Skewed Agree: Accounting for Closest-Conjunct Dependencies with Semantic Implications

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1. Extending the Agree operation to ambiguous domains

If we assume the definition of Agree from Chomsky (2000:122), copied in (1) below, then in certain probing domains, which I call *ambiguous*, no matching goal can trigger Agree. A probe’s domain is ambiguous when it contains multiple matches that have not been rendered inaccessible to probing, and among which asymmetric c-command cannot single one out as being closest to the probe (see definition in 2). For a ϕ-feature probe, for example, IP coordination constitutes an ambiguous domain (3). That is the configuration concretely obtained when an agreeing conjunction has a coordinate IP complement.

(1) Chomsky’s (2000) Agree (p. 122)
   a. Matching is feature identity,
   b. the domain of a probe is its sister,
   c. locality reduces to “closest c-command.” (the closest match is the one whose sister dominates all other matches)

(2) A probe’s domain is ambiguous if
   a. It contains multiple matches,
   b. none of the matches asymmetrically c-commands the others, (the sister of no match dominates all other matches)
   c. More than one match is accessible. Matches could be rendered inaccessible by the PIC: “In a phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.” Chomsky (2000:108)

(3) IP coordination is an AD for a ϕ-probe

In this paper, we look at situations in which probes have ambiguous domains and propose changes to the definition of Agree to account for the observed facts. In the dataset we will be considering, ϕ-probes with ambiguous domains end up agreeing with the linearly closest match. As the specific kind of dependency we are entertaining, switch-reference, has morphological as well as semantic effects—unlike other closest-conjunct dependencies—we cannot relegate the linearity effect to the morphosyntactic component (Bhatt & Walkow, 2005; Marušič et al., 2015). As the dependency must be established before spell-out, I argue that it motivates the following addendum to Agree:

(4) Skewed Agree: If a probe has an ambiguous domain, Agree holds with the match *linearly* closest to the probe.

As a precondition for (4), we must assume that word-order is defined early enough (Travis, 1989), before spell-out. That is a strong departure from standard assumptions, but the data seems clear enough

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to warrant it. Independent motivation for assuming an earlier determination of word order can be found in Bruening’s (2014) theory of binding and Khalaf’s (2015) account of inter-conjunct asymmetries.

This text is organized in the following fashion: in section 2, I introduce switch-reference in Kisêdjê (Jê, Brazil). In section 3, I delineate how switch-reference dependencies are established through the Agree operation, as well as their morphological and semantic implications. In section 4, I present the contexts in which switch-reference marking clause-coordinating conjunctions have ambiguous probing domains, and show that the closest-conjunct effects obtained in such situations can be accounted for by Skewed Agree. In section 5, I propose an extension of the Skewed Agree account to the more classical closest-conjunct dependencies that do not have semantic implications and note that agreeing conjunctions that do not mark switch-reference can also have ambiguous domains.

2. Switch-reference

The syntactic dependency established between switch-reference marking clause-coordinating conjunctions and their dependents, usually the subjects of the clausal conjuncts, can be shown to often involve ambiguous domains. Kisêdjê is a language that marks switch-reference on clause-coordinating conjunctions (Nonato, 2014, in press). In simple cases, as in (5), each clause-coordinating conjunction tells whether the clauses it connects have the same subject (ඌඌ) or different subjects (ලඌ):

(5) a. [ Aj-i-kwâjê thô =ra k(h)asâk ] =ne
   PL2-1-relative one =NOM (3)be.bad =&.ss
   ‘A relative of ours was bad and.ss’

b. [ ∅ anhi-khîn-∅ khêt-∅ kanga ] =nhy
   3.NOM REF like-NMLZ not.be-NMLZ COMPL =&.DS
   ‘he never had fun and.ss’

c. [ sîkwândy-jé =ra ngâjôk mâ t(h)o k(h)atho ] =n
   young.men-PL =NOM village.plaza to (3)with (3)come.out =&.SS
   ‘thej young men brought him out towards the village plaza and.ss’

