Unified Syntax[1]

Diego Krivochen, UNLP.

e-mail: diegokrivochen@hotmail.com

Introduction:

In this paper we revisit the classic Hale & Keyser's division between l- and s- syntax, which is still very much present in the form of the categorial / sub-categorial distinction in many Distributed Morphology works. This will lead us to review the problem of *roots*: their nature, ontology and role in the syntactic derivation; as well as refine the theory about the syntax-semantics interface, departing from a separationist approach: late phonology-early meaning (Cf. Borer, 2009). In order to do so, we will draw on Radical Minimalism (Krivochen, 2011a, b, c) as theoretical background, present its basic tenets and the tools it offers to *describe*, *explain* and *justify* processes confronting them with other current proposals. The ultimate goal is a unified and simple theory of syntax-semantics-morphology "*all the way down*" that, optimally, will eliminate as many stipulations as possible.

Keywords: syntax, semantics, root, phases, Merge, Relevance Theory, Distributed Morphology, Radical Minimalism.

Basic tenets, definitions and Principles of Radical Minimalism (2011b, c):

1. Language is part of the "natural world"; therefore, it is fundamentally a *physical system*.

2. As a consequence of 1, it shares the basic properties of physical systems and the same principles can be applied, the only difference being the properties of the elements that are manipulated in the relevant system.

3. The operations are taken to be very basic, simple and universal, as well as the constraints upon them, which are determined by the interaction with other systems, not by stipulative intra-theoretical filters.

[1] We would like to thank Cedric Boeckx and Phoevos Panagiotidis for comments on earlier drafts and also personal communications, some of which we have included in this final version. Our gratitude is also extensive to Antonio Fábregas and Anna Maria Di Sciullo, whose influence can be felt as well. Last, but not least, a special mention to Marijke De Belder, whose generosity greatly helped in the development of this paper. They have all enrichened our work. Needless to say, all remaining errors are entirely our responsibility.

4. 2 and 3 can be summarized as follows:

   Strong Radically Minimalist thesis (SRMT):

   All differences between physical systems are "superficial" and rely only on the characteristics of their basic units [i.e., the elements that are manipulated], *which require minimal adjustments in the* ***formulation*** *of operations and constraints* [that is, only notational issues]. *At a* ***principled level****, all physical systems are identical, make use of the same operations and respond to the same principles.*

Definitions:

a) ***Merge*** *is a* ***free unbounded operation*** *that applies to* ***two*** *(smallest non-trivial number of elements) distinct (see below) objects sharing format, either ontological or structural. Merge is, on the simplest assumptions, the* ***only generative operation in the physical world.***

   Types of Merge:

   1) Merge (α, β), α ≠ β –but α and β share format- *Distinct binary Merge* (Boeckx, 2010a; Krivochen, 2011b, c)

   2) Merge (α, β), α = β *Self Merge* (Adger, 2011)

   3) Merge (α, β, γ…), α ≠ β ≠ γ *Unrestricted distinct Merge*

b) *P is a* ***phase in*** $\boldsymbol{L_X}$ *iff it is the* ***minimal term fully interpretable in*** $\boldsymbol{L_{X+1}}$*. Phases are transferred as soon as possible. Identity between PF and LF phases is neither conceptually necessary nor empirically supported.*

c) ***Transfer*** *is the operation that handles information (symbolic representations) from one module to another.* ***Transduction*** *applies between information coming from the phenomenological world and a determined mental faculty*.

d) ***Collapse****: α collapses a* ***quantum dimension*** *[ψ-D] on β –being α a procedural category and β a root or extended projection- iff α has scope over β, the procedural instructions conveyed by α are specified enough as regards distribution (see below) and there is a local relation between α and β (there is no γ closer to β than α that can collapse a dimension on β).*

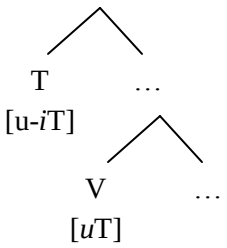
Collapse and Agree (see Chomsky, 1998, 1999; Wurmbrand, 2011):

i: interpretable

u: uninterpretable

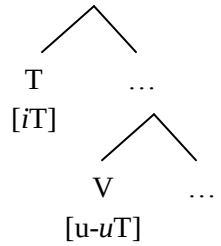
u-: unvalued

1) *Standard Agree* (Chomsky, 1998, 1999; Pesetsky & Torrego, 2004, 2007 through Wurmbrand, 2011)



Unvalued feature(s) F in *probe* search for closest valued instance of F in the *goal* within its c-command domain. Top-down search.

2) *"Reverse" Agree* (Wurmbrand, 2011)



Antecedents in Zeijlstra (2010), compatible with Haegeman & Lohndal (2010). The higher element values F in the lower one, provided that both are in the same *phase* (or, more generally, local domain, respecting Minimality).

Problems:

- Features and values substantively complicate the theory. Elements are assigned valued-interpretable / unvalued-uninterpretable features arbitrarily (e.g., φ-features are interpretable in D and not in T, when [Pl] number in *pluralia tantum* makes no semantic contribution). What is more, some features are introduced into the derivation with the sole purpose of "explaining" certain operations (e.g., EPP in T or Wh- in C), and be then erased. It is not in the spirit of any form of Minimalism to introduce *ad hoc* elements, even less so in RM.

- The very definition of *feature* is not clear: Uriagereka (comments to Chomsky, 1999) defines them as *valued dimensions*. However, we find:

i) Binary features: [± D] (e.g., Number)

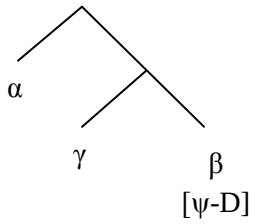
ii) Multiple-value features: [α D], [β D], [γ D] (e.g., Case)

iii) No-value features: [F] (e.g., EPP, Wh-, EF)

(iii) are not really features: no values and no dimension. No feature theory we know of has been able to cope with this problem when defining the role of features and Agree.

- There is no reason, beyond theory-internal stipulation (for the sake of Agree), for the same "feature" to be present in two different locations, the *probe* and the *goal*.

3) *Collapse* (Krivochen, 2011b, c):



- No features, just *dimensions* –the semantically interpretable part- comprising –*in abstracto- all possible outcomes* (ψ-state). Final product (a Logical Form in Relevance-Theoretical terms) is strictly componential and determined by local relations and cumulative influence (Krivochen, 2011b). *Collapse*, contrarily to Agree, is a strictly *interface-required operation*, and no *ad hoc* element is introduced in the working area to make it work.

- No constraints on Merge (contrarily to *Agree*, see Boeckx, 2010a).

- α - β relation is interface-determined, as syntax can manipulate *quantum dimensions* on their ψ-state. Locality is presupposed, if α can collapse a quantum feature on β, it is because β has not been transferred yet (see definition of *phase* and *Earliness Principle*). As soon as a "suitable" procedural head is merged, collapse takes place (see above).

- *Erasure* of features is banned because of the *Conservation Principle*: information cannot be *lost*, only *gained* or *transformed*.

e) ***Roots** are **pre-categorial** linguistic instantiations of **a-categorial generic concepts** from C-I. Generic concepts are "severely underspecified", since they are used by many faculties, and therefore cannot have any property readable by only some of them; otherwise, the derivation would crash in whatever*

faculty we are considering (cf. Boeckx, 2010a; Panagiotidis, 2010). *Roots convey* ***conceptual*** *instructions, whereas* ***functional nodes*** *convey* ***procedural*** *instructions to the post-syntactic semantic parser.*

Principles:

a) ***Conservation Principle****: Dimensions cannot be eliminated, but they must be instantiated in such a way that they can be read by the relevant level so that the information they convey is preserved.*

Following SRMT, the Conservation Principle, a basic principle taken from physics, must apply for Language, as it is a physical system. See Lasnik et. al. (2005) and Krivochen (2011b, c) for two different approaches to the CP.

b) ***Dynamic Full Interpretation***: *any derivational step is justified only insofar as it generates a fully interpretable object; that is, Full Interpretation should be obeyed in every point in the derivation*.

