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*Morphological Domains**

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1. Intro

The notion of cyclic domain has been recently discussed in terms of Chomsky's (2000, 2001) notion of phase, Uriagereka's (1999, 2003) notion of Multiple Spell Out, and Collins's (2001) notion of phase as a saturated constituent. See Adger (2003) and Holmberg (2000) for phonology, and (Chierchia 2001, Nissenbaum 2000) for semantics.

(1) **Diagnostics for the phase** (Chomsky 2001, Legate 2003, Adger 2003, Svenonius 2003)
- F-XP configuration (CP, v*P, VP, DP, PP)
  F is the head and XP is the complement
- Impenetrability
- Independence at the interfaces

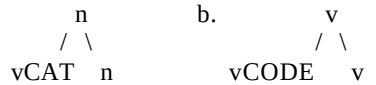
According to Chomsky (2000, 2001), a phase is a syntactic object defined as a domain for cyclic interpretation and spell-out. A syntactic phase is a propositional category (vP, CP). v*P is a strong phase and thus opaque to extraction at the CP level. The only position from which extraction can take place is from the 'edge' of the vP: the head, the specifier, and the adjoined position. Chomsky (2000) provides evidence that syntactic phases are propositional on the basis of examples such as (11a,b) in which the lower propositional domain constitutes a domain of cyclic interpretation and spell-out.

(2) a. [John [t thinks [Tom will [t win the prize]]]]
b. [which article is there some hope [α that John will read t_{wh}]]

It has been shown that other categories than propositional categories are syntactic phases, see Adger (2003), for DPs. The syntactic properties of phases have been shown to be related to semantic properties, see McGinnis (2001) and Pylkkänen (2002) for the distribution and semantic properties of high and low applicatives. Thus, phases are not limited to propositional categories and their syntactic properties are related to semantic properties.

In DM, the notion of root √ is central. The category of a root is provided by an abstract functional head, such as n, v, or a. Each category is a phase delimiter, and triggers the interpretation of its complement. Head adjoined via head-movement to another head counts as being in the complement of this higher head, so head movement is not an escape hatch for phonological and semantic interpretation in a phase. See Marantz 2003, Nervin 2002.

(3) a. b.



(4) a. b.

GLORY -ous –ness

(Marantz 2003: 4)

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(5) a. What are the properties of Morphological domains?
b. How can they follow from the theory?

Asymmetry Theory (Di Sciullo 2003, forthcoming)
The computational space is modular, and includes different planes, e.g. N-syntax, M-syntax , parallel derivations and transfer (N-syntax, M-syntax, PF and LF)

- The Primitive structural relations are asymmetric (irreversible): precede, dominate.
  A minimaltree has only one Spec and only one Compl. position:
  T_1 [$_x$ a [$_x$ x ß]], T_2 [$_y$ f [y ?]]
  Spec > Head > Compl, given the Universal Base Hypothesis (Kayne 1994)
- The operations of the grammar (sorts of derivations):
  SHIFT (T_1, T_2), merges minimal trees (T_1, T_2, … T_n)
  by substituting a minimal tree T2 to the complement of a minimal tree T_1: [$_x$ a [$_x$ x [$_y$ f y ?]]]
  LINK (T), applies to a tree T and yields T', where parts of T are related.
  FLIP (T), applies to a minimal tree T, and yields T', the mirror image of T.
  TRANSFER (T) maps a tree T, from a dimension D_1 to a dimension D_2 of the CS.
  Conditions: Economy, including Minimality, Strict Asymmetry

1.3 Overview

i) M-Shell
ii) Impenetrability
iii) Independence at the Interfaces
iv) Computational complexity

2. M-Shell

2.1 Canonical Form

- The canonical form of an M-domain is the M-Shell, (6), where x and y are heads, and α, β, δ are dependent positions, the loci of morpho-functional features.

