Cyclicity in Agree: Maximal projections as probes

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What are the parameters of crosslinguistic variation in switch-reference systems?
Switch-reference crosslinguistically

Switch-reference in Kiowa (Kiowa-Tanoan; Oklahoma; McKenzie 2012)

(1) $[Ø\text{-}h\text{ê:b}a=\text{tsẽ}:]\quad ēm-sõ:
3SG-enter.PF=when.ss 3SG:RFL-sit down.PF

‘When she$_i$ came in, she$_i$ sat down.’

(2) $[Ø\text{-}h\text{ê:b}a=\text{ê}:]\quad ēm-sõ:
3SG-enter.PF=when.ds 3SG:RFL-sit down.PF

‘When she$_i$ came in, she$_j$ sat down.’

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A theoretical question

How are seemingly long-distance dependencies established in syntax, and are they truly non-local?
Cyclic Agree (Rezac, 2003; Béjar and Rezac, 2009)

- A probe first probes its c-command domain.
- If the probe remains unsatisfied, when the head reprojects to form an intermediate projection, the probe reprojects as well.
- The probe then probes its new, expanded c-command domain (the specifier of the head).

```
V_{\text{max}}
   ├── D_{\text{max}}^{\text{SUBJ}}
   │   └── 2
   └── V
      └── V_{\text{min}}
          └── D_{\text{max}}^{\text{OBJ}}
            └── 1
```
Applications of cyclic expansion

• Cyclic expansion has been leveraged to account for agreement displacement (Rezac, 2003, 2004; Béjar and Rezac, 2009)
  • Agreement that typically cross-references the internal argument can exceptionally cross-reference the external argument
  • If the probe is not satisfied by the IA in its complement, it can agree with the EA in its specifier
• It can also account for Person Case Constraint effects (Walkow, 2013; Ivan, 2018)
  • If a probe located between the DO and IO is satisfied by the DO, it cannot agree with and license the IO
BPS and Cyclic Agree

- In Bare Phrase Structure (BPS), there is no formal distinction between the label of intermediate and maximal projections.
- Cyclic Agree and BPS predict that maximal projections should be able to serve as probes.
  - This prediction is difficult to test since the c-command domain of $X^{\text{max}}$ typically only contains the head that selects it.
The claim

- I argue that this prediction of Cyclic Agree and BPS is borne out in a structure involving an agreeing adjunct C
The proposal in a nutshell

- I argue for the existence of this type of structure involving agreeing adjunct C in Amahuaca (Panoan; Peru)
  - Adjunct $C_{\text{min}}$ probes DPs in its c-command domain, the adjunct clause
  - Because the probe on C remains unsatisfied, $C_{\text{max}}$ also probes its c-command domain, agreeing with matrix DPs

The upshot

The Amahuaca data provide support for a Cyclic Agree model and suggest that cyclic expansion of probes is fully generalizable to maximal projections
1. Introduction

2. Amahuaca agreeing C

3. The Analysis: Maximal projections as probes

4. Comparison with alternative analyses

5. Predictions and typology
Amahuaca agreeing C
Amahuaca

- Amahuaca is an endangered Panoan language spoken in the Peruvian and Brazilian Amazon
Amahuaca word order

- Amahuaca is mostly head final in the TP domain
- The base SOV order can be obscured by scrambling of arguments and adjuncts
- Matrix C is a second-position clitic that surfaces after the first syntactic constituent

(3) \[ \text{jaa joni chaita=n]=mun nami pi=hi=ki=nu} \]
DEM man tall=ERG=C_{MATRIX} meat bite=IPFV=3.PRES=DECL
‘That tall man is eating meat.’

