Cyclic expansion in Agree: Maximal projections as probes

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Cyclic Agree (Rezac, 2003; Béjar and Rezac, 2009) has been proposed to account for why a probe can agree with DPs in both its complement and specifier in agreement displacement. This has been operationalized by assuming that when an unsatisfied probe reprojects, its search space (i.e. its c-command domain) is cyclically expanded to include the specifier. In Bare Phrase Structure (BPS), there is no distinction between head, bar, and phrase levels. Therefore, a prediction of this type of account is that if a probe remains unsatisfied when it reprojects to form a maximal projection, that maximal projection should be able to probe its c-command domain through the same kind of cyclic expansion that makes Spec-Head agreement possible. This prediction is typically untestable, since the c-command domain of the maximal projection of probes like *v*, T, and complement C only contains the head that selects the maximal projection. In this paper, I argue on the basis of a pattern of an agreeing adjunct C in Amahuaca (Panoan; Peru) that this prediction of cyclic expansion is borne out. Adjunct C agrees with DPs in its own complement but also with matrix DPs. This is possible because C^{max} can probe its c-command domain – the matrix TP. This pattern provides evidence that probe reprojection allows for cyclic expansion, even to the c-command domain of the maximal projection of the probe.

Amahuaca agreeing adjunct C. Amahuaca adjunct C agrees with the subject of its clause and the subject and object of the clause to which C^{max} is adjoined (Sparing-Chávez, 1998). Agreement on C tracks referential index (which I model as a ϕ-feature; Rezac 2004), and C is spelled out as a switch-reference (SR) marker that varies depending on the abstract case of the coreferential matrix DP, (1).

(1) a. [*pro* hoxa=hax]=mun **xano** vua=xo=nu — Original fieldwork data
sleep=SS.AFTER=C_{MATRIX} woman sing=3.PST=DECL
'After sleeping, the **woman**$_S$ sang.'

b. [*pro* hoxa=xon]=mun hiya **xano=n** vuna=xo=nu
sleep=SA.AFTER=C_{MATRIX} 1SG woman=ERG look.for=3.PST=DECL
After sleeping, the **woman**$_A$ looked for me.'

c. [*pro* hatapa natuz=xo]=mun joni=n **hino** hachi=xo=nu
chicken bite=SO.AFTER=C_{MATRIX} man=ERG dog grab=3.PST=DECL
'After it bit the chicken, the man grabbed the **dog**$_O$.'

In (1a), the C head =*hax* indicates that the adjunct clause subject is coreferential with an intransitive subject (S) of the matrix clause (subject = S; SS). In (1b), =*xon* indicates that the adjunct subject is coreferential with a transitive subject (A) in the matrix clause (subject = A; SA). Finally, in (1c), =*xo* indicates that the adjunct subject is coreferential with the matrix object (subject = O; SO).

Clem (2018) argues that these adjunct clauses cannot be accounted for by theories of SR that assume SR clauses lack subjects. These clauses can host their own case-marked subjects, (2), making a VP coordination account (Keine, 2013) or a defective TP control account (Georgi, 2012) untenable.

(2) [moha **xano=x** nokoo=xon]=mun jato=n hatza xoka=kan=xo=nu
already woman=NOM arrive=SA.AFTER=C_{MATRIX} 3.PL=ERG yuca peel=3PL=3.PST=DECL
'After the women$_i$ arrived, they$_i$ peeled yuca.'

These data are compatible with previous accounts that treat SR clauses as full CPs (Finer, 1985; Watanabe, 2000; Camacho, 2010). These adjunct CPs attach high in the matrix clause, typically appearing to the left of all matrix arguments (modulo focus movement), consistent with them being TP adjuncts.