(6) [$_x$ α x [$_y$ β [$_y$ y δ]]]

- M-domains are thus bipartite configurations, they are formed of two layers of asymmetric (sister-contain) relations, as a result of the operation SHIFT.
- The M-Sell satisfies Strict asymmetry. The head of the phase x is an affix and it takes the y projection as its complement. Linking relations hold within an M-domain, and across M-domains under certain conditions.

(7) a. [$_x$ α ness- [$_y$ β [$_y$ happy δ]]]
b. [$_x$ α able- [$_y$ β [$_y$ write δ]]]
c. [$_x$ α en- [$_y$ β [$_y$ white δ]]]

(8) a. [$_x$ re- x [$_y$ β [$_y$ load δ]]]
b. [$_x$ en- x [$_y$ β [$_y$ chain δ]]]

(9) a. [$_x$ α -s [$_y$ β [$_y$ cat δ]]]
b. [$_x$ α -ed [$_y$ β [$_y$ like δ]]]

(10) a. [$_x$ α wh- [$_y$ β [$_y$ -at δ]]]
b. [$_x$ α th- [$_y$ β [$_y$ -at δ]]]

Thus, there is a formal notion of 'word', the M-Shell, modelling the form of actual words.
Supports abstract syntax of words (Selkirk 1982; Di Sciullo and Williams 1987)
In a syntactic domain functional projections are headed by functional features. Thus, the size of an N domain is extended
The Theory predicts that the size of a word is smaller than the size of a phrase, as only minimal trees headed by an affix or a root can be part of a morphological derivation

(16) a. consitute
b. constitut-ion
c. constitut-ion-(n)al
b. anti-constitut-ion-(n)-al

An M-domain is not phrasal, as it lacks the upper functional categorical projection in the case of derived Ns and Vs, in the case of derived wh-words and th-words, it lack the lower lexical categorical projection.

(17) a. [X] af] af] af]]]
b. [$_{CP}$ C [$_{TP}$ T [$_{vP}$ SU v [$_{VP}$ OB V ~~OB~~]]]]
-wh -past

2.1 Head geometry

i) Righthand rule (Williams 1980)
ii) Relativized Head (Di Sciullo and Williams 1987)

Derivation and compounding differ with respect to their structure (position of heads) and interpretation (stress and opacity). Their configurational difference can be seen as a consequence of the position of an abstract F projection, which may be spelled out by morpho-functional categories.

(18) *The F-head of a word* is the Y-most element of that word with F-features.
X ranges over formal and semantic features, Y ranges over peripheral and non peripheral positions

a. [F ……]
b. […… F]
c. […F…]

(19) a. adapt-**abil**-**ity**, **re**-**en**-trap-**ed**, **en**-trap-**ment**-s
b. hit-**and**-run, truth-**or**-dare

In derivation, the F-Head is located at a periphery. In compounding it is central.

(20) **gh? r?** d? (Ye)
again INF sell
'to resell'
(21) **ri**vend**ere** (It)
again sell INF
'to resell'
(22) déchiquetteur-**à**-papier, coupe-**la**-soif (Fr)
'shredder', 'thirst quencher'.
(23) pag**o**vuno, kapn**o**kalierjia (MG)
'ice-berg', 'tobacco-cultivation'
(24) libesbrief (Ge)
'love-letter'
(25) schaap**s**leder (Du)
'seep-leather'
(26) tea-cup, nervous-system, cat-fish

The F projection is part of the derivation of M-objects even if it is not PF legible
- Required to ensure that the parts of a compound are asymmetrically related
- Required for PF interpretation and LF

Derivation and compounding differ from phrases.
In N-syntax, the positions of the categorial and the F-head may coincide.
In M-syntax, the positions of the categorial and the F-head may not.

2.2 Selection

i) Sisterhood selection (Pesetsky 1982, Grimshaw 1981, 1990, Borer 1990, Lieber 1992, Marantz 2003): A Head selects the category of its sister.

