IGRA 01: Syntax II

The Interaction of Elementary Operations in the Minimalist Program

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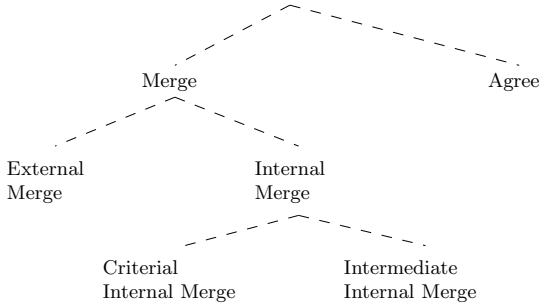
1. Elementary Operations

Note:
Standardly, it is assumed in work carried out in the minimalist program that there are two basic operations: a structure-building operation *Merge* and a structure-modifying operation *Agree*. Merge comes in two varieties: internal Merge (= movement) and external Merge (= subcategorization-driven operations). In addition, a further distinction may also play a role, viz., the one between intermediate movement steps and criterial movement steps (see Georgi (2014)). This yields the system of elementary operations in (1).

(1) *Elementary operations*:

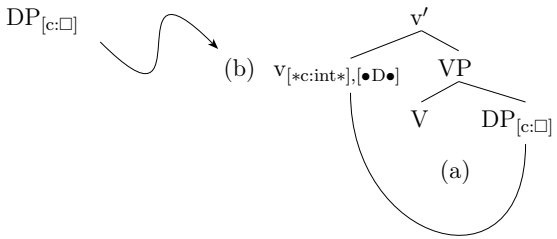


2. On the Order of Merge and Agree

Observation:

- A (transitive) v has a dual function, by standard assumptions (Chomsky (2001)): It introduces the external argument DP, via Merge, and it assigns structural case, via Agree.
- There is a point in the derivation (here called stage Σ) when v has been merged with VP, and an indeterminacy in rule application arises: Is the next operation Merge or Agree?

(2) *Stage* Σ*:*



(3) *Assumption: Merge and Agree are both triggerd by designated features*:
   a. Structure-building features (incl. subcategorization features) trigger Merge: [•F•] ([•D•] means that v triggers Merge of a DP.)
   b. Probe features trigger Agree: [∗F∗].
   ([*c:int*] means that v assigns an *internal* structural case; [c:□] is a case feature of a DP that needs to be valued by case assignment.)

Questions:

- Does a fixed order of the two operations follow under any of the approaches to restrictions on ordering of operations that have been suggested in the literature? (See next lecture for detailed discussion.)
- Does it even matter in which order the two operations apply?
  (It doesn't matter if the two rules are not in a potential feeding or bleeding relation.)

(4) *Predictions of different systems for rule ordering*:
   a. *Extrinsic Ordering*:
   Merge before Agree or Agree before Merge, subject to variation from language to language ('parochial' ordering, in Pullum's (1979) terminology).
   b. *Obligatoriness vs. Optionality*:
   Merge before Agree or Agree before Merge: no order predicted because both operations are obligatory (as are the features on v that drive the operations).
   c. *Specificity*:
   Both operations are based on a single feature: [•F•] vs. [∗F∗]; both are binary: Merge(DP,v′) vs. Agree(v,DP). Agree involves *valuation*, which involves copying of information, but it is not really self-evident that this should be taken to imply a fixed order Agree before Merge; the two operations seem to be too different to plausibly compare them with respect to specificity.
   d. *Anti-Specificity*:
   For the same reasons, it is far from obvious that one could make a case on a fixed order Merge before Agree.
   e. *(Strict) Cyclicity*:
   If every projection is a cyclic node, it may, under one interpretation, be possible to derive an order Agree before Merge.
   f. *Strata/Levels*:
   There are no levels in current minimalist syntax. Since Agree presupposes structure but Merge does not, the only possible way to assign the two operations to levels would be to have Merge at an earlier level, and Agree and a later one: D-structure (Merge) vs. S-structure (Agree). But then, the order may well become irrelevant (see the remarks on opacity below). Also cf. Bobaljik (2008) on agreement at PF.
   g. *Rule Vocabulary*:
   Is Merge more lexicon-like? Is Agree more phonology-like? If so, a fixed order Merge before Agree might be derivable. But this does not seem particularly plausible: both Merge and Agree are defined in terms of *structural* notions, and it is unclear why the features involved in Merge are closer to the lexicon, and further away from PF, than the features involved in Agree.

h. *Minimal Search*:
Given Chomsky's (2013) suggestion that Move involves less search than Merge, Agree would have to be preferred to Merge for the same reason: Agree takes place exclusively within the present phrase marker; Merge requires access to the workspace of the derivation in addition.

Main claim of this lecture:
The indeterminacy in rule application in (2) is real and must be resolved; assuming that there is no principle on rule ordering that would predict a fixed order, languages resort to extrinsic (parochial) order. This derives (a) the ergative/accusative parameter, (b) the ban on ergative (as ooposed to accusative) movement, (c) syntactic ergativity in the area of topic chaining, (d) gender agreement in DPs with a dative possessor in German.

Note:
Most of the following material is based on (a) Müller (2009), (b) Assmann et al. (2012), (c) Morgenroth & Salzmann (2013), and (d) Heck & Müller (2013a).

3. Background

- Some kinds of linguistic expressions are less mobile than others; they may not cross domains that are transparent for other items: object vs. subject, argument vs. adjunct, referential vs. non-referential, having an address or not (Manzini (1992)), etc.
- This can be captured by imposing appropriate constraints on empty categories that are assumed to be left by displacement operations (cf., e.g,. the Empty Category Principle (ECP) for traces, or the different constraints for trace vs. pro in Cinque (1990)).
- Such options do not exist if:
  - All constraints are either principles of efficient computation or imposed by the interfaces (Chomsky (2001; 2008)).
  - Traces do not exist. (This may be so because displacement does not leave a reflex in the original position; see Epstein & Seely (2002), Unger (2010), Müller (2011) for some options; or because a multidominance approach is adopted; see Gärtner (2002), Starke (2001), Abels (2004), Frampton (2004), among others.)
- Conclusion: If some items are less mobile than others, this must be so because their movement may lead to problems elsewhere, either for themselves or for other items in the clause.
- Suggestion: Movement of certain items (α) may create problems for other, sufficiently similar items (β).
- Goal: A *relational*, co-argument-based approach to displacement (α cannot move in the presence of β because α-movement creates problems for β-licensing) of the type that has sometimes been suggested for case assignment (α is assigned x-case in the presence of β; see Marantz (1991), Bittner & Hale (1996b), Wunderlich (1997), Stiebels (2000), McFadden (2004)).

4. Introduction

Observation:
In many morphologically ergative languages, ergative arguments (DP_{erg}) cannot undergo $\bar{A}$-movement (wh-movement, focussing, relativization).

Question:
What explains the prohibition against movement of ergative subject DPs?

Answer:
If an ergative subject DP undergoes movement, an absolutive object DP cannot get case: Movement of the ergative DP per se is unproblematic; but problems are created for its absolutive co-argument. Thus, the approach captures Polinsky et al.'s (2011) hypothesis that ergative displacement leads to a processing problem because removal of an ergative DP from a clause makes identification of the grammatical function of the absolutive DP difficult (but not vice versa).