DFI allows us to dispense with notions like "Unary Merge" and "Primary Merge" (De Belder & van Craenenbroeck, 2011: 11): *"(…) When an element {α} is the first one to be taken from the resource by Unary Merge, it is included into an empty derivation, i.e. the object under construction is the empty set Ø (see also Zwart 2010:8). The output of this instance of Merge is no different from any other: it yields an ordered pair, in this case <{α}, Ø>."* Note that, for interface purposes (the only ones that matter in a "free unbounded Merge" system, since DFI deals with legibility, and syntax is only generative, blind to the characteristics of the elements it manipulates, except for their *format*), <{α}, Ø> equals {α} (which crashes at the semantic interface for independent reasons), since Ø is "*completely and radically empty: it has no category, no grammatical features, no specification of any kind*" (p. 12). The application of the operation Merge does not generate an interpretable object, or, at least, nothing more interpretable than {α} alone. Unary Merge and Primary Merge can be both ruled out in favor of simple interface-driven binary Merge by appealing independently to specific legibility conditions (C-I specific requirements to build an explicature) and to DFI, which is a universal strictly interface condition, applicable to *any derivation* in *any mental faculty*.

Adger's (2011) "Self-Merge" is ruled out as well. Adger removes the distinctness condition (i.e., the requirement that α and β be different) from Merge, and thus proposes that Merge (α, β), α = β, which yields {α, α} = {α}. Of course, this machinery is a useless operation from the point of view of DFI. The "distinctness condition" is interface-required and therefore principled. We thus posit that "Self-Merge" must be abandoned as trivial, and stick to strictly binary Merge of two different objects. We are not

ruling out the possibility of multiple occurrences of a single element in the workspace, because there would be no non-stipulative way of doing so, but our argument is that Self Merge is interface-trivial: if one will merge √cat with √cat, thus giving as output {√cat, √cat} = {√cat} (where we started), why apply the whole procedure in the first place? On top of this, there is a *root labeling* operation that requires a root to be labeled N, V or A, by purely stipulative means. We will see that roots are ***not*** labeled, they do not need so and it would be a useless complication to introduce a specific labeling algorithm in the syntax (contrarily to what Chomsky and others have done) when Relevance Theory can account for the interpretation of a structure post-syntactically. Free Merge and blind syntax equals no labeling in the workspace.

"Root Zero" hypothesis (Sigurdsson, 2011) is also ruled out, as well as "early root phonology-late root meaning" (Borer, 2009): interpretation is on *real time*, this way, *phases* are defined dynamically in the diachrony of the derivation. Even though Sigurdsson's $\sqrt{}_0$ is later "filled" with conceptual content, at the point in which it is introduced in the derivation, it makes no contribution to the explicature. Syntax may not care, but C-I does, and so do we if our goal is a Radically Minimalist theory. Roots, to our understanding, are *instantiations* of generic conceptual content, not empty boxes to be filled with semantic substance.

c) ***Earliness Principle*** *(adapted from Pesetsky, 1995): operations must apply as soon as possible.*

d) ***Morpheme formation constraint***: *We cannot group features in a terminal node (i.e., morpheme) if there is no vocabulary item in the B List specified enough to be inserted in that node.*

   Corollary: *Given two sub-morphemic terminals, X and Y; relations of phonological precedence will not be determined by syntactic principles but by the availability of Vocabulary Items to Spell Out those terminals* (Cf. Embick & Noyer, 2004).

e) ***Condition on LF-defective nodes***: *an LF underspecified terminal node* (i.e., not conveying enough information for a complete explicature to be built) *can be occupied by the* ***minimal object*** *leading to convergence while respecting the Conservation Principle*.

This condition on LF representations is actually the LF-side of the "*conflation* coin"[2], and it allows us to account for all instances of so-called "manner incorporation", even the most complex ones, where a *full θ-domain* (in Grohmann's, 2003 terms) is interpreted as a single V. For example:

1. As I [climbed the hill] out of town, I noticed a crowd of pupils standing in front of their school at the side of the road. (from www.tag.wordaligned.org/posts/tour-of-britain-2009)

2. Yusei also [broke the window] into the room and quickly set up his duel disk. (from www.janime.biz/5DS/series054.html)

These sentences have complex verbal predicates: the eventive node, being LF-defective, must add information following the instructions the RSS conveys and the speaker's *global plan*. Of course, a less complex structure would work, but the explicature would not be the same, by any means:

3. As I [went] out of town…

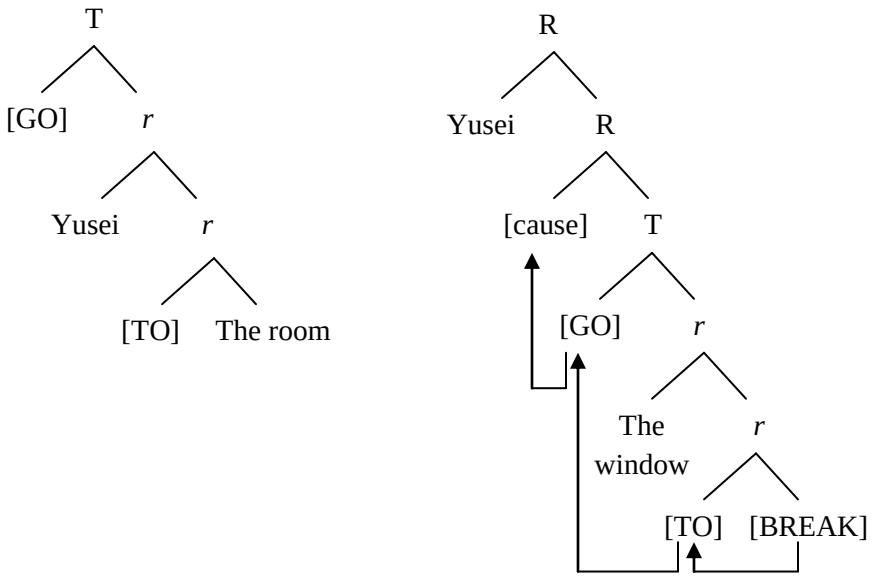
(3) only conveys *motion* information on V. The structure converges, but if we were to take (3) as the instantiation of the same abstract semantic content as (1), we would be eliminating a lot of *manner* information in the syntax, which cannot be done, as we stated in the *Conservation Principle* above. A sensible assumption would be that the θ-domain is inserted by *generalized transformation* (i.e., external Merge by *Structural Format*) in the LF-defective node. Again, note that we are saying "defective", but not "severely underspecified". The latter would make the building of an explicature impossible, as the process would collapse in the referent assignment phase. However, there is a problem with this: in those sentences, [climb the hill] and [break the window] are interpreted as a V, otherwise, the external argument would have to be present as well:

4. *Yusei also [Yusei broke the window] into the room…

Besides, if the root that appears in the syntax is merely √BREAK, then what is the place of [the window]? Roots have no argument structure, as they are too primitive to codify any (s / c)-selectional feature or anything like them. In Radical Minimalism there is no Argument Structure at all, only semantic interpretation of the syntactic configuration that is transferred to the interface and building of an *explicature*.

[2] For the PF-side of the coin, see Hale & Keyser (2002): "(…) *Conflation consists in the process of copying the p-signature (i.e, phonological matrix) of the strict complement into the p-signature of the head, where the latter is "defective."* (…)"

Our proposal is that what is a full R node in the RSS level (Mateu, 2000, Acedo-Matellán & Mateu, 2010) is instantiated as a *single root* in the syntax. This is, *à la* Mateu Fontanals (2000):



The *location* structure in the rightmost tree is instantiated as a single root in the syntax, something like √BREAK-THE-WINDOW. This heavy root would be merged with the full {location} structure (i.e., PP), on its ψ-state as far as *category* is concerned. The merger of the {time} node would do the rest, as we will see below. Two notes:

