(3)   k-otyoty=**loj-oñ**
        A1-house=**PART.PL-B1**
        'our (excl) house'

As a proclitic, =*loj=oñ* surfaces as *loñ* in 4b from Vázquez Álvarez (2011:82). Its full form is not grammatical as a proclitic.

(4)   a. **loñ**=k-otyoty   b. *****lojoñ**=k-otyoty
            PL.EXCL=A1-house   **PL.EXCL**=A1-house
            'our houses'[2]   'our houses'

When =*la* is an enclitic, it attaches after other second position enclitics. For instance in 5, =*la* attaches after the aspectual clitic =*tyo* 'still'.

(5)   K-lumal=tyo=**la**.
        A1-land=still=**PART.PL**
        'It is still our town.'   Adapted from Vázquez Álvarez (2011:81)

2.3   The inclusive as a general first person plural

As expected, the inclusive form is used in contexts where both speaker and hearer are referenced as in 6.

(6)   Typical way for people to end a conversation with each other:
        Mu'=tyo **la=k-**pejk-añ   **la=k-**bä!
        IMF=still PART.PL=A1-talk-NML PART.PL-A1-self
        'We'll talk later!'

However, the inclusive plural has other extended usages. It is the default possessor when listing inalienable body-part terms in 7.

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[2]This form and the one in 5 where the exclusive marker is a prefix is primarily used in the Tila dialect. Tumbalá dialect speakers use the form in 3 where the exclusive marker is a enclitic in possessive structures.

(7) a. *la=k-pix* = knee
     b. *la=k-ok* = leg
     c. *la=k-jol* = head

In 7, *lakpix* is not really 'our (yours and mine) inclusive knee', nor is *lakok* 'our (yours and mine) leg'. The first person inclusive is the general term used in this listing context.

Ch'ol speakers also use the first person inclusive in generic/impersonal contexts as in 8, much like English speakers use the second person.[3]

(8) Excerpt from instructions on how to build a house:

Mi **la=k**-ñajañ-ts'äp   jiñi oy...
IMPF **PART.PL-A1**-first-lay.down DEM post
'First one (lit. 'we') puts in the posts...'

Finally, the inclusive form is used with many other nouns that do not literally mean that there is some relationship between speaker and hearer. Examples from respectful forms of address and some common nouns are given in Table 3. For respectful terms like *lakchich*, literally 'our older sister', the speaker can be directly addressing the listener and in this context it is clear that the general first person plural form does not include the addressee.

Table 3: Extended uses of the inclusive

Ch'ol	Literal translation	Usage/meaning
la-k-chich	our older sister	respectful form of address for elderly women
la-k-ña	our mother	elderly woman
la-k-tyaty	our father	elderly man
la-k-ty'añ	our language	the Ch'ol language
la-k-yum	our god	God

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[3]This extended usage of the first person form in Ch'ol has interesting parallels with work on the Modern West Frisian impersonal pronoun *men*. Hoekstra (2010) provides evidence that the impersonal *men* can be used in contexts where the speaker is referring to herself. While the first person plural in Ch'ol is used in impersonal contexts, the Modern West Frisian impersonal form is used in first person contexts.

Based on the wider distribution of the inclusive, I conclude that the inclusive form is actually a general first person plural that does not have to make reference to a hearer.[4]

2.4 The exclusive as more specified

The exclusive, on the other hand, is only used in contexts explicitly excluding the hearer. In (9a), when the speaker is saying goodbye on behalf of a group, they use the exclusive form, which literally means 'we are leaving'. The inclusive form is infelicitous (9b).

(9)   Context: As one group of people are leaving they say to another group (or person):

   a.   Sam-i-yoñ=ix=**loj-oñ**.
        leave-IV-B1=already=**PART.PL-B1**
        'Goodbye!' (Lit. We are leaving)

   b.   #Sam-i-yoñ=ix=**la**.
        leave-IV-B1=already=**PART.PL**
        'Goodbye!'

Similarly in an excerpt from naturalistic speech in 10, the speaker uses the exclusive form while relating an event that happened to her and another group of women. The addressee (the author of this paper) was not there when this event happened.

(10)   Context: The speaker relating an event that happened to her and others, but not the addressee:
        Che'=ta'   ta'   k-pijty-ä=**loj-oñ**.
        PART=REA PRF A1-wait-TV=**PART.PL-B1**
        'So, we (excl) waited for her.'

Finally, where a speaker is making a statement on behalf of a group about an addressee, the exclusive is used as in 11a. The inclusive plural is not used in this context as per 11b.

