LABELS AND MERGE

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0. MERGE AND THE UNFICATION OF SYNTACTIC OPERATIONS

The point of departure will be the strong shift towards unification of syntactic operations proposed by Chomsky in recent works (Chomsky 2001; 2005). Movement is not considered anymore a costly, last resort "imperfection", but a natural option given the most minimal definition of what syntax is, i-e- recursive Merge: given the definition of Merge as a trivial operation taking two syntactic objects (SOs) or lexical items (LIs) and constructing from them a new SO, 'movement' comes for free as an instance of Merge where one of the two assembled SOs is part of the other: **Internal** Merge. Given this strong unification, for which there is just one single operation Merge with different domains, any stipulation of an irreducible specificity of Movement needs to be strongly rooted and demonstrated.

1. TRIGGERS FOR MERGE: EDGE FEATURE AS A PROBE

Chomsky's identification of a single Feature (**Edge** Feature) responsible for both External Merge (providing a head with its arguments thus establishing selection and theta-relations) and for Internal Merge, clearly goes in this strong unification direction.

Merge always asymmetric: triggered by a probe searching a goal.

Internal Merge: EF (i.e. EPP feature)

External Merge: EF (i.e.valence) (first merge: complement; second merge: specifier).

A probe must be **structurally** able to search a goal: it must be a label (see 4)

2. GOALS FOR MERGE: UNVALUED FEATURES

A goal must be **active**, i.e. display unvalued features.

This means that IM is always parasitic to an agree operation: the SO that is internally merged must be in an agreement relation with some probe bearing unvalued features. If the very **same head** bears both the EF probe for IM AND the (phi-features) probe for Agree, then we have A-movement; otherwise A'movement.

3. TYPOLOGIES OF MERGE: CONSEQUENCES FOR HEAD MOVEMENT

If Merge is to be a free unbounded operation, any of the following pairs should be available both to internal and external merge.

(1) a. (LI,LI) (order irrelevant assuming that the linear dimension
b. (SO, LI) falls within the phonological component)
c. (SO, SO)

Consequence: both **head movement**, i.e. internal merge of a single LI, and phrase movement, i.e. internal Merge of more complex SOs, get naturally derived as two syntactic options (*contra* Chomsky 2001; see Matushansky 2006). What is the difference?

If there is an economy condition on the amount of material to be merged (something like *Merge enough material for convergence*), then head movement might be not only an option but the most minimal one. What triggers the less minimal option, that of internally merging a phrase (e.g. phrase movement)?

One standard account has to do with locality: HMC, in order to rule out head movement in the desired cases.

Locality is indeed a necessary residue of a specificity of internal merge, due to the fact that it involves a search procedure, constrained by some economy metrics. Notice however that search (and agree) are defined on **features**, and thus apply to the relation between a probe and a goal, no matter the categorical status of the item to be internally merged.

4. LABELS AND MERGE

What is visible to computation and contains the relevant information is the **label**: "the label selects and is selected in EM and it is the probe that seeks a goal for Agree and IM" (Chomsky 2005:7).

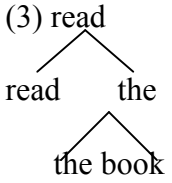
More simply: labels are the probes and goals of any syntactic operation.

The label must be identifiable with minimal search by some simple algorithm. A proposal (Chomsky 2005:10):

(2) **structural algorithm**
In (H, α), H an LI, H is the label

EXTERNAL MERGE OF AN LI WITH AN SO

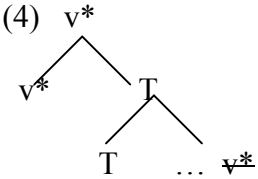
(3) read — *read the book*



by (2) *read* is the label (i.e. projects)

INTERNAL MERGE OF AN LI WITH AN SO

(4) v*



by (2) *v** is the label (i.e,. projects?)

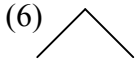
Another labeling algorithm proposed in Chomsky (2005:11), given in (5), is problematic

(5) If α is internally merged to β, forming (α,β) then the label of β is the label of (α,β).

(5) is a version of the standard principle stating that in any movement operation it is always the **target** that projects. It is a residual of a "movement theory" , an unjustified stipulation artificially setting apart one class of applications of Merge: let us try to dispense with (5).
But (2) is not enough: while we expect labeling to be not always univocal, leaving some work to the interfaces, with (2) alone we have too much indeterminacy and even suspicious and wrong predictions.

FIRST MERGE

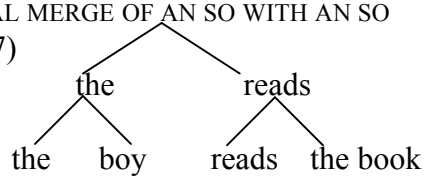
(6) — *the book*



two LI's: which is the label?

