Partial Agreement in Pima

A thesis submitted in partial satisfaction
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Master of Arts in Linguistics

by

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The thesis of Marcus Smith is approved.

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University of California, Los Angeles
2002
To somebody, guess who
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Abstract of the Thesis

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This thesis is concerned with partial agreement, primarily in Pima, but in other languages as well.
1 Introduction

"Unfortunately, or luckily, no language is tyrannically consistent. All grammars leak."

Edward Sapir

In recent years, Chomsky (1995) has pushed the view that the computational system underlying human languages is "perfect" or "optimal". This view has led to proposals greatly reducing the mechanisms available in syntactic analyses. Among those proposed to be scrapped are government, the stipulations of X-Bar Theory, and the special status of the Specifier-Head relationship. He notes that these are eliminable to the extent that they are not empirically necessary. That is, they do not belong in an optimal system for conceptual reasons, but the reality of language form may force their inclusion. Their existence must be argued for, not assumed.

Sapir (1921) briefly addresses the issue of perfection in human grammar. His conclusion is summarized by the quote above. The empirical facts tell us that human languages are not perfect systems: they contain apparent exceptions and flaws, "leaks".

Some leaks are language specific. For example, English "who" is normally reserved for humans, but in most dialects it may be applied to inanimates in possessive relative clauses: the book, whose introduction was elegant.

Others are much more widely found, and as such, are more useful in the study of possible human grammars. One such widespread leak pertains to the interaction of agreement and conjunction. In most cases when a "target" agrees with a conjoined "controller", the form of agreement matches the entire conjunction in, say, person and number. For example, we expect that a subject like John
and I should trigger first person plural (exclusive) agreement on a verb. This expectation holds in general form for all categories and grammatical roles.

Though this form of agreement is the default for most natural languages, it is not the only pattern observed. Many languages allow for “partial agreement” structures, whereby the target only shows agreement with one conjunct.

One particular language that allows such structures is Pima. In this language, there are asymmetries in the agreement possibilities depending on whether conjoined controllers precede or follow the target. There are further asymmetries depending on whether the conjoined DP is the subject or object. After the evidence is unpacked, it points toward the need to have an operation like Agree which relates heads distant from each other in the tree, but also to recognize the importance of the specifier-head relationship.

2 A short guide to Pima

Pima is a member of the Pimic branch of Uto-Aztecan, and is closely related to the better studied language Tohono O’odham (formerly called Papago in the literature). The languages are similar enough that most analyses of one will be applicable to the other. Pima is spoken on the Salt River and Gila River Reservations near Phoenix, Arizona. My teacher, Mr. Virgil Lewis, is from the latter. Because of its location, Pima has had a fair amount of contact with Spanish and English. Neither language seems to have exhibited a strong influence on Pima, either syntactically or morphologically. The number of borrowed words is significant, but not really that large. Most borrowed items have been assimilated cleanly into the grammar, with a few exceptions like ball, which is pluralized with a final -s rather than the normal reduplication.
2.1 Aux-2 Effects

One of the most salient portions of Pima grammar is the existence of an “auxiliary” in clause second position. This auxiliary carries morphemes for subject agreement in person and number (though third person is inferred through the lack of other person marking) and modality. Also, the imperfective and perfective are marked here. Other aspectual properties of the sentence are marked by independent particles, words, or suffixes to the verb.

The clause initial position can be filled by almost any category of almost any grammatical role. Semantically, this position seems to be reserved for focused elements; for example, it is typically the location of a DP answering a wh-question. New information constituents also tend to show up in this position.¹

(1) 'E- 'o’ohanakud: ’o ’ab wua heg Eric.
   ANA- pencil AUX NR hold DET Eric
   ‘Eric is holding his pen.’

(2) Gegosdakud: daam ’o daha heg hua.
   table on AUX sit DET basket
   ‘The basket is sitting on the table.’

(3) Shonc ’a -n -t heg heñ- novi.
   hit AUX 1SG PF DET 1SG- finger
   ‘I hit my finger.’

In many sentences, especially in narratives, there are no elements appropriate for the first position. In such situations a few things may happen. In texts, these

¹Examples in this paper will be presented in the practical orthography of the UCLA Pima Group. The digraph d: represents [d], c is [tʃ], sh is [ʃ]and ŋ is [ŋ]. Sentences taken from authors that use a different orthography will be silently adapted to the present standard. The abbreviations used in this thesis can be found in Appendix A on page 60.
sentences usually begin with the inflectional portion of the auxiliary (boldfaced in 4), leaving the base vowel unpronounced.

(4) Giod:a pi 'am hu sha'i ha'icu 'e- ceegi. T 'am 'aba si 'i but no FR far bit something ANA- show PF FR ? very INCEP
kuupio heg vepgi -ga -j...
open DET power -POSS -3ARG
‘But there was nothing showing. He turned on the TV...’

(Lit. ‘But it wasn’t showing anything. He opened its power...’)

This also happens occasionally in elicited sentences, but a more common structure in such contexts, one that shall occur frequently in this paper, is for the auxiliary to be preceded by a complementizer, such as m, which criticizes onto the auxiliary.

(5) M- a -t t- shoiiika heg Jason c 'aani heg Rebecca.
C- AUX PF 1PL- hit DET Jason and 1SG DET Rebecca.
‘Rebecca slapped Jason and me.’

This auxiliary second effect is just part of a more general property of the language, whereby within particular sub-structures some unit can be identified as a “structural pivot” around which everything in that structure revolves. “Revolves” here is meant both metaphorically and somewhat literally. These structural pivots impose requirements on components of the structure according whether they precede or follow the pivot.

Besides the auxiliary, other structural pivots include postpositions and nouns with possessors or arguments. Each of these pivots has the common property that a DP that precedes it usually does not contain the default determiner heg, as discussed in section 2.2. Nouns have the further consequence that when their argument or possessor does not immediately precede them, a suffix -j is appended, as seen by comparing (6a) with (6b). The same suffix is added when a possessor
or argument is extracted from the DP.

(6) a. Vees hemajkam ’o s- hoohid heg Jeff je’e. all person AUX STAT- like DET Jeff mother ‘Everybody likes Jeff’s mother.’

b. Vees hemajkam ’o s- hoohid heg je’e -j heg Jeff. all person AUX STAT- like DET mother -3ARG DET Jeff ‘Everybody likes Jeff’s mother.’

2.2 The Default Determiner

The internal structure of determiner phrases is a complex issue which cannot be dealt with here in adequate depth, but one particular behavior is important for the discussion to follow. This is the behavior of the default determiner heg.

With a couple of exceptions, all DPs in Pima, including names and possessed NPs, must contain an overt determiner. Unsurprisingly, the demonstratives ’iida ‘this’ and hega’i ‘that’ count as determiners. Another relevant “determiner” is the word ge, which seems to mark a wide-scope indefinite, somewhat similar to English “a certain”.\(^2\) Whenever none of the words above are part of the DP, the default determiner heg is inserted.

There are two clear examples where heg is disallowed. When a DP that should contain heg is in a position immediately preceding a structural pivot, the determiner is missing. For example, a sentence initial DP will lack the determiner, as will the object of a postposition that occurs PP initially.

The other context is when an object DP immediately precedes the verb. An example can be seen in (7). This is also the only context in which an object forms

\(^2\)For discussion of this morpheme, see Shademan (2001), who argues this word is an existential. For discussion of its scopal behavior, see Tai (2001). It also acts as a contrastive focus marker, as discussed by Brown (2001).
a constituent with the verb to the exclusion of other material. This constituency
can be seen in (8), where the verb and its object have been fronted before the
auxiliary, a position restricted to constituents.

(7) Vapkial 'o kakavio ha-cecshaj.
PL,cowboy AUX:IMP PL,horse 3PL- PL,ride
‘Cowboys ride horses.’

(8) Kakavio ha-cecshaj 'o heg vapkial.
PL,horse 3PL- PL,ride AUX:IMP DET PL,cowboy
‘Cowboys ride horses.’

2.3 Word Order

The question of the underlying word order of Pima is difficult to answer, because
all orders of subject, verb, and object are observed in texts and elicitations.
The two most commonly observed orders are S-Aux-Verb-Object and Aux-Verb-
Subject-Object.

Despite the fact that a SOV order rarely surfaces, Hale maintained throughout
his career that Tohono O'odham (and by extension, Pima) is best characterized
as a head final language (Hale et al., 1977; Hale, 2000). Though this is far from
clear, there are good reasons to believe it is correct. In nearly every case where
there are restrictions on where a phrase must occur, it is almost always the case
that the head is final. As discussed by Munro (1989), most adpositions in the
language can precede or follow their complement, but there are a few so-called
“short postpositions” that may only follow the complement, as in (9a) versus
(9b).

(9) a. Hegi 'aabal 'o 'am daha hua c’ed:.
that apple AUX FR sit basket in
‘The apple is sitting in the basket.’
b.  *Hegi 'aabal 'o 'am daha c'ed: heg hua.
    that apple AUX FR sit in DET basket
    'The apple is sitting in the basket.'

In nominalization constructions, the object of the nominalized verb always precedes it, as shown here.

(10)  'iida heñ- tash 'eesigda 'a -t tod:s.
      this 1SG- watch theft AUX-PF surprising
      'The theft of my watch was surprising.'

Sentence fragments are very frequently given in head final orders, suggesting this ordering is somehow more basic. Fragments do occur in other orders, but this may be due to other factors, such as influence from the English used to elicit the fragments.

(11)  daak bij
      nose cross
      'cross the nose'

Another argument in favor of an underlying SOV order, taken from Hale, Jeanne, and Platero (1977), deals with the intonational contour of the Tohono O'odham sentence, which appears to be essentially the same as Pima (Brown, 2001). The main portion of the sentence, starting with the auxiliary and continuing through the verb, is one prosodic domain. Any element, be it argument or adjunct, within that span is a part of the domain. Each individual constituent following the verb (DP, PP, CP, etc.) forms a prosodic domain by itself. Hale et al. interpret this data by suggesting that post-verbal constituents have been rightward extrapolated. As with English, rightward extrapolation is accompanied by an intonational break. This evidence and interpretation fits well with the observation that constituency tests never identify the verb and post-verbal elements as a unit.

7
The last point is worth emphasizing. No constituency test identifies a verb and the post-verbal elements as a constituent to the exclusion of other material. Regardless of what the underlying order Pima is derived from, at the level of overt structure, post-verbal objects are not within the same minimal constituent as the verb. Pre-verbal objects lacking the default determiner heg do form a constituent with the verb, suggesting that the object-verb order is somehow more basic. Indeed, this preverbal position must be specifically designated for objects, because a noun in this position must be interpreted as an object, never a subject (12).

