

Asymmetry and Morphological Variation ¹

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Properties of relations and asymmetry in particular have been claimed to play a role in the derivational systems as well as at the interface representations.

From a biolinguistic perspective, questions arise as to whether asymmetry is hardwired in the faculty of language, whether it is an effect of the computational system, or whether it is part of the factors external to the language faculty reducing derivational complexity.

1. BIOLINGUISTIC QUESTIONS

What are the possibilities that FL makes available and how they vary?
(Lenneberg 1967, Jenkins 2000, Chomsky 2005)

Genetic endowment: Merge, Agree, edge features
Experience interacting with the genetic endowment
External factors: parsing and tractability, LAD

What makes FL human specific?

- Recursivity is the specific property of FL. (Hauser, Chomsky & Fitch 2002)
- Lexicalization, the formation of complex concepts on the basis of simpler ones, is also assumed to be specific to FL. (Chomsky 2008, Pietroski 2008)
- Architecture of FL and the connection between SEM and PHON (Hauser, Chomsky & Fitch 2002)
- Asymmetry is a core property of FL (Di Sciullo 2005a), as part of the rewiring of the brain at the emergence of FL.

Asymmetry is a binary relation such that for all a, b belonging to the set X , if a is related to b , then b is not related to a . Precedence, dominance, and c-command are the most common asymmetrical relations. Other asymmetric relations have been discussed, for example the relation of ‘behindance’, as a sub case of dominance (de Vries, in press). Core relations in phonological rules such as the notion of adjacency have been treated as derived from precedence (Mailhot & Reiss 2007). No points of symmetry have been claimed to be part of morphological derivations (Di Sciullo 2005a).

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Is asymmetry hardwired in FL?

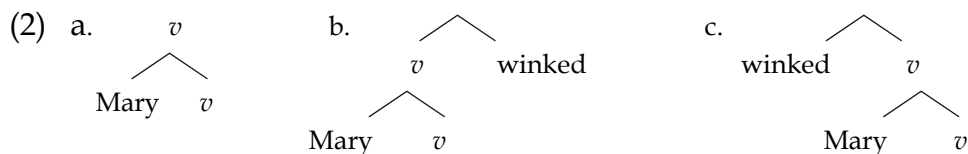
- Cross-linguistic variation in word order is a consequence of symmetry breaking (Jenkins 2000).
- Points of symmetry are derived in the syntax, and Internal Merge is symmetry-breaking (Moro 2000)
- External Merge is symmetry-breaking (Boeckx to appear)
- Kayne's (1994) LCA applies at PF (Richards in press)

- Chomsky's (1995) Merge is asymmetric, one or the other syntactic object undergoing the operation projects its label.
 - Target two syntactic objects α and β , form a new object $\Gamma\{\alpha, \beta\}$, the label LB of Γ $\Gamma(LB(\Gamma)) = LB(\alpha)$ or $LB(\beta)$.
- Kayne's 1994 UBH, LCA; Koster's (2000) Merge $\langle \alpha, \beta \rangle$
- Di Sciullo's (2005a) Agree (φ_1, φ_2): Given two sets of features φ_1 and φ_2 , Agree holds between φ_1 and φ_2 , iff φ_1 properly includes φ_2 .
- Zwart's 2006 timing of Merge
- Di Sciullo & Isac, to appear, Merge applies under set inclusion

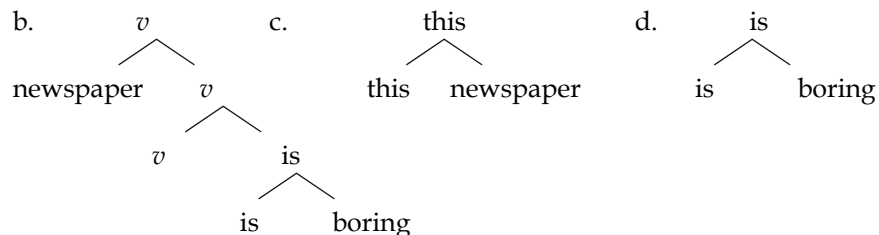
2. ASYMMETRIC MERGE

Given the numeration in (1), and Chomsky's (1995) definition of Merge, nothing prevents the derivation of structures such as (2b, c) and (3b). What determines the order of application of Merge? (Di Sciullo & Isac, to appear)

(1) $N = \{\text{Mary}, v, \text{winked}\}$



(3) a. $N = \{\text{this}, \text{newspaper}, v, \text{is}, \text{boring}\}$



The ordering of Merge follows from the assumption that Merge is an asymmetric operation in the following sense:

- (4) a. Asymmetry of External Merge:
External Merge is an operation that applies to a pair of elements in the Numeration whose categorial features are in a proper inclusion relation.
- b. Asymmetry of Internal Merge:
Internal Merge is an operation that applies to a pair of elements in the workspace whose (total set of) features are in a proper inclusion relation.
- (5) Nouns: [N]; Indefinite D: [Num], [uN]; Definite D: [D] [uNum]; wh-D: [D] [uNum] [wh]; Unergative V: [V]; Transitive V: [V] [uD]; Unaccusative V: [V], [uD]; *v*: [*v*] [uV] [uD], [uTense]; Unaccusative *v*: [*v*], [uV] [uTense];
- Tense: [Tense], [uv], [uD] [EPP] [uClauseType:]; C₁: [D], ClauseType], [uTense]; C₂: [D], [ClauseType], [uTense], [wh]

2.1 Sample of derivation

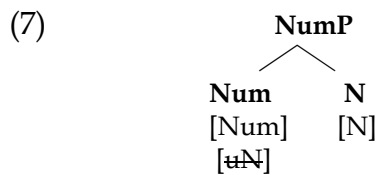
- (6) N = {C, T, {D, Num, N, *v*, V, D, Num, N}}

Step 1. select an item from the Numeration that has interpretable features only
⇒ select N ([N])

Step 2. select an item from the Numeration that properly includes N
⇒ select Num ([Num], [uN])

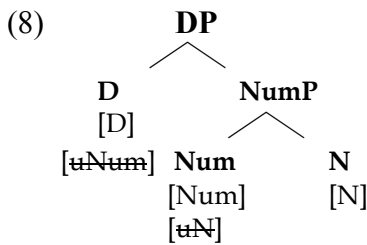
Step 3. External-Merge N with Num

Given the Earliness Principle (Pesetsky & Torgo 2001), the uninterpretable feature of Num will get checked and erased as soon as possible.