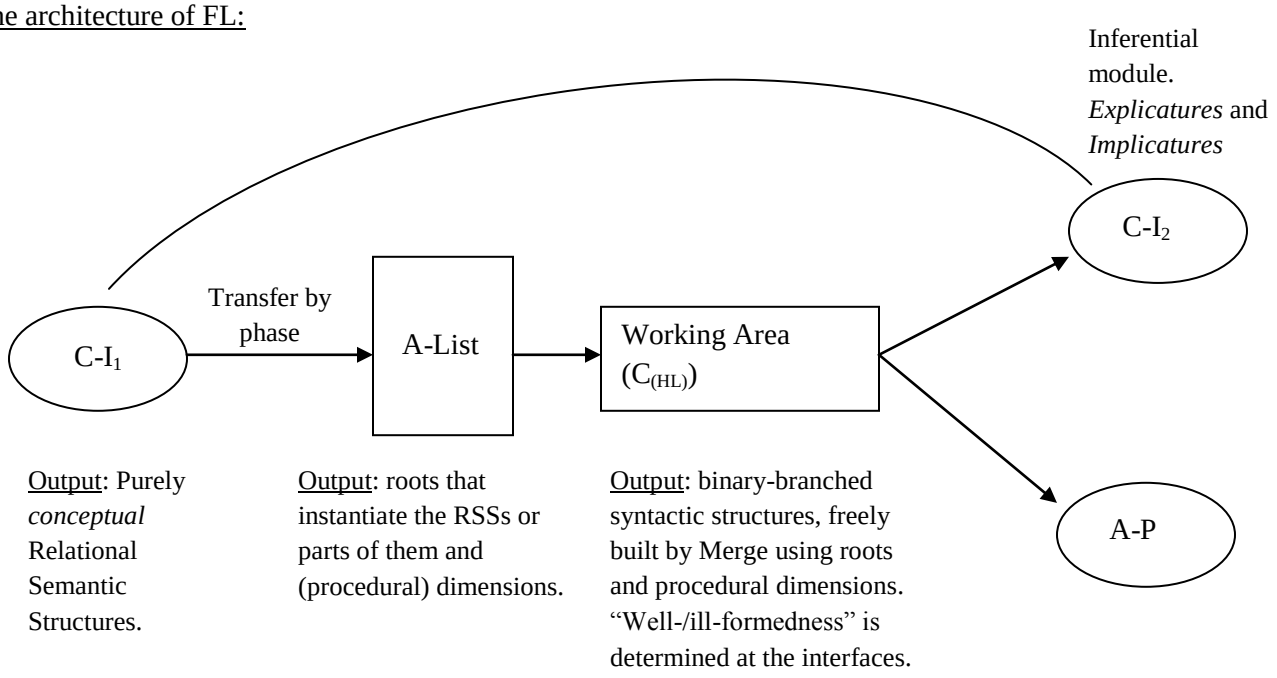
- The procedural or conceptual character of a node is of no importance to syntax, it is read *at the semantic interface*.
- The collapse of quantum dimensions depends on the merger of a suitable node. There is a one-to-one relation between nodes and outcomes. Optimally, therefore, there is an equal number of nodes and outcomes for each quantum dimension. This is, if we have three possible outcomes for the quantum dimension [$Case_X$], *Nom*, *Acc* and *Dat*, there will be only three suitable heads to collapse that dimension, and each head will correlate to one and only one outcome, depending on the semantic instructions the head conveys: P (locative) - Dat; finite T – Nom and *v* (cause) – Acc (see Krivochen, 2010c for discussion and explanation). The same happens with categories, as we will see below.

f) ***Relevance Principles*** *(adapted from Wilson & Sperber, 2003, see also Krivochen, 2010a)**:***

i) *Human cognition is oriented towards optimal relevance by biological adaptation* (Chomsky, 2005: factor 3b).

ii) *Every ostensive stimulus conveys the presumption of its own optimal relevance* (Chomsky, 2005: factor 3a). *Representations (LFs) are considered in order of accessibility until relevance expectations are fulfilled (Krivochen, 2010a for examples).*

The architecture of FL:



Cedric Boeckx (p.c., 2011):

"(…) *if syntax structures semantics, there cannot be any pre-syntax semantic guidelines."*

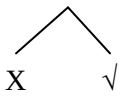
Actually, we are not saying that syntax structures semantics, but that (post-syntactic) semantics is a *function* of syntax, that is, it is read off the syntactic configuration (Hale & Keyser, Mateu). Neglecting the possibility of pre-syntactic semantic guidelines is neglecting the "intentional" part of C-I (and half of the *conceptual* part). *Pre-syntactic semantics* ($C\text{-}I_1$) determines the limits of what the syntactic structure can convey (as structure is meaningful in itself) and *Post-syntactic semantics* ($C\text{-}I_2$, RT's inferential module) reads the resulting LF and builds an explicature. Otherwise, there would be no information to instantiate linguistically (quite a Kantian argument), *concepts* must come from a non-linguistic pre-syntactic module (as they are needed by other

faculties, see Krivochen, 2010d for a discussion on concepts' severe underspecification). The *Conservation Principle* assures the maintenance of information through the derivational spaces.

Remarks on Categorization: "Syntax all-the-way-down"

Proposal: *Categorization of roots depends on Merge and is, therefore, interface-driven and interface-recognized.*

1. **Weak Proposal:** Procedural nodes collapse quantum dimension on roots (Krivochen, 2011a, b). The outcome depends on the semantic instructions of the procedural element (*Tense*, *Determiner* and *Cause*). ***Merge is possible because √ and X share ontological format*** (Boeckx, 2010a; Krivochen, 2011a)



Why? Both roots and procedural nodes convey (interpretable, if the note is needed) semantic information. As "bundles" of dimensions, they have the same ontology. The conceptual / procedural character is determined *in the interpretative interface*, it is of no relevance to syntax, which is purely generative. Free combination is thus possible. Any other option has to be *explained **and** justified* in principled terms.

Prior to Merge, the root is in the ψ-state, comprising [cause], [event] and [entity], its possible outcomes.

Unification of l- and s-syntax (Cf. Hale & Keyser, 1993, 1997, 1998, Levin & Rappaport Hovav, 1996, among others)

Thesis: There is no distinction between "categorial / sub-categorial levels" (Cf. Panagiotidis, 2010), this is, word-level / morphemic-level affecting operations. Derivations are built by *free unbounded Merge* according to *ontological format* (monotonic Merge) and *structural format* (Generalized Transformations), only restricted by interface conditions, outside syntax itself. "Lexical derivations" (i.e., the mechanisms of word formation) are in no way different to "syntactic derivations", thus, there is no conceptual reason to posit two different levels or derivational spaces.

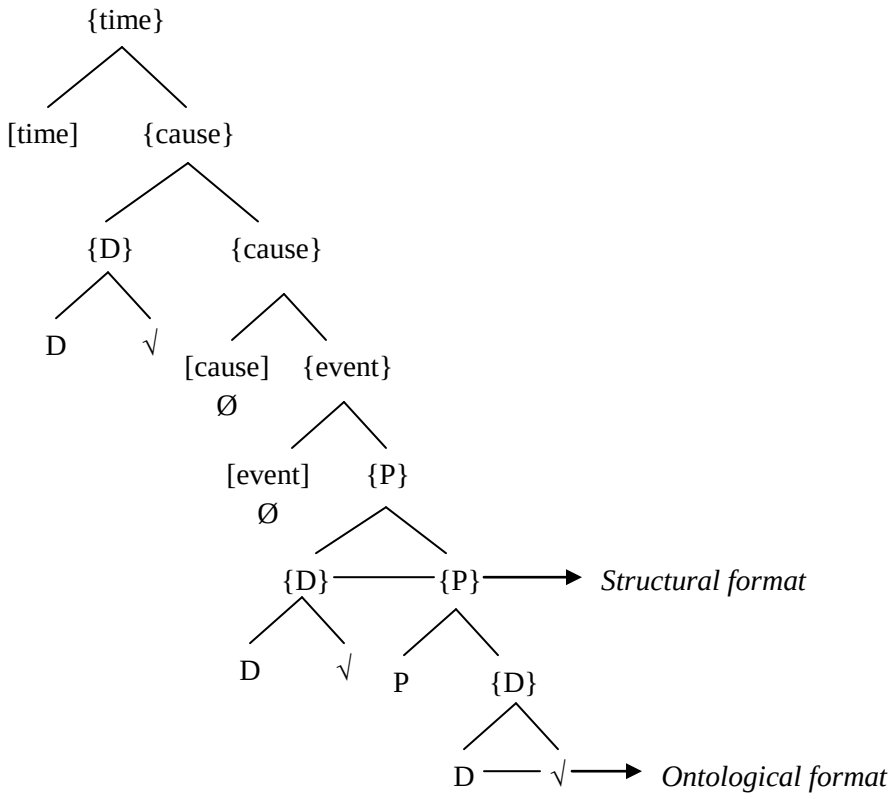
Consequence: "lexical decomposition" in the syntax is simply unformulable. The syntax proper receives fully-fledged complex conceptual structures instantiated as roots (see below). Any "decomposition" study is plausible at the *conceptual* level, not at the *lexical* level.

Sample derivation:

Roots enter the working area "uncategorized", in their (pre-categorial) ψ-state. The *Conservation Principle* on the one hand and *interface conditions* on the other constrain possible combinations, as the information conveyed by the RSS must be maintained, and that tells us what the clausal skeleton could look like; and semantic interface conditions filter trivial merges (like {{a}} -see Adger, 2011- or the previously mentioned {α, Ø}) and other "ill formednesses" ({D, P} and so on) *post-syntactically* (*restrictivist theory*). Categorization patterns will be analyzed later on.