(4) \[ \text{jonin=xukijova=hain]=mun} \]
man=ERG corn cook=DS.WHILE=C_{MATRIX}
xano vua=xo=nu
woman sing=3.PST=DECL
‘While the man cooked corn, the woman sang.’
Amahuaca case

- Amahuaca shows a tripartite case alignment
  - Intransitive subjects are marked **nominative** (\(=x\))
  - Transitive subjects are marked **ergative** (\(=n\))
  - Objects are unmarked (\(\emptyset\))

\[
\begin{align*}
(5) & \quad \text{vaku}=x=\text{mun} \quad \text{rakuu}=xo=\text{nu} \\
& \quad \text{child}=\text{NOM}=\text{C} \quad \text{be.afraid}=3.\text{PST}=\text{DECL} \\
& \quad \text{‘The \textbf{child} was afraid.’}
\end{align*}
\]

\[
\begin{align*}
(6) & \quad \text{xano}=n=\text{mun} \quad \text{chopa} \quad \text{patza}=hi=ki=\text{nu} \\
& \quad \text{woman}=\text{ERG}=\text{C} \quad \text{clothes} \quad \text{wash}=\text{IPFV}=3.\text{PRES}=\text{DECL} \\
& \quad \text{‘The \textbf{woman} is washing \textbf{clothes.’}
\end{align*}
\]

- Differential subject marking causes both intransitive and transitive subjects to sometimes surface in an unmarked form (Clem, 2019)
Temporal adjunct clauses

- In temporal adjunct clauses, the element indicating the temporal relationship between clauses is an enclitic that typically surfaces on the verb of the adjunct clause.

(7) \[jaa=x; \quad vua=\textcolor{red}{xon}=mun\]
   \[3SG=NOM \quad \text{sing}=\text{SA.AFTER}=\text{C}_\text{MATRIX}\]
   \[xano=n; \quad xuki \; jova=xo=nu\]
   \[\text{woman}=\text{ERG} \quad \text{corn} \; \text{cook}=3.PST=\text{DECL}\]
   ‘After she sang, the woman cooked corn.’

- I will focus on ‘after’ clauses, but ‘while’ and ‘before’ show similar behavior.
Arguments in ‘after’ clauses

- Amahuaca ‘after’ clauses are full CPs
- They can include all arguments of the verb, including case-marked subject DPs and object DPs

(8) \[xano=n_i \quad \text{chopa} \quad \text{patza=}(xon)=mun\]

\begin{align*}
\text{woman=ERG clothes wash=SA.AFTER=C_{MATRIX}} \\
\text{pro}_i \quad \text{hatza} \quad \text{jova=hi=ki=nu} \\
\text{manioc cook=IPFV=3.PRES=DECL}
\end{align*}

‘After the woman\(_i\) washed clothes, she\(_i\) is cooking manioc.’

(9) \[kiyoo-vini=x_i \quad \text{nokoo=}(xon)=mun\]

\begin{align*}
\text{all-EMPH=NOM arrive=SA.AFTER=C_{MATRIX}} \\
\text{pro}_i \quad \text{hatza} \quad \text{jova=kan=xo=nu} \\
\text{manioc cook=3PL=3.PST=DECL}
\end{align*}

‘After everyone\(_i\) arrived, they\(_i\) cooked manioc.’
Adjuncts in ‘after’ clauses

- ‘After’ clauses can host adjuncts, such as adverbs

(10) \([pro; \textbf{koshi} \ ka=\boxed{\text{xon}}]=\text{mun}\)

quickly go=SA.AFTER=\text{C_{MATRIX}}

xano=n; \ \hat{\text{hatza}} \ \text{vana}=\text{xo}=\text{nu}

woman=\text{ERG} \ \text{manioc} \ \text{plant}=3.\text{PST}=\text{DECL}

‘After she went quickly, the woman planted manioc.’