Step 4. Select item that properly includes Num
⇒ select D ([D], [uNum])

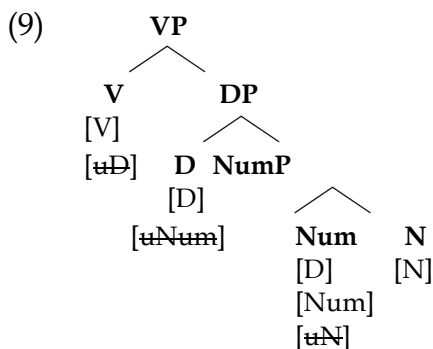
Step 5. External-Merge D to the workspace and check uninterpretable feature.



Select an item from the Numeration whose set of features properly includes the set of features of the DP in the workspace. Notice that at this point there are several choices, since not only the set of features of V properly includes the set of features of the DP, but also the set of features of little v , or T. The element that is selected must be the one whose features are the smallest superset of the set of features of the object in the workspace. In our particular case, the item that will be selected is V. This is a set theoretic version of ‘locality’.

Step 6. => select V ([V], [uD])

Step 7. External-Merge V and DP and check uninterpretable features on V.

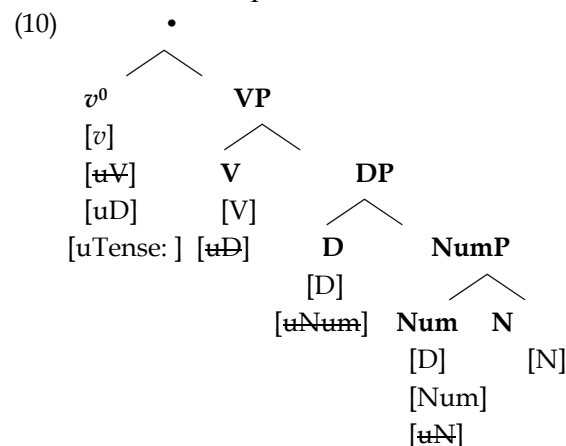


=> select C ([C], [uCIType:], [uTense])

Step 8. Select item from the Numeration whose set of features properly includes the set of features of the object in the workspace, i.e. VP.

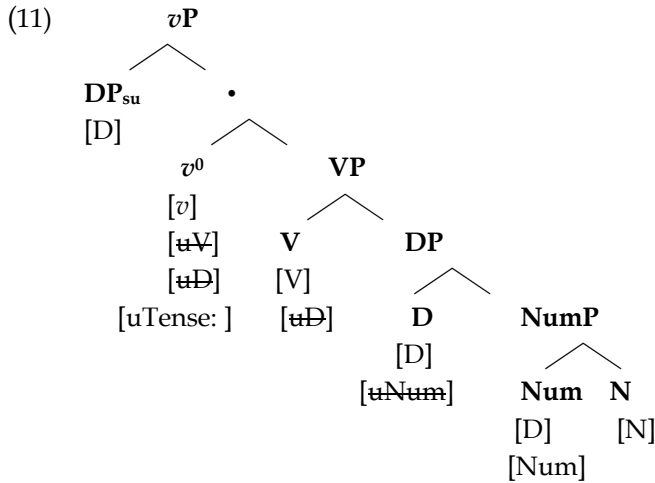
=> select little v ([v], [uV], [uD], [uTense])

Step 9. External-Merge little v to the VP which was in the workspace and check uninterpretable features on little v .



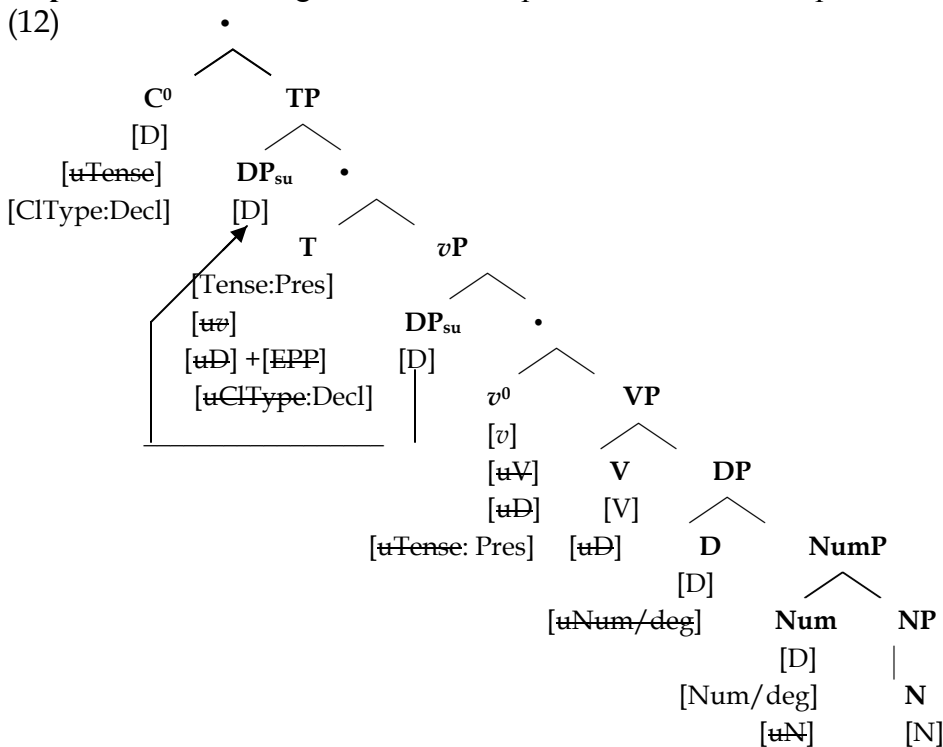
Step 10. => select DP ([D]) from the workspace/ numeration

Step 11. External-Merge DP to the workspace and check uninterpretable features.



