

Opaque interaction of Merge and Agree: on two types of Internal Merge

Doreen Georgi (University of Leipzig)

Claim I present a new empirical argument for a strictly derivational syntax based on timing of operations. The evidence comes from opacity effects which show that internal Merge (IM) is not a uniform operation. Rather, it must be split into IM triggered by edge features and IM triggered by other features (wh-feature on C, the EPP on T, etc). The split is empirically motivated by the observation that when both types of IM are triggered by the same head H, they apply at different points in the derivation. This becomes visible once they interact with Agree: In some languages, non-edge feature-driven IM feeds/bleeds Agree initiated by H, whereas IM triggered by edge features counter-feeds/counter-bleeds Agree. This is formally derived by ordering of elementary operations: One type of IM applies before and the other after Agree. Finally, I present a specificity-based account of the absence of a pattern that the account predicts to exist.

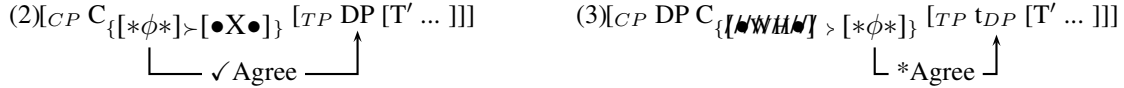
Background In recent minimalism, some functional heads trigger more than one operation (v triggers Agree and Merge). If only a single operation can apply at once, the operation-inducing features on such heads must be ordered. I assume that this order is free, determined language-specifically. In this paper, I look at heads that trigger both Agree and IM. In some languages, IM is not strictly ordered before or after Agree. Rather, edge feature-driven IM applies after and IM triggered by other features applies before Agree because they interact differently with Agree: Whereas the latter IM type feeds or bleeds Agree relations, the former IM type has the opposite effect, it thus counter-feeds or counter-bleeds Agree, i.e., the interaction is opaque. Opaque rule interactions are intransparent: When looking at the output of an opaque interaction, it is unclear (a) why an operation has not applied although its context is given (counter-feeding) or (b) why an operation has applied although its context is not given (counter-bleeding) (Kiparsky 1973). The cases at hand are opaque because internally merged XPs land in the same position SpecH, whether IM is driven by edge features or by other features on H; nevertheless, the two types of IM have different consequences for Agree. The effect is modeled by ordering of operations: IM type A applies *after* Agree and IM type B applies *before* Agree. Consequence: IM type A applies *too late* to change possible Agree relations (the DP that is to be internally merged is still in its base position when Agree applies); IM type B changes structural relations *before* Agree applies and can thus feed or bleed Agree relations (depending on the input). Opacity effects of this abstract pattern can be found on every functional head along the clausal spine.

Assumptions Syntactic structure unfolds step by step in a bottom-up fashion (Chomsky 1995 et seq.). Agree is triggered by probe features [$*F*$], Merge by structure-building features [$\bullet F \bullet$] (Sternefeld 2006). Intermediate movement to phase edges is triggered by edge features [$\bullet X \bullet$] (Chomsky 2000, 2001). Agree applies under c-command. If a probe does not find a goal, a default value is inserted on the probe (Béjar 2003, Preminger 2011). Traces left by movement are not visible for Agree. Clause structure: [$_{CP} C [_{TP} T [_{vP} DP_{ext} [v' v [_{VP} V DP_{int}]]]]$].

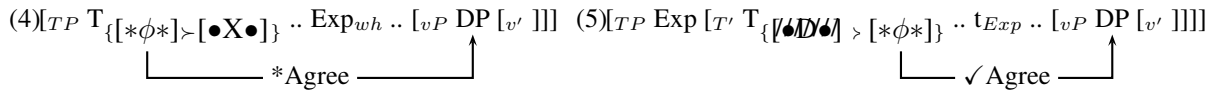
Data 1. ANTI-AGREEMENT EFFECT (AAE): In AAE languages (e.g. Berber, Welsh), the verb shows default 3sg(Masc) agreement if the subject is \bar{A} -moved to SpecC of the minimal CP (short \bar{A} -extraction). If, however, the subject is \bar{A} -moved from an embedded clause into a higher clause (long \bar{A} -extraction), the verb in the embedded clause shows full agreement with the subject as it does when the subject is not extracted at all (cf. (1); 'PART' is invariable). This is opaque: Short \bar{A} -movement to SpecC bleeds ϕ -Agree between C and the \bar{A} -moved subject; long extraction of the subject must also make a stop-over in the embedded SpecC (CP is a phase) and it should thus also bleed Agree, but it does not (counter-bleeding). Analysis: The ϕ -probe is located on C (cf. Ouali 2008, Henderson 2009). Short \bar{A} -movement, triggered by [$\bullet WH \bullet$] on C, applies *before* ϕ -Agree initiated by C. After this movement step, the subject DP is not in the c-command domain of the ϕ -probe anymore, hence the probe gets a default value (cf. (3)). \bar{A} -movement to the embedded SpecC (an intermediate landing site for long \bar{A} -movement) is triggered by an edge

feature on C and applies *after* Agree; when C starts probing, the subject is still in the c-command domain of C and C finds a goal (cf. (2)). Order of features on C: $\{[\bullet\text{WH}\bullet] \succ [*\phi*] \succ [\bullet\text{X}\bullet]\}$.