(11) \([\textbf{moha} \ xano=x; \ \text{nokoo}=\boxed{\text{xon}}]=\text{mun}\)

already woman=\text{NOM} \ \text{arrive}=\text{SA.AFTER}=\text{C_{MATRIX}}

jato=n; \ \hat{\text{hatza}} \ \text{xoka}=\text{kan}=\text{xo}=\text{nu}

3\text{PL}=\text{ERG} \ \text{manioc} \ \text{peel}=3\text{PL}=3.\text{PST}=\text{DECL}

‘After the women had already arrived, they peeled manioc.’
Nested ‘after’ clauses

• ‘After’ clauses are large enough to allow other ‘after’ clauses to adjoin within them

(12) \[
[[\text{pro}_i \text{ kari choka} = \text{xon}] \quad \text{pro}_i \text{ hatza xoka} = \text{xon}] = \text{mun}
\]
\[
\text{yam wash} = \text{SA.AFTER} \quad \text{manioc peel} = \text{SA.AFTER} = C_{\text{MATRIX}}
\]
\[
\text{xano} = n_i \quad \text{xuki jova} = xo = nu
\]
\[
\text{woman} = \text{ERG corn cook} = 3.\text{PST} = \text{DECL}
\]
‘[After she\_i peeled manioc [after she\_i washed yams]], the woman\_i cooked corn.’
(or ‘The woman washed yams, peeled manioc, and cooked corn.’)
Scrambling in ‘after’ clauses

- ‘After’ clauses are typically SOV
- However, ‘after’ clauses allow clause-internal scrambling

(13) ‘After I cooked paca, I peeled manioc.’

a. **SOV** ‘after’ clause

   \[
   \begin{align*}
   &\text{hiya}=& n & \text{hano} & \text{jova}=& \underline{xon} & \text{mun} \\
   &\text{1SG}=\text{ERG} & \text{paca} & \text{cook}=\text{SA.AFTER}=& C_{\text{MATRIX}} \\
   &\text{hun} & \text{hatza} & \text{vuro}=\text{ku}=\text{nu} \\
   &\text{1SG} & \text{manioc} & \text{peel}=\text{1.PST}=\text{DECL}
   \end{align*}
   \]

b. **OSV** ‘after’ clause

   \[
   \begin{align*}
   &\text{hano} & \text{hiya}=& n & \text{jova}=& \underline{xon} & \text{mun} \\
   &\text{paca} & \text{1SG}=\text{ERG} & \text{cook}=\text{SA.AFTER}=& C_{\text{MATRIX}} \\
   &\text{hun} & \text{hatza} & \text{vuro}=\text{ku}=\text{nu} \\
   &\text{1SG} & \text{manioc} & \text{peel}=\text{1.PST}=\text{DECL}
   \end{align*}
   \]
External syntax of ‘after’ clauses

- ‘After’ clauses typically appear in high peripheral positions
- It is ungrammatical for ‘after’ clauses to appear below aspect marking

(14) ‘After she$_i$ sang, the woman$_i$ is washing manioc.’

a. \[\text{[} \text{pro}_i \text{ vua=} \text{xon} \text{]} = \text{mun} \]
   \[
   \text{sing=} \text{SA.AFTER=} \text{C MATRIX} \\
   \text{xano=}n_i \quad \text{hatza} \quad \text{choka=} \text{hi}=\text{ki}=\text{nu} \\
   \text{woman=} \text{ERG} \quad \text{manioc} \quad \text{wash=} \text{IPFV=}3.\text{PRES=} \text{DECL} \]

b. \text{xano=}n_i = \text{mun} \quad \text{hatza} \quad \text{choka=} \text{hi}=\text{ki}=\text{nu} \\
   \text{woman=} \text{ERG=} \text{C MATRIX} \quad \text{manioc} \quad \text{wash=} \text{IPFV=}3.\text{PRES=} \text{DECL} \\
   \text{[} \text{pro}_i \text{ vua=} \text{xon} \text{]} \\
   \text{sing=} \text{SA.AFTER} \]

c. * \text{xano=}n_i = \text{mun} \quad \text{hatza} \quad \text{choka=} \text{hi} \\
   \text{woman=} \text{ERG=} \text{C MATRIX} \quad \text{manioc} \quad \text{wash=} \text{IPFV} \\
   \text{[} \text{pro}_i \text{ vua=} \text{xon} \text{]} = \text{ki}=\text{nu} \\
   \text{sing=} \text{SA.AFTER=}3.\text{PRES=} \text{DECL} \]
‘After’ clauses vs. relative clauses