(12) Kakavio ’o vapkial ha- cechaj.
   PL, horse AUX:IMP PL, cowboy 3PL- PL, ride
   ‘Horses ride cowboys’
   *‘Cowboys ride horses.’

Are there arguments for believing the language to be VO? Perhaps. Functional heads, such as determiners and illocutionary markers, invariably precede their complements. If one believes all projections of a language to have a consistent ordering of head and complement, then evidence of this sort can be used to argue for a head-complement order.

A better interpretation, though, might be that lexical projections (V, N, P, A) are head final, while functional projections (C, D, T, Asp, Co, etc.) are head medial or head initial.

The typological evidence is even less clear, but seems to generally point toward Pima being SOV. Table 1 gives some commonly mentioned word order correlations and how Pima compares to the typological expectations. Out of twelve categories, Pima matches the OV typology seven times (the items in large type), but VO only four times (the items in small type). This is somewhat weak
evidence in support of a basic OV word order.\textsuperscript{3}

<table>
<thead>
<tr>
<th></th>
<th>OV</th>
<th>VO</th>
<th>Pima</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjectives</td>
<td>Adj-N</td>
<td>N-Adj</td>
<td>Adj-N</td>
</tr>
<tr>
<td>Demonstratives</td>
<td>Dem-N</td>
<td>N-Dem</td>
<td>Dem-N</td>
</tr>
<tr>
<td>Numerals</td>
<td>Num-N</td>
<td>N-Num</td>
<td>Num-N</td>
</tr>
<tr>
<td>Adpositions</td>
<td>postpositions</td>
<td>prepositions</td>
<td>postpositions$^*$</td>
</tr>
<tr>
<td>Genitives</td>
<td>Gen-N</td>
<td>N-Gen</td>
<td>Gen-N$^*$</td>
</tr>
<tr>
<td>Relative clauses</td>
<td>Rel-N</td>
<td>N-Rel</td>
<td>N-Rel$^*$</td>
</tr>
<tr>
<td>Relative pronouns</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Auxiliary</td>
<td>V-Aux</td>
<td>Aux-V</td>
<td>second position$^*$</td>
</tr>
<tr>
<td>Complement clause</td>
<td>CP-V</td>
<td>V-CP</td>
<td>V-CP$^*$</td>
</tr>
<tr>
<td>Adverbs</td>
<td>Adv-V</td>
<td>V-Adv</td>
<td>Adv-V$^*$</td>
</tr>
<tr>
<td>Illocutionary markers</td>
<td>S-M</td>
<td>M-S</td>
<td>M-S</td>
</tr>
<tr>
<td>Wh-movement</td>
<td>no</td>
<td>yes</td>
<td>yes$^*$</td>
</tr>
</tbody>
</table>

Table 1: Typological Characteristics

Kayne (1994), citing personal communication from Ken Hale, mentions that agreement with adpositions is more common in SOV than SVO languages.\textsuperscript{4} If this generalization is correct, then Pima once again patterns with the OV languages, since the object of a postposition triggers agreement in this language.

The conclusion on word order, then, is that if one is forced to choose just one basic word order type for Pima, OV is (marginally) the best choice. However, it

\textsuperscript{3}The asterisk (*) indicates that the entry allows for other possibilities, though the one listed is the most typical found.

\textsuperscript{4}Agreeing adpositions are also found in VSO languages.
is more realistic to say that Pima is a mixed word order type. Lexical projections take their complements to the left, while functional projections take their complements to the right.

3 Full and Partial Agreement

3.1 Subject Agreement

The second position auxiliary agrees with the subject of the sentence in person and number. The third person singular and plural do not show any morphological markings. A summary of the forms is give in table 2. These forms are the first morpheme in the auxiliary complex, followed immediately by aspect. There are some assimilatory changes that come into effect when aspect is considered: the first person singular -〈n becomes -n preceding the perfective -t, and the combination of the first person plural -c with the perfective yields a geminate dental -tt. In the imperfective with a third person subject, the auxiliary is pronounced as 'o.

<table>
<thead>
<tr>
<th></th>
<th>SING</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>-〈n</td>
<td>-c</td>
</tr>
<tr>
<td>2nd</td>
<td>-p</td>
<td>-m</td>
</tr>
<tr>
<td>3rd</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Subject Agreement

When subjects are coordinated, the typical case is for the auxiliary to agree with the entire conjunct. Agreement holds no matter where the subject is relative to the auxiliary. In (13) the subject is at the opposite end of the clause from the
auxiliary, but agreement has not been disrupted.

(13) M- a -c s- ha- hoohid heg gogogs 'aani c heg Eric. 
C- AUX -1P STAT- 3PL- like DET PL, dog 1S and DET Eric 
'Eric and I like dogs.'

3.1.1 Partial Subject Agreement

The curious fact is that when the subject is coordinated, agreement may be with 
either the entire coordinate structure or just the first conjunct. Examples of this 
can be seen in (14). In the first sentence, the auxiliary agrees with the entire 
conjunction. The second sentence is an example of unbalanced coordination, 
with the auxiliary agreeing with only the first conjunct.

(14) a. Eric c 'aani a -c pi maac heg hoa -t -a. 
   Eric and 1SG AUX -1PL not know DET basket -make -NOML 
   'Eric and I don’t know how to make baskets.'

b. Hoa -t -a 'a -ñ pi maac 'aani c heg Eric. 
   basket -make -NOML AUX -1SG not know 1SG and DET Eric 
   'Eric and I don’t know how to make baskets.'

Based on just these examples, one might hypothesize that the important factor 
for determining which conjunct to agree with was the person of the elements. 
That is, the first person agreement appears regardless of the order the conjuncts 
are in. We shall see shortly that person does play a role, but for now, we can 
show that the ordering of conjuncts is what matters most by examining (15). As 
in (14b), the auxiliary agrees with the first conjunct, in this case, a third person. 
For completeness, (16) shows that agreement with the entire coordinate phrase 
is possible when it is in a post-auxiliary position.

(15) N- o heg Eric c 'aani 'am ho hem- tamia? 
Q- AUX DET Eric and 1SG FR IRR 2SG- wait for
‘Should Eric and I wait for you?’

(16) N- a -tt ’aani c heg Eric ’am ho hem- tamia?
Q- AUX -1PL:PF 1SG and DET Eric FR IRR 2SG- wait.for
‘Should I and Eric wait for you?’

The word order in these cases of partial agreement is crucial. Partial agree-
ment is only possible when the coordinate structure follows the auxiliary, as seen
by the ungrammaticality of (17). Furthermore, the conjunct that triggers the
agreement must always be the initial one: agreement with the second conjunct
as in (18) is ungrammatical.

(17) *’aani c heg Eric ’a -n -t pi maac heg hoa -t -a.
1SG and DET Eric AUX -1SG -PF not know DET basket -make -NOML
‘Eric and I don’t know how to make baskets.’

(18) *N- a -p -t heg Eric o ’aapi heñ- ’ees heg heñ- kalit
Q- AUX -2SG -PF DET Eric or 2SG 1SG- steal DET 1SG- car
tako.
yesterday
‘Did Eric or you steal my car yesterday?’

One might also imagine the true generalization is that the auxiliary agrees
with the nearest conjunct. This also can be disconfirmed as the correct pattern.
Sentence (19) has the auxiliary agreeing with an adjacent conjunct that in the
pre-auxiliary position, but it is not acceptable.

(19) *Jason c ’aani ’a -n -t piasta gatcu hema ’i tomig.
Jason and 1SG AUX -1SG -PF party ? last.weekend
‘Jason and I went to a party last weekend.’

A post-auxiliary coordinate subject is capable of triggering agreement with
just the first conjunct even when there is intervening material. (20a) shows partial
agreement with a coordinated subject with an intervening verb and object. The
next example (20b) places the subject even further away, after a temporal adverb, with no apparent loss of acceptability.

(20)  

a. N- a  -p  -t  heĩ- ’ees  heg  heĩ- kalit  ’aapi  c  heg  Eric  
Q-  AUX  -2SG  -PF  1SG-  steal  DET  1SG-  car  2SG  and  DET  Eric  
tako.  
 yesterday  
 ‘Did Eric and you steal my car yesterday?’

b. N- a  -p  -t  heĩ- ’ees  heg  heĩ- kalit  tako  ’aapi  c  
Q-  AUX  -2SG  -PF  1SG-  steal  DET  1SG-  car  yesterday  2SG  and  
heg  Eric.  
 DET  Eric  
 ‘Did Eric and you steal my car yesterday?’

This is the point where the role of person enters the picture. While the 
previous two examples were acceptable, the following pair shows a contrast. It  
is possible to have partial agreement with an adjacent third person (21a), but  
intervening material causes degradation (21b).5

(21)  

a. N- a  -t  heg  Eric  c  ’aapi  heĩ- ’ees  heg  heĩ- kalit  
Q-  AUX  -PF  DET  Eric  and  2SG  1SG-  steal  DET  1SG-  car  
tako.  
yesterday  
 ‘Did Eric and you steal my car yesterday?’

b. ??N- a  -t  heĩ- ’ees  heg  heĩ- kalit  tako  heg  Eric  c  
Q-  AUX  -PF  1SG-  steal  DET  1SG-  car  yesterday  DET  Eric  and  
’aapi.  
 2SG  
 ‘Did Eric and you steal my car yesterday?’

5The judgment given for (21b) is an average over multiple sessions. Sometimes the example  
was judged as awkward but acceptable, but other times it was completely rejected. Whatever  
its exact status, there is a clear difference between this pair and the pair in (20).
Actually, we should be more cautious. Based on observations from English, we know that conjunctions and disjunctions can behave differently regarding agreement. For instance, compare the following sentences. The disjunction in (22a) permits singular agreement, while the conjunction requires plural: (22b) versus (22c).\(^\text{6}\)

\[(22)\]
\[\begin{align*}
\text{a.} & \quad \text{Either John or Mary is going to be late.} \\
\text{b.} & \quad \text{*John and Mary is going to be late.} \\
\text{c.} & \quad \text{John and Mary are going to be late.}
\end{align*}\]

We should compare conjunctions and disjunctions in Pima, then, to see if a similar pattern is observed. In fact, it is not. Post-auxiliary partial agreement is possible with both c ‘and’ and o ‘or’. In pre-auxiliary position, both types of coordinator still require agreement with the entire conjunct. One example can be seen above in (14), the other below in (23). The one below is particularly clear: the semantics of this sentence only allows for one individual to be waiting, yet the auxiliary still carries plural agreement.

\[(23)\]
\[
\begin{array}{ll}
\text{Eric} & \text{'aani 'a} -\text{tt} \quad \text{am ho hem- tamia, shaba 'a} -\text{tt} \\
\text{Eric or} & \text{1SG AUX -1PL:PF FR IRR 2SG- wait.for but AUX -1PL:PF} \\
\text{-p} & \text{MOD someone must UNCERT go(PF)} \\
\text{hi} & \text{ } \\
\text{gvo cum hii.} & \text{ } \\
\text{Mod someone must UNCERT go(PF)} & \text{ } \\
\end{array}
\]

‘Eric or I will wait for you, but one of us has to go now.’