....

Step 17. External-Merge C to the workspace and check uninterpretable features.



2.2 Summary

The criterion for deciding the order in which items in the Numeration must be Merged is the proper inclusion relation: the set of features of the merged item must stand in a proper inclusion relation with the set of features of the object derived in the workspace. Asymmetry is deep-rooted in Merge.

3. ASYMMETRY AND VARIATION

I consider the empirical consequences of Asymmetric Merge for morphological variation. I provide evidence that the proper subset relations play a role in the variation observed between closely related dialects of Italian. First, I discuss variation in agreement in possessive copular constructions, and then I consider variation in the lexicalization of complex functional categories.

3.1 Agreement in Abruzzese possessive copular constructions

Chomsky's (2000:122ff) *Agree*:

'[...] The ϕ -set we can think of as a *probe* that seeks a *goal*, namely "matching" features that establish agreement. [...] Locating this goal, **the probe erases under matching**. [...] The erasure of uninterpretable features of probe and goal is the operation we called *Agree*. [...] Matching is a relation that holds of a probe P and a goal G. Not every matching pair induces Agree. To do so, G must (at least) be in the *domain* D(P) of P and satisfy locality conditions.

More generally, uninterpretable features render the goal *active*, able to implement an operation. The operations Agree and Move require a goal that is both local and active.'

PROBLEM: How can syntactic Agree account for the following facts?

D'Alessandro & Di Sciullo (in press)

3.1.1 The facts

Abruzzese is spoken in a central region of Italy, Abruzzo. It is an upper-southern Italian dialect. We consider two variants: Ariellese (**AR**), spoken on the coast, and Fallese (**FA**), spoken in the mountains, both in the province of Chieti.

Possessive copulars in **AR**:

(13) a. La case jè (di) lu mé
the-fem sg house-fem sg is of the-masc sg my-sg

Possessive copulars in **FA**:

b. La case è la mé
the-fem sg house-fem sg is the-fem sg my-fem

Possessive copulars in **IT**:

c. La casa è (la) mia
the-fem sg house-fem sh is the-fem sg my-fem sg

AR: copula + (prep) + det + poss adj

FA: copula + det + poss adj

IT : copula + (det) + poss adj

OBSERVATION: Abruzzese (AR + FA) possessive copulars are more complex than their Italian counterparts.

(14)	AR		FA
a.	La case jè (di) lu mé	La case è la mè	
	the-fsg house-fsg is of the-msg my-sg	the-fsg house-fsg is the-fsg my-f	
b.	Li case jè (di) li mi	Li case è li mè	
	the-pl houses-fpl are of the-pl my-pl	the-pl houses-fsg is the-pl my-f	
c.	Lu cane jè (di) lu mé	Lu cuane è lu mié	
	the-msg dog-msg is of the-msg my-sg	the-msg dog-msg is the-msg my-m	
d.	Li chine jè (di) li mi	Li chiene è li mié	
	the-pl dogs-mpl are of the-pl my-pl	the-pl dogs-mpl are the-pl my-m	

AR: prep + det (masc sg/pl) + poss adj

FA: det (masc/fem sg/pl) + poss adj

QUESTIONS:

- Why does the DET in AR not inflect for gender?
(Observe that in AR there is a fem sg det (*la*).
- What blocks agreement between the det in the possessive PP and the head?
- Are the agreement patterns in (1)-(2) obtainable through Agr?

3.1.2 Agreement patterns

Q: Are the sentences in (14) partitive ones?

A: No; both AR and FA have partitive constructions:

(15) a.	Na/ *la machine di li mi [PART] (AR)
	a-fsg the-fsg car-fsg of the-pl my-pl
b.	La machine jè di lu me [POSS] (AR)
	the-fsg car-fsg is of the-msg my-sg
c.	Na/ *la machine mè [PART] (FA)
	a-fsg the-fsg car-fsg my-f
d.	La machine è la mè [POSS] (FA)
	the-fsg car-fsg is the-fsg my-f

The agreement patterns are clearly different.

Specifically: in AR, the partitive requires a plural possessive DP and an obligatory preposition. In FA, the partitive does not require a determiner or an obligatory preposition.

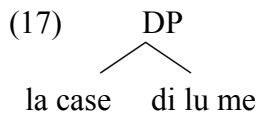
3.1.3 Agree-Concord

How do we derive (16)?

(16)	La case jè (di) lu me (AR)	La case è la me (FA)
	the-fsg house-fsg is of the-msg my-sg	the-fsg house-fsg is the-fsg my-f
	‘The house is mine’	

La case has uninterpretable Case, and interpretable ϕ -features.²

We analyse this sentence as involving a predicative copula.



La case gets Nominative via Agree with T. T has in fact uninterpretable ϕ -features, and values the subject's uCase. The uninterpretable features on the PP complement *lu me* are in principle invisible to *case*, which cannot probe them since its ϕ -features and Case are interpretable, and so are the features on *lu me*.