- Nominalized internally-headed relative clauses can appear below aspect

(15) \( \text{Juan}_i=\text{mun} \text{ chivan-vo=hi} \ [\text{jan}_i \text{ jono} \text{ vuchi=ha}]=\text{ki=nu} \)
\( \text{Juan=C} \quad \text{chase-AM=IPFV} \text{ 3SG} \text{ peccary find=PFV=3.PRES=DECL} \)

‘The peccary that he\( _i \) found is chasing Juan\( _i \).’

- The positional restriction on ‘after’ clauses is truly syntactic
Even if ‘after’ clauses began low in the structure, they do not reconstruct below matrix arguments for Condition C.

(16) ‘After Maria$_i$ went quickly, she$_i$ washed clothes.’

a. \([pro$_i$ koshi ka=\(\text{xon}\)]\)=mun
   quickly go=SA.AFTER=C\_MATRIX
   Maria=\(n\)_i chopa patza=xo=nu
   Maria=ERG clothes wash=3.PST=DECL

b. \([Maria$_i$ koshi ka=\(\text{xon}\)]\)=mun
   Maria quickly go=SA.AFTER=C\_MATRIX
   pro$_i$ chopa patza=xo=nu
   clothes wash=3.PST=DECL

c. jaa=\(n\)_i=mun \([Maria$_i$ koshi ka=\(\text{xon}\)]\)
   3SG=ERG=C\_MATRIX Maria quickly go=SA.AFTER
   chopa patza=xo=nu
   clothes wash=3.PST=DECL
Structure of ‘after’ clauses
Agreement in ‘after’ clauses

- There are several forms of the enclitic used to mean ‘after’
  - These morphemes vary depending on coreference relationships between arguments (Sparing-Chávez, 1998, 2012)
  - The choice of morpheme is also sensitive to the abstract case of coreferential arguments
Agreement in ‘after’ clauses

• In (17), the adjunct clause subject is coreferential with a matrix transitive subject (ERG), and the agreeing adjunct C takes the form =xon

(17)  [jaa=x_i  vua=\[
\text{xon}\]\n]=mun
3SG=NOM sing=SA.AFTER=C_{\text{MATRIX}}
\text{xano}=n_i  xuki\ jova=xo=nu
woman=ERG\ corn\ cook=3.PST=DECL
‘After she_i sang, the woman_i cooked corn.’

• In (18), the adjunct clause subject is coreferential with a matrix intransitive subject (abstract NOM), and the agreeing adjunct C takes the form =hax

(18)  [jaa=x_i  vua=\[
\text{hax}\]\n]=mun  \text{xano};  chirin=xo=nu
3SG=NOM sing=SS.AFTER=C_{\text{MATRIX}}  woman\ dance=3.PST=DECL
‘After she_i sang, the woman_i danced.’
Agreement in ‘after’ clauses

- In (19), the adjunct clause subject is coreferential with a matrix object (abstract ACC), and the agreeing adjunct C takes the form =xo

(19) \[ jaa=x_i \quad vua=\boxed{xo} \]=mun
3SG=NOM sing=SO.AFTER=C_{MATRIX}

hinan \quad \text{xano}; \quad \text{chivan-vo}=xo=nu
dog.ERG woman chase-AM=3.PST=DECL

‘After she\(_i\) sang, the dog chased the woman\(_j\).’