5. Data

5.1. Wh-Movement

(5) *Wh-movement of DP_{erg} vs. DP_{abs} in Kaqchikel (Mayan)*:

a. N-Ø-u-löq' jun sik'iwuj ri a Karlos.
INCOMPL-3SG.ABS-3SG.ERG-buy INDEF book DET CL Carlos
'Carlos buys a book.'

b. Atux n-Ø-u-löq' a Karlos?
Q INCOMPL-3SG.ABS-3SG.ERG-buy CL Carlos
'What does Carlos buy?'

c. *Achike n-Ø-u-löq' jun sik'iwuj?
Q INCOMPL-3SG.ABS-3SG.ERG-buy INDEF book
'Who buys a book?'

(6) *Wh-movement of DP_{abs} in Kaqchikel*:

a. N-Ø-tze'en a Karlos.
INCOMPL-3SG.ABS-laugh CL Carlos
'Carlos laughs.'

b. Achike (ri) n-Ø-tze'en?
Q DET INCOMPL-3SG.ABS-laugh
'Who laughs?'

(7) *Wh-movement of DP_{erg} vs. DP_{abs} in K'ichee' (Mayan)*:

a. X-Ø-r-aj ri al Mari'y ri a Karlos.
COMPL-3SG.ABS-3SG.ERG-want DET CL Maria DET CL Carlos
'Carlos loved Maria.'

b. Jachin x-Ø-r-aj ri a Karlos?
who COMPL-3SG.ABS-3SG.ERG-want DET CL Carlos
'Who did Carlos love?'

c. *Jachin x-Ø-r-aj r-eech ri al Mari'y?
who COMPL-3SG.ABS-3SG.ERG-want 3SG.ERG-RN DET CL Maria

'Who loved Maria?'

(8) *Wh-movement of DP_{abs} in K'ichee'*:

a. X-Ø-kam ri a Karlos.
COMPL-3SG.ABS-die DET CL Carlos
'Carlos died.'

b. Jachin x-Ø-kam-ik?
who COMPL-3SG.ABS-die-ITV
'Who died?'

(9) *Wh-movement in Kanamarí* (Katukinan; Queixalos 2010):

a. hanian tu Nodia nah=hoho-nin?
who(m) Q Nodia ERG=call-DUR
'Whom is Nodia calling?'

b. hanian tu waokdyi-nin?
who(m) Q arrive.here-DUR
'Who is arriving here?'

c. *hanian tan na=dyuman tahi yu?
who here ERG-spread water Q
'Who spread water here?'

d. hanian tan wa-dyuman tahi yu?
who here AP-spread water Q
'Who spread water here?'

5.2. Focus Movement

(10) *Focus movement of DP_{erg} vs. DP_{abs} in K'ichee'*:

a. K-Ø-u-loq' jun wuuj ri a Karlos.
INCOMPL-3SG.ABS-3SG.ERG-buy INDEF book DET CL Carlos
'Carlos buys a book.'

b. Are ri jun wuuj k-Ø-u-loq' ri a Karlos.
FOC DET INDEF book INCOMPL-3SG.ABS-3SG.ERG-buy DET CL Carlos
'It is a book which Carlos buys.'

c. *Are ri a Karlos k-Ø-u-loq' ri jun wuuj.
FOC DET CL Carlos INCOMPL-3SG.ABS-3SG.ERG-buy DET INDEF book
'It is Carlos who buys a book.'

(11) *Focus movement of DP_{abs} in K'ichee'*:

a. Ka-Ø-tze'n-ik ri a Karlos.
INCOMPL-3SG.ABS-laugh-ITV DET CL Carlos
'Carlos laughs.'

b. Are ri a Karlos ka-Ø-tze'n-ik.
FOC DET CL Carlos INCOMPL-3SG.ABS-laugh-ITV
'It is Carlos who laughs.'

(12) *Focus Movement of DP_{erg} vs. DP_{abs} in Mam* (England (1983a))

a. Ma chi kub' t-tzyu-ʔn xiinaq qa-cheej
ASP 3PL.ABS DIR 3SG.ERG-grab-DS man PL-horse
'The man grabbed the horses.'

b. Qa-cheej xhi kub' t-tzyu-ʔn xiinaq
PL-horse DEP.ASP.3PL.ABS DIR 3SG.ERG-grab-DS man
'The man grabbed THE HORSES.'

c. *Xiinaq chi kub' t-tzyu-ʔn qa-cheej
man 3PL.ABS DIR 3SG.ERG-grab-DS PL-horse
'THE MAN grabbed the horses.'

(13) *Focus Movement of DP_{abs} in Mam* (England (1983a))

a. Ma tz-uul xiinaq
ASP 3SG.ABS-arrive.here man
'The man arrived here.'

b. Xiinaq s-uul
man DEP.ASP.3SG.ABS-arrive.here
'THE MAN arrived here.'

(14) *Focus Movement in Kanamarí* (Queixalos 2010):

a. Maranmaran na=tyo kana tona tyo
Maranmaran GEN=daughter FOC go.away EXCLAM
'It's Maranmaran's daughter that went away.'

b. a-obatyawa kana Aro na=nuhuk kariwa
3SG-wife FOC Aro ERG=give white.man.LOC
'It's his own wife that Aro gave to the white man.'

c. *itiyan kawahiri kana na=duni tyon
this cat FOC ERG=catch rat
'It's this cat that caught the rat.'

d. itiyan kawahiri kana wa-duni tyon
this cat FOC AP-catch rat
'It's this cat that caught the rat.'

5.3. Relativization

(15) *Relativization of DP_{erg} vs. DP_{abs} in Jacaltec* (Mayan; Campana 1992: 91; Craig 1977)

a. ... ch'en ome [xinliko ...]
the.CLASS earrings buy.3ABS.1ERG
'... the earrings that I bought ...'

b. X-Ø-w-il naj [xto ewi]
ASP-3ABS-1ERG-see CLASS go.3ABS yesterday
'I saw (the man) who went yesterday'

c. *... metx tx'i [xintx'a ni'an unin ...]
the.CLASS dog bite.3ABS.3ERG little child
'... the dog that bit the child ...'

(16) *Relativization of DP_{erg} vs. DP_{abs} in Dyirbal* (Pama-Nyungan; Dixon 1994: 169-170)

a. ŋuma-Ø [$_{CP}$ banaga-ŋu] yabu-ŋgu bura-n
father-ABS return-REL.ABS mother-ERG see-NONFUT
'Mother saw father who was returning.'

b. ŋuma-Ø yabu-ŋgu [$_{CP}$ banaga-ŋu-rru] bura-n
father-ABS mother-ERG return-REL-ERG see-NONFUT
'Mother, who was returning, saw father.'

c. *yabu-Ø [$_{CP}$ bural-ŋu ŋuma-Ø] banaga-n^{y}u
mother-ABS see-REL-ABS father-ABS return-NONFUT
'Mother, who saw father, was returning.'

d. yabu-Ø [$_{CP}$ bural-ŋa-ŋu ŋuma-gu] banaga-n^{y}u
mother-ABS see-ANTIPASS-REL-ABS father-DAT return-NONFUT
'Mother, who saw father, was returning.'