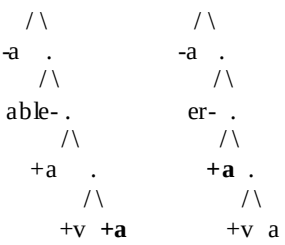
ii) Head-Head selection (Baltin 1989, Collins 2001): A Head selects the Head of its complement.

iii) Asymmetric selection (Di Sciullo 1996, 2002): In $[_X$ ...X …$[_Y$ …Y…]], the Head X asymmetrically selects features in Y .

(27) a. *Trains are arrivable on time in Germany.
b. *In this hotel, beds are quite sleepable.
c This dance is danceable blindfold.

(28) a. *There is the Italian arriver.
b. He is a great runner.
c. He is a marathon-runner.

(29)



- Not blocking (Aronoff 1976:45) **gloriosity , gloriousness*
'We may assume that the lexicon is arranged according to stems, and that for each stem there is a slot for each canonical meaning, where 'canonical' means derived by regular rules…Let us furthermore assume that for each stem there cannot be more than one item in each meaning slot.'

- Compatible with the Asymmetry clause in (generalized) Merge (Uriagereka's 2003)
Merge involves a head H whose sister S is on the space where some element E relates to H.

  - ✓ Asymmetric selection is preserved under variation:

(30) [Subject [[agreement Tense Verb stem] Object] (Yekhee)

(31) John ?-novhona l? kia. (Ye)
John er-dream that he is
'John is a dreamer.'
(32) *John ? -n ? vai l? kia. (Ye)
John er- arrive that he is
'John is an arriver.'

- In an M-domain, a Head asymmetrically selects for an ordered pair of features
(33) a. -able asymmetrically selects < +a Spec, +a Compl>
b. -er asymmetrically selects < +a Spec, a Compl>
(34) a. marriageable, knowledgeable, reputable
b. smarter, happier, taller
(35) a. A {V, N}
b. N {V, A}
c. V {N, A}
- Selection is an asymmetric relation both in N-syntax and in M-syntax..
$<H_1, H_2>$, $<f_1, f_2>$,

2.3 Symmetry, asymmetry

Structural relations: precede, dominate, (asymmetric) c-command
Set theoretical relations: symmetry, asymmetry, antisymmetry

- Empirical evidence for symmetric relations

Parts of N-objects can be inverted (with a difference in Focus)

(37) a. a picture of the wall is [t the cause of the riot]
b. the cause of the riot is [a picture of the wall t]

(38) a. John bought [books of [t this type]]
b. John bought [this type of [books t]]

(39) a. you are [t kind]
b. it's [kind of [you t]]

(Den Dikken 1999, Kayne 1994, Zamparelli 1995, Moro 2000)
mirror structures, and movement as symmetry-breaking

(40) Predication (Williams 1980)

```
    XP
   /  \
 YP    ZP
```

(41) a. John rolled down the hill.
b. Down the hill rolled John.

- Parts of M-objects cannot be inverted without inducing a lack or a difference in interpretability (independent of Focus).
  - ✓ Parts of compounds cannot be inverted

(42) a. The paper-cutter is on the table./ *The cutter-paper is on the table.
b. Bring your walk-man./ *Bring your man-walk.

  - ✓ Different order yields different interpretation

(43) a. He slept over./ He over slept.
The vase broke out./ The outbreak of the disease.
c. Dr. No worked over the weekend./ Dr. No overworked his students.

  - ✓ Affixes and roots cannot be inverted.

(44) a. the [writ [er]] of the Book of the Heavens
b. *the er- write
c. the [[re[writ]]ing] of the Book of the Heavens
d. *the ing-write-re

  - ✓ Inversion is generally impossible between affixes.