3.1.4 Some more data

In FA, possessive adjectives vary according to **gender**, whereas in AR they vary according to **number**, see (13), and the paradigms (18), (19).

In AR, possessive adjectives are marked for number, but not for gender, (18):

(18)

	SINGULAR MASC/FEM	PLURAL MASC/FEM
my	mé	mi
your	té	ti
his /her	sé	si
our	nostre	nustre
your	vostre	vustre
their	sé	si

In FA, possessive adjectives vary in gender, but not in number, (18):

(19)

	FEMININE SG/PL	MASCULINE SG/PL
my	mè	mié
your	tè	tié
his /her	sè	sié
our	nostre	nuostre
your	vostre	vuostre
their	sè	sié

² Case is treated differently from other features in Chomsky (2001), its assignment requiring phi-completeness. Case is assumed to be uninterpretable on DPs. We will not consider it in the rest of this paper.

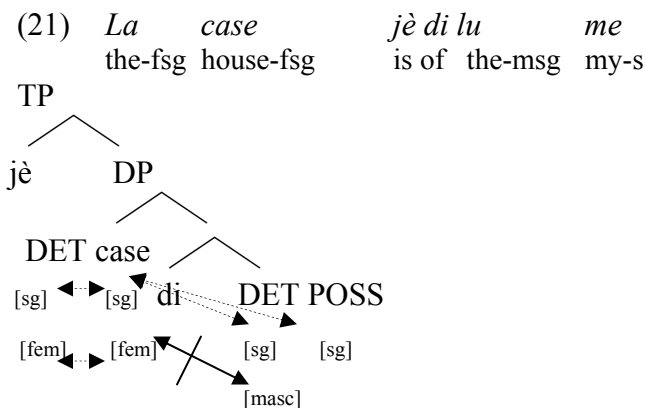
3.1.5 Proper subsets

PROPOSAL: The features in possessive PP get checked via Concord.

According to Di Sciullo (2005: 189):

- (20) a. Agree-check is a matching relation under which feature checking takes place.
 b. Agree-concord is a matching relation under which no feature checking takes place.

We follow Di Sciullo (2005) by proposing that Concord (Agree-concord) is a matching relation, which does not have feature checking as a consequence. In other words, it is pure Match.



QUESTION: Why is the determiner in the possessive DP masculine and not feminine as expected?

PROPOSAL: SUBSET RELATION

(22) **Agree as a proper subset relation:**

Agree (ϕ_1, ϕ_2): Given two sets of features ϕ_1 and ϕ_2 , Agree holds between ϕ_1 and ϕ_2 , iff ϕ_1 properly includes ϕ_2 .
 Di Sciullo (2005, 30)

In (23), Agree-concord only takes place between the number features, disregarding gender.

(23) a. *La case jè di lu me* (AR)

<i>case</i>	<i>lu</i>	<i>me</i>
[sg]	[sg]	[sg]
[fem]	[masc]	

b. *Li case jè di li mi* (AR)
 the-fpl houses-fpl are of the-pl my-pl

<i>case</i>	<i>li</i>	<i>mi</i>
[pl]	[pl]	[pl]
[fem]		

This means that only a subset of the ϕ -features enters Agree-concord.

(24)

D	D
NUM	NUM
GEN	GEN

QUESTION: What about FA?

In FA, the situation is the opposite:

(25) *La case è la mè*
 the-fsg house-fsg is the-fsg my-f

<i>case</i>	<i>la</i>	<i>mè</i>
[fem]	[fem]	[fem]
[fem]	[fem]	

(26) *Li case è li mè*
 the-fsg house-fpl is the-pl my-f-pl

<i>case</i>	<i>li</i>	<i>mè</i>
[pl]	[pl]	[pl]
[fem]		

The subset is a proper subset, in that the determiner concords only in gender with the head.

(27)

D	D
GEN	GEN

This situation is analogous to Italian (where, however, the determiner and the possessive have a fully fledged ϕ -set)

(28) *Le case sono le mie*
 the-fsg houses-fpl are the-fpl my-fpl

<i>case</i>	<i>le</i>	<i>mie</i>
[pl]	[pl]	[pl]
[fem]	[fem]	[fem]

In Italian, Agree-concord is obtained by a subset relation, considering only NUM and GEN. According to Chomsky (2001), the ϕ -set is {person, number, gender}. Given that the complete ϕ -set includes PERSON, in addition to NUM and GEN, and assuming

that non pronominal DPs are 3rd person, Agree-concord is obtained by a proper subset relation in Italian as well.

3.1.6 Feature ranking

Q: Why is number and not gender (which would be available) selected for agreement in AR?

PROPOSAL: FEATURE RANKING

Some features are more prominent than others. In AR, number is more prominent (see also Harley & Ritter 2002).

(29) AR: NR>GN, FA: GN>NR

3.1.7 Evidence for feature ranking

According to (29), number is more prominent than gender in AR.

D'Alessandro & Roberts (2007) show that number is the only feature that enters Agree also in past participle agreement in AR:

- (30) a. Giuwanne a pittate nu mure (AR)
John-sg has-3rd sg/pl painted-**pp sg a wall**
 'John has painted a wall' [sg SUBJ-sg OBJ]
- b. Giuwanne a pittite ddu mure
 John-sg has-3rd sg painted-**pp pl two walls**
 'John has painted two walls' [sgSUBJ-plOBJ]
- c. Giuwanne e Mmarije a pittite nu mure
John and Mary-pl have-3rd sg/pl painted-**pp pl a wall**
 'John and Mary have painted a wall' [pl SUBJ- sg OBJ]
- d. Giuwanne e Mmarije a pittite ddu mure
 John and Mary-pl have-3rd sg/pl painted-**pp pl two walls**
 'John and Mary have painted two walls' [pl SUBJ-pl OBJ]
 [D'Alessandro & Roberts 2007: 7]

The facts in (31) show that the past participle always agrees with the argument which is specified as plural independently of whether it is the subject or the object.

