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

Claim: Opacity effects show that internal Merge (IM) must be split into IM triggered by edge features and IM triggered by non-edge features. Empirical evidence: 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. Analysis: Operation-inducing features are ordered on H: One type of IM applies before and the other after Agree. This analysis presupposes a strictly derivational syntax in which the timing of operations plays an important role.

The present analysis has the following implications:

• Agree not only needs to be ordered wrt. Merge; a more fine-grained approach is needed that distinguishes between different types of (internal) Merge.
• Extrinsic ordering of operation-inducing features is needed after all: None of the principles that have been proposed in the literature to determine rule ordering (e.g. the Cyclic Principle) captures the cross-linguistic variation.
• Intermediate movement steps are triggered by designated features (edge features).
• Movement to SpecC uses SpecT as an intermediate landing site.

1 Introduction

1.1 Rule interactions in grammar

Types of interactions: transparent and opaque interactions (Kiparsky 1971, 1973).

(1) Transparent rule interactions:
   a. Feeding: A rule R₁ creates the context for the application of a rule R₂.
   b. Bleeding: A rule R₁ destroys the context for the application of a rule R₂.

(2) Opaque rule interactions:
   a. Counter-feeding:
      (i) A rule R₁ creates the context for the application of a rule R₂ and should thus feed R₂.
      (ii) Empirical evidence shows that R₂ has not applied although R₁ has.
      (iii) On the surface: A rule has not applied although its context is given.
b. Counter-bleeding:
   (i) A rule $R_1$ destroys the context for the application of a rule $R_2$ and should thus bleed $R_2$.
   (ii) Empirical evidence shows that $R_2$ has applied although $R_1$ has as well.
   (iii) On the surface: A rule has applied although its context is not given.

1.2 Rule ordering in Minimalism: conflicts in the derivation

- Minimalism: strictly derivational approach to syntax, structures are built up incrementally in a bottom-up fashion.
- Elementary operations (Chomsky 2000, 2001) that can interact:

  (3) Merge and Agree:
  a. Merge (internal and external Merge) is a structure-building operation. Merge is triggered by structure-building features [$\bullet F\bullet$].
  b. Agree relates functional heads and arguments; wrt. argument encoding: exchange of case / $\phi$-features. Agree is triggered by probe features [$\ast F\ast$].

- Operation-inducing features can be ordered. This assumption is needed independently because some functional heads trigger more than one operation:
  - $v$: triggers Agree and Merge of the external argument: $v$ { [$\bullet D\bullet$], [$\ast \phi\ast$] }
  - $T$ (e.g. in English): triggers Agree with the subject DP and (internal) Merge to SpecT (EPP property): $v$ { [$\bullet D\bullet$], [$\ast \phi\ast$] }

- Evidence for ordering of elementary operations: see van Koppen (2005); Béjar and Řezač (2009); Halpert (2012); Assmann and Heck (2012) for a strict ordering on some heads; see Müller (2004a); Lahne (2008a); Heck and Müller (2007); Assmann et al. (2012) for consequences of different orders of Merge and Agree on $v$ and $T$.
- Assumption: The order of operation-inducing features on a head is free, determined language-specifically (on variation see section 4).

Opacity in the present data:

- A head $H$ triggers Agree and internal Merge: $H$ { [$\bullet F\bullet$], [$\ast \phi\ast$] }
- Sometimes the XP moved to SpecH feeds/bleeds Agree initiated by $H$; sometimes it has the opposite effect in that position (counter-bleeding/-feeding), cf. (4), (5).
- Condition = movement type; intermediate vs. final movement step to SpecH
- If SpecH is an intermediate landing site for XP (triggered by edge features) it counter-feeds/counter-bleeds Agree triggered by $H$; if SpecH is the final position of a movement chain (triggered by other features) it feeds/bleeds Agree by $H$.
- Pattern: Intermediate movement of XP to SpecH behaves as if the XP is not moved at all wrt. Agree; final movement to SpecH patterns differently wrt. Agree.
Analysis: ordering of operation-inducing features on H:

a. IM to the final landing site \( \succ \) Agree \( \succ \) IM to an intermediate landing site
b. \( \bullet F \bullet \succ \star \phi \star \succ \bullet X \bullet \)