(45) a. they reentrapped the mouse
b. *they enretrapped the mouse

  - ✓ Different order yields different interpretation
    - dim1 > dim 2, dim 2 > dim 1

(46) a. tavolo, tavolino, tavoletto (It)
b. tavolinetto, tavolettino
-ino: descriptive; -etto: evaluative
    - caus > recip , recip > caus

(47) a. Verb -recip –caus (Quechua)
b. verb -caus -recip
c.

2.4 Summary

The structure of an M-domain (M-Shell)

- Restricted to the minimal domain where strict asymmetry holds: […X… [… Y …]]
  This is not the case for a syntactic domain, if Legate (2003) is right, and VPs (unaccusatives and unergatives structures) are syntactic phases
  A syntactic phase can be smaller VP, or larger (Chomsky 2001) vP and CP.
- F is the formal Head of the M-domain.
- Y is the complement of X and is f-selected by Y.
- M-domains are asymmetric relations legible by SEM and PHON.
- N-domains are asymmetric relations also legible by SEM, PHON, and PRAG.

3. Impenetrability

3.1 The Phase Impenetrability Condition

In a phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations (Chomsky 2001:108).

(48) $[_{ZP}\ Z...[_{HP}\ \alpha\ [H\ [\ YP\ ]]]$

The complement YP is immune to agreement with something in the next phase up. H and α belong to ZP for the purpose of Spell-Out. YP is spelled out at the HP level. H and α are spelled out if they remain in situ. Otherwise their status is determined at the next strong phase ZP.

- Boundedness effect of M-domains (M-Shells) can be seen with inflected denominal and deadjectival verbs. Assuming, as in Carstens (2003), that any head with agreement paradigms has uninterpretable φ features attached to it when it leaves the lexicon, Matching of φ features between the inflectional head and the features of the complement of the verbal affix does not obtain. The inflectional head may only enter into a MATCH relation with the verbal head

(49) a. union ize s

$[_f\ \varepsilon$ -s $[_V\ \varphi$ ize $[\ \alpha\ [\ \beta$ union $\delta\ ]]]]$

* |_____|

* |_____|

b. form al ize s

$[_f\ \varepsilon$ -s $[_V\ \varphi$ ize $[_A\ \alpha$ al $[\ \beta$ form $\delta\ ]]]]$

* |_____|

* |_____|

The structures in (49) illustrate the fact that the *-s* morpheme, which is part of Ph2, cannot be related to the noun in Ph1, and thus it cannot be interpreted as a plural morpheme on the noun. The only possible interpretation for the *-s* morpheme is as a tense morpheme on the verb in Ph3. This follows from the fact that once a morphological phase is derived, the complement of the Head of the phase is no longer accessible.

Further evidence comes from the relation between argument features [+a] and non-argument features [-a], that are associated with items that are part of the numeration. Assuming that [+a] features are interpretable, while [-a] features are not, and must be eliminated in the derivation of morphological objects, the facts in (50) are parallel to those noted by Chomsky (2000), here in (1) above. While the examples in (1) show that syntactic phases are propositional (CP, vP), the examples in (27) show that morphological phases are predicative (A, V, N).

(50) a. formalizer

$[_N\ [-a]$ -er $[_V\ [+a]$ -e $[_V\ [-a]$ -i- $[_A\ [-a]$ al $[\ [-a]$ form $[+a]\ ]]$

|_____| |_____| |_____|

|_____|

b. formalize

$[_V\ [+a]$ -e $[_V\ [-a]$ -i- $[_A\ [-a]$ -al $[\ [-a]$ form $[+a]\ ]]$

|_____| |_____| |_____|

* |_____|

The lower phase (Ph1) in (50a) is adjectival (A), it is headed by an adjectival affix that selects a nominal (N) complement. Ph1 is independent from the upper verbal (V) phase. This can be seen by the fact that the linking between the [+a] and the [-a] features does not extend to the upper nominal phase, while only the edge of Ph1 is accessible to operations outside Ph1. In (50b), the lower phases Ph1 and Ph2 are independent from the upper phase, the difference with (50a) being that linking does not obtain in the upper phase.