This is not the case in FA. In FA, number feature does not enter Agree in past participle agreement:

- (31) a. Giuwanne a pittat nu mur(e) (FA)
John-sg has-3rd sg/pl painted-**pp sg a wall**
 'John has painted a wall' [sg SUBJ-sg OBJ]
- b. Giuwanne a pittat ddu mur(e)
 John-sg has-3rd sg painted-**pp pl two walls**
 'John has painted two walls' [sgSUBJ-plOBJ]
- c. Giuwanne e Mmarije onn pittat nu mur(e)
John and Mary-pl have-3rd sg/pl painted-**pp pl a wall**
 'John and Mary have painted a wall' [pl SUBJ- sg OBJ]

- d. Giuwanne e Mmarije onn pittat ddu mur(e)
 John and Mary-pl have-3rd sg/pl **painted-pp pl two walls**
 ‘John and Mary have painted two walls’ [pl SUBJ-pl OBJ]

This data corroborate the hypothesis that number is more prominent than gender in AR, contrary to FA.

3.1.8 Summary

- Agree-check is not enough to explain some agreement data, and Agree-concord is necessary
- Agree is defined in terms of set inclusion, as proposed in Di Sciullo (2005a)
- AR and FA present evidence for the subset relation, and for the claim that ϕ -features are hierarchically organized (Harley & Ritter 2002)

3.2 Lexicalisation

Affixes and roots contribute conceptual material and combine together to form complex concepts on the basis of simpler ones.

(32) write, writer, writeable; code, encode, reencode; there, where; this, that, these

How is this done?

One language engine, different computational spaces Di Sciullo (2005a)

Derivational spaces are differentiated by the nature of their primitives (features (morphological vs. categorical) and configurations (minimal tree or not))

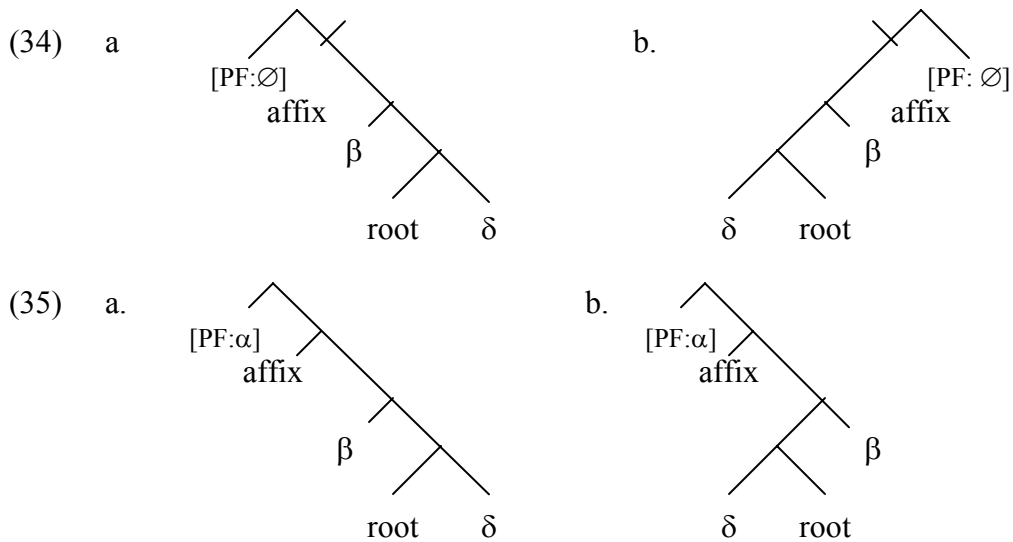
Morphological derivation proceeds by phases Di Sciullo (2004)

External Merge and morphological features, e.g., [a], [Pred], [E-Asp], [I-Asp], [Op], [Res] valuing under set inclusion

AFFIX TYPE	ROLE	POSITION
PREDICATE	determines semantic type and argument structure	Head
ASPECT	determines aspectual modification	Specifier
OPERATOR	determines operator-variable relation	
• Internal-bound	links a variable in D_M	Specifier
• External bound	links a variable in D_S	Head

The morphological relations between affixes and roots, and between affixes and affixes, are derived in the morphological space and are legible at SEM, where scope relations are legible, (33). The linear order of affixes is legible at PHON. See Di Sciullo (2005b) for variation between English, Yekhee, Turkish wrt af/root linearization sensitive to the edge of a morphological phase.

(33) [Op F [E-Asp F...[I-Asp .. F [... Pred]]]

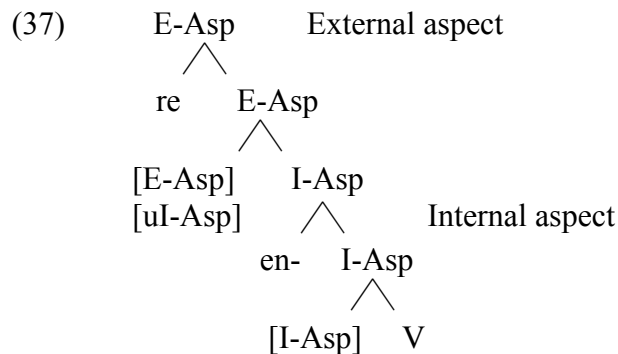


3.2.1 FORMATION OF COMPLEX EVENTS BY ASPECTUAL MODIFICATION

The Asp domain occupies an intermediate position in the morphological hierarchy. It is lower than the Op-domain, and higher than the Pred-domain, (33). Complex events can be derived by aspectual modification:

- (36) a. Gianni ha corso. (It)
Gianni has run
'Gianni ran.'
- b. Gianni è accorso immediatamente (It)
Gianni is at run immediately
'Gianni ran up/fled immediately.'
- c. Gianni ha (ri)corso ?in cinque minuti/per cinque minuti. (It)
'Maria ran (again) ?in five minutes/ for five minutes.'
- b. Gianni ha (ri)accorso in cinque minuti/?per cinque minuti.
'Maria ran up (again) in five minutes/? for five minutes.'