- (1)a. man tamghart ay y-zri-n M. c. man tamghart ay nna-n qa
 which woman C 3sg.M-see-PRT M. which woman C said-3PL that
 ‘Which woman saw Mohand?’ t-zra Mohand?
 b. *man tamghart ay t-zra M. 3SG.FEM-saw Mohand
 which woman C 3SG.FEM-saw M. ‘Which woman did they say saw Mohand?’
 ‘Which woman saw Mohand?’ (AAE in Berber (Ouhalla 1993))



2. DEFECTIVE INTERVENTION: Icelandic shows opacity on T: ϕ -Agree between T and the subject of an embedded infinitive is blocked if an experiencer (Exp) intervenes. In dialect B (Holmberg & Hroarsdottir 2003), EPP-movement of Exp to SpecT feeds Agree between T and the subject, whereas a wh-moved Exp blocks Agree, as if Exp is not moved at all. Assume that wh-movement to SpecC makes a stop-over in SpecT (cf. e.g. Chomsky 2004, Richards 2011). Since EPP-movement of Exp to this position feeds Agree, we expect feeding with wh-movement as well, but that does not occur (counter-feeding). Analysis: EPP-driven IM of Exp to SpecT applies *before* Agree, hence Exp does not intervene anymore when T probes (cf. (5)). Edge feature-driven IM of the wh-Exp to SpecT (intermediate landing site) applies *after* Agree, hence Exp still intervenes when T probes (cf. (4)). Order of features on T: $\{[\bullet\text{D}\bullet] \succ [*\phi*] \succ [\bullet\text{X}\bullet]\}$.



Note: The result would be the same if Exp_{wh} moved directly from its base position to SpecC, without a stop-over in SpecT: Since C has not yet been merged when T starts probing, Exp_{wh} in situ still intervenes for Agree. However, in Romance languages both EPP- and wh-movement feed Agree (Anagnostopoulou 2003). In this case, it is necessary that Exp_{wh} stops in SpecT (*before* T initiates Agree), otherwise it would be unclear why it does not intervene for Agree; movement of Exp to SpecC comes too late, C is merged after T has probed. This is an argument for the phase status of T; hence, the Icelandic data are indeed opaque: the wh- and EPP-moved Exps go through the same position SpecT but have different consequences for Agree. Further opaque data of the same abstract pattern will be provided (TAM marking in Hausa, spell-out of C in Haitian Creole, possessor case/agreement in Uralic, topicalization in Mayan).

Generalization Four permutations of probe and IM-triggering features are expected: P1. both types of IM apply before Agree, P2. both types of IM apply after Agree; P3. non-edge feature-driven IM applies before Agree which applies before edge feature-driven IM. P4. edge feature-driven IM applies before Agree, the other type of IM applies after Agree. However, P4 is not attested for any of the studied phenomena (= 3/4 pattern). Variation in AAE: In Trentino (Brandi & Cordin 1989), both short and long \bar{A} -movement bleeds full agreement (=P1), in French neither of them bleeds Agree (=P2). Variation in intervention: In Romance and Greek, both an EPP- and a wh-moved experiencer feeds Agree (=P1), in Icelandic dialect C (Sigurðsson & Holmberg 2008) neither movement type feeds Agree (=P2). Proposal: The absence of P4 is due to specificity (see e.g. Pullum 1979 and Lahne 2012 for application of specificity in syntax): The more specific IM-triggering feature is discharged first. IM-triggers like $[\bullet\text{WH}\bullet]$, $[\bullet\text{D}\bullet]$ (=the EPP) are more specific because they attract elements with a certain categorial or interpretive feature. Edge features, however, are underspecified structure-building features, attracting an element regardless of its properties. Thus, P4 with the edge feature discharged before e.g. $[\bullet\text{WH}\bullet]$ is excluded.

Conclusion A number of superficially different phenomena are shown to be the result of opaque interaction of Agree and IM. Since the present analysis crucially relies on timing of elementary

operations, it provides an argument for a strictly derivational syntax (cf. Řezač 2004, Heck & Müller 2007). The Romance intervention facts are evidence for uniform paths (contra Abels 2003): T is a phase head just as C, v, and D. The absence of P4 is accounted for by specificity.