In both cases, (49) and (50), the minimal size of a morphological phase is limited to two layers of asymmetric [Spec [H-Compl]] relations. In effect, in the example in (49), the Ph1 is limited to the domain of the adjectival affix projection and its complement, and it excludes the projection of the verbal affix. In the example in (50) Ph1 is limited to the domain of the verbal affix projection and its complement. The examples in (49) and (50) show that the Spec or the head of a morphological phase are the only transparent positions to the next phase up.

3.2 AGREE

Agreement, based on feature matching, occurs within a phase as well as across phases. AGREE and MATCH are defined as follows.

AGREE (Chomsky, 2000)

$\alpha > \beta$

|___|

AGREE(α, β), where α is a probe and β is a matching goal, and '>' is a c-command relation.

MATCH (Chomsky 2000:122) Matching is feature identity**.**

The probe seeks a matching goal within the domain XP, generated by the probe. Matching of probe-goal induces Agree.

AGREE is subject to the following constraints:

Only ACTIVE elements enter agreement (i.e. elements that have uninterpretable features)**.**

Probe and goal must both be active for AGREE to apply.

An element that has an uninterpretable feature is active and it constitutes a probe that seeks a matching goal.

Agreement leads to checking/deletion of uninterpretable features.

f-completeness : α must have a complete set of *f*-features (it must be *f*-complete) to delete uninterpretable features of the paired matching element β.

The Defective Intervention Constraint (Chomsky 2000)

$\alpha > \beta > \gamma$

|----------|

*AGREE (α,γ), α is a probe and β is a matching goal, and β is inactive due to a prior AGREE with some other probe.

The Defective Intervention Constraint is a 'representational' locality condition, which prohibits an establishment of an AGREE relation when a closer but inactive goal intervenes between a probe and another goal in the configuration above.

- Does AGREE hold in M-domains?

AGREE is only possible if the probe and the goal are in the same phase or if the goal is at the edge of the phase immediately contained in the phase which includes the probe.

M-domains include active elements, i.e. elements that have uninterpretable features. This is the case of f features, as well as [-a] and [-t] features. The φ features of N and V are uninterpretable on the probe, and interpretable on the goal. [a] features are uninterpretable on the probe, and interpretable on the goal. [-t] features are interpretable on the proble, and uninterpretable on the goal.

Matching is between an uninterpretable feature and an interpretable feature of the same type (the features that enter a matching relation are uninterpretable only on the probe and interpretable on the goal).

The probe and the goal must be both active for AGREE to apply. Agreement leads to checking/deletion of uninterpretable features. AGREE is based on MATCH, i.e. feature identity between the probe and the goal. MATCH and AGREE occur within a phase as well as between phases.

Accessibility of the edge of the complement of

(51) a. N phase

[$_N$ [-a] -er [[+a] advise [+a]]]

|_____|

b. A phase

[$_A$ [-a] -ive [[+a] impress [+a]]]

|_____|

Accessibility of the non-edge of the complement of

(52) a. N phase

[$_N$ [-a] -ee [[+a] advise [+a]]]

|_____|

b. A phase

[$_N$ [-a] -able [[+a] read [+a]]]

|_____|

c. V phase
[V [-a] -e n [[+a] red [~~+a~~]]]
|_____| |_____|

➢ **Across morphological phases**

Accessibility of the edge, and non-accessibility of the non-edge

N phase

(53) a. [f ε -s [N α er- [y β [y read δ]]]]
|_____|
*|_____|

b. [f ε -s [N α ion- [y β [y destruct δ]]]]
|_____|
* |_____|

V phase

(54) a. union ize s
[f ε -s [v α ize [β union δ]]]
|_____|
* |_____|

b. form al ize s
[f ε -s [v α ize [A α al [β form δ]]]]
|_____|
* |_____|

The facts above show that AGREE and MATCH occur within and across morphological phases.