(17) *Relativization in Kanamarí* (Queixalos 2010):

a. yo-hik nyan Nodia na=dahudyi-nin tukuna
1SG-know DEIC Nodia ERG=bring-DEP Indian
'I know the Indian that Nodia brought.' *rel. of DP$_{abs}$*

b. yo-hik nyan waokdyi-nin anyan piya
1SG-know DEIC arrive.here-DEP this man
'I know the man who arrived here.' *rel. of sole argument*

c. *yo-hik nyan piya na=dahudyi-nin Hanani
1SG-know DEIC man ERG=bring-DEP Hanani
'I know the man who brought Hanani.' *rel. of DP$_{erg}$*

d. yo-hik nyan piya wa-dahudyi-nin Hanani
1SG-know DEIC man AP-bring-DEP Hanani
'I know the man who brought Hanani.' *antipassive*

(18) *Relativization in Tongan* (Austronesian; Otsuka (2006)):

a. e fefine [na'e fili 'e Sione]
DEF woman PST choose ERG Sione
'the woman (who) Sione chose'

b. *e fefine [na'e fili 'a Sione]
DEF woman PST choose ABS Sione
'the woman (who) chose Sione'

6. Previous Analyses

Three kinds of analyses:

1. The trace of DP$_{erg}$ is not licensed (e.g., in ECP terms, it is not properly governed; cf. *that*-trace effects in English).

2. There is nothing wrong with ergative movement as such; it's just that the relevant languages have a special (*agent focus*, AF) marker which does what the ergative marker does *and* signals the presence of an A-bar dependency at the same time. Given an optimality-theoretic approach, the agent focus construction can block the ergative+movement construction as suboptimal because it leads to a better constraint profile (Stiebels (2006)).

3. (Covert) case-driven movement of DP$_{abs}$ blocks movement of DP$_{erg}$, either due to minimality (Campana (1992)), or because DP$_{abs}$ blocks the only escape hatch within vP (Aldridge (2004), Coon et al. (2011)).

Problem with analysis 1:
The analysis is not available under minimalist assumptions.

Side remark:
It is not clear whether such an analysis has ever been seriously proposed. There are obvious problems to treat the phenomena in the same way: The *that*-trace effect also shows up with unergative verbs, whereas the ban on ergative movement does not; and, as noted in Sheehan (2013), *that*-trace effects can be avoided with intervening adjuncts; such improvement does not take place with the ban on ergative movement (Sheehan (2013)).

Problem with analysis 2:
The analysis can only work for Mayan languages with agent focus constructions. (Antipassive, e.g., cannot lead to a better constraint profile because the strategy is harmonically bounded by ergative movement: Antipassive neither indicates A-bar movement, nor does it maintain case faithfulness.)

Problems with analyses 3:

- Technical problems: Campana's analysis is based on a non-standard concept of intervention; Aldridge (2004) and Coon et al. (2011) must stipulate a ban on multiple specifiers.

- Empirical problem: All three accounts must resort to covert movement of DP$_{abs}$, which is typically not motivated on independent grounds.

- Empirical problem: The Aldridge/Coon et al. analyses predict that similar movement asymmetries between coarguments should be found in nominative-accusative languages, contrary to fact.

- Empirical problem: DP$_{abs}$ blocks movement of DP$_{erg}$ but *not* movement of other vP-internal elements like PP arguments, DPs with oblique case, or (referential) adjuncts (which are VP-internal; see Aoun (1986)); cf. (19)-(22). On an Aldridge/Coon et al. type of analysis, this can partly be accounted for by stipulating that intransitive vPs are never phases; but the problem is more general, and a wrong prediction remains for transitive contexts as in (21), (22), (23). (Essentially, what is derived is an *absolutive island* constraint rather than an *ergative movement* constraint.)

(19) *Wh-Movement of Passive Agent in Mam* (England (1983b;a)):
Al u?n xhi kub' tzy-eet qa-cheej?
Q RN DEP-3PL.ABS DIR grab-PASS PL-horse
'By whom were the horses grabbed?'

(20) *Wh-Movement of Referential Adjuncts in Jacaltec* (Craig (1977)):

a. Bakin x-Ø-ul naj ?
when ASP-ABS.3-arrive he
'When did he arrive?'

b. Bay chach yoyi ?
where ABS.2 go
'Where are you going?'

(21) *Wh-Movement of Instrumental PP in Erg. Contexts in Yucatec* (Tonhauser (2007, 6)):
Yeetel ba'ax t-u ch'aak-Ø che'?
with what PERF-ERG.3 cut-3SG.ABS wood

'With what did he cut the wood?'

(22) *Wh-Movement of Locational PP in Erg. Contexts in Tzotzil* (Aissen (1996, 470)):
Buch'u ta s-na av-ik'ta komel 1-a-bolsa-e?
who P A3-house ERG2-leave DIR the-A2-bag-ENC
'In whose house did you leave your bag?'

(23) *Wh-movement of oblique arguments in Kaqchikel:*

a. Achoq chi re n-Ø-u-ya' a Karlos jun sik'wuj?
Q PREP DET INCOMPL-3SG.ABS-3SG.ERG-give CL Carlos INDEF book
'To whom does Carlos give a book?' *(wh-movement of indirect object)*

b. Achoq r-ik'in n-Ø-u-sël ri ti'ij ri a
Q 3SG.ERG-RN.INSTR INCOMPL-3SG.ABS-3SG.ERG-cut DET food DET CL
Karlos?
Carlos
'With what does Carlos cut the meat?' *(wh-movement of instrumental)*

c. Akuchi n-Ø-u-ya' ri ti'ij ri a Karlos?
Q.3SG.ERG-RN.LOC INCOMPL-3SG.ABS-3SG.ERG-give DET food DET CL Carlos
'Where does Carlos put the meat?' *(wh-movement of locative)*

7. Assumptions

7.1. Clause structure

(24) $[_{CP}\ C\ [_{TP}\ T\ [_{vP}\ DP_{ext}\ [_{v'}\ v\ [_{VP}\ V\ DP_{int}\ ]]]]]$

7.2. Locality of movement

Minimal assumption:
Movement to SpecC must make an intermediate stop in SpecT. This can be ensured by assuming that either TP is a phase (Richards (2011)); or by stipulation (Chomsky (2005), Boeckx & Grohmann (2007)), or by assuming that every phrase is a phase.

Actual assumption:
Movement takes place successive-cyclically, from one XP edge domain to the next one higher up. Given the Phase Impenetrability Condition (PIC; Chomsky (2001)), this follows automatically if every XP is a phase.

(25) *Phase Impenetrability Condition* (PIC):
The domain of a head X of a phase XP is not accessible to operations outside XP; only X and its edge are accessible to such operations.

(26) *Edge*:
The edge of a head X is the residue outside of X′; it comprises specifiers of X (and adjuncts to XP).

Assumption:
It must be ensured that intermediate steps of movement as required under the PIC are possible in the first place in a model of syntax where all operations are feature-driven. A standard assumption here is that *edge features* ([•X•]) that trigger intermediate movement steps can

be inserted on all intervening phase heads.

7.3. Assignment of structural case

Three proposals in minimalist syntax:

- T assigns nominative=ergative, v assigns accusative=absolutive.
(Levin & Massam (1985), Chomsky (1995, ch.3), Bobaljik (1993), Laka (1993), Rezac (2003), Bobaljik & Branigan (2006) (with a qualification for Chukchi), etc.)
- T assigns ergative, v assigns accusative, nominative=absolutive is default case.
(Bittner & Hale (1996b))
- T assigns nominative=absolutive, v assigns accusative=ergative (Murasugi (1992), Jelinek (1993), Ura (2000; 2006), Müller (2004), Heck & Müller (2013a))

The third type of analysis will be presupposed in what follows. (This assumes that the ergative is a structural case. See Nash (1996), Alexiadou (2001), Woolford (2001; 2006), Legate (2008), Sheehan (2013) for the opposite view. However, Woolford, Legate & Sheehan also assume that ergative is assigned by v; the only relevant difference is that they postulate that ergative assignment must go hand in hand with θ-assignment.)