2 Assumptions

- Clause structure \([CP C [TP T [\nu P \text{DP}_{ext} [\nu V [V P V \text{DP}_{int} ]]]]]\)
- structure is built up incrementally in a bottom-up fashion
- All operations are feature-driven: Agree is triggered by probe features \( \star F \star \), Merge is triggered by structure-building features \( \bullet F \bullet \) (notation: Heck and Müller 2007).
- Intermediate movement steps are triggered by edge features \( \bullet X \bullet \)
- Agree (Chomsky 2000, 2001): A probe P on a head H searches for the closest goal G in its c-command domain. Result: G values P (\( \phi \)-Agree) or P values G (case).
- case probes: \( \star c : \text{value} \star \); \( \phi \)-probes: \( \star \phi \square \star \)
- Insertion of default values if Agree fails (cf. Béjar 2003; Preminger 2011): \( \phi \)-Agree: [3sg], case Agree: [c:nom].
- Traces are not visible for Agree (or: movement does not leave behind a trace).
- The Activity Condition holds (Chomsky 2001): A DP that has received a case value cannot be the goal for an Agree relation.
- Agree is not PIC-sensitive (Bošković 2007).

ABSTRACT (COUNTER-)BLEEDING PATTERN:

(7) Bleeding:

final IM of XP applies before Agree; XP is then no longer in the c-command domain of H; \( \phi \)-Agree fails; a default value in inserted on H
### 3 Case studies

#### 3.1 (Counter-)Bleeding: The Anti-agreement effect (AAE)

**DATA:**

- In a number of languages, \(\phi\)-Agree between the verb and the subject DP reduces to default agreement (3sg) if the subject is extracted to the minimal SpecC (questioned, relativized, clefted), cf. (9-b) and (11).
- However, long-distance extraction of the subject results in full subject-verb agreement in the clause from which the subject is extracted.
- Languages: Berber, Breton, Welsh, Kinande, Kikuyu, Palaun, Turkish, etc. (cf. Ouhalla (1993); Phillips (2001); Richards (1997) for an overview)

### 9 Anti-agreement in Berber, wh-movement (Ouhalla 1993: 479f.)

a. zri-n imhdarn Mohand saw-3PL students Mohand ‘The students saw Mohand.’ no extr., full agr.

b. man tamghart ay yzrin Mohand which woman COMP see.PART Mohand ‘Which woman saw Mohand?’ short extr., default agr.

c. *man tamghart ay t-zra Mohand which woman COMP 3SG.FEM-saw Mohand ‘Which woman saw Mohand?’ short extr., full agr.

d. man tamghart ay nna-n qa t-zra Mohand? which woman COMP said-3PL that 3SG.FEM-saw Mohand ‘Which woman did they say saw Mohand?’ long extr., full agr.

### 10 \([\text{CP} C [\text{TP} \text{DP} [t' ...]]]\)

### 11 \([\text{CP} \text{DP} C [\text{TP} t_{DP} [t' ...]]]\)

---

1 The verb form in (9-b) is glossed as ‘participle’, but Ouhalla (1993) argues that this form contains the default 3rd person masculine form of agreement. In many other languages with the AAE, the verb form under short A-extraction is completely identical to 3rd person singular agreement.
RULE INTERACTIONS

- Short Ā-movement of the subject DP to the minimal SpecC bleeds φ-Agree.
- Long-distance Ā-movement of the subject passes through the local SpecC position, too, but it does not bleed φ-Agree: long movement counter-bleeds φ-Agree.
- For syntactic, morphological and semantic evidence for the successive-cyclic nature of long Ā-movement through the local SpecC position see McCloskey (1979); Cole (1982); Clements et al. (1983); Torrego (1984); Barss (1986); Lebeaux (1990); Chung (1994); Fox (2000); Lahne (2008b) among others.

ANALYSIS:

- Assumption: subject-verb agreement in AAE languages is mediated by C (cf. Ouali (2008); Henderson (2009)).
- Reason: Short and long movement can be distinguished by the nature of their trigger on the minimal C head: SpecC = intermediate or final landing site
- Consequence: Either the verb picks up the inflection in C by V-to-C movement (cf. Sproat (1985); Jouitteau (2005) on Celtic) or the inflection is lowered to T in the morphological component.
- Local Ā-movement: triggered by [•WH*] on C, applies before Agree.
- Long-distance Ā-movement: intermediate movement step triggered by an edge-feature on the minimal C, applies after Agree.

