Skewed AGREE: accounting for a closest-conjunct effect with semantic implications

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1 Extending the AGREE operation for Ambiguous Domains

In recent incarnations of the Generative Grammar, the relation between a head and its dependents has been formalized via the AGREE operation. To account for the fact that a head can have multiple dependents (for instance, a verb which agrees with multiple arguments), the AGREE operation is proposed to hold between one or multiple probes hosted by a head and one dependent per probe. The AGREE operation as defined in Chomsky (2000) (see definition in 1) cannot, however, single out a matching dependent for a probe whose domain is ambiguous (see definition in 2). For a \(\phi\)-feature probe (a probe that expresses features such as person, number, case), for example, IP coordination (clausal coordination) constitutes an Ambiguous Domain (3).

\[
\begin{align*}
(1) & \quad \text{Chomsky’s (2000) AGREE (p. 122)} \\
& \quad \text{a. Matching is feature identity,} \\
& \quad \text{b. the domain of a probe is its sister,} \\
& \quad \text{c. locality reduces to “closest c-command.”} \\
& \quad \text{(the sister of one match contains the other matches)}
\end{align*}
\]

\[
\begin{align*}
(2) & \quad \text{A probe has an Ambiguous Domain if} \\
& \quad \text{a. Its domain contains multiple matches,} \\
& \quad \text{b. none of the matches asymmetrically c-commands the others,} \\
& \quad \text{(the sister of no match contains the other matches)} \\
& \quad \text{c. the PIC\textsuperscript{1} doesn’t make all but one of the matches accessible.}
\end{align*}
\]

\[
\begin{align*}
(3) & \quad \text{For a \(\phi\)-probe, IP coordination is an Ambiguous Domain:}
\end{align*}
\]

\[
\begin{align*}
\text{IP} & \quad \&'P \\
\text{IP} & \quad \&'I \\
\text{IP} & \quad \&'I' \\
\text{IP} & \quad \&'IP \\
\text{IP} & \quad \&'IP' \\
\text{IP} & \quad \&'IP'' \\
\text{IP} & \quad \&'IP''' \\
\text{IP} & \quad \&'IP'''' \\
\text{IP} & \quad \&'IP''''
\end{align*}
\]

I will present data in which \(\phi\)-probes with Ambiguous Domains always end up agreeing with the linearly closest match. As this is a dependency with both morphological and semantic effects—unlike other closest-conjunct phenomena—it motivates an addendum to AGREE: Skewed AGREE (4).

\[
\begin{align*}
(4) & \quad \text{Skewed AGREE: If a probe has an Ambiguous Domain,}\nonumber \\
& \quad \text{it agrees with the linearly closest match.}\nonumber
\end{align*}
\]

As a precondition for (4), word-order must be defined early (Travis 1989), maybe at Merge. Early determination of word order is also assumed, for instance, in Bruening’s (2014) theory of binding and Khalaf’s (2015) account of inter-conjunct asymmetries.

\[
\begin{align*}
\text{1. The PIC (Phase-Impenetrability Condition) is defined by Chomsky (2000, p. 108) as “In a phase \(z\) with head \(H\), the domain of \(H\) is not accessible to operations outside \(z\), only \(H\) and its edge are accessible to such operations.”}
\end{align*}
\]
2 Switch-Reference marking

Kisêdjê (Northern Jê, Brazil) marks switch-reference (Jacobsen 1967) on clausal coordinating conjunctions. In simple cases, each clausal coordinating conjunction tells whether the clauses it connects have the same subject (SS) or different subjects (DS):

\[(5) \begin{cases} \emptyset & \text{khwå } \text{tho } \text{thẽ } = \text{nych}_1 \emptyset \text{ndât } = \text{ne}_2 \\
3.\text{NOM} 3.\text{to} & 3.\text{with } \text{go.SG } = \&.\text{DS} & 3.\text{NOM} 3.\text{get.PL } = \&.\text{SS} \\
\emptyset & \text{s-ôm}u = \text{n}_3 \emptyset & \text{khu-ru } \text{ro } \text{no. } \\
3.\text{NOM} 3.\text{see} & = \&.\text{SS} & 3.\text{NOM} 3.\text{eat.SG-NMLZ with lay.SG} 
\end{cases}
\]

‘He\_i brought them to him\_j, he\_j took them, he\_j looked at them and he\_j lay down eating them.’