(11)   a.   Tyijikña-yoñ=**loj-oñ**   che' wä-añ-ety=i
             happy-B1=**PART.PL-B1** COMP here-EXT-B2=ENCL
             'We are happy that you are here.'

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[4]Throughout this paper, I will occasionally refer to the general first person plural form as inclusive, as it has traditionally been described as.

  b. #Tyijikña-yoñ=**la** che' wä-añ-ety=i
     happy-B1**=PART.PL** COMP here-EXT-B2=ENCL
     'We are happy that you are here.'

In sum, the exclusive plural is both morphologically and semantically more complex. Morphologically, it is formed by adding the first person marker *-oñ* to the inclusive form. Semantically, it only occurs in contexts that explicitly exclude the hearer.

2.5 Summary

According to the actual usage of the inclusive form in Ch'ol, I recategorize it as a general first person plural for the purposes of this paper. Thus, the inclusive in Ch'ol does not necessarily include hearer.

Table 4: Summary of uses for first person plurals

Form	Traditional label	Usage	Recategorization
oñ=la	inclusive	generic contexts, speaker + hearer contexts, default possession with inalienable nouns, certain lexical items	General first person plural
oñ=loj-oñ	exclusive	To exclude hearer	Specified exclusive

3 Deriving Ch'ol first person plurals with binary features

3.1 A binary feature analysis for Ch'ol participant plurals

I propose a binary feature system with a combination of features from Nevins (2007), Harbour (2007),Watanabe (2013) and Bobaljik (2008) under a Distributed Morphology approach (Halle & Marantz 1993). Maximally attested person features are represented with the binary features [±speaker] and [±hearer] from Bobaljik (2008) in Table 5.

Table 5: Table adapted from Bobaljik (2008:206)

First person inclusive	[+speaker,+hearer]
First person exclusive	[+speaker,–hearer]
Second person	[–speaker,+hearer]
Third person	[–speaker,–hearer]

Recall again the generalization that =*la* occurs in all the participant plural forms. Based on the system in Table 5 alone, an additional feature is needed to capture =*la*: [±participant] (as in Nevins (2007); Harbour (2007)) given in Table 6.

Table 6: Table 5 updated with [±participant]

First person inclusive	[+participant ,+speaker,+hearer]
First person exclusive	[+participant ,+speaker,–hearer]
Second person	[+participant ,–speaker,+hearer]
Third person	[–participant,–speaker,–hearer]

The updated feature system in Table 6 is advantageous for formalizing person, because [+participant] represents a natural class of speech act participants and can capture that =*la* shows up as a plural marker with persons that have a [+participant] value.

In order to capture the less specified first person plural, I posit a general first person that does not have a feature for [±hearer], given in Table 7.

Table 7: Table updated to reflect general first person

General first person	[+participant,+speaker]
First person exclusive	[+participant,+speaker,–hearer]
Second person	[+participant,–speaker,+hearer]
Third person	[–participant,–speaker,–hearer]

The analysis I propose for Ch'ol is featureally more complex than in Table 7, as the participant markers are composed of a person marker and the participant plural. Recall

that set B markers *oñ* (first person) and *ety* (second person) are pronominal enclitics, and thus are taken to be full pronouns.[5] Therefore, I take them to be fully specified for features.

I posit the morphological spellouts of features in 12, with the addition of [±singular] for number.

(12)   Ch'ol Vocabulary Items
      a.   *-oñ* : [+participant,+speaker]
      b.   *-ety* : [+participant,–speaker,+hearer]
      c.   *=la* : [–singular] (in the context of [+participant])

I propose that the person (π) and number ($\#$) nodes are separated, which is why number and person are expressed with different morphemes in Ch'ol.[6] The general first person plural has the features [+participant,+speaker] for [π] and [–singular] for [$\#$]. The features [+participant,+speaker] are spelled out as *oñ* and, in the context of [+participant], [–singular] is spelled out as *=la*.

The exclusive form, *=loj-oñ* (*la* + *-oñ*), is derived from the general first person plural form by adding *-oñ*, the first person marker. However, adding *oñ* (with features [+participant,+speaker]) does not capture the semantic distribution of *=loj-oñ* as there needs to be a way to explicitly exclude the hearer. Therefore, I posit that to derive the exclusive, an additional [π] node is needed in the structure as the person marker *oñ* is repeated twice. I propose that to derive the exclusive from the inclusive, the feature values in the additional [π] node are [+participant,+speaker,**–hearer**]. The feature [–hearer] must be included in order to explicitly exclude the hearer, capturing the contexts in which the exclusive form, *=loj-oñ*, appears. However, no item in the vocabulary matches this set of features exactly. So, via the Subset Principle (e.g. Halle (1997)), given below, the phonological exponent that matches a *subset* of the features is inserted.