(12) Order of features on C:
C { [•WH*] > [•φ*] > [•X*] }

- Consequence: A locally Ā-moved DP is not in the c-command domain of C anymore when C probes and hence, C does not find a goal; a long-distance Ā-moved DP is still in its base position when C probes.

(13) No Ā-extraction of the subject DP, φ-probe discharged:
[CP C[(•φ*)] [TP DP [T' ... ]]]
\[\checkmark\text{ Agree} \]

(14) Local Ā-extraction of the subject DP:
a. Step 1: Movement of the subject to SpecC, wh-feature discharged:
[CP DP [WH C[•WH*] > [•φ*]] [TP TDP [T' ... ]]]
\[\text{Move} \]

\[\text{Lowering of the inflection is reminiscent of Affix-Hopping (Chomsky, 1957). Furthermore, it seems plausible given Feature Inheritance, i.e., φ-feature transfer from C to T (cf. Chomsky (2000); Richards (2003)); the only difference is that I assume that this transfer may apply late, in the morphological component (cf. morphological merger in Embick and Noyer (2001)). See also Ouali (2008) on variation in the application of Feature Inheritance.}\]
b. Step 2: $\phi$-Agree initiated by C, default valuation of the probe:

\[
\begin{array}{c}
[CP \; DP \; C]_{\phi \prec \ldots} \frown [\phi \prec \ldots] \downarrow
\end{array}
\]

(15) Long $\bar{A}$-extraction of the subject DP:

a. Step 1: $\phi$-Agree initiated by C, $\phi$-probe discharged

\[
\begin{array}{c}
[CP \; C]_{\phi \prec \ldots} \frown [\star \chi \prec \ldots] \downarrow
\end{array}
\]

b. Step 2: Movement of the subject DP to the local SpecC, edge feature discharged

\[
\begin{array}{c}
[CP \; DP \; w]_{\phi \prec \ldots} \frown [\star \chi \prec \ldots] \downarrow
\end{array}
\]

MORE EVIDENCE FROM VARIATION FOR SPEC C AS AN INTERMEDIATE LANDING SITE:

- Alternative analysis: long $\bar{A}$-extraction does not make a stop-over in the minimal SpecC position but moves directly to the matrix SpecC.
- However, this assumption causes problems for languages in which both long and short $\bar{A}$-movement bleed $\phi$-Agree (e.g., Fiorentino and Trentino [Brandi and Cordin 1998]): Long movement should not cause bleeding.\(^3\)
- Possible answer: Long $\bar{A}$-movement makes a stop-over in the minimal SpecC in some languages, but not in others.
- My proposal: Long $\bar{A}$-movement always goes through the minimal SpecC (and the AAE data are thus indeed opaque). **Variation is accounted for by reordering of operation-inducing features.**

(16) Order of features on C in Trentino type languages:

\[
C \{ [\star \chi \prec \ldots], [\star \chi \prec \ldots] \frown [\phi \prec \ldots] \}
\]

REMAINING ISSUES:

- If the subject is locally extracted, why can the probe on C not Agree with the object (if there is one)? Answer: The object gets its case value early in the derivation from v. It is then inactive (Activity Condition), i.e., it cannot be a goal for $\phi$-Agree.
- If $\phi$-Agree and case assignment go hand in hand, where does a subject that undergoes short $\bar{A}$-movement to the minimal SpecC get its case value from (Agree with C is bled)? Answer: default valuation happens just as with $\phi$-features; nominative is valued on the subject DP.