Syntax proceeds in a strict bottom-up fashion, Merge applying to elements sharing ontological format (e.g., D and √) or structural format (e.g., in traditional terms, "non-terminals". "Specifiers", for example, merge this way). The primacy of monotonic Merge and the deletion of the categorial / sub-categorial distinction (which presupposes two levels of syntactic computation, i.e., two derivational spaces) give us a ***unified syntactic model "all-the-way-down"*** (Phoevos Panagiotidis, p.c.)

Here we have a resultant ditransitive Logical Form (in Relevance Theory terms), with "labels" *recognized* for explicature purposes:



Notes:

i) [] indicate semantic primitives, whereas {} indicate *recognized labels* at the C-I interface, where they are relevant to build an explicature as labeling entails scope. This means that a Radically Bare Phrase Structure could dispense with {}, but not with [] notation.

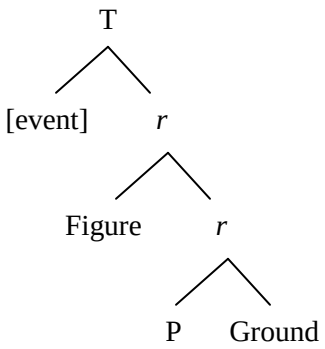
ii) The *event* and *cause* nodes are always *phonologically empty* (i.e., p-defective, see Hale & Keyser, 2002). This means that ***there are no verbs as primitive categories***.

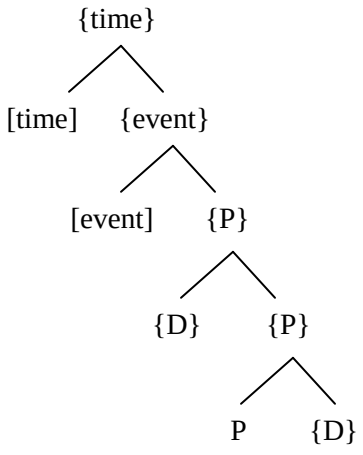
iii) √ are roots, *pre*-categorial linguistic instantiations of *a*-categorial (and severely underspecified) C-I generic concepts, following the *Conservation Principle*. The incorporation processes Mateu proposes are not likely to happen "in real (derivational) time", but *historically*, as they have to do with the insertion of a *coined* phonological piece Spelling Out, for example, [manner] + [motion]. Thus, "fly", for example, is taken as a simple root in both: [Birds fly] (simple Unergative construction) and [I have to fly home] (Path of Motion construction: "manner incorporation"). Compositionality does the rest of the work when building an explicature in C-I_2.

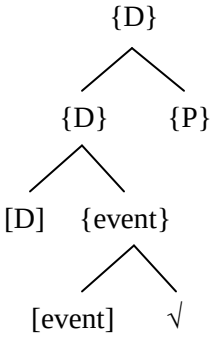
iv) "Categorial correlations": we will assume that D collapses the ψ-state to [entity] (without excluding [cause]), and T collapses it to [event]. Common sense may dictate that the primitive *cause* appears only in verbal (i.e., eventive) structures, but there is an aspect of the C-I_1-syntax interface that we have mentioned elsewhere and is essential to this: *this interface is not transparent* (i.e., there is no exact correlation between a Relational Semantic Structure and its syntactic realization). Therefore, we can have such alternances as the following:

Relational Semantic Structures: (Mateu, 2000a, b) Possible syntactic realizations:

Unaccusative RSS



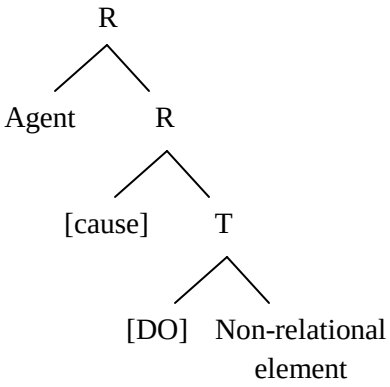




e.g.: [$_T$ arrive [$_r$ Mary [$_r$ AT] the house]] Mary arrived (at the house) Mary´s arrival (at the house)

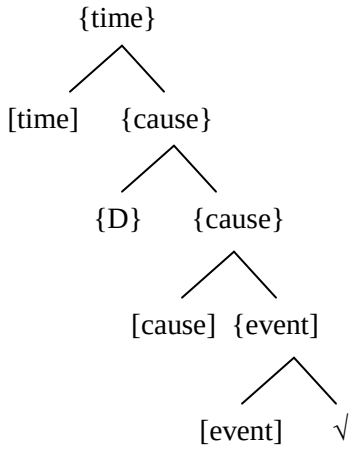
Nominalizations: *eventive* (caused or uncaused) RSS, instantiated in the syntax and merged with [D]. √ can be "light" or "heavy", which determines Spell Out, as in verbal structures. Of course, {event} must appear, because of the *Conservation Principle*. The appearance of {cause} will depend on whether the semantic construal is *caused* (unergative) or not (unaccusative).

Unergative RSS:

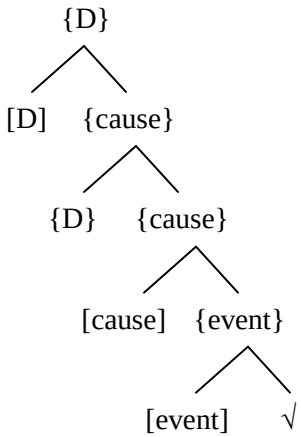


e.g.: [$_R$ Mary [$_R$ cause [$_T$ [$_T$ DO] shout]]

Possible syntactic realizations:



Mary shouted



Mary´s shout

Verbal structures:

Verbal Spell-Out is either:

a) *Conflated p-signatures*: the phonological form of a {D} structure is copied onto the closest higher empty node. There is *no movement*, but, if the reader prefers, *percolation* of phonological features. As there is no movement, no need to make reference to type-token differences (Krivochen, 2010b) –or, for that matter, *traces* and ECP-. In the configuration above, P's *strict complement* can conflate up to [cause] (i.e., *v*) in English or keep moving up to T (part of the next informational domain), and Spell Out a fused *Split TP* (Krivochen, 2010a). This occurs with "heavy" roots, that is, roots that instantiate substantial conceptual information.

b) *Default Spell-Out*: only very primitive and light verbs. A p-signature is inserted in an empty [event] node when no conflation process has occurred to prevent PF crash. The piece inserted depends entirely on the syntactic configuration in which {$_V$ Ø} appears, giving us a strongly compositional system. A list of such verbs include, to our understanding, GO, BE, PUT, TAKE, ARRIVE (see above), LEAVE, DO,

EMIT, HAVE (and their equivalent in other languages[3]). These verbs hardly have any meaning apart from the structure (which is meaningful in itself): in GB traditional terms, they would not impose s-selectional restrictions to co-occurring arguments.

The nature of procedural nodes:

The [cause] and [event] nodes that appear in the syntactic structure are *not* projections from outcomes of the quantum dimension on the root, since it would imply that an inherent property of the root has scope over it, which is hard to believe, and even harder to operationalize. Quantum dimensions are collapsed by merger with a procedural head, from the "A-List" interface between C-I and the syntax proper (i.e., FL's working area), and RSS nodes R, T and *r* are instantiated as [cause], [event] and [location] (P) respectively, following the *Conservation Principle*.

Primitive categories?

We take roots to have a ***conceptually*** "nominal" nature. N is the most basic conceptual category, the non-relational element (Mateu's "X") and the conceptual terminal that does not decompose (Jackendoff's [THING]).

N + P = Adj / Adv / V. (Mateu)

$\{_{cause}$ Ø, $\{_{event}$ Ø, $\{_{location}$ Ø, √$\}$ = copy of the root's *corresponding* p-signature in PF.

Complex categories are formed with √ + a number of procedural nodes that cumulatively influence (and determine the interpretation of[4]) the subspecified conceptual content conveyed by the root. We first have an entity (N), then, it is located in space, in relation to other entities (P, establishing a relation of central or terminal coincidence between Figure and Ground). Only after having undergone these periods can we conceive events, first uncaused, then caused, as the latter are more complex. The order of the bottom-up syntactic (linguistic) derivation is *by default* the order of purely conceptual hierarchical representations, built in C-I:

{cause, {event, {location {thing, {location, thing}}}}}

Using traditional labels, this would be:

$[_{vP}$ Ø $[_{VP}$ Ø $[_{PP}$ [DP] $[_{P'}$ [P] [DP]]]]]

[3] Ancient Greek verbs GO and BE, for example, differed only in *word stress*: εἰμὶ (be, with both individual and stage level predicates) and εἶμι (go), which is evidence in favor of our position that they are really Spell-Out of the same eventive node in different syntactic configurations (e.g., central / terminal coincidence, distribution of cognitive Figure and Ground).