Subset Principle Halle (1997): 'The phonological exponent of a Vocabulary item is inserted into a morpheme... if the item matches all or a subset of the grammatical features specified in the terminal morpheme. Insertion does not

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[5]See also Woolford 1999, Preminger 2014, and Coon et al. 2014 for further arguments on the status of absolutive markers in Mayan languages as clitics.

[6]Preminger (2014) among others have proposed this for other Mayan languages.

take place if the Vocabulary item contains features not present in the mor-
pheme. Where several Vocabulary items meet the conditions for insertion,
the item matching the greatest number of features specified in the terminal
morpheme must be chosen.'

The item matching a subset of the features is *-oñ* in 12a, with the features [+partici-
pant,+speaker]. The second person marker *-ety* and participant pluralizer *=la* in 12c and
12b cannot be inserted as they have conflicting features. This analysis can therefore cap-
ture the morphology of the exclusive form and why first person *-oñ* appears in the exclusive
form: it is the closest vocabulary item matching a subset of features needed to derive the
exclusive form. The analysis is summarized in 13.

(13)   Deriving the first person plural exclusive *oñ=loj-oñ*

Nodes:	$[\pi\ ]$	$[\#]$	$[\pi]$
Values:	[+participant,+speaker]	[–singular]	[+participant,+speaker,–hearer]
Vocab. insertion:	*-oñ*	*=la*	*-oñ* (via the Subset Principle)
Final form:	*-oñ*	*=loj*	*-oñ*

In sum, Ch'ol does not derive the inclusive/exclusive distinction in a way normally ex-
pected. There are no morphemes that independently spell out the distinction made in Table
5. Rather, the distinction is derived by adding the features [+participant,+speaker,–hearer]
and via the Subset Principle *-oñ* is inserted to derive the exclusive from the general first
person plural. This captures that the exclusive is both semantically and morphologically
more complex.

This data also provides support for the necessity of a [±hearer] feature. It would be
difficult to describe and explain the Ch'ol data without referring explicitly to an absence
of a hearer in binary feature approaches like in Nevins (2007) or Harbour (2016) where
the hearer feature is privative. Theories that do not have a [±hearer] feature would need
to posit that two first person markers intensify, or emphasize, the first person and by doing
so, exclude the second person. In other words, there would be more focus on first person
and consequently a preference for its usage in an exclusive context. However, the analysis

argued for here derives both the morphology and semantic distribution of the Ch'ol exclusive form without the need to stipulate anything about repeating the first person marker.
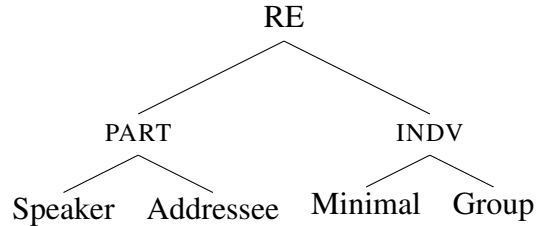
3.2 Choosing between the first person plurals

As shown above, the Ch'ol exclusive is more specified, with the inclusive/general first person plural used in other contexts. Speakers therefore choose the form that is most informative for the context. This can be derived through Heim (1991)'s MAXIMIZE PRESUPPOSITION, as has been done before for the choice of gender in Russian and Brazilian Portuguese (Bobaljik & Zocca 2011). The feature [–hearer] introduces a presupposition that the hearer is excluded. In a context explicitly excluding the hearer, the most informative form is *-oñ=loj-oñ*. In other contexts that do not explicitly exclude the hearer, like in generic instructions, forms of respect and other terms, speakers use the inclusive/general first person plural form. It is therefore important for this analysis that the inclusive form does not have a [hearer] feature and the exclusive form is specified for [–hearer].

4 A privative feature approach?

The above analysis assumes a binary feature approach with three binary features for person: [±participant], [±speaker], and [±hearer]. I argue that all these features must be binary in order to capture the Ch'ol data. This departs from some semi-binary approaches that do not have a [±hearer] feature (Nevins 2007, Harbour 2007). In this section, I discuss further how purely privative approaches do not seem to be able to account for the Ch'ol data. For reasons of space, I exemplify this with Harley & Ritter (2002)'s feature geometry; however, the issues this data poses for Harley & Ritter (2002)'s feature geometry also extend to Cowper & Hall (2005)'s feature geometry.

In the feature geometry for person and number in 14 from Harley & Ritter (2002), RE refers to referring expression (a pronoun, for instance), PART is the participant node under which the features [Speaker] and [Addressee] live, and [INDV] is the individuation node where features for number ([Group] and [Minimal]) are. Each feature is monovalent and only appears if it has a positive value.