\(^6\text{English has an extra complication when the conjuncts have different person values. For many speakers, including myself, (i) has the only possible form of agreement, but for others (ii) is preferred. I even found one person who preferred (iii). Everybody I have consulted finds every agreement possibility awkward at best. It seems as if the syntax of English does not have this possibility adequately covered.}

\[(i)\] \quad \text{? What if my brother or I are late?}
\[(ii)\] \quad \text{? What if my brother or I is late?}
\[(iii)\] \quad \text{? What if my brother or I am late?}
A formal treatment of subject agreement will be presented in section 8. Next we look at object agreement. The facts here are similar, though different in crucial ways.

3.2 Object Clitics

Pima has two sets of argument clitics that are used to indicate non-subjects, only one of which will concern us here. Generally speaking, these clitics are obligatory. This does not mean that the choice of which clitic to use is strictly specified: in some contexts there is room for choice.

These morphemes are classified as clitics for both phonological and syntactic reasons. Except in some loans and compounds, stress in Pima falls on the initial syllable. The presence of an argument proclitic does not cause the stress to shift, suggesting the proclitic is not part of the phonological word. Also, the language has a strict requirement that onsets consist of a single consonant (violated only in a couple of loan words), yet as table 3 below demonstrates, a clitic can consist of a single consonant, which would result in a complex onset if the clitic were actually a prefix. Thus, for phonological reasons, we do not want to consider these morphemes as affixal.\footnote{By these kinds of arguments, I am forced to conclude that the stative s- is also a clitic. See Jackson (2002) for discussion of this complicated issue.}

On the more syntactic side of the coin, clitics seem to attach at the phrasal rather than lexical level. This is difficult to see with verbs and postpositions, but can be seen in possession. The possessive clitic attaches itself to the first word following it, whether it is the possessed noun or an adjectival modifier. An example of the latter case can be seen in (24).
(24) John 'a -t gaged: a heg 'e- veepigkam kalit Jason wui.  
John AUX -PF sell DET ANA- first car Jason to. 
‘John sold his first car to Jason.’

3.2.1 Pronominal Clitics

The set of non-subject pronominal clitics is given in table 3. These are used used for non-anaphoric arguments.

<table>
<thead>
<tr>
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<th>SING</th>
<th>PL</th>
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<tbody>
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<td>2nd</td>
<td>hem-</td>
<td>em-</td>
</tr>
<tr>
<td>3rd</td>
<td></td>
<td>ha-</td>
</tr>
</tbody>
</table>

Table 3: Pronominal Clitics

These clitics are used to indicate the object of a transitive verb (25), the indirect object of a ditransitive verb (26), the object of a postposition (27), the argument of a noun (28), and the possessor of a noun (29). In general, these elements are not optional: if they can appear, they must. As can be seen in (27), these clitics occur with independent arguments, behaving like some type of agreement or clitic doubling.

(25) Ha- hahi 'a -n -t.  
  3PL- break(P,PF) AUX 1SG PF 
  ‘I broke them.’

(26) Eric 'a -t 'am hema t- maa heg napal.  
  Eric AUX -PF FR some 1PL- give(PF) DET prickly.pear 
  ‘Eric gave us a prickly pear.’

(27) Shabnam 'o 'am daha ha- shaagit heg Brook c heg Rebecca.  
  Shabnam AUX FR sit 3PL- between DET Brook and DET Rebecca
‘Shabnam is sitting between Brook and Rebecca.’

(28) Hem- pikcel 'a -t hema cee.
2SG- picture AUX -1SG -PF a find(PF)
‘I found a picture of you.’

(29) Viki 'a -t melckua heg heñ- kalit.
Viki AUX -PF run.into(PF) DET 1SG- car
‘Viki ran into my car.’

The lack of a third person singular clitic is worth commenting on. Since this is the only gap in the paradigm, one might suspect that the lack of an overt clitic might be sufficient evidence for the presence of a third person singular argument. This does not appear to be the case, however, as we shall see below.

The third plural ha- has some extra complications. Besides marking plurality, this clitic can also mark an “indefinite” or “non-specific” argument. This is very much like the indefinite use of “they” in English. It may occur in the normal range of clitic positions (30). Also, when triggered by a mass noun, ha- invokes a partitive interpretation, seen in (31).8 It is also the only clitic that seems to be optional (at least in some cases).

(30) Cee 'a -n -t heg ha- 'o’ohan.
find(PF) AUX -1SG -PF DET 3PL- book
‘I found someone’s book.’

(31) Shannon 'a -t 'am ha- toñi -c heg shuudagi.
Shannon AUX -PF FR 3PL- hot CAUSE(PF) DET water
‘Shannon boiled some water.’

I assume these clitics are generated as argument DPs and move to attach to the structure that selected them. When a full DP is associated with the clitic, the

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8For further complexities, see Munro (2001).
two were generated as a unit, but later separate. The structure looks something like tree (32) (linear order irrelevant).

\[
\text{(32)} \\
\begin{array}{c}
 \text{DP} \\
 \begin{array}{c}
 \text{DP} \\
 \text{D} \\
 \end{array} \\
 \mid \\
 \text{Noun} \\
 \text{clitic}
\end{array}
\]

When objects are coordinated, the clitic typically has the number and person features implied by the individual conjuncts, as one would naturally expect. In (33) the coordination 'aañi c Jason is associated with the first person plural clitic t- ‘1p’, and in (34) 'aapi c heg Brook ‘you and Brook’ is associated with the second person plural ’em- ‘2p’.

(33) Jason c 'aañi 'a -t si t- shoñikka heg Rebecca.
   Jason and 1SG AUX -PF very 1PL- hit DET Rebecca
   ‘Rebecca slapped me and Jason.’

(34) M- a -n -t ho ’em- 'oi 'aapi c heg Brook.
   C- AUX -1SG -PF IRR 2PL- follow(PF) 2SG and DET Brook
   ‘I will follow you and Brook.’

The connection between the clitic and coordinated structure is identical to that of a clitic and a singleton DP. The coordinated structure and clitic are generated together, the morphological features of the coordination determining the choice of clitic.

Though full agreement between the coordinated DP and the clitic is the norm, it is not the only possibility. As with subjects, object clitics can also agree with just one of the conjuncts in particular a context. In (35a) we see a situation where the object clitic only agrees with the first conjunct; another example of this is in (35b).
(35) a. N- a -p heñ- ñeid ’aañi c heg Eric tako?
   Q- AUX -2SG 1SG- see 1SG and DET Eric yesterday
   ‘Did you see me and Eric yesterday?’

   b. N- a -p ñeid heg Eric c ’aañi tako?
   Q- AUX -2SG see DET Eric and 1SG yesterday
   ‘Did you see Eric and me yesterday?’

Paralleling the behavior of subjects, verbs may only carry partial agreement with the object when the object is following (36). Also, agreement cannot be with the second conjunct (37). Significantly, (36) becomes much better when the order of conjuncts is reversed. In the order given, the sentence is instantly judged as ungrammatical, but with the opposite order, there is room for debate.

(36) * N- a -p ’aañi c heg Eric heñ- ñeid tako?
   Q- AUX -2SG 1SG and DET 1SG- see yesterday
   ‘Did you see Eric and me yesterday?’

(37) * N- a -p heñ- ñeid heg Eric c ’aañi tako?
   Q- AUX -2SG 1SG- see DET Eric and 1SG yesterday
   ‘Did you see Eric and me yesterday?’

This seems to be the extent of the similarities between subject and object partial agreement. We saw that with subjects, the coordinated phrase could be quite distant from the auxiliary. The same is not true for objects: partial agreement with objects requires strict adjacency. The best place to see this is with indirect objects. Since such arguments trigger agreement on the verb and their neutral position is to the right of the direct object, we might initially assume that partial agreement is possible with no other changes to the sentence. But this is not so; partial agreement with indirect objects requires strict adjacency.
When the object of a verb is a disjunction, the behavior of the object clitic is quite different from contexts with a simple object and subject disjunctions. Whereas in most sentences the argument of the verb forces a particular clitic to appear, this is not true of disjunctions. The typical situation is to not have a clitic at all, as in (39a). Intuitively this makes sense, even if it is not true of subjects. In this particular example, Alex is only taking one person, either the speaker or Jason. Inserting a plural morpheme corresponding with the object would seem to indicate that two people were going to be taken. Indeed, if you try to use a plural clitic in this context, the result is ungrammatical for exactly this reason (39b).

As with subjects, partial agreement shows up in Pima disjunctions. It is possible in these contexts for the clitic to agree with just the first conjunct (40). It does not seem to be possible for the clitic to agree with the second conjunct.
(40) Alex ‘a -t ho heĩ- bek ’aani o heg Jason.
Alex AUX -PF IRR 1SG- take 1SG or DET Jason
‘Alex will take me or Jason.’

3.3 Null Conjuncts

A surprising construction that Pima allows (though not unattested in other languages) is having a null pronoun in a conjunction. This is only permitted when the coordinate phrase immediately follows the verb, and the object clitic agrees with the first conjunct (41). Pronoun drop without agreement is impossible (42). Pronoun drop structures such as this are reported to be preferred over ones “repeating” an independent pronoun. A null conjunct in a subject coordinate phrase is impossible.

(41) N- a -p ’am heãn- ūeĩd c heg Eric tako?
Q- AUX -2SG FR 1SG- see and DET Eric yesterday
‘Did you see me and Eric yesterday?’

(42) *N- a -p ūeĩd heg Eric c tako?
Q- AUX -2SG see DET Eric and yesterday
‘Did you see Eric and me yesterday?’

Null pronouns in conjunctions are only freely available for first and second persons: a third person pronoun can only be dropped in a much more limited set of occurrences.\(^9\) Compare the above examples to (43) below. This sentence was presented outside of any context, and was judged as ungrammatical. (44), on the other hand, was volunteered. In this case, a null third person conjunct is acceptable.

\(^9\)Strictly speaking, there are no third person personal pronouns in Pima. This role is filled by the demonstrative pronouns.
(43)  *M- a  -n -t naam c  hev eenag aj.
       C-  AUX -1SG -PF meet  and DET sibling -3ARG
       'I met him and his brother.'

(44)  B- o kaij hev Brook m- a -sh hev Jason 'ab 'i vai c
       NR AUX say DET Brook C- AUX -EVID DET Jason NR INC invite and
       hev  Roger gegosig wui.
       DET Roger dinner  to
       'Brook said Jason invited her and Roger to dinner.'