EXTERNAL MERGE OF AN SO WITH AN SO

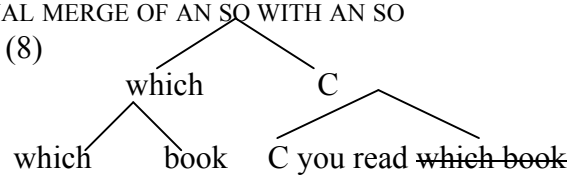
(7) — *the boy reads the book*



two SO's: which is the label? No label?

INTERNAL MERGE OF AN SO WITH AN SO

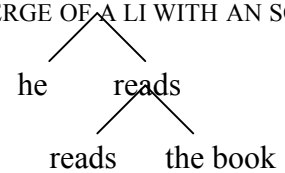
(8) — *which book you read*



two SO's: which is the label? No label?

EXTERNAL MERGE OF A LI WITH AN SO

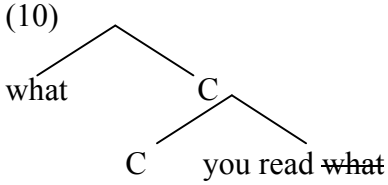
(9) — *he reads the book*



by (2) *he* is the label: ?

INTERNAL MERGE OF A LI WITH AN SO

(10) — *what you read*



by (2) *what* is the label: ?

(11) **morphological algorithm**
In (α, β), α the probe of merging α and β, α is the label

If we take seriously that merging (internal and external) is always triggered by an EF, it is always asymmetric: it is triggered by a feature of one of the two merged items: this one (the probe) is the label.
(11) ensures that (in most cases) it is the target of movement that projects (like Chomsky's (5)); that external merge is always asymmetric and the label depends on **valence.** Being two, (2) and (11) can conflict. In which case, it shall be the interface that decides.

FIRST MERGE

(6) the probe is the edge feature of *the* (reminiscent of the notion of valence), which is a LI. No conflict: the two algorithms point to *the* providing the label.

EXTERNAL MERGE OF AN SO WITH AN SO

In (7) the probe is the edge feature of *reads* (valence). No conflict: algorithm (11) yields a unique labeling possibility. Algorithm (2) has nothing to say.

INTERNAL MERGE OF AN SO WITH AN SO

In (8) algorithm (2) has nothing to say. But *did* (C) has an edge feature: it is the probe of the merging, it provides the label by algorithm (11). This case shows how (11) is able to yield exactly the same effects of the stipulation in (5). Plus other welcome consequences.

(9) and (10) are two cases of conflict, both interesting.

EXTERNAL MERGE OF A LI WITH AN SO

In (9) there is a conflict: *he* is a LI, hence can provide the label (by 2); but *reads* has an EF, hence is the probe for the merging, hence can also be the label (by 11). Both cases are made available by syntax, but only one is interpretable in the right way. Principle C violations can be seen as the **symptom** of the very existence of both possibilities: Chomsky (2005); Cecchetto (2006).

(12) *He_i sees $John_i$
Suppose referential evalutation of *he* by *John* is a case of Probe-Goal relation: then if it holds it must be the case that *he* is the label (only labels can be probes by definition): the agrammaticality of (12) is a case of mislabeling.

But crucially we predict that since syntax makes available the two options there might be cases in which both options are interpreted (differently, of course).

INTERNAL MERGE OF A LI WITH AN SO

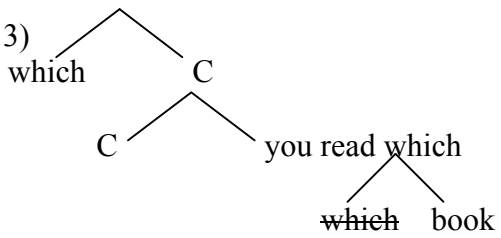
This is the case in point. In (10) the two algorithms conflict. Two possibilities are generated.

1. If ***what*** provides the label: then the SO is a DP: a **free relative**, with a DP interpretation and distribution

(13) I read what you read ~~what~~
*I read which book you read ~~which book~~.

2. If ***C*** provides the label, then the SO is a CP. A simple (**interrogative)** clause.
We need to exclude (13): internally merge a wh-head instead of a wh.phrase stranding its complement.

(13) **which you see book*



Suppose a LI **retains** its (Edge) features when it is internally merged: here *which* (but not *what* in (10)) has an EF (it needs a complement). So it is both an LI and a probe. No conflict. It projects. This explains why (13) cannot be an interrogative. But why not a relative? In English: see other languages.