- In (20), no adjunct clause DP is coreferential with any matrix DP, and adjunct C is spelled out as the default different subject marker =kun

(20) \[ joni_i \quad vua=\boxed{kun} \]=mun \quad \text{xano}_j \quad \text{chirin}=xo=nu
man \quad \text{sing}=DS.AFTER=C_{MATRIX} \quad \text{woman} \quad \text{dance}=3.PST=DECL

‘After the man\(_i\) sang, the woman\(_j\) danced.’
Altogether there are five agreeing ‘after’ enclitics
Switch-reference as agreement

- From a typological perspective, this phenomenon has been termed ‘switch-reference’ (Jacobsen, 1967).
- Switch-reference is similar to complementizer agreement and can potentially be analyzed as involving an agreeing complementizer (Watanabe, 2000; Arregi and Hanink, 2018).
- The Amahuaca pattern looks like complementizer agreement that is sensitive to referential index and case.
- The agreeing complementizer is sensitive to features of DPs in its own clause and the clause to which $C^{\text{max}}$ is adjoined.
The Analysis: Maximal projections as probes
The proposal

- Cyclic Agree coupled with BPS (Rezac, 2003) predicts that an unsatisfied probe should be able to probe the c-command domain of its maximal projection
- I argue that the pattern of agreeing adjunct C in Amahuaca is derived via this type of cyclic expansion of the probe’s domain
- This account of Amahuaca does not require the introduction of any new technology – it relies only on independently supported assumptions
The ingredients

1. Bare Phrase Structure (Chomsky, 1995)
   - There is no formal distinction between intermediate and maximal projections

2. Cyclic expansion (Rezac, 2003, 2004; Béjar and Rezac, 2009)
   - When a label reprojects, an unsatisfied probe associated with it may reproject
   - Probe reprojection serves to expand the c-command domain of the probe and thus the agreement possibilities

3. Probe insatiability (Deal, 2015)
   - A probe’s interaction conditions can differ from its satisfaction conditions
   - If a probe lacks satisfaction conditions, it will continue probing all possible goals in its c-command domain until reaching a phase boundary
First cycle Agree

- Adjunct C in Amahuaca is an insatiable probe
- First, $C^{\text{min}}$ probes its c-command domain, which contains the subject and object of the adjunct clause
  - Note that evidence from remnant VP-fronting suggests that objects undergo shift to Spec, $vP$ (Clem, 2019)
Agreement inside the adjunct clause

\[ T_{\text{max}} \]

\[ C_{\text{min}} \]

\[ D^{\text{max}}_{\text{SUBJ}} \leftarrow \ldots \]

\[ T_{\text{min}} \]

\[ D^{\text{max}}_{\text{OBJ}} \leftarrow \ldots \]
Given that C’s probe is insatiable, it remains unsatisfied after probing the c-command domain of $C^{\text{min}}$.

When C reprojects to form a maximal projection, the probe is reprojected as well and can probe again.

The c-command domain of this new segment of C, $C^{\text{max}}$, contains the matrix subject and object, keeping with the evidence from Condition C.
Agreement into the matrix clause
• The probe on C agrees in:
  • Referential indices (modeled as $\phi$-features; Rezac 2004)
  • Abstract case features
• If two DPs that C agrees with share a referential index, one of the coreference markers will be inserted
  • The form of the marker will be determined by the case of the coreferential DPs
• If no DPs share a referential index, the default different subject marker will be inserted
• I assume late insertion and standard competition mechanisms of Distributed Morphology (Halle and Marantz, 1993)
• This means that the vocabulary item that matches the largest subset of the features on C will be inserted

Sample ‘after’ vocabulary items

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<thead>
<tr>
<th>Structure</th>
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<tbody>
<tr>
<td>[[AFTER, [i, NOM*]] [i, NOM]]</td>
<td>↔ /hax/</td>
<td></td>
</tr>
<tr>
<td>[[AFTER, [i, NOM*]] [i, ERG]]</td>
<td>↔ /xon/</td>
<td></td>
</tr>
<tr>
<td>[AFTER]</td>
<td>↔ /kun/</td>
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</tr>
</tbody>
</table>
Advantages of the current account

- This account builds on the insight of Watanabe (2000) that switch-reference (SR) shares many similarities with complementizer agreement (CA)
- One advantage of the current account is its simplicity – there are independent arguments for all of the necessary technology
  - Cyclicity in Agree (Rezac, 2003; Béjar and Rezac, 2009)
  - Probe insatiability (Deal, 2015)
  - Treating indices as $\phi$-features (Rezac, 2004)
- Additionally, previous accounts of SR and/or CA face empirical challenges given the Amahuaca data
Comparison with alternative analyses
Some recent analyses of SR assume that reference tracking is not involved