---

\(^3\)Previous analyses of the AAE pattern include $\bar{A}$-binding approaches (Brandi and Cordin 1998; Ouhalla 1993) and anti-locality approaches (Cheng 2006; Schneider-Zioga 2007). Both of these approaches need stipulations to account for the cross-linguistic variation. In the binding approaches, traces of intermediate movement steps can act as $\bar{A}$-binders in some but not in other languages; in the anti-locality approaches the Trentino pattern is not addressed but it would probably have to be analyzed by assuming that long movement does not go through the minimal SpecC position.
3.2 (Counter-)Feeding: Intervention effects in Icelandic B

DATA:

Sigurðsson and Holmberg (2008) describe three Icelandic dialects that pattern differently wrt. intervention effects caused by dative experiencers. Opaque interaction of Agree and IM is found in Icelandic B for number agreement as shown in (17) (see also Holmberg and Hróarsdóttir (2003))

(17) **Raising constructions in Icelandic:**

a. það virðist/*virðast einherjum mannin [hestarnir vera seinir] 'It seems to some man that the horses are slow.'

b. Mér virðast t_{NP} [hestarnir vera seinir] 'It seems to me that the horses are slow.'

c. hvaða mannin veist þú að virðist/*viðast t_{wh} [hestarnir vera seinir] 'To which man do you know that the horses seem to be slow?'

- \(\phi\)-Agree between T and a lower subject DP is blocked by an intervening experiencer (defective intervention), see (17-a) and (18).

- If the experiencer Exp is moved to SpecT (EPP-driven movement), Agree between T and the lower DP becomes possible, see (17-b) and (19).

- If, however, Exp is wh-moved to SpecC, Agree between T and the lower DP is still blocked, see (17-c) and (20).

- On the surface, Exp does not intervene between T and the DP in (19) and (20). Nevertheless, a wh-Exp behaves as if it intervened, just as if it is not moved at all.

(18) \[
\begin{array}{c}
\text{[TP T [vP [vP Exp [v' V [TP DP [T' ... ]]]]]]}
\end{array}
\]

- *Agree

(19) \[
\begin{array}{c}
\text{[TP Exp [T [vP t_{Exp} [v' V [vP t_{Exp} [v' X [TP DP [T' ... ]]]]]]]}
\end{array}
\]

\(\checkmark\) Agree

(20) \[
\begin{array}{c}
\text{[CP Exp_{wh} [CP T [vP t_{Exp} [v' V [TP DP [T' ... ]]]]]]}
\end{array}
\]

\(\star Agree\)

As Sigurðsson and Holmberg (2008) show, person agreement patterns differently from number agreement. Agreement in 1st and 2nd person is blocked in all three dialects, regardless of the position of the dative experiencer. In what follows, I confine myself to number agreement. The facts on person agreement can be integrated into the present analysis if person and number are separate probes, as Sigurðsson and Holmberg (2008) have argued, and if the person probe, searching for local person arguments, probes before any movement operation has taken place; i.e., the person probe is the feature on T which is discharged before all other operation-inducing features.
Rule Interactions:

- EPP-driven IM (\(\bullet D \bullet\)) of Exp to SpecT feeds Agree between T and the lower DP.
- Assumption: IM to SpecC makes a stop over in SpecT.
- But in contrast to an EPP-moved Exp, it does not feed Agree in that position = counter-feeding.

(21) Surface representation of the TP:

a. Feeding (EPP-movement):

\[
\begin{align*}
&\text{TP} \\
&\text{Exp} \quad T' \\
&T \{ \phi:2SG \} \quad \text{vP} \\
&t_{Exp} \ldots
\end{align*}
\]

b. Counter-feeding:

\[
\begin{align*}
&\text{TP} \\
&\text{Exp}_{wh} \quad T' \\
&T \{ \phi* \} \quad \text{vP} \\
&t_{Exp} \ldots
\end{align*}
\]

Analysis:

- EPP-driven movement to SpecT is a final movement step and applies before Agree initiated by T; consequence: Exp does not intervene anymore when T probes.
- A wh-Exp uses SpecT only as an intermediate landing site; this movement is driven by an edge feature and applies after Agree. Exp thus still intervenes at the point of the derivation where T starts probing.