(14) [YESTERDAY DOG_i ~~PE_i~~ CAT CHASE PE_i] [HE_i RETURN HOME] (Italian Sign Language)
'The dog that chased the cat yesterday returned home'

Why not in English/Italian? Some further complication, perhaps due to the phase status of (some) DP's.

5. LABELS AND PHASES

a. EF and phases

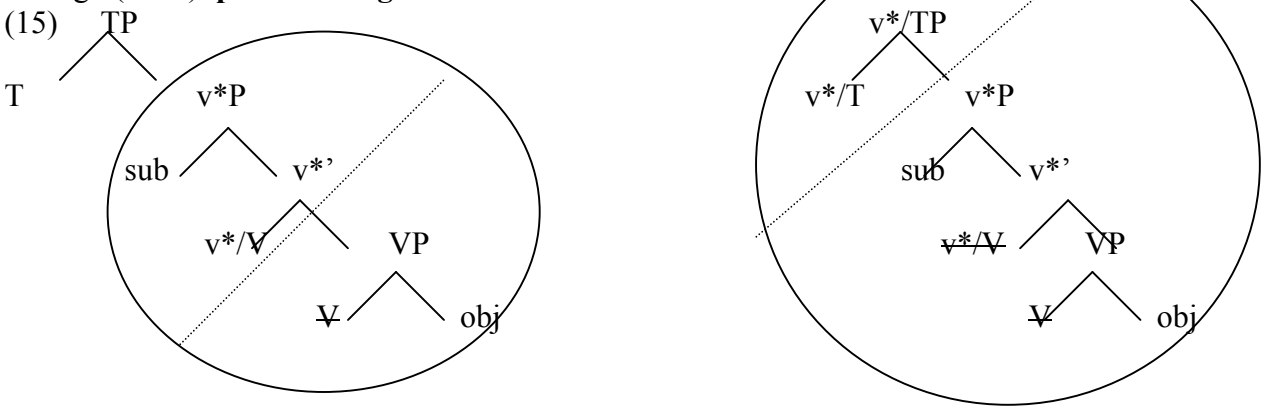
Chomsky (2005): Only phases heads have EF's: C and v*. Of course this cannot be true if we assume that EF is the trigger of any merge operation. But perhaps: only phases have extra **structural optional** EF, independent from its lexical properties (e.g. valence).

b. head movement and phases

Suppose you have a language where v* systematically raises (is internally merged) to T, say Italian. And a language where v* does not raise to T, say English. Is it possible that this movement project the phase status up to T expanding the phase, allowing extractions and other syntactic operations in the first type of language which are disallowed in the second type?

Gallego (2006): **phase sliding**

(15)



(16) a. ?*[$_{CP}$ Of which car$_i$ did [$_{TP}$ [the driver t_i]$_j$ [v*P t_j cause a scandal]]]?
b. [$_{CP}$ Of which car$_i$ was [$_{TP}$ [the driver t_i]$_j$ [vP awarded t_j a prize]]]? Chomsky (2005)

Prediction: no such contrast in Romance. The edge of v* is not a phase edge: subextraction possible.

(17) a. ?*[$_{CP}$ Di quale macchina C [$_{TP}$ [il guidatore t_i]$_j$ causò [v*P t_j tv uno scandalo]]]?
b. ?[$_{CP}$ Di quale macchina C [$_{TP}$ [il guidatore t_i]$_j$ fu premiato [vP tv t_j]]]

(18) a. Di quale macchina causò uno scandalo il guidatore?
b. Di quale macchina fu premiato il guidatore?

Being a phase head is a structural condition, not a feature that projects. The whole spirit of phases is that as soon as a phase head (v*) is merged, its domain is sent to Spell out, not 'waiting' for further computation (no look ahead).

REFERENCES

Chomsky, Noam 2001. Derivation by phase. In Kenstowicz (ed.) *Ken Hale: a Life in Language* 1-52. MIT Press, Cambridge.

Chomsky, Noam 2005. On Phases. Ms. MIT.

Donati, Caterina 2006. On Wh-Head Movement. In L. Cheng e N. Corver (a cura di). *Wh-Movement: Moving on*, MIT Press, Cambridge 21-46.

Branchini, Chiara and Caterina Donati (2006). Rethinking relativization strategies: the case of Italian Sign Language. Submitted.

Cecchetto, C 2006. Principle C as a case of mislabeling. Paper presented at XXXII Incontro di grammatical generative, University of Florence.

Gallego, Angel. 2006. *Phase Sliding*. Ms, UAB.

Matushansky, Ora. 2006. Head-movement in linguistic theory. *Linguistic Inquiry* 37, 69-109.