3 Modeling Switch-Reference

There are two parts to modeling switch-reference marking. First, (skewed) AGREE operations in the syntax link the subject DP\_s with the SR-marking conjunction and, finally, in the semantic component the DPs linked with an SR-marking conjunction are interpreted accordingly.

Syntax
- Each SR-marking conjunction & bears two φ-probes, with domains [Compl, &] (sister of &) and [Spec, &] (sister of &’).
- The DPs agreed with by a conjunction’s probes are linked with it for later interpretation.
- Linking is implemented by copying the conjunction’s numeration index onto the DPs.

Semantics
- The DPs linked with a SS conjunction are interpreted as coreferent.
- The DPs linked with a DS conjunction are interpreted as disjoint.

Baseline: no Ambiguous Domains (6), with the structure displayed in (7), clearly shows that SR is sensitive to hierarchy. No domains are ambiguous, so Skewed AGREE isn’t necessary. Derivation: (i.) the specifier probe in the conjunction =ka agrees with the highest DP in [Spec, &]—‘me and your daughter’, the subject of IP\textsubscript{a}—rather than the linearly closer, but structurally farther, DP ‘you’, subject of IP\textsubscript{b}; (ii.) the complement probe agrees with the highest DP in IP\textsubscript{c}; (iii.) the DPs agreed with are linked with the DS conjunction and in the semantics they are interpreted as disjoint.

\[(6) \begin{cases} \text{Hên } \{ \text{IP}_a \{ \text{wa } a-\text{katôt me aj } \} \{ \text{IP}_b \text{a-} \text{mbârâ-} \emptyset \text{mba-j } \text{to ta } \} \\
\text{NFUT} \{ \text{1.NOM} \text{2-daughter with PL} \text{2-cry-NMLZ hear-NMLZ with stand} \\
\{ \text{IP}_c \text{a}_\{ \text{mbârâ ra! } \} \text{2-cry } \text{indeed} \\
\{ \text{ka} \text{\&.DS.2 } \text{2-cry } \text{indeed} 
\end{cases}
\]

‘Me and your daughter were hearing you crying and you were crying indeed!’
With Ambiguous Domains  Assuming that recursive coordination expands at Compl (Johannessen 1998), then (5) (repeated below as 8) has the structure in (9). Since [Compl,&1] and [Compl,&2] are Ambiguous Domains with respect to the ϕ-probing, we need Skewed AGREE (4). Probing and linking happens in the syntax, and in the semantics the DPs linked with a SS conjunction are interpreted as coreferent and those linked with a DS conjunction are interpreted as disjoint.

(8) [∅ khwã tho thê] =nhy₁ [∅ ظ-ندط] =ne₂
   3.NOM 3.to 3.with go.SG =&.DS 3.NOM 3-get.PL =&.SS

   [∅ s-õmu] =n₃ [∅ khu-ru ra no.]
   3.NOM 3-see =&.SS 3.NOM 3.eat.SG-NMLZ with lay.SG

'He₁ brought them to him_j, he_j took them,
he_j looked at them and he_j lay down eating them.'

(9)
4 Skewed to the left, skewed to the right

In the example we just saw, the resolution of the hierarchical ambiguity through Skewed AGREE resulted in agreement with the leftmost match. Below we will look at more cases of AGREEMENT into Ambiguous Domains, some resulting in leftmost agreement, and some in rightmost agreement. But in order to understand the arguments about the structure of the relevant examples, we need to know a little more about the marks of subordination in Kísêdjê.

Kísêdjê marks clausal embedding very clearly

- Main verbs are underived and mark their arguments as nominative-accusative.
- Embedded verbs are nominalized and mark their arguments as ergative-absolutive.
- In embedded clausal coordination, the above marks of embedding are instanced for each clausal conjunct.