(14)   Person and Number Features

```
                    RE
              ┌──────────┐
           PART          INDV
          ┌────┐        ┌────┐
      Speaker Addressee Minimal Group
```

There is a dependency relationship between features. Thus, [Speaker] implies the existence of [PART] and [Speaker] cannot be present when [PART] is not present.

To capture the Ch'ol data, *=la* would be the spellout of [Group] in the context participant (PART) in 15.
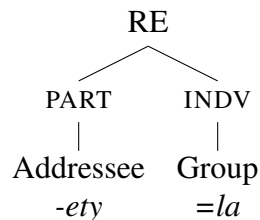
(15)   When the PART node is activated, Group is spelled out as *=la*

```
        RE
      ┌────┐
   PART   INDV
           │
         Group
          =la
```
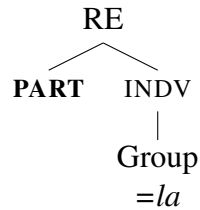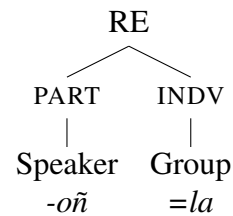
The analysis in 15 accounts for the distribution of *=la* in all the plural participant forms.

The second person plural *-ety=la* can be represented as in 16 and the general first person plural is the activation of [Speaker] and [Group] in 17.

(16)   Second person plural

```
            RE
         ┌──────┐
      PART      INDV
       │          │
   Addressee    Group
     -ety        =la
```

(17)   General first person plural

```
            RE
         ┌──────┐
      PART      INDV
       │          │
     Speaker    Group
      -oñ         =la
```

The problem arises when trying to account for the exclusive form. To derive the morphology of the exclusive *-oñ=loj-oñ* with two speaker features, the formalism must have two speaker features activated as per 18. Like for the binary feature analysis proposed, person (π) and number (#/INDV) nodes are separated, with an extra node for person.

(18)   Deriving the first person plural exclusive *oñ=loj-oñ*

Nodes:	[π]	[#/INDV]	[π]
Features:	PART	Group	PART
	|		|
	Speaker		Speaker
Vocab. insertion:	*-oñ*	*=la*	*-oñ*
Final form:	*-oñ*	*=loj*	*-oñ*

There needs to be a way to explicitly exclude the hearer from the featureal representation. However, a privative feature approach does not have a way of doing this. The absence of an [Addressee] node does not mean it is excluded from the meaning of the first person plural. Indeed English's 'we' pronoun is represented with the features in 17 but in some contexts it includes hearer and some it excludes the hearer. In 18, it is unclear how repeating two speaker features excludes the hearer: the absence of a feature does not mean it is necessarily excluded.

I conclude that the Ch'ol data necessitates an explicit exclusion of hearer in the exclusive form to account for its morphology and semantic distribution.

5   Implications & conclusion

In this paper, I recategorized the Ch'ol inclusive/exclusive distinction as a general first person plural and a specific first person exclusive. I have proposed an analysis for Ch'ol person features in a binary feature system. The exclusive form is derived from the general first person plural by adding [+participant,+speaker,–hearer] in an additional person node. No item in the Vocabulary matches these features exactly so via the Subset Principle, *oñ*, which contains a subset of the features ([+participant,+speaker]), is inserted. Speakers choose the form that is most informative for the situation. This can be accounted for by using Heim (1991)'s Maximize Presupposition.

This analysis has implications for theories of person. The binary feature [±hearer] departs from recent work on binary features that posits a privative hearer feature (Nevins 2007, Harbour 2007, 2016). Feature geometries, such as the one proposed by Harley & Ritter (2002), do not have a way to explicitly exclude the hearer. I argue that in order to

account for the more complex semantics and morphology of the exclusive in Ch'ol, there must be a binary hearer feature.

Recent research has also argued for the existence of a binary hearer feature (Watanabe 2013, Despić & Murray 2018). For instance, Watanabe (2013) gives evidence for [–hearer] in Fula (Niger-Congo) based on the split behavior of person morphemes with [+speaker] and [–hearer] values. In Fula, when the [–hearer] feature is necessary, like in first person plural exclusive and third person, the person marker is placed before the verb. Otherwise, the person marker comes after the verb. Though there is not a morpheme in Fula that spells out [–hearer], its presence is necessary in order to account for the distribution of morphemes, i.e. if they are prefixes or suffixes. The binary feature analysis argued for here seems to better capture the variety seen across the world's languages.

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