In trying to analyze this person restriction, we can immediately rule out one
tempting possibility: it cannot be the case that a null pronoun must be licensed
by agreement. As we saw in (44), a null pronoun is possible even without any
agreement clitics. This claim actually needs a bit of defense: Noting that the
third person singular is the only part of the paradigm lacking an overt clitic,
one could claim that the lack of agreement is sufficient evidence for third person
singular agreement. As such, a bare stem could be just as capable of licensing a
null pronoun as one with a clitic. This would not solve the question of why (43)
was judged ungrammatical. Also, the claim would not be correct anyway. The
third person singular is not the only context in which a bare stem occurs. As
shown above, a bare stem also co-occurs with disjunctions. Thus, a bare stem
alone is not unambiguous as to the person or number of an argument.

The correct solution, I suggest, is in fact related to the informativeness of
the object clitic: Null pronouns are restricted to contexts where their reference
can be easily identified from the context. Such a requirement along with the
structure of the clitic system will force some of the results seen here. A first
or second person pronoun can be null if triggering agreement, because for these
persons, agreement is just as informative as an independent pronoun. If a verb is
inflected for first person singular, for example, an additional first person singular

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independent pronoun will not add any more information to the sentence about the referent. The same is not true with a third person. Even if one can determine that a null pronoun is third person, that does not imply the ability to determine which third person is indicated. If the person has already been mentioned within the discourse, then a null pronoun is possible, as in (44) above.

Clearly, such a principle cannot explain why the second conjunct cannot be null. If a participant has been established in the discourse, then the referent of a null pronoun should be equally recoverable in either conjunct. We will return to this point below in section 7.

4 Partial Agreement or Ellipsis?

We should consider the possibility that what is going on here is not partial agreement, but ellipsis. Sentence (35a), repeated here as (45a), would be more accurately translated as (45b). Even more plausibly, (41), repeated here as (46a), would be translated as (46b).

(45) a. N- a -p heñ- ñeid 'aañi c heg Eric tako? 
Q- AUX -2SG 1SG- see 1SG and DET Eric yesterday 
‘Did you see me and Eric yesterday?’

b. ‘Did you see me and (did you see) Eric yesterday?’

(46) a. N- a -p 'am heñ- ñeid c heg Eric tako? 
Q- AUX -2SG PR 1SG- see and DET Eric yesterday 
‘Did you see me and Eric yesterday?’

b. ‘Did you see me and (did you see) Eric yesterday?’

There are reasons to doubt such an analysis, one of the strongest being that partial agreement sentences are not interpreted like ellipsis. In particular, cases of ellipsis are interpreted as if two similar events have occurred, but cases of non-
ellipsis (involving partial agreement or otherwise) are interpreted with one event. As illustration, compare the following sentences. In the first case (47), there is a simple (though plural) indirect argument, and the sentence is interpreted as involving one event of basket giving; there is a total of one basket involved in the event described. The second case (48) is interpreted in the same manner, but with the plural indirect object replaced with a conjoined expression. Once again only one basket is involved. The last case (49) is a case of ellipsis, as can be seen by the adverb 'eep 'too', and is interpreted as involving two baskets.

(47) M- a -n -t hema ha- maa heg heñ- jeej heg hoa.
C- AUX -1S -PF some 3PL- give(PF) DET 1SG- PL,mother DET basket.
'I gave my parents a basket.' (1 basket total)

(48) M- a -n -t hema maa heg hoa heg heñ- je'e c heg
C- AUX -1S -PF some give(pf) DET basket DET 1SG- mother and DET
heñ- 'ok.
1SG- father
'I gave my mother and father a basket.' (1 basket total)

(49) M- a -n -t hema maa heg hoa heg heñ- je'e c heg
C- AUX -1S -PF some give(pf) DET basket DET 1SG- mother and DET
heñ- ok 'eep.
1SG- father also
'I gave my mother a basket, and my father too.' (2 baskets total)

With this background, consider the following cases. The first (50a) is an example of ellipsis, as shown by the adverb 'eep 'too', and it is interpreted as two events of car giving; there are two cars total involved. The second example (50b) involves simple coordination with partial agreement. The sentence is interpreted as involving only a single car.
(50) a. Eric 'a -t hema heñ- maa heg kalit c heg Heriberto
Eric AUX -PF a 1SG- give(PF) DET car and DET Heriberto
‘eep.
also
‘Eric gave me a car, and Heriberto too.’ (2 cars total)

b. Eric 'a -t hema heñ- maa c heg Heriberto heg kalit.
Eric AUX -PF a 1SG- give(PF) and DET Heriberto DET car
‘Eric gave me and Heriberto a car.’ (1 car total)

Another piece of evidence involves coreference with conjoined subjects. In
(51) below, the conjoined subject triggers partial agreement, and the possessor of
the object is a first person plural. There are two interpretations for this sentence,
one in which both subjects like both mothers, the other in which each of the
subjects likes his own mother. This second interpretation is incompatible with
an ellipsis account, since a plural possessor cannot corefer with a singular subject.
If plural possessors could corefer with singular subjects, then sentences like (52)
would be grammatical.

(51) M- a -ñ 'aañi c heg Eric pik elid heg t- jeej.
C- AUX -1SG 1SG and DET Eric love DET 1PL- PL,mother
‘Eric and I like our mothers.’

(52) *I like our mothers and Eric likes our mothers.

(meaning: ‘I like my mother and Eric likes his mother.’)

Another piece of evidence is that ellipsis and partial agreement can be audibly
distinguished. There is a substantial pause between the clauses with ellipsis. A
pilot study into the prosody of Pima sentence was conducted where Mr. Lewis
was recorded saying several sentences. In the recordings, sentence (53a) involv-
ing ellipsis had a 619 millisecond pause between the verb and the conjunct. A
parallel partial agreement case (53b) only had a 172 millisecond pause before
the conjunction. For comparative purposes, a sentence with a simple object had a pause of 121 ms. between the verb and its object. Furthermore, Mr. Lewis stated that (53a) should be written with a comma, but he made no such claim about (53b). This study is clearly too small to be significant, but the evidence is suggestive.\footnote{The results of this study are presented in Appendix B.}

(53) a. Hegái ’oks ’a -t heñ- koom, c heg Jason ’eep.
   that woman AUX-PF 1SG- hug and DET Jason also
   ‘That woman hugged me, and Jason too.’

   b. Hegái ’oks ’a -t heñ- koom c heg Jason.
   that woman AUX-PF 1SG- hug and DET Jason
   ‘That woman hugged me and Jason.’

   Based on this collection of evidence, I conclude that these sentences do not involve ellipsis.

5 The Syntax of Coordination

I assume, following work such as Johannessen (1998), Munn (1993), and Kayne (1994), that coordinate structures conform to some version of X-bar Theory, where the coordinator itself acts as the head of a subtree. More specifically, I will assume something like Bare Phrase Structure (Chomsky, 1995): All sentential structure is derived by taking two subtrees and merging them together to project a phrase. The coordinator is introduced into the syntax as any other element is; thus there are no specific coordinate structure operations or constraints.

There are two well-motivated structures that could be adopted: the Coordinate Phrase (CoP) proposal by Johannessen (1998) and the Boolean Phrase (BP) proposal by Munn (1993). Both have positive features the other lacks, and
the majority of what will be said below can be made compatible with either approach. Ultimately, I will adopt the BP structure, but that is only because it fits a particular aspect of Pima syntax better than the CoP approach.

Regardless of which approach is taken, some basic assumptions about features and how they interact are necessary. The features of the maximal projection containing both conjuncts and the coordinator are derived by unifying the features of the individual conjuncts. For example, a coordinator like English *and* can indicate that multiple individuals are involved in the event, so the features of an expression such as *you and I* will be the result of unifying the features of the individual pronouns. The pronoun *you* has the features <- speaker, - addressee, 1 number>, *I* has the features <+ speaker, - addressee, 1 number>, and the conjunction *and* is unspecified for any of these features. These feature complexes get unified to <+ speaker, + addressee, 2 number>, the first person plural (inclusive).\(^{11}\)

Of course, not all coordinators unify alike. For instance, we saw in section 3.2.1 that in Pima object disjunctions typically do not trigger agreement on the verb. The disjunction *'aani o 'aapi* ‘me or you’ results in a structure that does not have the features of either conjunct. Exactly what feature complex the CoP would have is uncertain: perhaps all features will have unmarked values, e.g., the third person singular <- speaker, - addressee, 1 number>. Alternatively, perhaps

\(^{11}\)Number is not treated as a binary feature because of languages that have distinct forms for duals and triads. The maximum limit on contrasting numbers appears to be five, a number not elegantly reachable through a set of independent binary distinctions. Even more difficult in a binary feature system are paradigms like in Rembarrnga, where the suffix -*barrah* attaches to stems to mark a number one greater than the logical minimum for that stem (e.g., a first person plural exclusive stem becomes a dual, but a first person plural inclusive stem becomes a trial). See Corbett (2000) for discussion of these facts.
all the features remain unspecified, and there is no matching clitic form available.

Besides the way in which coordinators unify their conjuncts, many will also specify idiosyncratic selectional and semantic requirements. While English *and* and Pima *(k)c ‘and’ can coordinate just about any category (DP, TP, PP, etc.), conjunctions in many other languages are specific as to what kind of category they can select. Japanese *shi ‘and’, for instance, can only coordinate predicates, Chinese *hé ‘and’ cannot coordinate clauses (Po-Ching and Rimmington, 1997), and Slave *chu ‘and’ only coordinates DPs (Rice, 1989). On the semantic side, Slave *hq ‘and’ requires the number of individuals in the conjunction to total two, and Pima *ku- ‘and’ requires the conjoined sentences to have different subjects.

A distinction found in some languages is for there to be a lexical difference between conjunctions where one implies that the two (or more) conjuncts are involved as a unit (the “comitative conjunction”), but another implies that the two (or more) conjuncts are involved independently (the “separative conjunction”). One example of this is between *hé ‘and’ and *w’ila ‘and’ in Slave.12 The former, seen in (54a), requires the two participants to be involved as a unit, the other (54b) requires them to be separate.

(54)  

a. léht’ée hé tuwele hé yi?á.  
bread and soup and 1SG.ate  
‘I ate soup and bread (together).’

b. léht’ée w’ila tuwele w’ila yi?á.  
bread and soup and 1SG.ate  
‘I ate soup and bread (separately).’

Press (1975) discusses this in more depth for Chemehuevi. This language (distantly related to Pima) has two DP conjunctions, -*gajaa* and -*wai*. *Gajaa* is

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12The forms given here are specific to the Hare dialect. See Rice (1989) for discussion.
a separative conjunction, as shown by the ungrammaticality of (55a). Using the other conjunction does allow a comitative interpretation (55b). The conjunction *wai* also serves as the comitative postposition, though there is good reason to believe that the conjunctive use is distinct: for example, two DPs conjoined with this element may be modified with the quantifier *wahajugaisu* ‘both’ (56).