d. [ ∅ t(h)o thê ] =n [ ∅ kh-wâ apêrê k(h) ] =nhy
   3.NOM (3)with go =&.SS 3.NOM 3-to (3)talk =&.DS
   ‘theyj arrived with him and.ss theyj scolded him and.ds’

e. [ ∅ anhi-khâm h-wiasâm ] =ne [ ∅ ngô khâm atâ ] =n
   3.NOM REF-LOC 3-be.ashamed =&.SS 3.NOM water LOC enter =&.SS
   ‘hej felt ashamed and.ss hej went into the river and.ss’

f. [ ∅ s-ikwâ ] =nhy [ më =ra t(h)o k(h)atho ] =nhy
   3.NOM 3-remain.PL =&.DS people =NOM (3)with (3)come.out =&.DS
   ‘hej remained there for a long time and.ds peoplek/j brought him out and.ds’

g. [ ∅ ngô katwân khâm ndwântxi ro k(h)atho ]
   3.NOM water bottom LOC turtle with (3)come.out
   ‘hej brought a turtle from the river bottom.’

The referential indexes added above to the phrases in subject position are not completely determined by the switch-reference morphology. In particular, nothing about different-subject coordinating conjunctions determines that the next subject should be coreferent with some previously introduced referent.
When that happens, it is only due to general discourse principles. On the other hand, switch-reference morphology is obligatory on clause-coordinating conjunctions, even when the reference of the subjects is unambiguous by itself—e.g. participant subjects.

3. Modeling switch-reference

I take switch-reference marking clause-coordinating conjunctions to be conjunctions that agree twice, that is to say, they host two $\phi$-probes, each responsible for establishing one dependency. There are three parts to my account. In the syntax, Agree links the subject DPs with the switch-reference marking conjunctions (6). The latter already come from the lexicon specified as $\text{DS}$ or $\text{SS}$, and in the semantic component, DPs linked with them are interpreted accordingly, as either correferent or disjoint (7). In the morphological component, the conjunction receives a phonological exponent, which often spells out features from the dependent DPs (8).

(6) Syntax
   a. Each switch-reference marking coordinating conjunction, &$, bears two $\phi$-probes, with domains [Compl, &] (sister of &) and [Spec, &] (sister of $\&'$).
      The probe’s domain is still its sister, as in Chomsky’s (2000) definition, since the first probe is activated when the complement is merged (first merge) and the second probe is activated when the specifier is merged (second merge).
   b. The DPs agreed with by a conjunction’s probes are linked with it for later interpretation.
   c. Linking is implemented by copying the conjunction’s numeration index onto the DPs.

(7) Semantics
   a. Switch-reference conjunctions already come from the lexicon specified as $\text{SS}$ or $\text{DS}$.
   b. The DPs linked with an $\text{SS}$ conjunction are interpreted as coreferent.
   c. The DPs linked with a $\text{DS}$ conjunction are interpreted as disjoint.

(8) Morphology: exponent insertion
   a. Switch-reference conjunctions already come from the lexicon specified as $\text{SS}$ or $\text{DS}$.
   b. Phonological exponents are often specified for features beyond $\text{SS}$ or $\text{DS}$. In particular, they can be specified for $\phi$-features. In Kîsêdjê, $\text{DS}$ conjunctions spell out the person features from the following subject when it is nominative. In Shipibo (Panoan, Baker 2014), $\text{SS}$ conjunctions spell out the case feature from the following subject. In Aguaruna (Jivaroan, Overall 2014), conjunctions spell out the person features from the preceding subject, with different person-agreeing exponent sets for $\text{SS}$ and $\text{DS}$ conjunctions.

In the following subsections, we will walk through the derivation of switch-reference for a baseline example without ambiguous domains (§3.1) and for an example involving ambiguous domains (§3.2).

3.1. Baseline example derivation without ambiguous domains

The dependence relations established between switch-reference marking conjunctions and tracked DPs in (9), whose structure is represented in (10), clearly show that switch-reference is sensitive to hierarchy, and not a purely linear phenomenon (possibility suggested to me by Noam Chomsky, p.c.). I am assuming that two-conjunct coordination is formed by merging a conjunction first with one conjunct and then merging the resulting phrase with the other conjunct (Johannessen, 1998). There are no ambiguous domains in (9), and therefore Skewed Agree is not necessary.