[4] Escandell Vidal & Leonetti (2011)

Does this imply a contradiction with our earlier claim that the C-I_1 – syntax interface is not transparent? No. The mirror instantiation is the simplest option, the first to be considered if we take the **First Principle of Relevance** to be valid. Other orderings are later-accessed options, nonetheless available for the system.

Ontogenetically, nouns are acquired first, and the holophrastic period in language acquisition is largely (if not entirely) based on Ns.

How does each category emerge?:

Syntax can maintain a root in its ψ-state for as long as it is needed, since it is blind to the internal characteristics of the elements it manipulates, it is only sensitive to their *format*. Therefore, ***"uncategorized" roots can be manipulated by the syntax***. Distributed Morphology's *Categorization Assumption* is actually a *semantic interface* requirement, at best, which can be reformulated as follows:

No root can reach the semantic interface without being under the scope of a suitable procedural head (D, T, P).

[D…α…√] = N, being α an X number of procedural nodes that do not collapse categorial dimensions on the root, because they are not categorically specified enough (that is, they can appear in both N and V structures, see above for examples of how both [cause] and [event] are underspecified in this way). No immediate adjacency is needed, we just have to respect Minimality. D is specified enough as regards content and distribution to determine interpretation, and the same happens with the other PPCC. The key is on the *rigidity of procedural meaning* (see below).

[T…α…√] = V

[P…α… √] = A, Adv (Hale & Keyser, Mateu)

> ***Therefore*****:** *all we need is √ and procedural categories (closed system), free combination and interface conditions take care of everything else.*

If syntax is free, how do we make sure that we will generate the category we want?: ***Conservation Principle***, but that is not it…

Phoevos Panagiotidis (p.c., 2011):

"*The roots' inner potentiality of collapsing to a certain category is a matter worth exploring. For instance, as I briefly discussed with Alec Marantz in 2008 and somehow more extensively with David Embick last October, a root like CAT is easier to make into a noun cross-linguistically* (…)"

That is: some roots apparently have a "tendency" to collapse to one or other category, and that tendency is cross-linguistic.

Our position:

There *cannot* be an idiosyncratic "tendency" of some roots to one or the other category: it is an unprincipled way of constraining the system. There is no way of encoding such an asymmetry between roots, either. We would be returning to selectional features, if, as we have suggested, "categories" are actually perspectives on the root read in the semantic interface according to the syntactic configuration in which it appears.

Optimal Relevance has to be taken into account. The apparent "cross linguistic" tendency can be accounted for if we accept that Relevance Principles are universal features of human cognition, that is, third factor principles. If the first choice available is the one more likely to lead the system to optimal relevance, it will be the "easiest generated". However, there are other options, although equally generable syntactically, definitely not equally relevant. Consequently, they are "behind" in the order of accessibility. For example:

CAT_N: first available choice.

CAT_V: only if the N version is not optimally relevant.

"(…) *what about very broad and persistent typological patterns (like the lack of a root-derived verb 'cat')? Especially given that in English, where it is possible to coin one, roots behave in a very particular way?"*

We will posit that "languages" have no theoretical entity, since we know them *because of their phonological manifestations*, and what we call "***a*** language" (English, Spanish, Italian, etc.) is nothing more than a non-ordered collection of phonological matrices that spell-out syntactic structures (DM, Nanosyntax). The concept of *a* language has, thus, no theoretical entity, since it is merely an ***inductive abstraction made from patterns of acoustic samples*** (*observations*, in functionalist models like Diver's) in what is called a linguistic community. Therefore, there is no sense in speaking about "English". This, as a preliminary note. The immediate consequence is that roots' behavior in "a particular language" (say, English) is simply something that does not exist. Coinage of *generable words* depends entirely on socio-historical matters, outside the scope of syntax (or any sub-personal study). Another way of looking at the matter, on the light of what has just been said is the following:

Take into account:

a) Conservation Principle
b) Morpheme Formation Constraint
c) Rutinized neurological connections

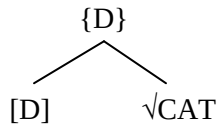
Let us consider a derivation from the very beginning: the semantic-pragmatic "*global plan*" (Bernárdez, 1982). We assume, not innocently, that that intention is "embodied" in a RSS, which is formed by merging *generic concepts*. Note the fact that, if conceptual addresses can be freely combined in both Boeckx's and our model just because of their common format, there is nothing principled that can ban Merge of generic concepts, as they also share "format". This RSS is not manipulable by FL, as generic concepts are, as we have said in other works, not linguistic entities, *semantically underspecified*, and therefore, LF-defective (Panagiotidis, 2009, 2010). The information conveyed by the RSS must be carried along the derivation because of (a), and so generic concepts are instantiated as linguistically manipulable units, which I will refer to as roots (and that are equivalent to Boeckx's *conceptual addresses*). Now, we have linguistic entities, but *pre*-categorial linguistic entities, therefore, interface-defective. The difference with concepts in this respect is that concepts are *a*-categorial, that is, they cannot (and need not) bear a category. Category is not needed in the syntax (or at least not if we consider that Merge applies freely and syntax is blind), but it is needed in order to build an explicature in the post-syntactic instance of C-I. *Pre*-categoriality means that roots have the "inner potentiality" to be verbs or nouns, by virtue of their *quantum categorial dimension*. Can we say that certain roots are more likely to collapse to one state or the other? No, we cannot do so in a Radically Minimalist framework, as it would be an *unprincipled* statement. We must solve it otherwise. Let us consider the case of CAT. Is it possible to form a verbal morpheme (that is, a syntactic terminal node) to which a phonological piece /kæt/ corresponds? Yes, if the underlying construal has [CAT] (the generic concept) in a legitimate position. We cannot form a verb [$_V$ cat] from a semantic construal where CAT is on Spec-R (the causative node), since we would be conflating the Spec into a Head, and such an operation would require many stipulations. This verb would be an *impossible word*[5]. If [CAT] is on Compl-*r*, for example, we could form a *locatum / location* verb [$_V$ cat] (for example, "to cat a mouse", meaning [CAUSE [GO [[mouse] [TO] [cat]]]] in Mateu's terms), and that would merely be a yet *uncoined word*, but perfectly *possible*, and syntactically and semantically "*parseable*". The *Morpheme Formation Constraint* does not help when the

[5] The explanation for *impossible words* is very simple: Let us assume that we have [$_{XP}$ ZP [$_{X'}$ [X_0] YP]] and X_0 is defective, either phonologically or semantically. If we consider the diachronic dimension of the derivation, as soon as we have [X' [X_0] YP], following the *Earliness Principle*, the *conflation* process must occur. There is no need (and, what is more, it would be an anti-economical option) to wait until ZP is merged. *Dynamic Full Interpretation* also plays a role, as it triggers conflation to generate a fully interpretable object.

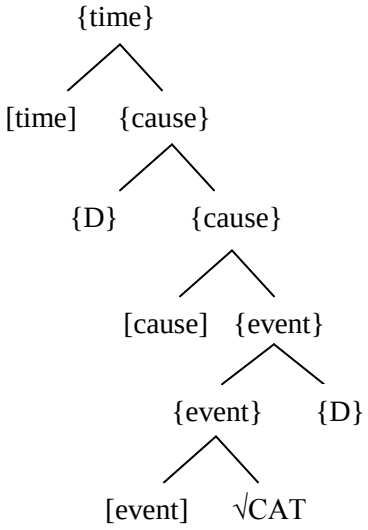
morpheme has been formed according to “long-known principles of syntax” (think of GB’s principles, for example). However, *rutinized neurological connections* do. Bear in mind that only Merge comes “for free” (by conceptual necessity), the "lexicon" (by which we mean the *inventory of phonological pieces*, a purely socio-historical product), is *learned*. Learning is a process of adjustment of neurological connections, and recurrent neurological flows (to use a metaphor) are rutinized, the connection is made quicker. There is evidence in favor of statistical learning within GG (Thornton & Tesan, 2006, for example), and we could experiment a bit with the idea:

Is it really a root like √CAT somehow more inclined to collapse its categorial dimensions as [+ entity] [- event] [- cause] or is it that, as the N is "more widely used" (because of socio-historical factors, once again), and the phonological matrix is perceived in certain environments, the neurological connection is rutinized and the syntactic configuration reflects that statistical asymmetry by merging {D, √CAT} "by default", as the *most accessible (but not the only one) option for the inferential component to work with*?, thus following Relevance Principles. We think that assuming the first option would require special stipulations that would not be welcomed in our framework, (or in any form of minimalism, by the way). The problem must be analyzed, from our point of view, *the other way around*.