(55)  

a.  *John Anni -gaja na- gumaru -mpi -?im*  
John Ann -too ANA- marry -PAST -PL  
‘John and Ann married (each other).’

b.  John Anni -wa na- gumaru -mpi -?im*  
John Ann -with ANA- marry -PAST -PL  
‘John and Ann married (each other).’

(56)  

*Wahajugaisu -?um Ann John -wa nukwi -vii -m.*  
both -3PL Ann John -with run -PAST -PL  
‘Both Ann and John were running.’

Evidence such as this suggests that conjunctions select for specific properties of their individual conjuncts, and impose semantic interpretations on the coordinated expression. These are properties typically associated with heads, and this is the status that will be assumed from them here. The question that arises is exactly what these coordinated structures look like.

Johannessen argues for a structure where the conjuncts occur as complement and specifier of the Coordinate Phrase (CoP). Under this approach, the features of the complement are combined with the coordinator to give the features of the Co’, and then the specifier is included, giving the features of the CoP. Thus, coordinators select arguments just as any other head might.
Munn argues, instead, that a Boolean Phrase (BP) consisting of the coordinator and its complement are adjoined to the other conjunct, as depicted in (58). The combination of features is pretty much the same in this approach, at least in terms of the features found at each node in the tree. The major difference lies in that the BP will have an adjunct-like status for syntactic operations.

In most respects, these two theories make compatible predictions, and some points that may seem to favor one over the other quickly dissolve under closer scrutiny. For example, Munn’s proposal seems to account naturally for the fact that coordinated expressions have the same distribution as that of the individual conjuncts. Since the BP is adjoined to the first conjunct, the categorial status of the entire expression is determined by the conjunct and selectional requirements fall out cleanly. Johannessen must give an explanation of how selection works through the CoP node. This is simply achieved through passing categorial
features to the coordinator.\textsuperscript{13}

This kind of category feature passing is empirically required, as can be seen in Hopi. In this language, a DP coordinator is inflected for case along with its conjuncts. In (59) the conjunction is in the default form, but in (60) the conjunction is marked as accusative. If we accept the standard assumption that case is a property of nominal categories, the coordinator must contain some nominal feature. Such a feature could only be inherited from one or both of the conjuncts, since the coordinator itself does not appear nominal.

(59) pam taaqa nöq pam wiiti wini -wta.
that man and that woman stand -DUR
‘That man and woman are standing.’ (Langacker, 1977, p. 163)

(60) ni’ pooko -t nit mossa -t tiwa.
I dog -ACC and(ACC) cat -ACC find
‘I found a dog and a cat’ (ibid.)

What makes both proposals relevant for the current discussion is that they try to account for asymmetries found in coordinate structures, such as partial agreement and unlike category coordination. Many examples of the former were illustrated above for Pima, the latter appear in English in examples like (61), which involves the coordination of an adjective and a prepositional phrase. Both accounts build off the intuition that only one conjunct in asymmetrical cases are truly interacting with the remainder of the clause, any other conjunct(s) is “isolated” in some sense.

(61) John is sick and in a foul mood. (Munn, 1993, p. 117)

In Munn’s adjoined BP proposal, asymmetries are derived from the fact that

\textsuperscript{13}Johannessen does not solve the problem in this way. She proposes a generalized transformation Coordinate $a$ that applies after selection has taken place.
the coordinator and its complement are adjoined to the first conjunct. Since the BP is not directly selected for, asymmetries are expected, and indeed are found. All conjuncts except the first are “isolated” by the fact that they are in adjunct islands. The real technical problem is explaining why the asymmetries aren’t even more pronounced, why it is not possible to simply coordinate any two categories. This is an important issue, which Munn addresses at length, but is not of immediate importance here.

Johannessen’s CoP approach accounts for the same problems by invoking the special status of the specifier-head relationship. The features of the complement cannot be realized on the CoP, because the complement is never is a specifier position. This approach actually takes too strong a position, because conjuncts are not usually completely isolated from the rest of the clause, only certain aspects of them are. In the French example in (62), the coordinated subject triggers third person plural agreement, despite the fact that one conjunct is first person.

(62) comme l’- ont montré Ferdinand Brunot et moi-même
as it- have(3PL) shown Ferdinand Brunot and myself
‘as Ferdinand Brunot and myself have shown’ (Corbett, 1983a, p. 183)

The CoP theory does make a very interesting prediction, though, which seems to be generally correct.\textsuperscript{14} The prediction is that the isolated conjuncts are those which stand in the same linear order to the coordinator as the object to the verb. That is, if a language is head final, the conjunct that does not participate in agreement should be immediately before the coordinator. Johannessen (1998) gives data from roughly thirty languages to support this generalization.

There is one major fact that dampens this positive result. The same data that supports the linear order prediction also suggests that in many head-final

\textsuperscript{14}But see section 9.2 for an alternative interpretation of the data.
languages, the specifier of CoP is rightward, because it is the rightmost conjunct that triggers agreement. This holds despite the fact that in most (or all) of these languages, other specifiers appear to be leftward. The Latin sentence in (63) shows agreement holding between a verb and the last conjunct. Under the CoP analysis, this last conjunct would have to be the specifier.¹⁵

(63) Populi provinciae -que liberatae
people(MASC.PL.NOM) province(FEM.PL.NOM) -and liberated(FEM.PL)
sunt.
be(3PL)
‘The people and provinces are liberated.’ (Johannessen, 1998, p. 30)

In the following sections, I will present Pima specific evidence in support of the BP analysis of coordination. Before that, however, I will present a piece of evidence in its favor from a more universal perspective.

Many languages, including English and Pima, allow for complex coordinate structures with multiple conjuncts, but only a single coordinator, e.g., Tom, Dick, Harry, and Fred. In the CoP approach, we are required to stipulate that there is a covert coordinator between each conjunct, and that some principle tells which ones can be deleted and which ones cannot. The BP adjunction analysis does not make such a requirement. All one need do is adjoin successive conjuncts to the BP as specifiers are adjuncts, as in (64), taken from (Munn, 1993, p. 24). There is no reason, then, to posit the existence of null heads here, bringing the surface and abstract structures closer together.

¹⁵The order of provinciae ‘provinces’ and -que ‘and’ is not an argument against rightward specifiers, because the coordinator is an enclitic that attaches to the first stressed word in the second conjunct.
6 Object Partial Agreement

In section 3.2.1 I suggested that pronominal clitics are base generated as a unit with their associated DP and subsequent syntactic operations separate them. When the associated DP is coordinated, the plural clitic must be combined with the entire conjoined structure. For the string ‘’aañi c heg Eric ‘me and Eric’ and the clitic t- ‘1pl’, this would give either a BP structure like (65) or a CoP structure like (66).

(65)

(66)

34
The interesting differences between the two proposals come into effect when we consider partial agreement contexts, such (67). Here the clitic is associated with just the first conjunct.

(67) N- a -p heñ- ñeid ’aañi c heg Eric tako?
Q- AUX -2SG 1SG- see 1SG and DET Eric yesterday
‘Did you see me and Eric yesterday?’

Both approaches are capable of handling this. The BP analysis allows for ambiguity in where the clitic and BP attach. In addition to the structure above in (65), (68) is possible. In this configuration, the clitic is associated with the first conjunct, and the BP is adjoined to the entire clitic-DP structure. This structure would only permit the clitic to have common features with the first conjunct, never the second.

(68)
The CoP analysis would claim the exact same structural configuration as in (66), with just a difference in what features are realized in the CoP. In the full agreement context, the CoP has the features of all the conjunctions, but in the partial agreement case, only the specifier's features are realized.

An important difference lies in how the clitic can interact with the rest of the sentence in these two cases. In the CoP approach, full and partial agreement contexts should have identical syntactic properties. This is not true of Pima, because partial agreement can only occur in post-verbal positions, and cannot be separated from the verb. Given that non-conjoined arguments have no such restrictions, this is an unexpected result.

The BP analysis predicts that such structures cause difficulties. It is well-established that extraction from just one conjunction typically results in an ungrammatical utterance due to the Coordinate Structure Constraint. Munn argues that the CSC is a semantic condition, rather than a syntactic one. Intuitively, the CSC holds because an extracted element would be interpreted as trying to bind a trace in each conjunct. Thus, the BP analysis makes predictions that appear to be too strict.

But what if the clitic could be adjacent to the verb without extraction? The pronominal clitics are phonologically dependent elements. It is therefore conceivable that clitics are moved to pre-verbal position by phonological means, rather than with purely syntactic movement. To solve the problem of a stranded unstressed morpheme, the phonological component applies what is essentially a word level metathesis, inverting the phonological order of clitic and verb.

\footnote{See Fitzgerald (1994) for arguments that some aspects of Tohono O'odham word order are driven by constraints on stress and prosody.}
The syntactic structure of (67), then, would be as in (69), but at PF the order of verb and clitic have been reversed.

![Diagram of syntactic structure]

This analysis is capable of deriving the properties of object partial agreement. The adjacency of verb and coordinate structure is forced, because if the coordinate structures were elsewhere in the sentence, the word level metathesis would not be possible (or at least would more difficult to execute), and the clitic would be left unsupported. Since the clitic is combined with the first conjunct, this derives the fact that the coordinate structure must be to the right of the verb, any other possibility would separate the verb and clitic too much.

This last point needs some defense. If the clitic can be associated with the first conjunct, why not the second one instead? The clitic could be generated inside the adjoined BP and be phonologically moved from there to the verb. Under the simple word inversion approach above, this would predict partial agreement with the second conjunct to be possible when the coordinate structure is immediately before the verb.

The clitic on the verb is always associated with an argument that was selected by the verb. In the BP system, the verb selects for the DP headed by the first conjunct. Since the second conjunct is part of the BP, base generating the clitic
there would not conform to typical clause construction. Under the intuition that the coordinator and second conjunct are less integral to the sentence, generating a required component in the second conjunct seems out of place.

Returning to the CoP system, the question that arises is why we couldn’t apply a similar approach. The clitic would be generated inside the first conjunct, which is the specifier of CoP, giving a structure like (70).

(70)  
\[
\begin{array}{c}
\text{XP} \\
\text{VP} & \text{CoP} \\
\text{ïheid} & \text{DP} & \text{Co'} \\
\text{D} & \text{DP} & \text{C} & \text{DP} \\
\text{heñ} & \text{'aañi} & \text{c} & \text{heg Eric} \\
\end{array}
\]

One drawback of this approach is that both the specifier and complement of CoP are equally related to the verb. That is, both are related to it through the mediation of the coordinator. There is no natural way to exclude the clitic from being base generated inside the second conjunct. As such, it should be possible to have partial agreement with the second conjunct when the coordinate structure precedes the verb, but this does not happen.