<table>
<thead>
<tr>
<th>Case of arguments</th>
<th>Unembedded</th>
<th>Embedded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form of verb</td>
<td>Nom-Acc</td>
<td>Erg-Abs</td>
</tr>
<tr>
<td></td>
<td>Underived</td>
<td>Nominalized</td>
</tr>
</tbody>
</table>

Table 1: The marks of embeddedness and unembeddedness in Kísêdjê

Some monoargumental verbs in Kísêdjê can embed clauses. One such verb is the negative existential khêrê ‘not.be’. In (10) and (11) (see structure in 12), the clause headed by khêrê (IP$\_a$) is coordinated with a simple clause (IP$\_d$). The argument of khêrê (&$\_1$P) is the coordination of two simple clauses, (IP$\_b$) and (IP$\_c$). The specifier probe of &$\_2$ (=nhy$\_2$ in 10, =ne$\_2$ in 11) has an Ambiguous Domain, IP$\_a$. It is ambiguous because, within it, neither of the DP subjects of IP$\_b$ or IP$\_c$ (the matches) is made inaccessible to probing by the PIC nor asymmetrically c-commands the other (2). Skewed AGREE is therefore activated and the match linearly closest to the probe is agreed with, namely, the DP subject of IP$\_c$. (Note the lack of resolution in (10-11): the system isn’t treating IP$\_b$ + IP$\_c$ as the subject.)
In (10-11) above, it is the conjunction’s specifier probe that has an Ambiguous Domain, and since [Spec,&] is to the left of &, linearly closest means rightmost. To complete the paradigm, we will look at an example where linearly closest means leftmost. In (13), (tree in 14) it is the complement probe of &3 that has an Ambiguous Domain (IPb, headed by mā ‘be.imminent’). Since [Compl,&3] is to the right of &3, linearly closest now means leftmost. IPb is an Ambiguous Domain because, within it, none of the DP subjects of IPc, IPd or IPe is made inaccessible to probing by the PIC or asymmetrically c-commands the others (2). Skewed AGREE (4) is activated and the DP subject of IPc is matched by the complement probe on &3 since it is the linearly closest Suitable Goal.
I-kandikhwâjî1 =ta banheiro mā atá 1-sister =NOM bathroom into enter &.SS 3-bathe-NMLZ with stand &.DS.1
\[
\begin{align*}
\text{&3P } & \text{IP} \text{a } wâ-râ \text{ ta } \text{khuthêp } ta \text{ stand } \text{1.NOM} =\text{nhy} \text{3-waiting.for stand} & \text{IP} \text{b } \text{i} \text{3,4}-\text{khatho-ro } \text{3-exit-NMLZ} \\
& \text{IP} \text{c } \text{i} \text{3,4}-\text{twâ-râ } \text{1-into 1-enter-NMLZ} & \text{IP} \text{d } \text{i} \text{3,4}-\text{tâ-râ } \text{1-enter-NMLZ} & \text{IP} \text{e } \text{i} \text{3,4}-\text{tá-râ } \text{1-bathe-NMLZ} & \text{be.imminent}
\end{align*}
\]

(My sister entered the bathroom, is taking a shower and I am waiting, and it is imminent that she leave, I enter the bathroom and take a shower.)

5 Discussion

Given the formulation of AGREE in Chomsky (2000), Ambiguous Domains are a reality. The closest-conjunct evidence we reviewed indicates that in such domains the match linearly closest to the probe is agreed with. The closest-conjunct evidence from SR is stronger than other closest-conjunct effects discussed in the literature because its effects aren’t only morphological, but also semantic, and therefore can’t be ascribed to a “split” view of AGREE, in which AGREE in narrow syntax doesn’t have access to linear order, and the linear effects are obtained in the morphological component (Bhatt and Walkow 2005; Marušič, Nevins, and Badecker 2015). I borrow Marušič, Nevins, and Badecker’s idea that Agree produces a link between the matched goal and the probe.

To the extent that the data presented here make us reevaluate the nature of AGREE and our view of where linear order information enters the derivation, the same account could be extended (if we consider minimal domains and a multiple specifier account of DP coordination) to more classical closest-conjunct effect, allowing us to dispense with the split view of AGREE.
References


Glossing conventions

& = coordinating conjunction, 1 = first person, 2 = second person, 3 = third person, DS = different subject, ERG = ergative, NFUT = non-future, NMLZ = nominalizer, NOM = nominative, PL = plural, SG = singular, SS = same subject.