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3 Previous theories of switch-reference fail to account for the data discussed here because they follow Finer (1984) in assuming a purely hierarchical relationship between switch-reference markers and tracked subjects. They include Collins (1988); Hale (1992); Watanabe (2000); Camacho (2010); Assmann (2012); Keine (2013); Nonato (2014).
The relevant derivational steps are:

1. Agree is established between &’s complement probe and ‘you’, the highest DP in [Comp,&] = IP_c;

2. Agree is established between &’s specifier probe and ‘me and your daughter’, the highest DP in [Spec,&] = IP_a, rather than the linearly closer but structurally farther DP ‘you’, subject of IP_b;

3. the DPs agreed with are linked with the DS conjunction;

4. in the semantic branch, the DPs linked with the DS conjunction are interpreted as disjoint and, in the morphological branch, the DS conjunction receives an appropriate exponent.

(9) Hên [&P [IP_a [ wa a-katôt me aj ]{1} [IP_b a-mbârâ-∅ ] mba-j to ta ]
NFUT 1.NOM 2-daughter with PL 2-cry-NMLZ hear-NMLZ with stand
[&’ =ka1 =&.ds.2 [IP_c kaTT 4 a-mbârâ ra! ] ]

‘Me and your daughter were hearing you crying and you were crying indeed!’

(10)

3.2. Example derivation involving ambiguous domains

Assuming that recursive coordination expands at Compl (Johannessen, 1998)—that is to say, assuming that in order to add the (n+1)th conjunct, a conjunction is merged with an n-conjunct coordinate complex and the resulting phrase is merged with the (n+1)th conjunct—then (5), whose initial conjuncts are repeated below in (11), has a structure as in (12). Since the complement of every conjuction but the last is a coordinate IP, they constitutes ambiguous domains with respect to φ-probing. We need to have recourse to Skewed Agree (4). Probing and linking happens in the narrow syntax. In the semantic component, the DPs linked with an ss conjunction are interpreted as coreferent, and those linked with a DS conjunction are interpreted as disjoint. In the morphological component, exponents are inserted.

4 In Kisèdjè, nominative pronouns are deleted when adjacent to a (ss or DS) conjunction.
‘A_{1} relative of ours was bad and he_{1} never had fun and the_{j} young men brought him out towards the village plaza and they_{j} arrived with him and …’

For the structure above we assumed that recursive coordination expands at Compl, but Skewed Agree would still be necessary if we instead assumed that recursive coordination expands at Spec. The only difference would be that, assuming the latter option, the specifier probes would have ambiguous domains rather than the complement probes, and ‘linearly closest to the probe’ in the definition of Skewed Agree would translate as ‘rightmost’ rather than ‘leftmost’. In the end, however, the same dependencies would be obtained and, therefore, the same semantic and morphological computations would ensue.

4. Skewed to the left, skewed to the right

In the example just discussed, the resolution of the hierarchical ambiguity through Skewed Agree resulted in Agree being established with the leftmost match. Below we will look at more examples featuring probes with ambiguous domains, in some of which the linearly closest match will be the leftmost one, and in some the rightmost one. In order to understand how I established the structure of the relevant examples, however, let us first look at the remarkably unambiguous morphological hallmarks of clausal subordination found in Kĩsêdjê.