Side remark:
The analysis to be developed may for the most part prove to be compatible with the parameter hierarchy for argument encoding in Sheehan (2013). The first decision ('Does transitive v assign theta-related ERG to its specifier in L?) would be different ('Does Merge precede Agree on the vP cycle?'), but all the other ones could be modelled in roughly the same way, by adding or removing features: (i) –[TRANS]; (ii) [+EPP] (for syntactic ergativity, but I will suggest a different approach below); (iii) [+ACC], [+ABS] (though, again, I will presuppose a different approach below).

7.4. Patterns of argument encoding

7.4.1 Merge before Agree vs. Agree before Merge

Timing of elementary operations:
The analysis in Müller (2004), Heck & Müller (2013a) crucially relies on *timing*. Ergative vs. accusative patterns of argument encoding result from different (local optimality-theoretic) resolutions of conflicting earliness requirements for Agree and Merge on the vP level: Agree before Merge → accusative pattern; Merge before Agree → ergative pattern.

(27) *Two types of features that drive operations* (see above):
a. Structure-building features (edge features, subcategorization features) trigger Merge: [•F•]
b. Probe features trigger Agree: [∗F∗].
c. Agree and Merge both take place under *m-command* (i.e., Agree may affect a head and its specifier).

(28) AGREE CONDITION (AC):
Probes ([∗F∗]) participate in Agree.

(29) MERGE CONDITION (MC):
Structure-building features ([•F•]) participate in Merge.

Assumptions about argument encoding:
(i) There is one structural argument encoding feature: CASE.
(ii) CASE can have two values: ext(ernal) and int(ernal) (determined with respect to vP, the predicate domain).
(iii) [CASE:ext] = nominative/absolutive, [CASE:int] = accusative/ergative (Murasugi (1992)).
(iv) [CASE] features figure in Agree relations involving T/v and DP, as in (30).

(30) *The role of T and v in argument encoding*:
a. T bears a probe [∗CASE:ext∗] that instantiates a matching [CASE:ext] goal on DP.
b. v bears a probe [∗CASE:int∗] that instantiates a matching [CASE:int] goal on DP.

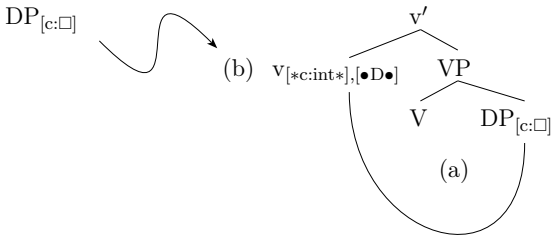
(31) *Argument encoding by case or agreement*:
a. Argument encoding proceeds by case-marking if [CASE:α] is morphologically realized on DP.
b. Argument encoding proceeds by agreement-marking if [∗CASE:α∗] is morphologically realized on T/v.

Side remark:
Case/agreement mismatches may arise, in the sense that agreement deviates from the basic case-marking pattern in a language. A possible analysis: Secondary, purely ϕ-based Agree.

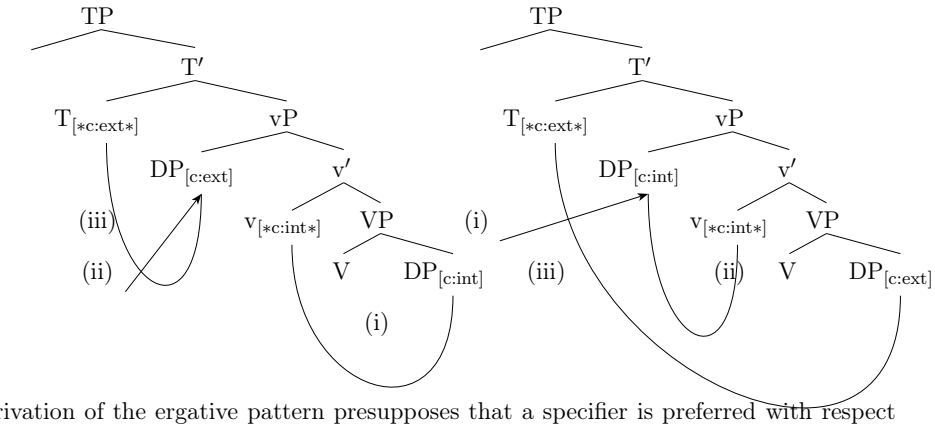
A conspicuous property:
The head v has a dual role: It participates in a Merge operation with a DP, and it also participates in an Agree relation with a DP. This dual role has far-reaching consequences for the nature of argument encoding.

A constraint conflict:
Consider a simple transitive context, with two arguments DP_{int}, DP_{ext}. Suppose that the derivation has reached a stage Σ where v has been merged with a VP containing DP_{int}, with DP_{ext} waiting to be merged with v in the workspace of the derivation. At this point, a conflict arises: AC demands that the next operation is Agree(v,DP_{int}) (see (a)), MC demands that it is Merge(DP_{ext},v) (see (b)). (Application of these constraints at each derivational step derives the effects of the Earliness Principle (Pesetsky (1989).)

(32) *Stage Σ:*



(33) a. *Agree before Merge: accusative* b. *Merge before Agree: ergative*



Note:
The derivation of the ergative pattern presupposes that a specifier is preferred with respect to Agree with its head to an item included in the complement of that head. This can be formulated as the *Specifier-Head Bias* (Chomsky (1986; 1995), Koopman (2006), Branigan (2013); see Béjar & Řezáč (2009) for a similar idea with the bias reversed). More on the nature of the Specifier-Head Bias in lecture 4.

(34) *Specifier-Head Bias*:
Spec/head Agree is preferred to Agree under c-command.

This replaces standard minimality conditions (Relativized Minimality, MLC) (though with a somewhat different empirical coverage). The Specifier-Head Bias is compatible with equidistance effects, which pose a problem for path-based definitions of minimality.

7.4.2 Opacity

Note:
The analysis crucially relies on opacity effects (see Chomsky (1951; 1975), Kiparsky (1973), Arregi & Nevins (2012), and lecture 1).

- Merge(v,DP_{ext}) *bleeds* Agree(v,DP_{int}) in systems with Merge before Agree: No internal case for the object in VP.
- Merge(v,DP_{ext}) *counter-bleeds* Agree(v,DP_{int}) Merge of DP_{ext} comes too late to effect bleeding, but this cannot be detected by just looking at the output representations on the TP cycle (even if they are enriched with devices like traces): DP_{ext} in Specv *does* occupy the preferred position for case valuation with v, compared with DP_{int} in VP.

A challenge for a representational approach to opacity effects:
The opacity here is of a type that cannot be accounted for representationally by positing devices like traces. The only option (it seems): diacritics that record the relevant aspects of the derivational history (e.g., by successively assigning superscript numbers to DPs and other items).

7.5. Maraudage

Assumption:
Certain goal features require checking in Spec/head configurations; this way, they may "maraude" a functional head and take away features that should normally be reserved for some other item. (See Georgi, Heck & Müller (2009), Georgi (2010), Müller (2011) on maraudage; similar concepts are suggested in Chomsky (2001), Abels (2003), Anagnostopoulou (2005), Adger & Harbour (2007), Béjar & Řezáč (2009); and by Trommer (2011) and Zimmermann (2011) for morphophonology.)