(22) Order of features on T (Icelandic B):

T \{ [\bullet D \bullet] > [\bullet \phi*] > [\bullet X \bullet] \}

(23) No movement of the experiencer: Agree fails, default agreement:

\[
[\text{TP} T \{ *_{\phi*} \} [vP v [\text{Exp} [v' V [\text{TP} DP [T' ...]]]]]]
\]

\[\text{✓ Agree}\]

(24) EPP-movement of the experiencer:

a. Step 1: movement of the experiencer to SpecT, EPP discharged

\[
[\text{TP} \square [T_{\bullet D \bullet}] > [\bullet \phi*] [vP \text{Exp} [v' V [\text{TP} DP [T' ...]]]]]]
\]

\[\text{Move}\]

b. Step 2: Agree between T and the lower DP, \(\phi\)-probe discharged:

\[
[\text{TP} \text{Exp} [T_{\bullet D \bullet}] > [\bullet \phi*] [vP t_{Exp} [v' V [\text{TP} DP [T' ...]]]]]]
\]

\[\text{✓ Agree}\]
wh-movement of the experiencer:

a. Step 1: Agree initiated by T fails, Exp$_{wh}$ still intervenes, default agreement

\[ [T \ T \ [\ast \phi] \ast x \ast] \ [\sqrt \ V \ [\sqrt \ t_{Exp} \ [\sqrt \ V \ [\sqrt \ TP \ DP \ [T_\ast \ ... \ ]]]]]] \]

*Agree

b. Step 2: Intermediate movement step to SpecT, edge feature discharged:

\[ [TP \ Exp_{wh} \ [T \ T \ [\ast \phi] \ast x \ast] \ [\sqrt \ V \ [\sqrt \ t_{Exp} \ [\sqrt \ V \ [\sqrt \ TP \ DP \ [T_\ast \ ... \ ]]]]]] \]

Move

Evidence from variation for SpecT as an intermediate landing site:


- However, this assumption causes problems for languages in which both EPP-driven and wh-movement of Exp feeds $\phi$-Agree (e.g. Icelandic A, Sigurðsson and Holmberg 2008): Wh-movement should not cause feeding.

- A similar pattern in Romance (McGinnis 1998; Anagnostopoulou 2003): Exp blocks movement of a lower DP to SpecT. If Exp is cliticized to T or questioned, movement to SpecT becomes possible. Exp-movement must precede attraction of the subject DP; the latter step is counter-cyclic if a wh-Exp does not go through SpecT.

- Solutions in the literature: (i) phase-internal counter-cyclicity (Anagnostopoulou 2003), (ii) MLC is a representational constraint (intervention is evaluated at the phase-level), (iii) covert movement of the wh-Exp to a low $\bar{A}$-position that is invisible to a probe on T because $\phi$-Agree = A-relation (Legate 2002).

- Possible answer: Wh-movement makes a stop-over in SpecT in some languages, but not in others.

- My proposal: Wh-movement always goes through SpecT (for the same assumption cf. Chomsky 2005; Gallego 2006; Boeckx and Grohmann 2007), see also Müller 2004b and references cited), the Icelandic B data are thus indeed opaque.

- Variation is accounted for by reordering of operation-inducing features. In this way, the data can be accounted for in a strictly derivational model of syntax without the need for counter-cyclic operations or a representational residue.

Order of features on T in Icelandic A:

\[ T \ \{ \ [\ast \ D \ast], \ [\ast \ X \ast] \ast x \ast [\ast \phi] \ast \} \]

One might wonder why the wh-experiencer does not check the EPP. In contrast to the wh-feature on the local C head in the AAE derivation with long $\bar{A}$-extraction, the EPP is always present on T in Icelandic. If the wh-experiencer checked the EPP in Icelandic B, this would feed agreement, contrary to fact. I do not have an answer why the wh-experiencer cannot check the EPP, but it is clear for Icelandic that it doesn’t, because in exactly this configuration the EPP can be checked by a different phrase, as Holmberg and Hróarsdóttir 2003 show.
3.3 (Counter-)Bleeding: Possessor case and agreement in Hungarian

Properties of the possessor construction in Hungarian:
- linear order: Poss.dat > D > Poss.nom > Det > Adj > N-Agr
- possessor case: dative or nominative
- the possessum agrees with the possessor in φ-features
- Poss.dat can be moved out of the DP; Poss.nom cannot
- the position that Poss.dat occupies is an operator position; the possessor is moved to that position (from the nominative position), cf. Szabolcsi (1994).