- In N-domains AGREE is based on feature identify.
- In M-domains AGREE is not based on feature value identity.

In both cases AGREE is a sub-set relation (Di Sciullo 2003, forthcoming; Di Sciullo and Isac 2003)

4. Interpretation

4.1 Independence at the interfaces

A phase is a unit of syntactic computation that exhibits independence at interfaces (it can be sent to Spell- Out and to LF). Phases are transferred to the interfaces when the next higher phase is completed (Chomsky 2000, 2001).

· **Phonological independence:**

Phases can be isolated

Syntactic phases can be moved and targeted by movement-like operations (successive cyclic wh movement can target edges of phases).

Syntactic phases are assigned phrasal stress through the Nuclear Stress Rule.

Adger (2003): the Nuclear Stress Rule applies each time syntactic material is spelled out.

This predicts that categories relevant to the syntactic and phonological cycles coincide.

· **Independence at LF:**

Syntactic constituents which are interpretable at LF translate as saturated functions with bound variables, and those which are uninterpretable are either unsaturated or contain unbound variables. Call the former type 'complete' and the latter 'incomplete'.

Only 'complete' constituents are visible after TRANFER (Svenonius 2003).

4.2 Interpret

An independent X-domain is transferred to PF or LF, where it is subject to Interpret.

Interpret associates the domain (configuration) to an interpretation.

4.2.1 PF interface

- **Phrasal Stress (N-domain)**

Stress in Phrases depends on syntactic structure

(55) -**Nuclear Stress Rule** (Cinque 1993)
Nuclear stress in P is on the most deeply embedded word in P.
In SVO and SOV languages, sentences stress is on the object.
The generalization reduces to depth of embedding.
-**Nuclear Stress Rule** (Zubizarreta 1998)
a is more prominent than ß iff ß asymmetrically c-commands a.
-**Nuclear Stress Rule** (Arregi 2003)
Stress must be stated in terms of headedness and branching. It cannot be reduced to depth of embedding or asymmetric c-command, assuming Bare Phrase Structure (Chomsky 1993).

(56) **Comp generalization**:
In a head-Comp structure, Comp is more prominent than the head.

(57) **Spec generalization**:
In an X-Spec structure, X is more prominent than Spec.

- **Word-internal stress (M-domain)**
  Stress in compounds depends on compound structure
  from left to right to the non-head (Cinque 1993)
  Compound stress rule (Chomsky and Halle 1968)

(58) **Compound rule** (Lieberman and Prince 1997)
In a structure of the form [c A B]c (order irrelevant), B is more prominent than A iff it branches.
For Arregi (2003) the compound rule is a sub-case of the Comp generalization and the Spec generalization .
However, it predicts that in compounds with adjuncts, the adjunct is prominent

(59) coffee-cup,
gourmet-coffe-cup

(60) American-graffiti
public affairs

(61) easy-rider
late-departer

In English derivation : from left to right to the syllable before the last
suffixation gives rise to reaccentuation,

(62) product / producer
condense /condensation
prohibi /prohibition

4.2.2 LF interface

- M-domains are semantically incomplete
  A wh-word must be related to a position in the N-domain for the wh-expression to be interpreted in a domain of interpretation.

- M-objects include morpho-logical relations
  - The interpretation of words depends on the formal relations of the M-Shell
  - Operator-variable relations
  - wh-words (and th-words) are the interpreted in terms of the Op-Shell.

(63) a. Che vuole? b. C'ha fatto?
What wants what have done
'What does (she/he) want?' 'What did She/he do?'

(64) a. Che c'è?' b. Chi c'è?
What there is Who there is
'What is there 'Who is there?'

(65) a. Che cosa c'è? b. Cosa c'è?
What thing there is Thing there is
'What is there' 'What is there?'