Evidence such as this suggests that the BP adjunction analysis is correct. Further evidence for this conclusion will be presented in what follows. Before moving to partial subject agreement, the analysis of null conjuncts should be addressed.
7 Null Conjunets

With the mechanisms provided so far, we are in a position to explain some of the crucial features of null conjuncts in Pima. Recall that a null conjunct is only possible when the verb of the sentence has an agreement form compatible with the missing conjunct. Also, the missing conjunct must be the first conjunct. These points can be seen again by comparing (71a) with (71b).

(71) a. N- a -p ʾam heñ- ñeid c heg Eric tako?
Q- AUX -2SG FR 1SG- see and DET Eric yesterday
‘Did you see me and Eric yesterday?’

b. *N- a -p ñeid heg Eric c tako?
Q- AUX -2SG see DET Eric and yesterday
‘Did you see Eric and me yesterday?’

These traits are exactly what we would expect, given the BP adjunction analysis given above. The clitic is generated in association with the DP head of the coordinator. The associated independent pronoun can be null, exactly as would be expected in a non-conjoined structure. Furthermore, the clitic could not be associated with the second conjunct for the reason seen above.

The ability to zero pronominalize an argument is a typical feature of Pima, rarely restricted by other parts of the grammar. The fact that this is restricted in coordinate structures is a little bit unusual. But this is certainly the pattern we have been seeing throughout this investigation: in unbalanced coordination, the complement of BP can be “missed” by the regular syntax in ways not possible with simpler structures. Thus, the restriction against a null conjunct in the complement of BP fits into the observed pattern with little problem.

Our analysis makes the prediction that there could be languages that allow null conjuncts in full agreement contexts. If the clitic or agreement morphology
is associated with the highest DP projection, then we should not see the sort of asymmetry found in Pima. This prediction seems to be true, to some extent.

The Athabaskan language Slave allows the possibility of a null pronominal conjunct when the verb or postposition shows the proper agreement. The three examples below exhibit this fact with a subject (72), an indirect object (73), and the object of an incorporated postposition (74). Note that unlike Pima, the agreement in Slave is with the entire conjoined phrase, not just the missing conjunct.\(^\text{17}\)

(72) Sam chu ná?ethíndí  gha.
Sam and 1PL.bring,UNSP.OBJ FUT
‘Sam and I will bring it.’

(73) Ann hé  juice naxeghá?edidí.
Ann and juice 2SG.give,UNSP.OBJ.1PL
‘You give Ann and me juice.’

(74) ?amá  Carol hq  deshi?ee raxegha ráyéhdí.
mother Carol and shoe  1PL.for 3.bought
‘My mother bought shoes for Carol and me.’

Slave does not have partial agreement; thus, the features of the null conjunct are available to the larger syntactic structure. In structural terms, agreement seems to hold with the highest DP node. Since the verb or postposition registers the features through agreement with the entire conjunction, the null conjunct is licit.

\(^{17}\)Rice notes that the conjunctions themselves are frequently optional; i.e., it is possible for coordination to be represented by the juxtaposition of two phrases. No data is presented to show whether conjunctions are still optional with a null pronoun. If so, then this may be a source of agreement mismatches frequently found in “non-configurational” languages. But see Jelinek (1984) and Baker (1996) for alternative explanations.
Another language like Slave is Old Irish. Thurneysen (1998) reports that when a plural “concept” consisting of a known and an unknown DP appears, the known singular pronoun may be omitted. Two examples of this can be seen in (75) and (76).

(75) comrac duib ocus Chú-Chulainn
    encounter between (2PL) and Ch’u-Chulaínn(NOM)
    ‘an encounter between you (sg) and Chú-Chulainn’ (Thurneysen, 1998, p. 156)

(76) con-ráncatar ocus Dubthach
    met (3PL) and Dubthach(NOM)
    ‘They met, he and Dubthach’ (Thurneysen, 1998, p. 251)

This characterization of Old Irish corresponds quite nicely with the suggestion for Pima that null conjuncts are only possible when information on the identity of the null conjunct can be recovered by other means. Furthermore, in all the Old Irish cases, the conjunct that is null always appears to be the first one, though it is possible that this is an accident of the examples Thurneysen presents. It is also interesting to note that in these contexts, the second conjunct is virtually always nominative, regardless of what the case should be by standard assumptions of case assignment. This supports the claim that the second conjunct is somehow separate from the rest of the sentence.

The situation in Modern Irish has changed somewhat, though null conjuncts are still possible. As discussed by McCloskey and Hale (1984), when a verb shows agreement, a corresponding independent pronoun is impossible. With coordinated structures, this can result in a sentence where the first conjunct of the coordinate structure is missing. Unlike Old Irish, the agreement found on the verb only matches the features of the missing conjunct, not the entire conjunction. Furthermore, this behavior disappears from prepositional phrases. Thus,
while Old Irish was similar to Slave, Modern Irish is more similar to Pima.

(77)  Chaithfinn -se agus mo chuid fear muscailt.  
must(COND:1SG) -CONTR and my share men wake.up(NON.FIN)  
‘I and my men would have to wake up.’ (McCloskey and Hale, 1984, p. 501)

The question that arises is why some languages allow null conjuncts with full agreement and why others require partial agreement for null conjuncts. Unfortunately, no explanation will be presented here, and null conjuncts will have to be stipulated as one of the idiosyncrasies languages can exhibit. The picture is not completely bleak, however, as it is possible to narrow the search for possible explanations from the data seen here.

All four languages above (counting Old and Modern Irish separately) allow null conjuncts in positions where agreement of some sort is triggered. Null conjuncts are not allowed in contexts where agreement is not involved. Of course, the presence of agreement alone is not sufficient for null conjuncts, as can be seen by the fact that Pima subjects do not participate in these constructions. Also, the Modern Irish prepositions are inflectionally richer than the verb, yet they do not participate either.

A theory of some sort of pronoun incorporation would not be appropriate either. Such a theory would make some sort of claim whereby the missing conjunct has moved out of the coordinated phrase and adjoined to the agreeing head. The Slave facts show that this cannot be a universal analysis, because the agreement found is plural even when only two individuals are involved, as in (74). (Recall that the coordinator *h* requires the entire conjunction to be a dual.) There is no place within the conjunct that such a plural pronoun could originate from. The same is true of Old Irish.
But perhaps the proper theory of null conjuncts should be different for languages like Slave and Old Irish on the one hand and Pima and Modern Irish on the other; after all, they do follow different patterns. McCloskey and Hale argue at length that having pro as the null conjunct is a preferable analysis based on some specific facts of Irish, including the distribution of certain reflexive and contrastive morphemes relative to pronouns. Data like that is very language particular and cannot be generalized well. But they also observe, as is also true for Pima, that the language does not otherwise permit asymmetric movement out of coordinated expressions.

The ultimate answer is likely to depend on the history of each individual language. The important point is the correlation between the agreement pattern involved with null conjuncts and their connection with the partial agreement theory advanced here.

8 A Formal Treatment of Subject Agreement

8.1 Aoun, Benmamoun, and Sportiche

Aoun, Benmamoun, and Sportiche (1994) discuss partial agreement facts in three varieties of Arabic. In a pattern similar to Pima, these Arabic dialects permit partial agreement with the first conjunct of a post-verbal coordinated subject. In (78), the verb agrees with just the first conjunct.

(78) Gatal  ?el- walad we- l- banaat ?el- bisse.
      killed(3sg.masc) the- boy and- the- girls the- cat
      ‘The girls and the boy killed the cat.’ (van Oirschot, 1987, p. 232)

The main point of interest concerning Arabic here is the fact that partial agreement does not allow cooccurring comitative markers. We see in (79a) that a
comitative adverb is possible with full agreement, but in (79b) partial agreement is incompatible with the adverb sawa ‘together’.

(79) a. Raacrho Kariim w Marwaan sawa.
    left.PL Kareem and Marwaan together
    ‘Kareem and Marwaan left together.’

    left.3MSG Kareem and Marwaan together
    ‘Kareem and Marwaan left together.’

Since partial agreement sentences disallow elements indicating cohesion between the subjects, Aoun et al. suggest that such sentences are the result of sentential coordination. Quantifiers and comitative expressions would then be ruled out for the same reason they are disallowed in sentences with a singular subject. The basic idea behind the proposal is that the sentences are coordinated above the verb, then some kind of Across-the-Board processes (e.g., Right Node Raising, ellipsis, etc.) apply to remove repeated constituents. Each sentence has its own verb which agrees with its subject, but after the ATB process takes effect, only the verb associated with the first conjunct remains.

In section 4 we saw reasons to believe that partial agreement is not the result of ellipsis, at least in Pima. The cross-linguistic evidence also points against such an analysis. There are languages, as discussed above, with a morphological distinction between separative and comitative conjunctions, such as Slave and Chemehuevi. Notice that in the Chemehuevi example in (80), the verb shows plural agreement despite the fact that it is a separative conjunction. A sentential coordination analysis of Chemehuevi is unlikely, because it would leave the plural morphology on the verb unexplained.

(80) John aipaci -gaja na- gukwi -vi -?im.
    John boy -too ANA- shoot -PAST -PL
‘John and the boy shot themselves (* each other)’ (Press, 1975, p. 164)

Since languages can behave semantically like Arabic without showing the same agreement pattern, it does not seem to be possible to reduce one pattern to the other, unless it is stipulated to be a language particular fact.

If one considers partial agreement to be a specific type of unbalanced coordination (as Johannessen does), then arguments from unbalanced case assignment also refute the sentential coordination proposal. Consider, for instance, the following sentence from Old Irish (81). The first conjunct is correctly marked as accusative, but the other two are marked as nominative. There is no conjunction of sentences that would permit Across-the-Board operations and yield this case marking pattern.

(81) rí do-rigni aéar n-úar ocus tene réil rorúad ocus king has.made air cold(ACC) and fire clear very.red(NOM) and talam bladmar brass earth glorious great(NOM)

‘The King has made the cold air, and the clear red fire, and the glorious great earth.’ (Kiparsky, 1968, p. 54)

Ellipsis and ATB processes, therefore, cannot be the universal explanation for partial agreement, or unbalanced coordination more generally.

Munn (1993), in a vein similar to what is to come for Pima, suggests that partial agreement in Arabic is the result of head-government. A post-verbal conjoined subject is in a governed position, and government specifically targets the head of the conjunction, i.e., the first conjunct. Though government will not be implicated in the analysis proposed for Pima, an operation capable of targeting the head DP will be invoked.
8.2 Pima Subject Agreement

The traditional view of subject agreement within the Government and Binding tradition (Chomsky, 1981, 1986) is for the subject to move into the spec,IP position, triggering agreement on the inflectional head. Various alternatives have been proposed, most being variations on the same basic scheme, such as the split-Infl proposal made by Pollock (1989), whereby subjects trigger agreement in the specifier of an Agreement Projection.