Spatial (I-Asp) and sequential (E-Asp) affixes are merged in the functional projection. They are not merged within the V domain and moved to a functional position (contra the Abstract Clitic Hypothesis, see Di Sciullo 1997, 2005).



The configurational asymmetry between External and Internal prefixes determines their linear order and their effect on the argument structure and the Aktionsart of the verbal projection of which they are part. As AspI may change the telicity of the verbal predicate to which they are adjoined, they cannot adjoin to telic predicates, whereas AspE can (See Di Sciullo 1997).

- E-Asp precedes I-Asp :
 - (38) a. Julie a réemporté/*enréporté les livres. (Fr)
 - b. Lucie a réenfermé/*enrefermé le chat dans la cave.

- E-Asp can be iterated, I-Asp cannot:
 - (39) a. Marie a rerefait /redéfait le puzzle.’
 - b. *Jane a aa/enemporté/ aem/emapporté les livres à Paul.

- I-Asp must be spelled out if E-Asp is:
 - (40) a. Il a réembouteillé/ *rebouteillé le vin.
 - b. Il a réembarqué/*rebarqué sur le bateau.

- I-Asp affects the structure of the v, E-prefix does not:
 - (41) a. Il a (re)dormi pendant des heures.
 - b. Il a (r)endormi Jean immédiatement.

Historical data:

Re- can cliticize on higher categories than V in Old French; AUX (42), and CL, (43)

- (42) Ma femme ra enfant eu.
 “My wife had another child.”
 (Rutebeuf 9698; Gosselin 1999)

- (43) Uns ri vint qui ravoit perie
 One re there cam that re-had perish
 “One who had perished again came back there.”
 (La vie de saint Martin, 5573; Dufresne, Dupuis & Tremblay 2003)

Re- has iterative, restitutive, and intensive interpretations in Old French

- (44) si recommence son duel (Repetitive)
 thus restarts his duel
 “thus he starts his duel again”
 (Artu 143/53/2)

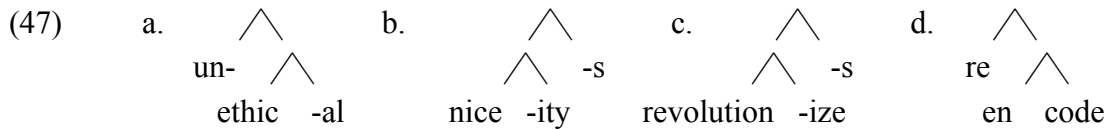
- (45) et s’ en revient messier Gauvin a Kamaalot (Restitutive)
 and SE EN Re come Mr. Gauvin to Kamaalot
 “and Mr. Gauvin comes back to Kamaalot”
 (Clari 73)

- (46) Il resaut sus encontremont (Intensive)
 He RE jumps in countermont
 “he makes a jump in the air”
 (Gormont, 279; Buridant 2000)

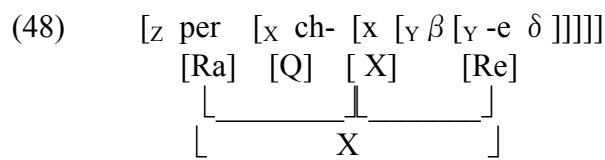
3.2.2 The asymmetry of transfer in complex event formation

The asymmetry of phase Transfer (spell-out), which partitions the edge and the head of a phase from its complement, also holds in the derivations of morphological objects.

Diagnostic for the phase: F-XP, PIC, Isolability, Complete functional complex



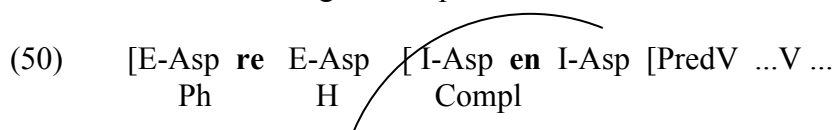
The head of a morphological phase is accessible to the next phase up for uninterpretable feature valuing.



The assumption that morphological derivations also proceed by phases and Chomsky's (2001) phase Transfer (spell-out) algorithm lead to a unified account of the morphological asymmetries, (38)-(41), evidenced in Di Sciullo (1997) on the basis of the properties of prefixed verbs in French.

- (49) a. $af1 > af2 > \text{root}$ / $*af2 > af1 > \text{root}$ (precedence) réenfermer/*enrefermer
 b. $af1^n > af2 > \text{root}$ / $*af1 > af2^n > \text{root}$ (iterativity) rerefermer/*enenfermer
 c. $af1 > af2 > \text{root}$ / $*af1 > af2 > \text{root}$ (locality) réembarquer/*rebarquer

If E-Asp is a morphological phase, then the complement of a phase is spelled out, but not the head or the edge of the phase.



The complement of a phase is sent to Spell-out before the edge and the head of the phase are: I-Asp precede E-Asp affixes, (26°). E-Asp affixes may be iterated, whereas I-Asp affixes cannot since they are no longer accessible after Spell-out. (26b)

The complement of a phase is not accessible by operations from outside, only the edge and the head of the phase are. Locality effects are derived. (26c)

- (51) a. $[re [en [barque [-er [edge [H [compl]]]]]]]$ b. $*[re [[barque [-er [edge [H [compl]]]]]]]$

If the Asp-Shell is a Morphological phase, human processing should reveal the I-Asp vs. E-Asp phase Transfer asymmetry.