CAT $_N$



CAT $_V$



- The representations of locatum / location Vs differ in the RSS representation, but it is the same in the narrow syntax, as they are taken as fully-fledged *coined words*.

- The IA is licensed the relational node *r* in (di-)transitive construals. We have put it under the domain of [event], so that the conditions for dimension collapse obtain: *locality* and *c-command*. The "side" of the tree in which {D} appears is, of course, irrelevant[6].

- Overgeneration?: Let us analyze the following examples, taken from Barner & Bale (2002):

a. ? John *spidered* yesterday.

b. ? John *falled* in France this year.

c. ? Don't *broom* my mess.

d. ? I'm going to *basket* those apples.

e. ? You're *gunning* him.

f. ? He *Steve-ed* me again.

What they say at this respect is that:

> "(…) *the sentences in (7) are not necessarily ungrammatical, but rather could be viewed as merely unacceptable. That is, the sentences do indeed sound bad, but not necessarily for reasons stemming from rules of grammar (indeed, no rule of grammar currently presents itself as a candidate for excluding these and allowing other flexible noun/verb uses). For example, the use of spider in example (7a) illustrates that certain forms may be suppressed due to a lack of cogent interpretation, largely stemming from a* ***lack of feasible pragmatic context*** *(Corbin, 1997; Dressler and Ladanyi, 2000; Marle, 1992). However, where context is sufficiently rich, such verb coinages become entirely acceptable, as is shown by (8) below.*
>
> *(8) The agile climber* ***spidered*** *up the face of the mountain.*" (p. 777. Our highlighting)

Our analysis:

Definition of *overgeneration*:

Given a generative system Σ, and a finite set S = {$\alpha_1 \ldots \alpha_n$} of well-formed formulae, Σ generates both S ***and*** *α_x, and α_x does not belong to S.*

[6] The reader may find similarities between our representation and Larson's (1988). However, he / she has surely became aware of the differences between both approaches.

Such concept needs S to be determined *beforehand*, that is, one builds a syntactic theory (an explanation of Σ) to account for a predetermined number of objects (S) arbitrarily selected. No mention to *interface conditions*. This will be regarded as *strong constructivism*.

Restrictivist theory: *given a generative system Σ (Σ = Merge) and a set S of discrete units of whatever nature, Σ manipulates members of S freely and unboundedly, all constraints being determined by interface conditions.*

In a restrictivist theory no "well-formed" set is predefined, as there is no such thing as well-formedness in the syntax. Merge generates objects, which are in turn read by the interface levels, our focus being put on C-I.

The sentences in (7) are of course not ungrammatical, as there is no such thing. Nor do we need any "pragmatic context" to interpret them, that is, to build an explicature. "*If we know the meaning, we know the structure, perforce, because we know the meaning from the structure"* (Hale & Keyser, 1997). Panagiotidis (2005) is right on pointing that we need something like Hale & Keyser's *conflation* process to account for verbs like those on (7), but, as we have said, those processes do not occur in the syntax, but roots are already *coined*, regardless whether coinage is *ad hoc* or it has a long history. Therefore, if we have:

i) SPIDER $_{V}$

There are several possible interpretations, which will depend on the LF that reaches the interface:

a) *Unergative* V of manner of motion (John *spidered* up the wall: *Path of Motion* construction "he moved like a spider")

b) Transitive *locatum* V: this option needs a further inferential step, namely, an understanding of the metonymy involved in cases such as "John *spidered* Mary" when understood as "he trapped her like a spider would do". However, "John covered Mary with spiders" is the first parsing available and, therefore, the first one to be considered. If (and only if) that interpretation does not fulfill the Relevance expectations, the former option is computed.

Panagiotidis (2005: 1188): "(…) ***there is a number of nouns that seem to avail themselves of no corresponding verb, no matter how we stretch our capability for coining****; some examples include: poem, dialogue, sonnet, limerick, alexandrine. What we would be forced to say of the corresponding roots is that something blocks the relevant syntactic process and they cannot be inserted in CPs to become verbs.*" (our highlighting)

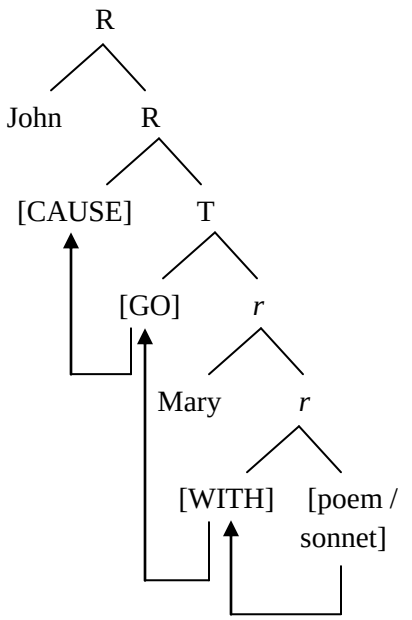
1) On the *empirical* side, we disagree with Panagiotidis on the following: there is no such thing as "capability for coining". There is a phonological matrix that is inserted on a terminal root node, if that root is in the local domain of T, it will be *interpreted* as V, whereas if it is within the domain of D, it will be *interpreted* as N. Besides, in a free Merge system, with no constraints as to where roots can appear, every root has equal possibility of surfacing as V or N, regardless of the fact that it has been attested or not.

Example:

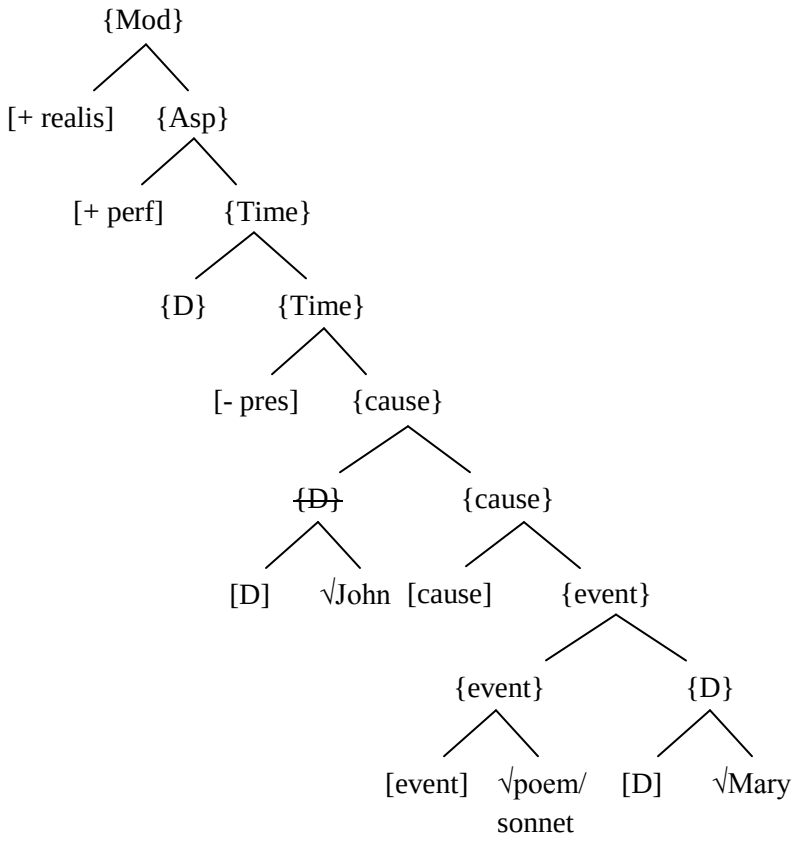
a) John *poemed* / *sonneted* Mary (locatum V)

That is a yet "*uncoined*" expression (to our knowledge), but it could very well be generated and it is perfectly interpretable. The derivational path, from the very beginning, would be the following:

Relational Semantic Structure (C-I_1):



Syntactic instantiation:



Lower-level explicature (C-I_2):

- Decoding: recover the subjacent semantic structure (RSS), interpret who the participants are and what role they play in the event (*interpretation of A-structure and theta-roles*, Krivochen, 2010c). The interpretation of "what [to poem /sonnet] means" occurs at this point, using the clues given by the syntactic structure.