Case features and maraudage:
Structural case features trigger maraudage in Spec/head configurations even if they have already been checked (or valuated). Independent motivation: the existence of *case stacking* in the world's languages (see Andrews (1996), Nordlinger (1998), Richards (2007)).

(35) *Activity of structural case features*:
Structural case features act as active goals.

Note:
Given the Specifier-Head Bias, the configuration in (36-a) may involve checking of [case:int] by X or not (leading to a crash of the derivation or not because of an unchecked [case:□]), whereas the configuration in (36-b) must involve checking of [case:int] by X (which invariably leads to a crash).

(36) a. $[_{X'}\ X_{[*case:ext*]}\ [_{ZP}\ \ldots\ \alpha_{[case:int]}\ \ldots\ \beta_{[case:\square]}\ \ldots\ ]]$
b. $[_{XP}\ \alpha_{[case:int]}\ [_{X'}\ X_{[*case:ext*]}\ [_{ZP}\ \ldots\ t_{\alpha}\ \ldots\ \beta_{[case:\square]}\ \ldots\ ]]]$

Note:
There is no minimality condition on Agree or Merge; minimality effects are derivable from the PIC; see Müller (2011). (Thus, there is no *defective intervention* because there is no minimality constraint; but there is "*defective non-intervention*".)
Suppose that both α and β are PIC-accessible to X in (36); this will imply that the PIC is slightly less restrictive, as eventually proposed in Chomsky (2001), or that Agree operations can escape the PIC, as suggested by Bošković (2007), among others.

Assumption:
Checking of [case:int] on α with a conflicting [*case:ext*] on X is harmless as such; α will simply maintain its original feature value. However, [*case:ext*] is then discharged, and not available for further operations anymore.

8. Analysis

8.1. Displacement in Languages with Ergative Encoding Patterns

*8.1.1 *DP_{erg} Movement*

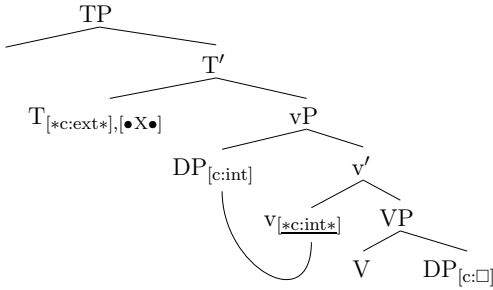
Given the PIC, DP_{erg} needs to move from Specv to SpecT if it is to undergo subsequent movement to SpecC (*wh*-movement, relativization, focus movement). Given that the "ergative" preference Merge before Agree (more precisely, MC before AC) is also maintained on the TP cycle (see Lahne (2008) for an application of this idea to a different empirical

domain, viz., word order), movement of DP_{erg} (as an instance of internal Merge) will have to *precede* Agree of T with the VP-internal DP that has not yet valued its case feature (as absolutive). Given the Specifier-Head Bias, DP_{erg} will next maraud T's case probe; the internal argument DP will consequently remain without a checked case feature. Assuming that all DPs must have their case features checked eventually (and assuming that there is no such thing as a default case), the derivation will therefore crash. In a nutshell, ergative movement is impossible because the remaining argument cannot get absolutive case in this context.

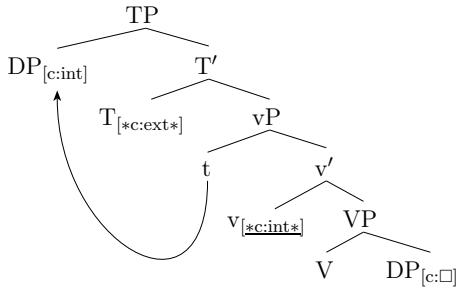
(Note: Underlining signals a discharged probe in the following trees; discharged edge features are not represented; t's are only inserted as mnemonic devices.)

(37) *Illegitimate movement of DP_{erg}*

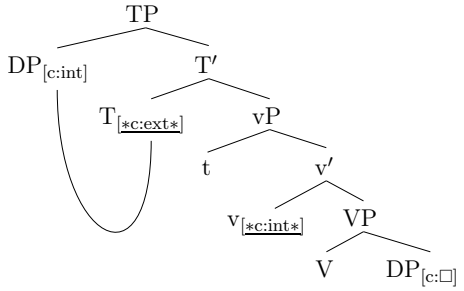
a. Structure after T is merged



b. Merge before Agree triggers movement of DP_{erg} first



c. Specifier-Head Bias triggers maraudage of T

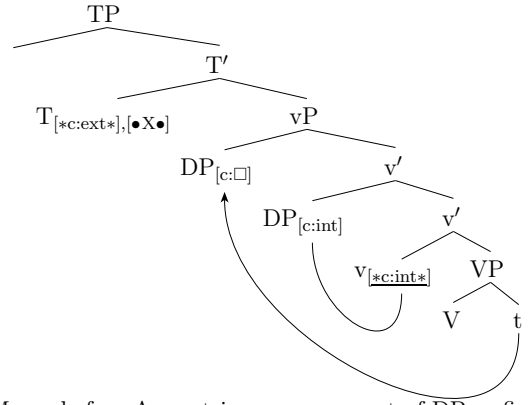


8.1.2 DP_{abs} Movement

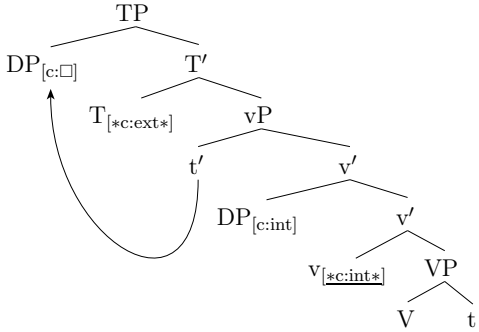
No such problem arises for movement of DP_{abs} because DP_{erg} has already been assigned case when DP_{abs} moves to SpecT.

(38) *Legitimate movement of DP_{abs}*

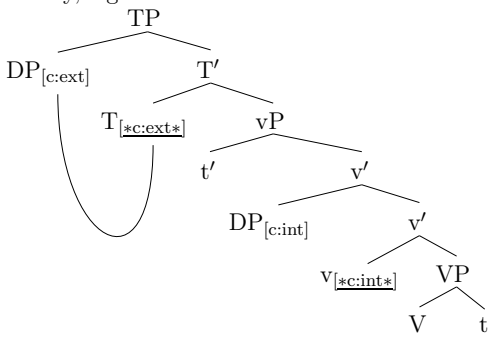
a. Structure after T is merged



b. Merge before Agree triggers movement of DP_{abs} first



c. Finally, Agree with T ensures external case of DP_{abs}; no maraudage



Note:
On the vP cycle in (38-a), MC before AC ensures that external Merge of DP_{ext} and (subsequent; Chomsky (2001; 2008)) internal Merge of DP_{int} (both triggered by ([•X•]) features on v) both precede Agree. Since there is no MLC-like constraint and both items occupy a Specv position (so the Specifier-Head Bias does not discriminate the options), the derivation can now proceed in two ways: Agree(v,DP_{ext}) ultimately leads to a well-formed output, as indicated; in contrast, Agree(v,DP_{int}) in (38-a) would lead to a crash because DP_{ext} would then never be assigned case.