In Kĩsêdjê, main verbs are underived, and their arguments are marked following a nominative-accusative pattern. Embedded verbs, on the other hand, bear nominalizing morphology, and their arguments are marked following an ergative-accusative pattern. Finally, embedded coordinated clauses all share the hallmark features of embedded clauses, whereas unembedded coordinated clauses all share the hallmark features of main clauses.
Table 1: Morphological case exponents

<table>
<thead>
<tr>
<th></th>
<th>Erg</th>
<th>Nom</th>
<th>Acc</th>
<th>Abs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ire</td>
<td>wa</td>
<td>i-</td>
<td>i-</td>
</tr>
<tr>
<td>2</td>
<td>kare</td>
<td>ka</td>
<td>a-</td>
<td>a-</td>
</tr>
<tr>
<td>3</td>
<td>kôre/kôt</td>
<td>ku-/∅-/⟨h⟩</td>
<td>∅-/⟨h⟩</td>
<td></td>
</tr>
<tr>
<td>1+2</td>
<td>ware</td>
<td>ku</td>
<td>wa-</td>
<td>wa-</td>
</tr>
<tr>
<td>DP</td>
<td>=re/=ra</td>
<td>=ra</td>
<td>=∅</td>
<td>=∅</td>
</tr>
</tbody>
</table>

Table 2: Marks of clausal embedding

<table>
<thead>
<tr>
<th>Case frame</th>
<th>Unembedded</th>
<th>Embedded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verb form</td>
<td>Underived</td>
<td>Nominalized</td>
</tr>
</tbody>
</table>

In Kĩsêdjê, the most common way to predicate something about a clause is to embed it under a monoargumental verb. A verb commonly used for that purpose is the negative existential khêrê ‘not.be’—indeed, embedding a clause under khêrê is the only way to produce clausal negation. Another one of these verbs is mā ‘be.imminent’. The examples we introduce below feature one of these two verbs and, in each example, their argument is a coordinate clause. That this is indeed the structure of the examples is clear from the nominalized form of the verbs inside the coordinate complex, as well as the case-marking of their arguments.

In (13) and (14) (see their structure in 15), the argument of khêrê is the coordinate complex &₁P, which conjoins two simple clauses, IPₐ and IPₖ. The clause headed by khêrê (IPₖ) is itself coordinated with a simple clause (IPₐ), projecting &₂P. The specifier probe of &₂ (nyy₂ in 13; ne₂ in 14) has an ambiguous domain, IPₐ, the clause headed by khêrê. It constitutes an ambiguous domain because, within it, both the DP subject of IPₖ and that of IPₐ (the matches) are visible, and none of them asymmetrically c-commands the other.

Skewed Agree is activated and Agree obtains with the match linearly closest to the probe, namely, the DP subject of IPₖ. Note the lack of resolution in (13-14): &₁P, the conjunction of IPₐ and IPₖ, is not a possible dependent for the switch-reference marking conjunction, even though &₁P is arguably the subject of IPₖ. That is expected under the system I propose, in which switch-reference is determined through ϕ-probing, and is therefore only indirectly related to subjecthood (the subject tends to be the highest ϕ-bearing phrase in the probing domain of a switch-reference marking conjunction).

(13) \[\text{IP}_a \ [\&_1 \text{P} \ \text{Pām} =\text{nda}_{(1)} \ \text{kh-wā hý nhy-rỹ} \ ] =\text{nyy}_1 \ [\text{IP}_c \ \emptyset_{(1,2)} \text{-thē-m} \ ] \text{khēt} \]

\[-\text{nyy}_2 \ [\text{IP}_d \ \emptyset_{(2)} \ \emptyset\text{-mbārā-∅ ro nhy.} \ ] =\&.\text{DS} 3.\text{NOM} 3\text{-cry-NMLZ with sit} \]

‘Her father’s saying yes to her and her going didn’t happen and someone sat crying.’

(‘Her father didn’t allow her to go and a person sat crying (not her).’)

(14) \[\text{IP}_a \ [\&_1 \text{P} \ \text{Pām} =\text{nda}_{(1)} \ \text{kh-wā hý nhy-rỹ} \ ] =\text{nyy}_1 \ [\text{IP}_c \ \emptyset_{(1,2)} \text{-thē-m} \ ] \text{khēt} \]

\[-\text{ne}_2 \ [\text{IP}_d \ \emptyset_{(2)} \ \emptyset\text{-mbārā-∅ ro nhy.} \ ] =\&.\text{SS} 3.\text{NOM} 3\text{-cry-NMLZ with sit} \]

‘Her father’s saying yes to her and her going didn’t happen and she sat crying.’