Recently, Chomsky (2001) has argued that there is no special specifier-head relationship. Instead agreement is the result of an operation Agree, in which a “probe”, such as the Pima auxiliary, searches down the tree for the closest “goal”, such as the subject DP. When an Agree relationship is established, the relevant common features are checked and agreement is licit. A more formal definition is given in (82). Though Chomsky does not formally define it, intervention seems to mean something like (83).

(82) \( \alpha \) agrees with \( \beta \) iff:

a. \( \alpha \) and \( \beta \) match in features;

b. \( \alpha \) c-commands \( \beta \);

c. there is no \( \gamma \) intervening between \( \alpha \) and \( \beta \).

(83) \( \gamma \) intervenes between a probe \( \alpha \) and a goal \( \beta \) iff \( \alpha \) c-commands \( \gamma \) and \( \gamma \) c-commands \( \beta \).

The data on Pima subject agreement argues in favor of the existence of a non-local agreement operation like Agree instead of, or in addition to, the more traditional local specifier-head configuration. One problem with the spec-head theory is that Pima subjects are not required to approach the auxiliary in overt syntax. But, as was shown above, some constituent must occur in first position,
be it the subject, verb, object, or a functional word. If agreement has the result of movement to the specifier position, then we might expect a sentence initial object to trigger the agreement on the auxiliary rather than the actual subject.

This is not an insurmountable problem, of course. It was mentioned above that the first constituent of the sentence is typically reserved for focused elements, so one could argue that this position is not in fact the relevant specifier. The position would be lower in the structure, with the auxiliary raising higher than that position. There is still no position near enough that the subject is required to appear in, which would mean covert movement is required.

There is evidence that covert movement is not quite adequate either. The surface linear order of negation and a quantifier gives the scope of these elements. If the negative particle *pi* ‘not’ precedes a quantified subject, the subject is in the scope of negation. With the opposite order, the subject is outside the scope of negation. (See Tai (2001). Now matter which order the elements occur in, subject agreement is not affected.

Thus, if we allow covert movement in the negation-subject order, we will be required to covertly raise the negation to an even higher position. On the other hand, if the subject precedes negation, the negation would not be allowed to move higher. Some mechanism would have to be in place to ensure the surface scope matches the LF scope. A much simpler explanation would be to say that there is no covert movement involved, and Agree establishes the agreement relationship.

Agree faces problems of its own, though. The formulation of Agree states that the probe agrees with the first possible goal it finds; thus, an “object” could potentially trigger subject agreement if the object is located between the probe and subject. In Pima, the order of object and subject is virtually free, and it would take a fair amount of gymnastics to keep the subject higher in the clause.
than the object. This may be possible in principle, but very difficult in practice, even without trying to motivate each of the individual movements.

There are a couple of ways this problem can be avoided. One would be to require the probe to target a thematic position. Under common assumptions about argument structure, such as that proposed by Hale and Keyser (1993), the agent is the structurally highest thematic position. Under this approach to Agree, the first thematic position encountered would thus be the agent, correctly predicting that the agents are always the subjects of transitive clauses.

This kind of approach is a bit unsatisfying, however, because it requires the probe to distinguish thematic positions from other A-positions. Another possibility, then, would be to restrict Agree, at least in this kind of context, to A-positions in general: a probe would establish an agreement relationship with the closest A-position it c-commands. This would allow a large amount in freedom in argument placement at surface structure without affecting the agreement possibilities, an accurate predication for Pima (and perhaps generally).

This second approach seems the more promising of the two. The permutations on possible word orders of arguments seem to have A-bar movement properties, such as not effecting anaphor or pronoun binding possibilities. The language does not appear to have subject raising phenomena, object shift, or some other common A-Movements. Perhaps the only common A-Movement attested is passivization, but if the agent has been suppressed, it is possible that the theme is left as the only closest A-position to the probe, thereby allowing it to have subject properties without movement to a “subject position”.

\[18\]

\[18\]If there is no A-Movement in Pima at all, then this approach trivially reduces to the previous one for simple sentences. I will not try to argue this stronger claim, though.
8.3 Partial Agreement

The basic pattern we saw above for subject agreement was for the auxiliary to agree with either the entire conjunction or the first conjunct when after auxiliary, but to agree with only the full conjunction when before the auxiliary. As the first pattern is the more interesting, it is the perfect place to begin.

A strict interpretation of spec-head agreement is not compatible with partial agreement. The only way in which the first conjunct could enter the specifier of AgrP is to leave the coordinate phrase; but this would violate the Coordinate Structure Constraint, so is not likely to be the correct analysis. Does Agree fare any better? I will agree that it does.

Consider sentence (84a) and its (simplified) tree (84b).¹⁹

(84)  a. N- o heg Eric c ’aañi ’am ho hem- tamia?
    Q- AUX DET Eric and 1SG FR IRR 2SG- wait.for
    ‘Should Eric and I wait for you?’

¹⁹The exact labels on this tree are not crucial.
Under the Agree approach, the auxiliary will be looking within its c-command domain to find the closest potential goal. In this particular example, which projection is chosen by the probe depends on exactly how one defines the notion “intervene” and treats phrase structure. The fact that partial agreement exists suggests that Agree can select the lowest DP as the closest potential goal. But the existence of full agreement in the same context suggests the highest DP is the appropriate goal.

This apparent contradiction can be resolved in a couple of different ways. One would be to define “intervene” in such a way as to make both nodes equidistant from the probe, thus providing for optionality in which is actually used in the sentence. This can be achieved by adopting the notion of a “category” (May, 1985; Chomsky, 1986; Kayne, 1994), then redefining “intervene” as in (85).

(85) $\gamma$ intervenes between $\alpha$ and $\beta$ if the set of categories dominating $\gamma$ is a proper subset of the set of categories dominating $\beta$, and $\alpha$ is in the
intersection of these sets.

Another way of saying this is that $\gamma$ and $\beta$ are equally close to $\alpha$ if the set of categories dominating them are equivalent.\textsuperscript{20} With this approach, the node immediately dominating the first conjunct and the node containing both the first conjunct and the BP are equally distant from the auxiliary, thus are both potential goals, and either can be selected for agreement. Thus, the optionality of partial or full agreement is accounted for.

The intuition behind this account is that the second conjunct is disconnected from the sentence at large. The coordinated expression is headed by the first conjunct, so it is entirely reasonable to assume that agreement should target its features. But the semantics of the sentence also indicates that the subject is plural, so this should be accounted for in the agreement system.

This approach is slightly worrisome, because it gives equal status to both DP projections; yet full agreement is overwhelmingly the preferred pattern. One reasonable claim would be that speakers are well aware of the semantics associated with agreement morphology. This is clearly the case, since any native speaker of English can note the oddity of auxiliary choice in (86) and (87) with but a moment’s reflection.

(86) There was a fire truck and two police cars in the driveway when I got home last night.

\textsuperscript{20}This type of approach could lead to the specification of a simple relationship between a head and the specifier of the head’s complement. The set of nodes in this relationship would be those that shared a set of dominating categories with the head. A simple formalization would be:

(i) $\alpha$ governs $\beta$ iff the set of categories dominating $\beta$ is equal to the set of categories dominating $\alpha$. 

51
(87) A number of men are waiting for you outside.

If the grammatical system has such an awareness, then perhaps it can be used to sway the actual choice of agreement toward the more semantically consistent direction.

Another, more structurally minded possibility is that the node dominating the BP is simply higher in the structure, so more likely to be the goal.

8.4 Johannessen and Specifiers

A very different approach is advocated by Johannessen (1998, 1996). She notes that there is a strong cross-linguistic correlation between headedness and which conjunct triggers partial agreement. Specifically, she notes that any conjunct failing to participate in agreement is typically on the same side of the coordinator as the complement is to the head generally in the language. In OV languages, the verb agrees with the second conjunct, but in VO languages, the verb agrees with the first conjunct. She argues that feature unification can only occur in a specifier-head relationship, and claims partial agreement holds because the features of the specifier of the CoP are unified into the CoP, but the features of the complement are not. When the verb agrees with a CoP, then, the only available features are those of the specifier.

The results of this approach are not that different from the equidistance approach suggested above. In either case, it is the features of the first conjunct that trigger agreement.

The two approaches can be distinguished. If the CoP were located in a position where the operations responsible for agreement could target just one of the relevant nodes, then the resulting agreement pattern would provide the evidence
we need. The equidistance approach would predict that only one agreement pattern would be possible, since the two nodes were no longer both reachable. Johannessen's account predicts no change, since nothing relevant to coordination has been altered.

A relevant structure would be a spec-head configuration. In such a configuration, the auxiliary would no longer c-command the possible goals, and presumably only the maximal projection would be visible to the head. If the equidistance approach is correct, then we would expect the auxiliary to show agreement with only the higher DP node, not the lower one. On the other hand, if the CoP approach is a more accurate characterization, then we would not expect any change to the agreement possibilities, since agreement is always with the same node. Recall that in Pima, pre-auxiliary subjects cannot trigger partial agreement. This suggests the features of the first conjunct are not uniquely "visible" to the auxiliary in this context, arguing against Johannessen’s proposal.

That is not to say that the proposal is not an option for other languages; Slovene seems to be a language in which a subject in Spec,TP (or higher) can trigger partial agreement with the verb (88). According to Corbett (1983b), this is not an example of resolution, because the typical case would be to have masculine agreement as a default.

(88) Knjige in peresa so se podražile.
book(PL.FEM) and pen(PL.NEUT) have become expensive(PL.FEM)

‘Books and pens have become more expensive.’ (Corbett, 1983b, p. 101)

This dual pattern of agreement found in Pima seems very relevant to the question of whether syntactic theory needs both Agree and a privileged spec-head relationship. At a first glance, it looks like both are necessary. The theory would be simpler and more elegant if only one configuration were involved, so
reducing the full agreement pattern in pre-auxiliary position to Agree would be a satisfying maneuver.

Here is one possibility, though it will be shown to be inadequate immediately. Agree and Attract operate according to very similar or identical principles. When a coordinated subject is found, and the CoP node is chosen for movement, the entire phrase can move up to the specifier position. This is as expected.

But what if the lower DP node were chosen? This element is part of a coordinate structure, and due to the Coordinate Structure Constraint cannot be raised to the specifier position. Thus, partial agreement involved in movement into (or through) the relevant spec-head relationship would be excluded by independent principles.

The problem with this explanation is the existence of Pied-Piping. Movement of part of a phrase can lead to pied-piping of the bigger constituent. Given this possibility, the Coordinate Structure Constraint does not seem to be a valid blocking mechanism for partial agreement in a specifier position. At least for now, it seems to be necessary to accept the existence of both Agree and a special spec-head relationship.