- Georgi (2012) argues that same subject marking is a special case of control
- Keine (2012, 2013) argues that SR reflects coordination height, with same subject clauses being VP coordination

Both of these accounts predict that a clause bearing a same subject marker should be unable to host an overt subject DP (Clem, 2018)
• In Amahuaca, ‘after’ clauses can host all arguments of the verb overtly, including case-marked subjects

(21) [moha xano=x; nokoo=xon]=mun
already woman=NOM arrive=SA.AFTER=C\_MATRIX
jato=n; hatza xoka=kan=xo=nu
3PL=ERG manioc peel=3PL=3.PST=DECL
‘After the women; had already arrived, they; peeled manioc.’
Accounts of SR parasitic on agreeing T

- Some direct reference-tracking accounts of SR assume that SR is parasitic on agreement on T (Finer, 1984, 1985; Watanabe, 2000; Camacho, 2010)
  - These accounts posit subject agreement on T which is interpreted as SR through some mechanism at the CP level
  - These accounts (sometimes explicitly) rule out object tracking since the probe on T is assumed to only agree with the subject
Object tracking in SR

- These accounts cannot straightforwardly capture the Amahuaca pattern in which C can show agreement with both the matrix and adjunct object

(22) \[jaa=x_i \quad \text{vua}=[xo]=mun \]
3SG=NOM sing=SO.AFTER=C_{MATRIX}
hiinan \quad xano_i; \quad \text{chivan-vo}=xo=nu
dog.ERG woman chase-AM=3.PST=DECL

ʻAfter she\(i\) sang, the dog chased the woman\(i\).ʻ

(23) \[joni=n \quad \text{hino}_i \quad hiin=[ha]=mun \]
man=ERG dog \quad see=OS.AFTER=C_{MATRIX}
pro_i \quad \text{koshi} \quad ka=hi=ki=nu
quickly go=IPFV=3.PRES=DECL

ʻAfter the man saw the dog\(i\), it\(i\) is going quickly.ʻ
• If we were to allow the probe on T to be insatiable, this could accommodate object tracking.
• However, this is hard to reconcile with the attested agreement on Amahuaca T.
  • Amahuaca tense markers indicate the person of the subject.
  • The person of the object is never indicated on T.

(24)  hiya=x=mun  hun rakuu=ku=nu
       1SG=NOM=C_{MATRIX}  1SG be.afraid=1.PST=DECL
      ‘I was afraid.’

(25)  vaku=x=mun  rakuu=xo=nu
       child=NOM=C_{MATRIX} be.afraid=3.PST=DECL
      ‘The child was afraid.’
Separate probes on T and C

- Since Amahuaca T never inflects for object person, the more straightforward assumption is that T and C probe separately (Haegeman and van Koppen, 2012)
  - T’s probe is satisfied by any $\phi$-features (it always agrees with the highest DP)
  - C’s probe has no satisfaction conditions (i.e. it is insatiable; it agrees with all DPs in its c-command domain)
Bound anaphor accounts of CA

• Patterns of upward-oriented CA have been argued to involve local agreement between C and a bound anaphor in its specifier (Diercks, 2013)
• We could imagine that SR as a type of downward-and-upward-oriented CA may involve agreement with a DP argument in the adjunct clause and a bound anaphor in the specifier of the adjunct CP (Baker and Camargo Souza, 2019)
• However, this type of account is inconsistent with the Amahuaca data
There is no distributional evidence that suggests adjunct CPs begin low enough in the structure to allow anaphor binding.