Against a bound anaphor analysis. Upward-oriented complementizer agreement (CA) involves a similar pattern of a dependent clause C agreeing with matrix DPs. Upward CA has been argued to involve local agreement with a null anaphor in the Spec of the embedded CP, which is bound by a higher argument (Diercks, 2013). This bound anaphor account is not compatible with the Amahuaca SR data. One immediate problem for such an account is the fact that the coreferential argument can surface as an R-expression in the SR clause, (2). If *xano=x* were coreferential with a c-commanding bound anaphor in Spec,CP this should violate Condition C. An additional issue is that in order for a null anaphor to be bound, the SR clause would have to be c-commanded by the matrix subject or object, at least at some point in the derivation. Even if SR clauses were to start low and obligatorily move to their high surface position, they do not reconstruct below the matrix arguments for Condition C, (3). The SR clause would have to reconstruct for matrix *Juan* to bind the anaphor, but adjunct *Juan=nun* would then violate Condition C. The lack of reconstruction for Condition C makes this type of binding analysis tenuous.

(3) [Juan=nun jono vuchi=[xo]]=mun jono=n Juan rutu=xo=nu
Juan=ERG peccary find=SO.AFTER=C_{MATRIX} peccary=ERG Juan kill=3.PST=DECL
'After $Juan_i$ found the $peccary_j$, it_j killed him_i.'

The analysis: Cyclic Agree and domain expansion. I propose that Amahuaca adjunct C is an insatiable probe (Deal, 2015); that is, it continues probing all potential goals, regardless of their ϕ-specifications, until it reaches a phase boundary. Because this probe will never be satisfied, it will continue to probe each time C reprojects. It will first probe its complement before reprojecting to form a maximal projection, allowing it to probe the c-command domain of C^{max}. Given that SR clauses are TP adjuncts, the c-command domain of adjunct C^{max} will contain the matrix subject and object (which moves out of the *v*P phase; Clem, to appear). This cyclic probing is schematized in (4).

(4) $[_{T^{max}}$ ... $[_{C^{max}}$:$\{\phi_1,\phi_2\}$ ... C^{min}:$\{\phi_1\}$ ... ϕ_1 ...] ... ϕ_2 ...]

The insertion of the appropriate morpheme in C is determined by the features of the DP goals in the two clauses. If a matrix and adjunct DP match in their referential indices (assumed to be part of ϕ-bundles), then one of the coreference markers can be inserted. The choice of marker is based on the abstract features associated with case. Amahuaca has a tripartite case system. If the coreferential matrix DP bears nominative features, it will trigger the SS marker *=hax*. If it bears ergative features, it will trigger the SA marker *=xon*. Finally, if it bears accusative features, it will trigger the SO marker *=xo*.

Comparison with previous accounts. As noted above, previous accounts of SR that do not track referential indices (Georgi, 2012; Keine, 2013), are empirically inadequate given the distribution of overt subject DPs in Amahuaca SR (Clem, 2018). Previous accounts of SR that track indices are designed to rule out objects as SR pivots (Finer, 1985; Watanabe, 2000; Camacho, 2010). This is incompatible with the Amahuaca data in (1c). (Note, though, that a pattern of subject-only tracking is expected on this model if objects remain inside the *v*P phase. This is perhaps the case in various languages where SR tracks only subjects.) This account allows for object tracking due to C's insatiable ϕ-probe – the subject will not act as an intervener for agreement with the object – in addition to the fact that Amahuaca objects move relatively high in the clause (Clem, to appear). This account also improves on that of Finer (1985) and Watanabe (2000) by eliminating the need for a binding relationship between matrix C and adjunct C. Both accounts assume that features of the matrix subject are transferred to matrix C and can bind features on adjunct C. By allowing adjunct C^{max} to probe into matrix TP directly, this account eliminates the need for matrix C to figure in the calculus of vocabulary insertion for adjunct C.

Consequences for a theory of Agree. The SR system of Amahuaca can be straightforwardly captured by assuming cyclic Agree. This account is based on the assumption that probes can be insatiable – they can lack satisfaction conditions (Deal, 2015). If a probe is not satisfied after probing its complement and specifier (due to its insatiability), the natural extension of a probe reprojection account and BPS is that the maximal projection should be able to probe its c-command domain. This is exactly what we find in Amahuaca. Therefore these data provide evidence that probe reprojection is fully generalizable and need not be limited to (what in non-BPS terms are) intermediate level projections. The strongest conclusion of such an account is that Agree always requires that the probe c-command the goal, with Spec-Head agreement and the type of apparent long distance agreement seen in Amahuaca SR having no special status, but simply indicating cyclic expansion of the probe's domain.

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