- Deambiguation: there are no ambiguous expressions in this particular example (but see Sperber & Wilson, 2003 for an account of "bank" as an ambiguous expression).

- Referent assignment: (see Krivochen 2010a for extended discussion and data analysis in Spanish) procedural features of D enter into play. Proper names are usually interpreted as definite, but with common names the interpretation depends on the local relation of {D} and features of Time, Aspect and Modality.

- Semantic enrichment: not determined by any element present in the syntax or LF (who John is, why would he want to "sonnet" Mary, etc.).

Possibilities depend on the semantic properties of the root: √BOTTLE, for example, allows the location / locatum alternation, but the unergative option is hardly relevant (but not entirely clashing), therefore, it is not likely to be considered when building an explicature. "Unpredictability" is just "(our) not being used to that as the most relevant interpretation", assuming that the first option is the most systematic one. Therefore:

*There are no **ungrammatical** options, just **irrelevant** options*

2) On the *theoretical* side, our objection has to do, as usual, with how to encode the apparent asymmetry Panagiotidis points out. Of course, there is no need for positing such asymmetry in our system, and that is an important point in favor of our model.

Four common assumptions about roots (from De Belder & van Craenenbroeck, 2011):

1. Roots do not have grammatical features: this, in our model, is a trivial claim. If roots are instantiations of generic concepts, all the information they convey is *semantic*. Besides, as we have claimed in Krivochen (2011a, b), there is no such thing as a "grammatical feature", as they turn out to be stipulative and the

processes they apparently trigger can be *justified* by purely interface conditions. E.g: our account of Wh-movement that dispenses with [Wh-] and raising-to-Spec TP doing away with [EPP].

2. Roots do not have (syntactic) category: *category* is an epiphenomenon from a syntactic point of view, ***it is just a perspective on the semantic content of the root read out from the configuration that reaches C-I***[7]: [X…α…√] being X a suitable procedural category and α any constituent, regardless complexity, that is not intervenient for Minimality effects because of its semantic underspecification (e.g.: [event], which can appear in both nominal and verbal environments). Positing categories in the syntax, apart from being empirically incorrect, as Distributed Morphology has shown, would be theoretically useless.

3. Roots are defined *structurally*: phonological features are inserted post-syntactically (*separationism*). We argue for early root meaning-late phonology (cf. Borer, 2009).

4. Roots are dominated by *functional nodes*: we replace *functional* by *procedural*, and derive this "axiom" from C-I interface conditions. If the root dominates the procedural element in a {√, X} configuration, there will be a crash in the explicature level: no *collapse* will have taken place (see above), and no "category" can be recognized.

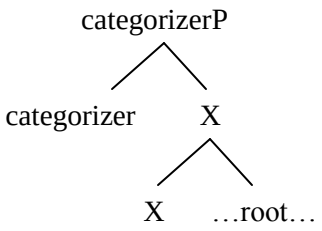
Inner morphemes and the categorial / sub-categorial distinction:

Panagiotidis (2010): "*the projections of categorisers may contain more than just themselves and a root, for instance they could contain Small Clause structures, low applicatives or causatives and other subcategorial feature structures called "inner morphemes" in Marantz (2000)".*

Inner morphemes (IM), bundles of features determined by UG are distinguished from *Functional nodes* (FN). Apparently, IM affect a root in a sub-categorial level, whereas FN affect a fully fledged [categorizer …X…root] structure, being X an inner morpheme. The categorizer determines the kind of FN the structure will be merged to.

[7] Note the analogy between this definition and our definition of Theta Role in Krivochen (2010c). We are "impoverishing syntax", making it as principled as it can be while still accounting for the same phenomena syntactic theory has accounted so far. Syntax is simplified but nothing is "added" to post-syntactic computation, we just refine the mechanism a bit.

Resulting configuration (p. 3):



The scope relation between the root and other applicatives modifies the interpretation, especially if a word-internal phase theory is adopted.

For example, using Spanish IM [des-] (Fábregas, 2005):

i) *Reversative*: [CAUSE [NO √]] *v* dominates [des-]

ii) *Privative*: [NO [CAUSE [√]]] [des-] dominates *v*

Examples of "inner morphemes":

-ee, de-, up, in

The position of the IM and its Spell-Out are not related, that is what we infer from the position these affixes have and the syntactic configuration above. LCA does not seem to apply "sub-categorically", or at "word-level" (word = phonological matrix). Therefore, the terminal coincidence P node in [em-power], [tight-en], [en-light-en], can be Spelled Out in any position, as long as it follows the ***Morpheme Formation Constraint*** and its corollary, and the generalization that if a language allows a dimension to be spelled out, it *must* be as a default case (non-default cases having to do with "drastic effects on the output", as Grohmann, 2003 would say. In our framework, it would rather mean effects in the *explicature*). That machinery, combined with the concept of *morphological fission* accounts for the abovementioned cases: in [enlighten], for example, we have a *terminal coincidence* P node which spells-out as a prefix *and* a suffix.

Ancient Greek: the imperfect verbal form ἔλυον has T features both in the epsilon and in the desinence -ν (toghether with Agr 1PSg). Similar example, if our analysis is correct.

Some Spanish Vs: em-√plat-a-r (to put in a plate), en-√mantec-a-r (cause to go with butter), etc. The Spell Out position of P (or any other node) is variant cross-linguistically (and sometimes even diachronically in "a language" See above) because it depends more on socio-historical matters than on syntax.

Inner morphemes as functional nodes:

Our attempt to eliminate the categorial / sub-categorial distinction must account for these "inner morphemes". Our thesis is that *inner morphemes are the Spell-Out of functional nodes as affixes*, and that there is no reason to treat FN and IM as distinct, since, as Phoevos Panagiotidis (p.c. 2011) points out, "*Something to be borne in mind is that both inner morphemes and functional elements are simply bundles of features -- their morphological exponence and/or realization is of no real consequence*". If affixation is post-syntactic, the scope relation between the root and the functional node is not important for Spell-Out purposes, since it does not follow LCA. **A dimension in a functional head may not be Spelled Out as a "strong affix" (a word, strong enough to stand on its own and carry prominence, for example), and, instead, appear within the phonological limits of a word; or appear *both* as an independent word *and* an affix**. Each IM conveys procedural instructions that have (semantic) scope over the root and perhaps other nodes above in the LF representation, at the *decoding* point. Let us analyze some (very few, we beg the reader to complete the list) IM in English, Spanish, Latin and Ancient Greek, under the light of what we have just said:

Some Inner Morphemes:

Polarity: ib- (Latin) positive
des- (Spanish) negative
α- (Greek) negative

Voice (*v*): -ee (English) passive
-ble (Spanish) passive

P: ex- (Latin / Spanish)
pro- (Latin)
ad- (Latin)
κατα- (Greek)
ανα- (Greek)
en/m- (Spanish)

Aspect: re- (Latin / Spanish) iterative
-σκ- (Greek) iterative
en/m- (Spanish) inchoative

in- (Latin) inchoative

Our system allows a feature to be Spelled Out as many times it needs, something that is made easier by resorting to operations like DM's *fission* and *fusion*. Aspectual features, for example, can appear on an auxiliary *and* on the lexical V: in this configuration, [Asp] will be said to *license* the appearance of certain Vocabulary Items in a lower head / structure. This influence, of course, follows the lines of Krivochen (2011b), namely, *cumulative influence* respecting Minimality and Informational Domains boundaries.

Example:

i) Juan parece haber estado corriendo. (John seems to have been running)

Structure (see Krivochen, 2011a for a deep analysis of raising structures):

$[_{Mod}$ Juan $[_{Mod}$ parece$_{[-realis]}]$ $[_{Asp}$ $[_{Asp}$ haber$_{[-perfective]\ [+\ progressive]}]$ $[_{T}$ $[_{T}$ estado] $[_{v}$ Juan $[_{v}$ cause] $[_{V}$ $[_{V}$ event] √corr-]]]]]

We make use of a *labeled Split TP* for clarity purposes, we beg the reader to think of this as a Bare Phrase Structure along the lines of Krivochen (2011c). At the point of Vocabulary Insertion, each procedural head may influence a lower element, licensing the insertion of a determined VI. Therefore, *progressive aspect* can be seen both in Asp and in the verbal ending. A simpler structure:

ii) Juan está corriendo. (John is running)

[está] fuses Mod, Asp and T nodes and expresses Agr. The present participle ending [–endo], which we take to be an *inner morpheme* is licensed by the features in Asp, not in T, not in Mod, as (iii) proves:

iii) Juan estaba corriendo. (John was running)
iv) (Ojalá) Juan haya estado corriendo (I wish John had been running)

We have changed T (iii) and Mod (iv) but left Asp intact. The verbal ending remains the same.
IM, in our framework, are *spelled out features of procedural heads*, no matter where else they have been materialized. No distinction is drawn between IM and FN, as procedural heads *are identical to* FN.