Even if adjunct CPs began low and obligatorily moved higher, they do not reconstruct for Condition C.

\[
\begin{align*}
\text{[Floria}=n_i \quad \text{Maria}_j \quad \text{hiin}=[\text{xo}]=\text{mun} \\
\text{Floria}=\text{ERG} \quad \text{Maria} \quad \text{see}=\text{SO.AFTER}=\text{C\textsc{Matrix}} \\
\text{Maria}=n_j \quad \text{Floria}_i \quad \text{chivan-vo}=\text{xo}=\text{nu} \\
\text{Maria}=\text{ERG} \quad \text{Floria} \quad \text{chase-AM}=3.\text{PST}=\text{DECL} \\
\end{align*}
\]

‘After Floriain saw Maria, Maria chased Floria.’

If there is no reconstruction for Condition C, it is unclear how there could simultaneously be reconstruction for anaphor binding.
Several features of the Amahuaca system cannot straightforwardly be accounted for by previous analyses:

- The distribution of subject DPs
- The availability of object tracking
- The lack of Condition C effects

The current analysis is able to account for all of these properties without introducing new technology.
Predictions and typology
Accounting for subject-only tracking

• SR can be accounted for with existing Agree technology
• One question we might ask is why the majority of languages with SR only allow tracking of subjects
• The current account suggests several possibilities for how such systems could arise
  1. No object shift
  2. Case discriminating probe
  3. Syncretism
• In Amahuaca, object shift allows the object to escape the vP phase and be accessible to C’s probe
• If a language lacks object shift, C will be unable to agree with object DPs, resulting in a subject-only tracking pattern
Case discriminating probe

- It is possible that in a language with accusative alignment the probe on C is case-discriminating (Preminger, 2011), agreeing only with nominative DPs (Arregi and Hanink, 2018).
- This would allow for subject-only tracking even in a language with object shift.
Syncretism

- A language could have a probe on C that agrees with objects but lack dedicated morphology to spell out an object coreference relationship.
- Evidence that morphological syncretism may be a relevant factor comes from comparing the paradigms of different temporal adjunct Cs in Amahuaca.
- Even within a single language, different paradigms have differing degrees of syncretism with respect to the morphology available to indicate object coreference.
### SR paradigms

#### ‘After’ series

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#### ‘While’ series

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<td>S</td>
<td>A</td>
</tr>
<tr>
<td>S</td>
<td>=hi</td>
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<td>A</td>
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<td>O</td>
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</tbody>
</table>

#### ‘Before’ series

<table>
<thead>
<tr>
<th>Adjunct</th>
<th>Matrix</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>S</td>
<td>A</td>
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<tr>
<td>S</td>
<td>=katzi/</td>
<td>=xankin</td>
</tr>
<tr>
<td>A</td>
<td>=xanni</td>
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<tr>
<td>O</td>
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</table>
Accounting for the typology

- This theory of SR is powerful enough to account for the tracking of objects
  - While object tracking is less common than subject tracking, languages such as those of the Panoan family (like Amahuaca) do allow for object tracking
- At the same time, it suggests several possibilities for how languages could have subject-only tracking
- The fact that there are multiple pathways to a subject-only tracking system suggests that these types of systems should be more commonly attested, as they are
Maximal projections as probes

- Cyclic expansion allows maximal projections to serve as probes
- A question we might ask is why we don’t see more instances of maximal projections serving as probes
  - With many common probes (v, T, complement C), the c-command domain of the maximal projection only contains the head that selects it
  - With adjunct C, this pattern may actually be quite well attested given that SR systems are relatively common
  - Other agreeing adjuncts, such as Lubukusu agreeing ‘how’ (Carstens and Diercks, 2013), may also involve a maximal projection that probes through cyclic expansion
Consequences for a theory of Agree

- Despite the appearance of a long-distance dependency, SR can be analyzed as involving only local Agree relationships.
- This allows us to preserve a view where Agree is:
  1. Always under c-command
  2. Always local


Haegeman, Liliane, and Marjo van Koppen. 2012. Complementizer agreement and the relation between C\(^0\) and T\(^0\). *Linguistic Inquiry* 43:441–454.