Interpret (wh-X)
(65) wh- o (hum)
wh- at
wh-ere (phy)
wh-en
wh-y (ra)

(66) a. $[_{X}Op\ _{X}X\ y]]$
b. $[_{Y}\ a\ [_{Y}\ Y\ ß]]$
c. $[_{X}Op\ X\ [_{Y}\ a\ [Y\ ß]]]$
d. $[_{+wh}\ Op_{+Q}\ X_{+wh}\ [_{R}\ <et>\ [_{R}\ Y_{R}\ <st, t>\ ]]]$

- Subordinate conjunctions.

(67) a. La neve è bianca *si*ccome la neve è bianca.
The snow is white yes as the snow is white
'Snow is white as snow is white.'
b. La neve è bianca sen*nò* siamo nel mondo B.
The snow is white if not are in world B
'Snow is white otherwise we are in world B. '

(68) a. p **si**ccome q
p yes as q
'p since q'
b. p sen**no** q
"p if not q'

The subordinate conjunctions restrict the truth values of the propositions they asymmetrically relate.

(69) a. p siccome p 1 > 1
b. p senno q 0 > 1

The *–wh* Op-shell (one instantiation of the M-Shell) includes a restrictor of the propositional variable, the possible truth values of which are expressed in the feature structure of the connectives.

(70) $[_{-wh}\ Op_{-Q}\ \ x_{wh}\ \ [_{R}\ a\ [y_{R}\ ß\ ]]]$

The subordinate conjunctions above set the interpretation (truth value) of the propositions they relate.
Wh-words and subordinators act like operators that bind a variable in their local domain. Operator features are distinct from wh features as well as from restrictor features, thus, the asymmetry of the upper part of the M-domain (Op-Shell). Restrictor feature articulates logical types, thus, the asymmetry of the lower layer of the M-domain.

5. No increase in derivational complexity

Keeping M and N domains distinct does not give rise to derivational complexity, that is, it does not give rise to choice points with respect to the application of the operations and the bare output conditions. Moreover, it does not give rise to complexity of interpretation at the interfaces, as the rules for interpretation of M-objects are not the rules for the interpretation of N-objects.

The computational system limits the size of morphological domains, i.e. the number of projections that may combine to form a minimal morphological domain. Evidence from a variety of languages suggests that the size of an M-domain is limited to two layers of asymmetric relations, which constitutes the minimal domain where Strict asymmetry is obtained. The reduction of the size of a morphological phase limits computational complexity, as it reduces the search space in the derivation of morphological objects.

Computational complexity may arise in the derivation of syntactic objects, and phase theory is a way to reduce the search space and eliminate backtracking and look-ahead. Computational complexity may arise in the derivation of morphological objects in situations in which the derivation leads to decision points with respect to possible mergers and attractions of morphological features.

If there were no distinction between the derivation of M-objects and N-objects, computational complexity would arise. Decision points would occur, and the grammar would have to choose between more than one path in the course of the derivation. Thus, at the initial point of the derivation, choices between analyzed and unanalyzed element and between asymmetric and symmetric selections would arise. Computational complexity does not arise however if M-objects are derived in M-syntax, where primitives are minimal trees, and where selection is couched in terms of sister-containment. Furthermore, boundedness effects are stricter in morphological phases than in syntactic phases, thus two different locality conditions would be required at the phase evaluation level, and thus another choice point would arise if M-objects were derived in N-syntax. Moreover, a morphological phase like a syntactic phase exhibits independence at interfaces (it can be sent to spell-out and to LF). However, morphological and syntactic phases are not subject to the same interface operations and interpretations. For example, at the PF interface, a syntactic phase is assigned phrasal stress through the Nuclear Stress Rule, while a morphological phase is assigned stress by word-internal stress rules, including the Compound Stress Rule. At the LF interface, syntactic constituents which are interpretable at LF translate as saturated constituents with bound variables and the uninterpretable ones are either unsaturated or contain unbound variables; M-domains, however, are interpreted as unsaturated constituents.

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