(‘Her father didn’t allow her to go and she sat crying.’)
In (13-14) above, the specifier probe of a switch-reference marking conjunction has an ambiguous domain, and since [Spec,&] is to the left of &, ‘linearly closest to the probe’ means rightmost. In order to complete the paradigm, below we look at an example where ‘linearly closest to the probe’ is leftmost.

In (16), (tree in 17) the complement probe of &₃ has an ambiguous domain (IPₗ, headed by mā ‘be imminent’). Since [Compl,&₃] is to the right of &₃, ‘linearly closest to the probe’ now means leftmost. IPₗ is an ambiguous domain because, within it, none of the DP subjects of IPₗ, IP₞ or IPₑ is made inaccessible to probing by the PIC or asymmetrically c-commands the others (2). Skewed Agree (4) is activated and Agree holds between the conjunction &₃ and the DP subject of IPₑ, since it is the linearly closest match.

(16) [ I-kandikhwâj =ta₁ Nom bathroom mā atā ] =n₁ 1-sister into enter =&.ss
[ [∅₁₂] s-wâ-râ ro ta ] =wa₂ 3.NOM stand with stand =&.ds.1
[ [&₄P kh.wâ i₄₅-tâ-râ ] =ne₅ [IPₑ i₅-twâ-râ ] ] mā 3-into 1-enter-NMLZ &.ss 1-bathe-NMLZ be.imminent

‘My sister entered the bathroom, is taking a shower and I am waiting, and she will leave and I will enter the bathroom and take a shower.’
(lit. ‘…and her leaving, my entering the bathroom and my showering is imminent.’)
5. Discussion

Given the definition of Agree from Chomsky (2000), there are probing domains in which a single Agree-triggering matching goal cannot be determined, which I termed ambiguous domains. In the examples involving ambiguous domains we reviewed, Agree ends up being established with the match linearly closest to the probe. The switch-reference dependencies thus established have morphological as well as semantic implications, unlike other dependencies for which closest-conjunct effects have been described. Therefore, the linearity effects cannot be ascribed to a “split” view of Agree, in which the part of Agree that happens in the narrow syntax does not have access to linear order, and the linear effects are only obtain in the morphological component (Bhatt & Walkow, 2005; Marušič et al., 2015). Rather, in order to account for the phenomenon under discussion, we need to assume that word order is determined prior to spell out, so that it can feed Skewed Agree before the derivation branches into the semantic and morphological components. I borrow Marušič et al.’s idea that Agree produces a lasting link between probe and goal. Whereas in their system this link is only exploited in the morphological component, for the phenomenon described here the link is also relevant for the computation of meaning.

Switch-reference marking clause-coordinating conjunctions are a type of agreeing conjunction. There is no reason to expect that ambiguous domain configurations cannot also be found under more traditional agreeing conjunctions, such as those found in Bavarian and Nez-Perce. The relevant examples would have a structure like that of (18). I do not know what kind of agreement would obtain and I have not been able to find discussions of the matter in the literature. My system predicts that Agree would be triggered by the subject closest to the conjunction.

(18) My wife told me [CP that [IP I snored at night ] and [IP she couldn’t sleep. ] ]

The data discussed in this paper triggered a reevaluation of the nature of Agree and of our view of where linear order information enters the derivation. I extended the system in significant ways in order to incorporate those insights, but the same mechanism can account for more classical closest-conjunct effects, modulo minimal domains and a multiple specifier account of DP coordination, as proposed by Zhang (2010). A coordinate DP, as in (19), constitutes an ambiguous domain for φ-probes: all the DPs are in the same minimal domain, and therefore none can be distinguished as hierarchically closer to the probe.
Given the Skewed Agree addendum I proposed in (4), the match linearly closest to the probe triggers Agree, as instantiated in languages where closest-conjunct effects have been observed. The variation between closest-conjunct agreement and resolved agreement can be traced back to whether & projects a resolved $\phi$-feature set or not.

References