(27) **Possessors in Hungarian:**

a. (a) Mari kalap-ja
   the Mari.NOM hat-POSS.3SG
   ‘Mari’s hat’

b. Mari-nak a kalap-ja
   Mari.DAT the hat-POSS.3SG
   ‘Mari’s hat’

c. a te valamenyi
   the you.NOM each
   tiik-od
   secret-POSS.2SG
   ‘your every secret’

(28) **Extraction data:**

a. Mari-nak nem ismert-em [t’
   Mari.DAT not knew-1SG
   t növér-é-t]
   sister-POSS.3SG-ACC
   ‘I never knew any sister of Mari’

b. *ki kalap-ja
   who.NOM hat-POSS.3SG
   ‘whose hat?’

c. ki-nek a kalap-ja
   who-DAT the hat-POSS.3SG
   ‘whose hat?’

(29) **Structure of the Hungarian DP:**

\[ \text{[DP } [\text{D’ } D [n_{np} \text{ Poss } [n_{np} \text{ Det } [n_{np} \langle \text{Poss} \rangle N] n ]]]] \]

\[ \text{\textbullet Move } \text{\textbullet Move } \text{\textbullet Move } \text{\textbullet Move } \text{\textbullet Move } \text{\textbullet Move } \text{\textbullet Move } \]

**Assumptions:**
- Poss is merged as a sister of N (for reasons of theta-role assignment, cf. Delsing (1998); de Vries (2006)
- Poss must move to Specn to derive the surface sequence: n { [D•] }
- N-Poss-agreement is mediated by n: n { [φ•] }
  (N-to-n movement leads to spell-out of the agreement features on N)
- n assigns dative case: n { [dat•] }
- Poss.dat moves further to SpecD: D { [F_{dat•}] }
- nominative: default case instantiated on a DP if it does not Agree in case with n

**Rule Interactions**
- [D•]-driven movement of Poss to Specn bleeds dative case assignment.
- Movement to SpecD must go through Specn, too, but it does not bleed dative case assignment by n, i.e., it counter-bleeds Agree.
ANALYSIS

- […D•]-driven IM to Specn is a final movement step; it applies before Agree in case.
- Movement of Poss to SpecD uses Specn as an intermediate landing site; this movement is driven by an edge feature and applies after Agree.
- n-Poss-Agree in φ-features is not influenced by the case of the possessor. Conclusion: φ-Agree is the first operation that n triggers.

30) Order of features on n:
   n { [∗φ∗] > [•D•] > [∗:c:dat∗] > [•X•] }

31) Nominative possessor:
   a. Step 1: EPP-movement of Poss to Specn, EPP discharged:
      \[ [\text{nP} \text{Poss} [n \text{r} [\bullet D \bullet] > [\bullet: c:dat \bullet] [\text{NP} \text{Det} [N \text{t} N]]]] \]
      \[ \text{Move} \]
   b. Step 2: Agree initiated by n fails, default case on Poss, case-probe discharged:
      \[ [\text{nP} \text{Poss} [n \text{r} [\bullet: c:dat \bullet] > [\bullet X \bullet] [\text{NP} \text{Det} [N \text{t} N]]]] \]
      \[ \text{✓ Agree} \]

32) Dative possessor:
   a. Step 1: Agree, n assigns dative to Poss, case-probe discharged:
      \[ [\text{nP} \text{r} [\bullet: c:dat \bullet] > [\bullet X \bullet] [\text{NP} \text{Det} [N \text{Poss} N]]] \]
      \[ \text{✓ Agree} \]
   b. Step 2: Edge-feature-driven Internal Merge of Poss to Specn:
      \[ [\text{nP} \text{r} [\bullet X \bullet] > [\bullet: c:dat \bullet] > [\bullet X \bullet] [\text{NP} \text{Det} [N \text{Poss} N]]] \]
      \[ \text{Move} \]

- Side note: This is also evidence for the separation of case- and φ-Agree since the two apply at different points in the derivation; see also Marantz (1991); Bobaljik (2008); Baker and Vinokurova (2010); Keine (2010); Preminger (2011).