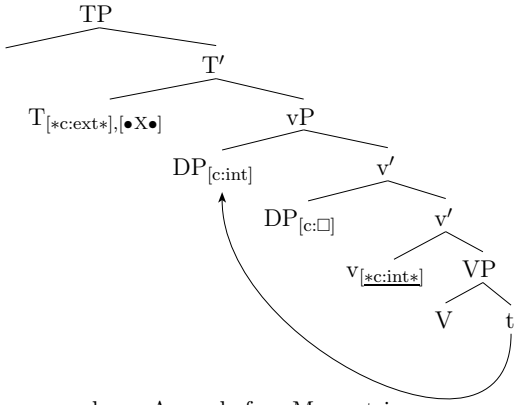
8.2. Displacement in Languages with Accusative Encoding Patterns

8.2.1 DP_{acc} Movement

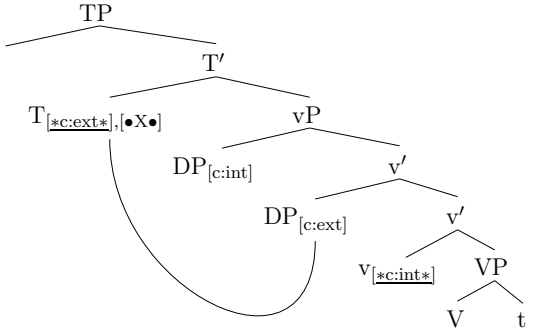
The preference Agree before Merge that gives rise to an accusative pattern in the first place (on the vP cycle) is also active on the TP cycle. Here it ensures that Agree with the DP_{nom} in Specv can be carried out *before* the DP_{acc} undergoes successive-cyclic movement to SpecT (and then to a higher position).

(39) *Legitimate movement of DP_{acc}*

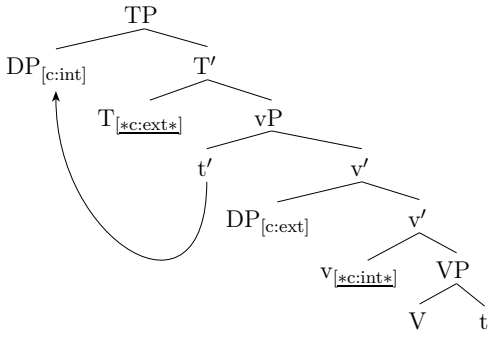
a. Structure after T is merged



b. No maraudage: Agree before Merge triggers case valuation of DP_{nom} next



c. Finally, movement of DP_{acc} takes place to SpecT

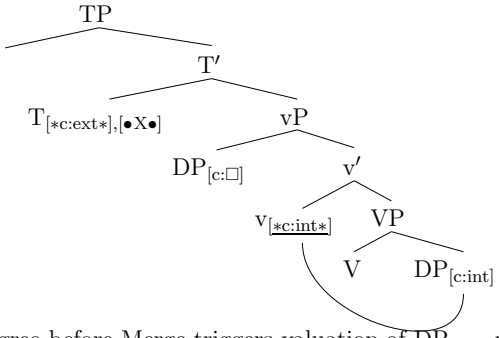


8.2.2 DP_{nom} Movement

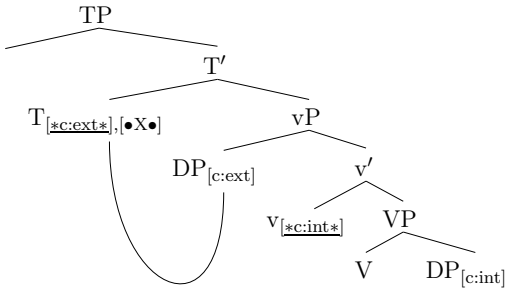
Similarly to the DP_{abs} case, there is no problem for movement of DP_{nom} because DP_{acc} has already been assigned case when DP_{nom} moves.

(40) *Legitimate movement of DP_{nom}*

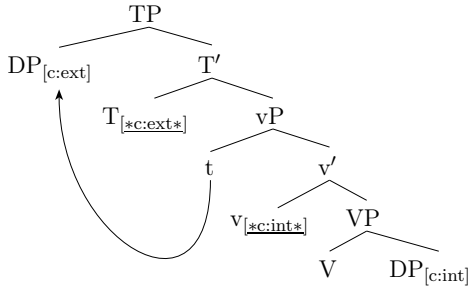
a. Structure after T is merged



b. Agree before Merge triggers valuation of DP_{nom} next



c. Finally, movement of DP_{nom} takes place to SpecT



8.3. *Opacity*

Note:
As with basic argument encoding, under the present analysis the data show opacity effects.

- Merge(T,DP_{erg}) *bleeds* Agree(T,DP_{abs}): A crash results.
- Move(T,DP_{acc}) *counter-bleeds* Agree(T,DP_{nom}): DP_{acc} movement comes too late to effect bleeding, but this cannot be detected by just looking at the output representations on the TP cycle (even if they are enriched with devices like traces): DP_{acc} in SpecT *does* occupy the preferred position for case valuation with T, compared with DP_{nom} in Specv.

A second challenge for a representational approach to opacity effects:
Again, the type of opacity encountered here cannot straightforwardly be derived representationally by positing devices like traces. As a matter of fact, *both* rule interactions are strictly speaking opaque (with the first one now an instance of *counter-feeding*) because their effects cannot be read off final output representations (since wh-movement does not end in SpecT); but the bleeding effect with ergative movement can be if traces are present, unlike the counter-bleeding effect with accusative movement.

9. Predictions

Two falsifiable predictions:

- The sole argument of an intransitive verb that bears ergative case/triggers ergative agreement should be extractable.
- The derivation converges if both arguments of a transitive verb are Ā-moved.

9.1. Extractability of the Sole Ergative Marked Argument of an Intransitive Verb

(41) *Yukatek, aspect split with intransitives (Bohnemeyer (2004))*:

a. K-u=kim-il.
IPFV-3SG.ERG=die-INCOMPL
'He dies.'

b. H=kim-Ø-ih.
PFV=die-COMPL-3SG.ABS
'He died.'

(42) *Yukatek, no aspect split with transitives (Bohnemeyer (2004))*:

a. K-u=hats'-ik-en.
IPFV-3SG.ERG=hit-INCOMPL-1SG.ABS
'He hits me.'

b. T-u=hats'-ah-en.
PFV-3SG.ERG=hit-COMPL-1SG.ABS
'He hit me.'

(43) *Negation in Ixil (Ayres (1981))*:

a. Ye?l in kat-et-il-in.
NEG 1SG PUNC-2PL.ERG-see-1SG.ABS
'It's not me who you saw.' *negated object*

b. *Ye?l in in-w-il-ex.
NEG 1SG DUR-1SG.ERG-see-2PL.ABS
'It's not me who sees you.' *negated transitive subject*

c. Ye?l in kat-ok-in.
NEG 1SG PUNC-enter-1SG.ABS
'It's not me who entered.' *negated intransitive subject*

d. Ye?l in in-w-ok-e?.
NEG 1SG DUR-1SG.ERG-enter-SUF
'It's not me who is entering.' *negated intransitive subject*

(44) *Focus in Chuj, transitive verb (Davis (2010))*:

a. ?ix-Ø-y-?il waj Mekel ?ix Katal.
PST-3SG.ABS-3SG.ERG-see CL Michael CL Kathleen
'Kathleen saw Michael.'

b. Ha ?ix Katal ?ix-Ø-?il-**an** waj Mekel.
FOC CL Kathleen PST-3SG.ABS-see-**AF** CL Michael
'It is Kathleen who saw Michael.' *focussed transitive subject*

c. Ha waj Mekel ?ix-Ø-y-?il ?ix Ketel.
FOC CL Michael PST-3SG.ABS-3SG.ERG-see CL Kathleen
'It is Michael who Kathleen saw.' *focussed object*

(45) *Focus in Chuj, intransitive verb (Buenrostro (2009))*:

a. Ix-Ø-way winh unin.
PST-3SG.ABS-sleep CLASS child
'The child slept.'

b. A jun unin ix-Ø-way-i.
FOC one child PST-3SG.ABS-sleep-ITV
'It was the child who slept.'