3.2.3 Evidence from human processing

- Psycholinguistic experiments can provide evidence for the cognitive representation and processing of aspectual affixes and, in particular, if there is a configurational difference between sorts of affixes.
- If there is no structural difference between aspectual affixes with respect to a verbal head, psycholinguistic experiments (lexical decision tests, priming, event-related brain potentials, etc.) should reveal no significant difference in the processing of prefixed verbs, whether the affix is iterative or spatial.
- If there is a configurational difference between sorts of affixes, significant differences in processing should emerge.

Statistically significant effect of form (base forms show faster latencies than prefixed forms)

Significant interaction between the type of prefix and the form of the verb:

- Latencies for base forms for both types of prefixes are not different from each other.
- However, **forms with external prefixes show significantly longer latencies than forms with internal prefixes.**

(52)

Mean RTs and SDs for prefixed and stem forms

	Mean RTs	SDs
En stem	648	95
Re stem	628	80
En prefixed	724	97
Re prefixed	766	140

This difference cannot be accounted for by any difference in stem frequencies or surface frequencies or by any other distributional factor, e.g., syllable length, affixal homonymy, etc., it can only be attributed to the particular configurational properties of the prefixes. This difference cannot be accounted for by any difference in stem frequencies or surface frequencies or by any other distributional factor, e.g., syllable length, affixal homonymy, etc., it can only be attributed to the particular configurational properties of the prefixes. There is a difference in accessing internally vs. externally prefixed verbs.

In Tsapkini, Jarema & Di Sciullo (2004), the external/internal aspect distinction for the French iterative *re-* and the directional *en-* was prompted to the psychophysiological level. The research question in this experiment was whether the syntactic and the semantic differences involved in the internal/external distinction reflected in differential electrophysiological activity of the brain found to be devoted to syntactic and semantic processing.

Event-related brain potentials (ERPs) were recorded from a 64-channel device as 6 participants performed a lexical decision task with contiguous priming, where priming effects for pairs of related verbs (e.g., *fermer-refermer*, or *fermer-enfermer*) were compared with the control unrelated condition (e.g., *parler-enfermer*, or *parler-enfermer*). Results showed that an early negative component (N400) usually related to syntactic/semantic processing was obtained for the internal prefix verb category which entailed an argument structure and aspect change from the base verb, but it was not obtained in the verbs with the external prefix where there was no argument structure and aspect change from their base form.

N400 is reduced for the related condition as compared to the unrelated one for both verb categories in line with the previous priming literature. However, in the case of internally prefixed verbs, this difference is more pronounced in the anterior areas, whereas in the case of externally prefixed verbs, it is more pronounced in the posterior areas. The difference between internal and external prefixes is not observed at the electrophysiological level with an early negativity but rather with a late positivity having a left temporo-parietal distribution. Differences in human processing between I-Asp and E-Asp prefixed verbs can be observed at the electrophysiological level.

3.3 Variation : Supplementary a- in Fallese

In Fallese (Fa)/Abruzzese, *a-* is part of words of different categories, whereas this is not the case for their Italian (It) counterparts, (1)-(6). The supplementary *a-* is mostly observed with certain functional elements.

- | | | | | |
|------|----|--------------------|----|------------------|
| (53) | a. | Addò vai? | b. | Vado li. (It) |
| | c. | Dove vai? | d. | Vade aelle. (Fa) |
| | | ‘Where do you go?’ | | ‘I go there.’ |

Questions

- What is the nature of this *a-*?
- What are the restrictions on the merger of *a-* with other constituents?
- Why does Fallese have more *a-* words than Italian?
- What does this tell us about grammar and variation?

In Latin, when a complement expresses not the place itself but the proximity of a place or a person, it is preceded by a preposition, *ab*, *ad*, or *apud* ‘to, toward, near’.

- (54) Quo vadis Maria? Adeo parentes, Athenas (Lat)
 Ubi es, Maria? Sum apud parentes, apud Athenas
 Unde venis? A parentibus, ab Athenas.

- Supplementary *a-* in Fallese is the remnant of the Latin proximal preposition *ad*.

- | | | | | | | |
|------|----|--------------|-----------------|-----------|------------|----------------|
| (55) | a. | ammonde (Fa) | ad montem (Lat) | at hill | ‘upward’ | in salita (It) |
| | b. | abballe | ad vallem | at valley | ‘downward’ | in basso |

Supplementary *a-* in Fallese occurs in: complex prepositions (55), wh-words (56), deictic determiners (57), subordinating conjunctions (58), speaker-oriented adverbs (59).

- | | | | | | | |
|------|----|---------------|-----------------|----------|----------|-----------|
| (56) | a. | addó (Fa) | ad ubi | at where | ‘where’ | dove (It) |
| | b. | aquande (Ar) | ad quando (Lat) | at when | ‘when’ | quando |
| (57) | a. | aecche (Fa) | ad ecce (Lat) | at here | ‘here’ | qui |
| | b. | aell | ad illic | at there | ‘there’ | lì |
| (58) | a. | accusci (Fa) | eccu sic (Lat) | it is so | ‘thus’ | così |
| | b. | allore | ad hora(m) | at this | ‘then’ | allora |
| (59) | | addavere (Fa) | ad vero (Lat) | at truth | ‘really’ | davvero |

Supplementary *a-* is expected to be found in other dialects. This happens to be the case in Piemontese (Brero 1975, Gribàud 1983), in similar contexts:

(60)	Wh-P ando (Pie)	dove (It)	où (Fr)	‘where’
	PP abass	in basso, abbasso	en bas	‘down’
	Adv ancheuj	oggi	aujourd’hui	‘today’

- Supplementary *a-* has [Proximal], and evaluative [uEv-Asp] features.