9 Consequences for the Theory of Syntax

If this approach to partial agreement is correct, then certain results follow.

9.1 Antisymmetry

The structures argued for above are not compatible with the Antisymmetry theory of Kayne (1994). The Linear Correspondence Axiom and the definition of asymmetric c-command predict that adjoined structures always precede the pro-
jection they are attached to. Given the structures above, the LCA would predict that all coordinated structures occur in the order: Coordinator XP XP. However, this is the one linear ordering of elements that either never occurs in natural languages, or is at least very rare.

The linear ordering found in Pima (and English) coordinate structures would require movement of the first conjunct to the specifier of some projection c-commanding the BP. But such a movement would violate the CSC, making this option unlikely.

Another option would be to rework the system a bit, so that the BP is in specifier position, and the first conjunct is the specifier of the BP (89).

(89)

```
(89)  DP
     /     \
    BP      DP
     |     /     \
  DP    BP     Condonct 2
     |      |
Conjunct 1 Coordinator
```

This would require a formulation of Agree whereby the specifier of BP and the entire DP structure are both possible goals, while still excluding the second conjunct. The definition of intervention given above, when applied to such a structure, predicts that agreement should hold between the entire conjoined expression or either of the two conjuncts.

Moving to a CoP structure initially appears to solve this problem. The definition of intervention would allow Agree to target either the entire CoP or just the specifier, allowing for the sort of optionality we require. But this too encounters problems, because if partial agreement always holds with the specifier of the
CoP, then specifiers must be rightward in some languages, such as Latin (90) and Swahili (91). Rightward specifiers, of course, are disallowed by the LCA. Deriving these through some kind of movement resulting in the coordinator and complement c-commanding the specifier would require the spec to move out of the CoP, again violating the CSC.

(90) et ego et Cicero meus flagitabit
       and 1sg.nom and Cicero my demand(3sg.fut)
   ‘Both my Cicero and I will demand it.’ (Corbett, 1983b, p. 30)

(91) a. ki- ti na m- guu wa meza u- meunjika
    7- chair and 3- leg of table 3- be.broken
   ‘The chair and the leg of the table are broken.’ (Corbett, 1991, p. 266)

b. m- guu wa meza na ki- ti ki- muvenjika
   3- leg of table and 7- chair 7- be.broken
   ‘The leg of the table and the chair are broken.’ (ibid.)

Trying to maintain Antisymmetry would force the existence of parametric variation in either which conjunct is selected by Agree, which coordinate structure is used, or which conjuncts pass which features where. These are principles which should be (near) universal, so this would be an unwelcome result. Variation as to which side of the projection an adjunct may appear on, however, is quite widely assumed in programs with freer word order possibilities.

9.2 Linearity

Arguably the most interesting aspect of Johannessen’s theory is the suggestion that it is possible to predict which conjunct will participate in partial agreement from the general headedness property of the language. Generally speaking, Johannessen’s generalization appears to be accurate, though there are exceptions
such as Swahili above, which is a SVO language but conforms to the prediction of an OV language.

It is unclear whether the generalization is correct due to real insight into structural hierarchy, or whether the ordering is derivable from other properties. In particular, in the vast majority of examples cited in Johannessen (1996, 1998) the agreeing conjunct is also the linearly closest conjunct to the target.\textsuperscript{21}

Corbett (1991, 2000) argues that linearity is the important factor here, not structural hierarchy. He claims that whenever agreement fails to target the entire coordinate structure, agreement holds with either the first or closest conjunct, depending on the language. If this is correct, then this will derive Johannessen’s generalization and the majority of exceptions. In a head final language, Johannessen predicts that the specifier will be the rightmost conjunct. But since all arguments will (typically) precede the target, the linearity account predicts the same thing, since the rightmost conjunct will also be the closest to the target.

With a VO language, Johannessen predicts that the agreeing conjunct will be the leftmost. For any argument that should be in complement position, this makes the same prediction as agreement with the linearly closest. Subjects are the interesting cases here, since the specifier of CoP will not correspond with the closest conjunct. The Slovene and Swahili examples in (92) and (91), respectively, show contradictory results for Johannessen, but are consistent with Corbett’s claim. The former language could either be analyzed as supporting Johannessen’s spec,CoP claim, or the “linearly first” portion of Corbett’s claim. Swahili is consistent with Corbett, but contradicts Johannessen.

\textsuperscript{21} If linearity were adopted, it would be possible to salvage the structural claims of Antisymmetry. However, once linearity has been invoked in this manner, it is difficult to see how or why linear order should be derived from hierarchy.
(92) Knjige in peresa so se podražile.  
book(PL.FEM) and pen(PL.NEUT) have become expensive(PL.FEM)  
‘Books and pens have become more expensive.’ (Corbett, 1983b, p. 101)

The linear order versus structural hierarchy distinction is an important one, 
and I have no convincing evidence to point in either direction. Rather, I will 
point to one piece of evidence which supports hierarchy over linear order.

Tohono O’odham and Pima have the curious feature of truncating the verb 
to show concord with perfective marking on the auxiliary. Saxton et al. (1983) 
provide the example in (93) which shows partial concord in aspect: the first 
conjoined verb has its imperfective form, and the second has been truncated as 
would be expected.²² (94) is included to show the truncated form of him ‘go’.

(93) ‘am’a -t him k bei.  
FR AUX -PF go and get(PF)  
‘He went there and got it.’ (Saxton et al., 1983, p. xxiii)

(94) ‘aañi’a -n -t ‘am hii.  
1S AUX -1S -PF FR go(PF)  
‘I went there.’

Since Munn (1993) makes no claims about the ordering of adjunction struc-
tures, any ordering is possible in principle. A theory of adjunction is necessary 
for any results under this approach.

10 Conclusion

The “leaky” syntax of partial agreement offers an interesting perspective into the 
world of agreement phenomena. The discrepancies between structural position

²²I am very grateful to Eric Jackson for pointing this example out to me.
and agreement patterns strongly suggests that simple theories based on particular structural configurations (like spec-head) or broad operations (like Agree) are inadequate to deal with the full range of data. Rather, agreement is a far more complex phenomenon than many treatments give it credit for. Similar, though slightly different, conclusions are reached by Munn (1993), though it should be noted that his study was purely on asymmetrical properties of coordination rather than agreement specifically.

Chomsky may be right in stating that a privileged specifier-head relationship is not necessary in an “optimal” grammar system, but the empirical facts suggest that this is one area where grammar either is not optimal, or is optimal in a manner not yet understood.
# Appendix A: Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Accusative</td>
</tr>
<tr>
<td>ANA</td>
<td>Anaphor (reflexive or reciprocal)</td>
</tr>
<tr>
<td>AUX</td>
<td>Auxiliary</td>
</tr>
<tr>
<td>C</td>
<td>Complementizer</td>
</tr>
<tr>
<td>COND</td>
<td>conditional</td>
</tr>
<tr>
<td>CONTR</td>
<td>Contrastive</td>
</tr>
<tr>
<td>DAT</td>
<td>Dative</td>
</tr>
<tr>
<td>DET</td>
<td>Determiner</td>
</tr>
<tr>
<td>DU</td>
<td>Dual</td>
</tr>
<tr>
<td>EVID</td>
<td>Evidential</td>
</tr>
<tr>
<td>FR</td>
<td>Far</td>
</tr>
<tr>
<td>FEM</td>
<td>Feminine</td>
</tr>
<tr>
<td>1</td>
<td>First person</td>
</tr>
<tr>
<td>FUT</td>
<td>Future</td>
</tr>
<tr>
<td>INC</td>
<td>Inceptive</td>
</tr>
<tr>
<td>INST</td>
<td>Instrumental</td>
</tr>
<tr>
<td>IRR</td>
<td>Irrealis</td>
</tr>
<tr>
<td>MASC</td>
<td>Masculine</td>
</tr>
<tr>
<td>MOD</td>
<td>Modal</td>
</tr>
<tr>
<td>NEUT</td>
<td>Neuter</td>
</tr>
<tr>
<td>NR</td>
<td>Near</td>
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<td>NOML</td>
<td>Nominalizer</td>
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<td>Nominative</td>
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<td>Abbreviation</td>
<td>Description</td>
</tr>
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<td>--------------</td>
<td>---------------------------</td>
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<td>NON.FIN</td>
<td>Non-finite</td>
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<tr>
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<td>Non-nominative</td>
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<td>Objective</td>
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<td>Perfective</td>
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<td>Plural</td>
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<td>Reciprocal</td>
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<td>RES</td>
<td>Result</td>
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<td>Second person</td>
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<tr>
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<td>Singular</td>
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<tr>
<td>STAT</td>
<td>Stative</td>
</tr>
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</tr>
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<td>3ARG</td>
<td>Third person argument</td>
</tr>
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<td>Uncertain</td>
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<tr>
<td>UNSP.OBJ</td>
<td>Unspecified Object</td>
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<tr>
<td>Q</td>
<td>Question</td>
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</table>
### 12 Appendix B: Intonational Structure of the Pima Sentence

This appendix gives the results of some phonetic measurements taken in a brief examination of Pima intonational structure. Each sentence below was read twice by the speaker, Mr. Virgil Lewis, into a microphone. The first column of numbers indicates the length of pause immediately before the conjunction *c* 'and'. The second column gives the length of pause between the verb and closest conjunct. The last column gives the length of the entire utterance. All times are given in milliseconds.

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Pause before <em>c</em> (ms)</th>
<th>Pause between verb and conjunct (ms)</th>
<th>Total duration (ms)</th>
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<tr>
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<td></td>
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<tr>
<td>Sentence utterance</td>
<td>before c</td>
<td>V-C</td>
<td>Total</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----------</td>
<td>-----</td>
<td>--------</td>
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<tr>
<td>Hega’i ’oks at ’aañi, c heg Jason koom.</td>
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<td></td>
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<tr>
<td>1</td>
<td>218.4</td>
<td>354.8</td>
<td>3475.8</td>
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<tr>
<td>2</td>
<td>201.2</td>
<td>175.8</td>
<td>3340.1</td>
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<td>49.7</td>
<td>2863</td>
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<td>2</td>
<td>63.6</td>
<td>67.8</td>
<td>3047</td>
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<td>203.4</td>
<td>2643.6</td>
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<td>701.0</td>
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<td>2492.6</td>
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</table>

Table 4: Pause times

Avelino, Heriverto, Rebecca Brown, Jill Gilkerson, Eric Jackson, Sahyang Kim, Brook Lillehaugen, Haiyong Liu, Suzanne Lyon, Shannon Madsen, Pamela Munro, Jason Riggle, Shabnam Shademan, Marcus Smith, and Melissa Tai, 2000-2001. “Annotated notes on Pima fieldwork with Virgil Lewis”. UCLA.


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