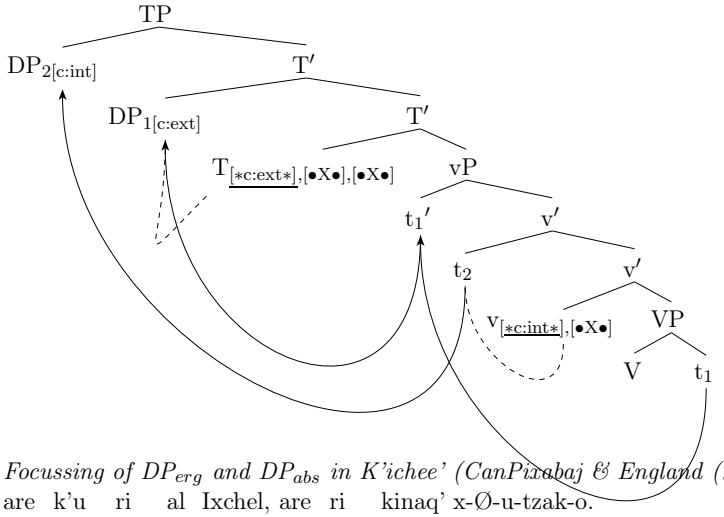
(46) *Chuj, focussing of an ergative marked single argument (Buenrostro (2009))*:

a. Wan s-way winh unin.
PROG 3SG.ERG-sleep CLASS child
'The child is sleeping.'

b. A jun unin lanh s-way-i.
FOC one child PROG 3SG.ERG-sleep-ITV
'It is the child who is sleeping.'

9.2. Extraction of Both Arguments of a Transitive Verb

(47) *Legitimate movement of DP_{erg} and DP_{abs}*



(48) *Focussing of DP_{erg} and DP_{abs} in K'ichee' (CanPixabaj & England (2011))*:
are k'u ri al Ixchel, are ri kinaq' x-Ø-u-tzak-o.
FOC PART DET CL Ixchel FOC DET beans COMPL-3SG.ABS-3SG.ERG-cook-TV
'. . . but as for Ixchel, it is beans that she cooked.'

(49) *Wh-movement of DP_{erg} and focussing of DP_{abs} in Kaqchikel*:
Achike ja ri jun sik'iwuj n-Ø-u-löq'?
Q.ANIM FOC DET INDEF book INCOMPL-3SG.ABS-3SG.ERG-buy
'Who buys a BOOK?'

(50) *Wh-movement of DP_{erg} and DP_{abs} in Kaqchikel*:
Atux achike n-Ø-u-löq'?
Q Q.ANIM INCOMPL-3SG.ABS-3SG.ERG-buy
'Who buys what?'

10. Outlook

10.1. An Open Question

- Why do not all ergative languages instantiate a ban on ergative movement? Options include:
  - The order of operations on T may differ from the order on v (perhaps as a marked option).
  - T is not a phase head in some languages.
  - DPs cannot check multiple case features in some languages.
  - There is some other factor that slows down ergative movement so that maraudage of T's case for DP_{int} does not apply (Heck & Müller (2013b)).

10.2. The Bigger Picture

(51) *Generalization*:
Displacement of α is impossible if there is a step τ of the derivation, with X the current phase head, such that (a), (b), and (c) hold.

a. X c-commands β, and β needs some feature(s) δ from X.
b. Merge before Agree holds on the XP cycle.
c. α can take δ (but would not normally require it from X) and needs to undergo movement via the edge of XP.

11. Topic-Chaining

Note:
(i) The ban on ergative movement is sometimes viewed as an instance of *syntactic ergativity*, in the sense that a syntactic phenomenon other than argument encoding by case or agreement (i.e., *morphological ergativity*) treats DP_{ext}-V_{tr} differently from the DP_{int}-V-tr, DP_{ext}-V-intr, and D_{int}-V_{intr} (Comrie (1989), Bobaljik (1993), Dixon (1994), Bittner & Hale (1996b;a), Bickel (1999)). In the case at hand, that other syntactic phenomenon would be movement.
(ii) The standard approach to syntactic ergativity is that absolutive arguments adopt some kind of generalized subject (or *pivot*) role; see Dixon (1972; 1994).
(iii) Syntactic ergativity does not regularly manifest itself in many other areas (reflexivization, e.g., is always syntactically accusative).
(iv) So-called topic-chaining is arguably the core case of syntactic ergativity discussed in the literature ('pivot-chaining', in Dixon's work).
(v) The phenomenon shows up in Dyirbal (Dixon (1972)); optionally in Chukchi (Comrie (1989)).

(52) *Topic Chaining in Dyirbal*

a. ŋuma banaga-n^{y}u
father-ABS return-NONFUT
'Father returned.'
b. yabu banaga-n^{y}u
mother-ABS returned-NONFUT
'Mother returned.'
c. ŋuma yabu-ŋgu bura-n
father-ABS mother-ERG see-NONFUT
'Mother saw father.'
d. ŋuma banaga-n^{y}u yabu-ŋgu bura-n
father-ABS return-NONFUT mother-ERG see-NONFUT
'Father$_1$ returned and mother$_2$ saw him$_1$.'
e. ŋuma yabu-ŋgu bura-n banaga-n^{y}u
father-ABS mother-ERG see-NONFUT return-NONFUT
'Mother saw father and he returned.'

Observations about topic-chaining :

- The construction consists of two clauses which are conjoined in a general sense; the second one has an argument DP missing.

- This argument DP always corresponds to an *absolutive* argument of the first clause.
- The construction can be analyzed in parallel to (53) in English if absolutive DPs are generalized subjects (pivots) in Dyirbal, just as nominative DPs are in English.

(53) *Conjunction reduction in English*:
Mary opened the window and looked out

Morgenroth & Salzmann's (2013) analysis:

- The construction in Dyirbal does not involve *syntactic coordination*, but *syntactic subordination*.
- It is derived by *movement* of an argument to a θ-position in the higher clause, exactly as envisaged for control in Hornstein (2001), Boeckx, Hornstein & Nunes (2010).
- Ergative DPs cannot undergo movement; hence, they cannot move to the first clause in topic-chaining constructions; only absolutive DPs can.
- The abstract case of the moved item must stay the same.
- Morphological case may vary, though; the ergative is not morphologically realized ('nominative') with prototypical subjects (pronouns), and the absolutive is morphologically realized ('accusative') with non-prototypical objects (pronouns).