4 Variation

4.1 Variation in AAE, intervention and possessor case

Since the order of operation-inducing features on a head is free, we expect the following four permutations ([:X•] = trigger for intermediate movement steps):

1. [•FINAL•], [•X•] > [∗φ∗] (transparent)
2. [∗φ∗] > [•FINAL•], [•X•] (transparent)
3. [•FINAL•] > [∗φ∗] > [•X•] (opaque)
4. [•X•] > [∗φ∗] > [•FINAL•] (opaque)
Attested and unattested patterns:

<table>
<thead>
<tr>
<th></th>
<th>pattern 1</th>
<th>pattern 2</th>
<th>pattern 3</th>
<th>pattern 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAE</td>
<td>Trentino</td>
<td>English</td>
<td>Celtic</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Fiorentino</td>
<td>(both IM types bleed Agree)</td>
<td>Berber</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ibibo</td>
<td>(neither IM type bleeds Agree)</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(IM types have different effects)</td>
<td></td>
</tr>
<tr>
<td>Interv.</td>
<td>Icelandic A</td>
<td>Icelandic C</td>
<td>Icelandic B</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>(both IM types feed Agree)</td>
<td>(neither IM type feeds Agree)</td>
<td>(IM types have different effects)</td>
<td></td>
</tr>
<tr>
<td>Poss</td>
<td>?</td>
<td>Hungarian (φ-Agree)</td>
<td>Hungarian (case)</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>(both IM types bleed Agree)</td>
<td>(neither IM type bleeds Agree)</td>
<td>(IM types have different effects)</td>
<td></td>
</tr>
</tbody>
</table>

- On variation in intervention effects see Anagnostopoulou (2003), Sigurðsson and Holmberg (2008).
- On variation in possessor case/agreement see Nikolaeva (2002) and references cited there.

4.2 Extrinsic vs. intrinsic ordering

- **Pullum** (1979): All orderings are determined by Universal Principles, i.e., extrinsic ordering is not necessary.
  - **Obligatory Precedence Principle** (Ringen 1972): obligatory > optional
  - **Specificity Principle** (Sanders 1974; Anderson 1969): specific > less specific
  - **Cyclic Principle** (Chomsky et al. 1956; Chomsky and Halle 1968): Any operation to the cyclic domain $D_x$ will precede any operation to the cyclic domain $D_{x-1}$ (where $D = S$).
  - McCawley (1984; 1988) maximizes the applicability of the Cyclic Principle: Every constituent is a cyclic domain.

- The variation in (33) cannot be accounted for by any of these principles.
- Cyclic Principle: Even under McCawley’s (1988) definition, Agree and Merge apply (i) either in the same cycle (HP) or (ii) Agree applies in a lower cycle than IM (H’ vs. HP). Under (i), the Cyclic Principle does not predict any order (the principle is too weak); under (ii) Agree is wrongly predicted to always apply before IM (the principle is too strong).
- Conclusions: Not all attested orderings can be accounted for by Universal Principles; extrinsic ordering is needed after all.

4.3 An unattested pattern (?)

- Pattern 4 does not seem to be attested for the phenomena introduced in section 3; there is a 3-out-of-4 pattern in the order of probe and structure-building features.
- It remains to be seen whether this gap also exists with other phenomena.

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A similar though not identical proposal is made in Williams (1974).
**Hypothesis:**

- The absence of this pattern maybe due to Specificity (for recent application of this concept in syntax see [Lahne (2008b); van Koppen (2005)]).
- The more specific IM-triggering feature is discharged before the less specific one.
- Non-edge-features that trigger IM are more specific than edge-features.
- Non-edge-features attract elements of a certain category or with a certain effect on interpretation (e.g. \([\cdot d\cdot], [\cdot w h\cdot], [\cdot t o p\cdot]\)).
- Edge features are categorially underspecified structure-building features.
- The order of IM triggers relative to probe features is free (language-specific).

5 Conclusion

- IM does not always apply before or after Agree. A more fine-grained approach with two types of IM is needed.
- Evidence: If a head triggers both types of IM and Agree, IM has different consequences for Agree, although the moved XP occupies the same position SpecH.
- The split is between edge-feature-driven and non-edge-feature-driven IM, i.e., intermediate vs. final movement steps in a chain.
- Final IM feeds/bleeds Agree; intermediate IM counter-bleeds/counter-feeds Agree.
- The analysis presupposes a strictly derivational model of syntax.
- Intermediate movement steps must have a designated trigger – edge features (incompatible with [Abels (2012)]).
- To account for the variation, extrinsic ordering of operations is necessary.
- There seems to be a gap in the predicted reorderings: So far, pattern 4 is not attested. This gap may be due to Specificity.

**References**


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http://www.uni-leipzig.de/~lomo