Evidence that Fallese *a-* has a [proximal] feature comes from the fact that a determiner with a [proximal] feature, *aecch* ‘here’, can be in the scope of a [proximal] demonstrative, *qusse* ‘this’, but not in the scope of a [distal] demonstrative, *qulle* ‘that’.

- (61) Marie ha portate qusse/*qulle **aecch**. (Fa)
 Mary has brought this/*that here
 ‘Mary brought this/*that here.’

Same point can be made with Catalan : (p.c. Manuel Español-Echevarría)

- (62) Joan, fes-te enllà (*allà). (Ca)
 Joan, go-you towards-there
 ‘Joan, go further away (not so close).’
- (63) En Joan va anar fins **allà** (*enllà). (Ca)
 the Joan went go-inf. up-to there
 ‘Joan went up to there (close).’

- Supplementary *a-* has a [uEv-Asp] feature, as can be seen with speaker-oriented adverbs, and subordinating conjunctions.

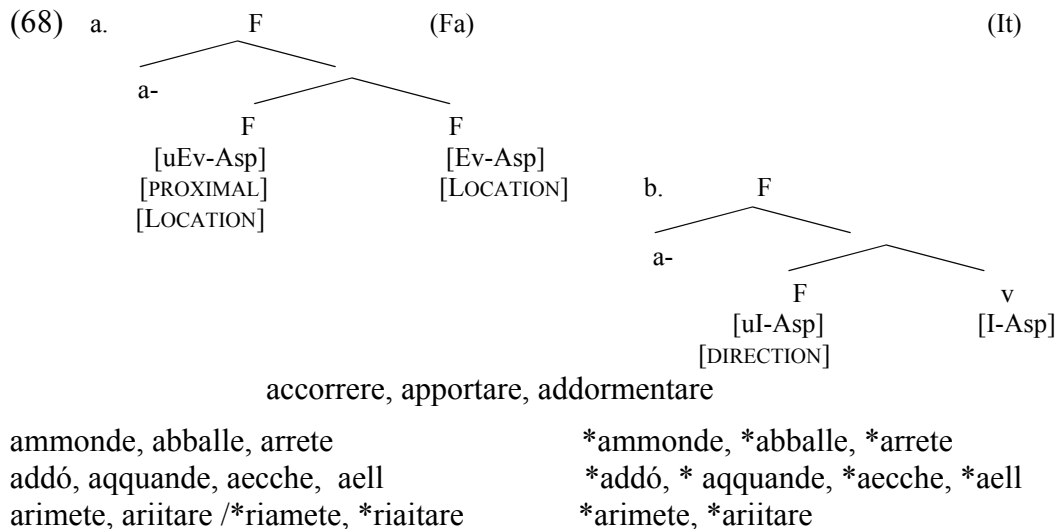
- (64) Lu so viste aogge, è diventate **addavere** grande. (Fa)
 him have seen today, is became really big
 ‘I have seen him today, he got really tall.’

- (65) Se comprate nu giornale, **accuscì** se state tranquille (Fa)
 SELF bought a newspaper, a thus SE stated quiet
 ‘(S/he) bought a newspaper, and thus was quiet.’

- (66) Hi va treballar **àdhuc** ahir, que era festa (Ca)
 ‘He worked even yesterday, which was a holiday.’

- (67) Va ser operat cinc vegades, i **àdhuc** va tornar a jugar. (Ca)
 Went be operated five times, and contrary-to-what-was-expected...
 ‘S/he underwent five operations, but in spite of that, s/he came back to play.’

Given the asymmetry of Merge in terms of set inclusion, the micro variation between Fallese and Italian can be reduced to a difference in the featural specification of the functional item *a-*. Supplementary *a-* is a functional element with [uEv-Asp], [Proximate][Location] features in Fallese, and it Merges with [Ev-Asp][Location] items (of the set {wh-P, D, SConj, Adv}), but not in Italian. In Italian, directional *a-* has [uI-Asp] and merges with [I-Asp] categories such as *v*, and it does not merge with [Ev-Asp][Location] items (of the set {wh-P, D, SConj, Adv}).



Summary

- Supplementary *a-* in Fallese is the remnant of the Latin proximal preposition *ad*.
- *a-* [uEV-ASP] [PROXIMAL] [LOCATION] is merged with [EV-ASP] [LOCATION] items.
- Fallese has more *a*-words than Italian because Fallese has proximal *a-* as well as directional *a-*, whereas Italian has only directional *a-*. Proximal *a-* merges with [EV-ASP] items, directional *a-* merges with [I-ASP] items.
- The presence of proximal *a-* in Fallese and its absence in Italian support the view that variation reduces to differences in the features of functional elements, while it preserves the asymmetry of Merge applying under set-inclusion.

4. CONCLUSION

If asymmetry is deeply rooted in FL, we expect it to play a central role in linguistic variation, conceived as the interaction of experience with the properties of FLB. We focused on the asymmetry of Merge and discussed two cases of morphological variation.

Why should asymmetry be central? It might be the case that asymmetry ensures stability to FL, when symmetry is brought about by experience. This does not discard the possibility that symmetry is available in communication systems in place before the emergence of FL. In biology, an asymmetric system might arise from a symmetric precursor, and if this asymmetric system is more robust, it will be genetically fixed in the genome. It is likely that the stability brought about by asymmetric relations contributes to make FL an optimal solution to the task of linking sound and meaning.

The pervasive role of asymmetry in language suggests that it contributes, along with recursivity, lexicalization, and the mapping between SEM and PHON to make the faculty of language human specific.

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