(54) *Morphological vs. syntactic case* (ergative = 'nominative', absolutive = 'accusative'):

a. ŋana-Ø banaga-n^{y}u n^{y}urra-Ø bura-n
we-ABS return-NONFUT you all-ERG see-NONFUT
'We$_1$ returned and you all$_2$ saw us$_1$.'
b. n^{y}urra-Ø ŋana-na bura-n banaga-n^{y}u
you all-ERG we-ABS see-NONFUT return-NONFUT
'You all saw us and we returned.'

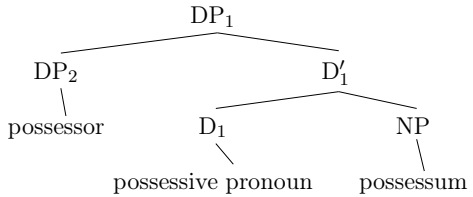
12. Prenominal Dative Possessors in German

12.1. The Phenomenon

Observation:

1. German exhibits a construction with a dative-marked possessor DP_2 in SpecD of a matrix DP_1 (see, e.g., Haider (1988), Zifonun (2004)).
2. D_1 is realized by a possessive pronoun with a dual role.
3. The *root* of the pronoun agrees with DP_{dat} (*possessor*) with respect to [num] and [gend].
4. The *inflection* of the pronoun agrees with its complement NP (*possessum*) with respect to [num], [gend], and [case]. The focus here is on agreement with respect to [gend] (but the analysis will automatically extend to [num] and [case]).

(55) *Prenominal dative possessors*:



(56) *Gender agreement with dative possessor in German:*

a. [DP dem Fritz] sein-e Schwester
the.MASC.DAT Fritz his.MASC-FEM sister.FEM
"Fritz's sister"

b. [DP der Maria] ihr-Ø Bruder
the.FEM.DAT Maria her.FEM-MASC brother.MASC
"Maria's brother"

c. [DP dem Fritz] sein-Ø Buch
the.MASC.DAT Fritz his.MASC-NEUT book.NEUT
"Fritz's book"

(57) *Ungrammatical gender agreement with dative possessor:*

a. *[DP dem Fritz] ihr-Ø Schwester
the.MASC.DAT Fritz her.FEM-MASC sister.FEM
"Fritz's sister"

b. *[DP dem Fritz] sein-Ø Schwester
the.MASC.DAT Fritz his.MASC-MASC sister.FEM

c. *[DP dem Fritz] ihr-e Schwester
the.MASC.DAT Fritz her.FEM-FEM sister.FEM

12.2. Problems with Possessive Pronouns

Because of this dual role of German possessive pronouns in general, various problems arise.

- Native speakers regularly (in some contexts systematically) make mistakes (which are then frowned upon by prescriptivists).

  (58) *Lagerbäcks Mannschaft hat seine zwei Gesichter gezeigt
  Lagerbäck's$_{masc}$ team$_{fem}$ has its$_{masc}$ two faces shown

  (Sick (2006, 108))

- Second language learners of German regularly make mistakes with possessive pronouns.
- Children acquiring German have problems with (third person) possessive pronouns (correct choice of root gender, e.g.) (Ruff (2000)).

12.3. Assumptions

- DP$_{dat}$ gets its case from the possessum NP (Georgi & Salzmann (2011)).
- Possessive D and NP show case agreement.

- The probe that values this case is DP-external. Thus, one may expect NP to remain active (potentially intervening) while DP is derived, an unwanted result.
- Case agreement between D and NP in a first step involves feature sharing (cf. Pollard & Sag (1994), Frampton & Gutman (2000), Heck & Cuartero (2011)) of the yet unvalued case features of D and NP.
- By assumption, feature sharing renders NP's case feature inactive, while D's case feature remains active. It is then D's case feature that becomes valued by the DP-external case probe in a second step and, via feature sharing, the case feature of NP agrees with it.

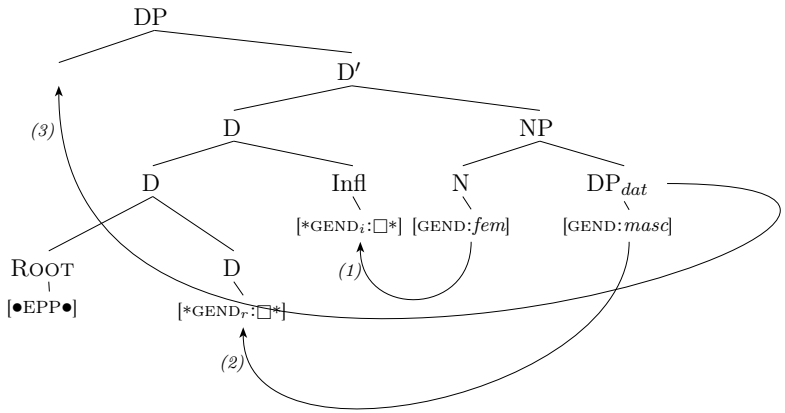
12.4. Analysis

1. DP$_{dat}$ is merged as a complement of the possessum (de Vries (2005), Chomsky (1970)) and undergoes [•EPP•]-driven movement to SpecD.
2. Functional elements like pronouns are realized by post-syntactic morphology (see, e.g., Halle & Marantz 1993).
3. The pronoun's inflectional features occupy a structurally higher position than its root ($\sqrt{}$) features.

(59) *The internal structure of pronouns:*
[D [D ROOT D] INFL]

Consequence:
It follows that the pronoun has a dual role: It bears [∗gend:□∗] probes that trigger Agree and an [•EPP•]-feature that triggers (internal) Merge, i.e., Move. This causes a conflict. Suppose the derivation has reached stage Σ, where the pronoun has been merged. Then AC demands Agree(D,DP$_{dat}$) or Agree(D, NP); and MC demands DP$_{dat}$ raising to SpecD. The conflict can be resolved by giving preference to AC rather than MC, yielding the correct agreement pattern.

(60) *The Σ Stage of the Derivation and the Subsequent Order of Operations*:



Analysis:

- The two Agree operations have to precede the internal Merge operation (movement of DP_{dat} to SpecD), given that AC is given preference over MC.
- In this context, the two Agree operations must also be ordered: The one involving the *higher* Infl head precedes the one involving the *lower* Root head, and first Agree is carried out with the higher NP, rather than with the lower DP_{dat} included in NP. This might follow from some version of minimality, but recall that minimality has been abandoned above. For now, I will leave the preference for the higher items in Agree operations as a stipulation; this might actually follow from the No Tampering Condition (Chomsky (2008), Narita (2011)).
- Suppose that the order of (internal) Merge and Agree operations were reversed. Then, DP_{dat} would be in SpecD before Agree can be carried out, and given the Specifier-Head Bias, it (rather than the head N) would be the target for the first Agree operation, which would give rise to the ill-formed pattern in (57), rather than the well-formed pattern in (56).

Potential prediction:
Do ergative languages (with an order Merge before Agree) show the opposite effect?
(i) If yes: good.
(ii) If no: The domain for Merge/Agree order resolutions might not be the language (*grammar*), but the domain within the language (*verbal domain vs. nominal domain of grammar*).
(iii) However: Finding relevant evidence might not be easy (it presupposes an ergative system with double agreement with respect to the same feature on D, and movement to the SpecD positions of one of the possible agreement targets).

12.5. Opacity

Opacity:
As with accusative systems of argument encoding and the availability of accusative movement, there is a *counter-bleeding* effect here: Movement of DP_{dat} to SpecD would bleed Agree of Infl and N with respect to gender, but it does not since it comes too late. Again, it is hard to see how this result could be achieved in a representational approach.

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