Roots and meaning malleability:

Escandell Vidal & Leonetti (2011: 4):

"(…) *In the cognitive pragmatic tradition, it is common to assume that conceptual representations are flexible and malleable, which means that they can be enriched, elaborated on and adjusted in different ways to meet the expectations of relevance. All the interpretive phenomena that are usually considered as instances of meaning modulation and ad hoc concept formation stem from this basic property (Wilson 2003, Wilson and Carston 2007). We claim that instructions, on the contrary, are rigid*[8]*: they cannot enter into the mutual adjustment processes, nor can they be modulated to comply with the requirements of conceptual representations, either linguistically communicated or not.* (…)"[9]

- Conceptual representations = roots
- Instructions = procedural nodes

Roots are semantically underspecified, *no less than generic concepts*, but manipulable by the Narrow Syntax (NS). All that changes is *format*, following the *Conservation Principle*. Conceptual content is malleable because it is ***fundamentally generic***, whereas procedural instructions are not. The function of procedural elements is to restrict the reference (in a wide sense, nominal as well as eventive) of roots –therefore "guiding" the interpretation-, in order to do which they must have scope over them. Procedural rigidity is *interface-required*, and we have accounted for that in our *interface-labeling theory*. Let us assume we have a root and a procedural node D. Assuming that the label of {α, β} must be ***either α or β*** (which seems to be the simplest option), the derivation could go either of the following ways:

a) *Narrow Syntax:* Merge (√, D) = {√, D}
b) *C-I_2:* Label {√, D} = {√, {√, D}}

Or

c) *C-I_2*: Label {√, D} = {D, {√, D}}

[8] Note the parallel with early DM (Noyer, 1998): f-morphemes' Spell-Out was said to be "deterministic", whereas l-morphemes' Spell-Out was free.

[9] Procedural instructions, for example, force the semantic component to adopt *ad hoc* propositions to understand an utterance. See Escandell Vidal & Leonetti (2011: 7).

Of course, (b) collapses in the explicature level. Roots are way too underspecified to undergo referent assignment, and thus an explicature cannot be built. On the other hand, if we let D be the "label" in the interpretative component, the whole structure is interpreted as a specified entity, because of the rigidity of D's procedural instructions. "Ill-formations", therefore, are *interface-determined*; NS has nothing to do with them. Let us see a more extreme case:

a) *Narrow Syntax*: Merge (D, T) = {D, T}
b) *C-I_2*: Label {D, T} = {D, {D, T}} / {T, {D, T}}

Both labeling alternatives collapse, as it is obvious. There is no way of building an explicature out of that structure, no matter how C-I_2 tries to interpret it. *Optimal Relevance cannot possibly be achieved*, in other words. It is obvious as well that there is nothing wrong with {D, T} in the NS, as Merge is blind, free and unbounded[10]. Any restrictions are interface-imposed, third-factor legibility principles. This is a way of giving principled status to Grimshaw's claim (traceable to Abney's influential PhD thesis) that *extended projections* always have a *lexical head*, bearing in mind, as we do, that *headedness is an epiphenomenon*, of no relevance to syntax (see Chomsky's discussion with Cedric Boeckx, 2009). We have already described the emergency of "lexical categories", so this follows straightforwardly.
Elements entering NS depend on the RSS (assembled in C-I_1) and the *Conservation Principle*, Merge applies and C-I_2 builds a fully fledged explicature out of the LF that is transferred by phase.

Real-time interpretation:

DFI and our definition of *phase* require *real-time interpretation*, that is, each generated structure is analyzed and if things are going well, the derivation continues. This on-line interpretation may sound more costly than waiting until the whole derivation is finished and only then evaluate it, but a dynamic definition of *phase* requires C-I to determine if a syntactic object is fully interpretable in order to be transferred. The same happens with our theory of Wh-movement and raising-to-subject (Krivochen, 2011c). **Locality** is established by interface requirement, and so is **Anti-locality**.
The elements Merge manipulates are:

a) Instantiations of generic concepts used in the RSS, shaped to fit the speaker's intention (roots)

[10] This is why there is no point in positing instructions that "*apply at the level of syntactic computation*" (*Op. Cit.* p. 3): syntax (i.e., Merge) is purely generative, not interpretative. Any attempt to codify instructions for the syntactic component would lead to a constructivist system, of the kind we have criticized because of its essentially stipulative character.

b) Procedural dimensions, also related to the *intentional* part of "C-I".

Manipulation is free, but, of course, as certain patterns emerge as frequently relevant, those structures are built as the first option to be considered by the semantic component. Therefore, by resorting to adjustment of neurological connections (roughly, statistical learning as described, among others, by Thornton & Tesan, 2006), we can account for the generation of convergent structures without stipulations constraining syntax.

How it works:

Notes:

- Merge is *Monotonic Merge by Ontological Format* unless explicitly indicated.
- Parallel derivations have been discussed elsewhere, see Uriagereka (2002). We will maintain that mechanic, as $C\text{-}I_2$ also appears to be able to work in parallel when deriving *higher-level explicatures* and *implicatures* (Wilson & Sperber, 2003).
- We will just build a *complete thematic domain in a ditransitive structure*, leaving the derivation of higher nodes (Mod, Asp, T) to the reader.
- We will assume that every instance of Merge generates an interface-legitimate object, which is not necessarily the case in a restrictivist system with free Merge. We will also label according to what we have said here and in previous works.

1) *C-I_1-NS* interface: instantiate RSS elements following Conservation Principle.
2) *A-List*: provide procedural elements according to the instructions received from $C\text{-}I_1$
3) *NS* Merge ($D_{[CaseX]}$, √) = {D, √}
4) *C-I_2* Label {$D_{[CaseX]}$, √} = {D, {$D_{[CaseX]}$, √}} *This* {D} *will be taken as a unit for the purpose of future operations*. Incidentally, {$D_{[CaseX]}$, √} "categorizes" √ as N, following our definition.
5) *C-I_2* Analyze: not fully interpretable unit: D has a quantum dimension in its ψ-state.
6) *NS* Merge (P, {$D_{[CaseX]}$}) = {P, {$D_{[CaseX]}$}} P*'s procedural instructions collapse* [$Case_X$] *on* {D} to DAT sphere.
7) *C-I_2* Label {P, {$D_{[DAT]}$}} = {P, {P, {$D_{[DAT]}$}}}

8) *C-I_2* Analyze: {D}'s referential properties depend on the cumulative influence of Time, Aspect and Modality, if it is a common name. Proper names are taken to be inherently manipulable by C-I (see Krivochen, 2010a). Not fully interpretable yet. Relational element P requires another element (a *figure*).

9) *NS* Merge ($D_{[CaseX]}$, √) in parallel to (1) = {$D_{[CaseX]}$, √} Labeling and Analyzing also take place. No procedural head can collapse {D}'s Case dimension, so the structure is not yet fully interpretable.

10) *NS* Merge by *Structural Format* ({D}, {P, {P, {D}}}) = {{D}, {P, {P, {D}}}}

11) *C-I_2* Label {{D}, {P, {P, {D}}}} = {P}.

12) *C-I_2* Analyze: {D} has a [$Case_X$] quantum dimension still uncollapsed. Not fully interpretable. Therefore, P is not interpretable either.

13) *NS* Merge ([event], {P}) = {[event], {P}}

14) *C-I_2* Label {[event], {P}} = {event, {[event], {P}}}

15) *C-I_2* Analyze: idem (12)

16) *NS* Merge ([cause], {event}) = {[cause], {event}} Procedural instructions on [cause] can collapse [$Case_X$] on the closest {D} structure to ACC sphere.

17) *C-I_2* Analyze: is {P} now fully interpretable? Let us assume P [WITH], which gives the P domain a clausal flavor (Krivochen, 2010d), since the analysis of Double Object Constructions show that P [WITH] is semantically equivalent to V [HAVE]. P is then a fully interpretable object, no quantum dimensions are left on their ψ-state.

18) *NS* Transfer {P}

19) *C-I_2* Label {[cause], {event}} = {cause, {[cause], {event}}}

20) *C-I_2* Analyze: two procedural instructions will cause collapse, since there is no √ to provide the "semantic substance" needed for an explicature to be built. [cause] licenses an external position, forcing the system to "wait one more turn".

21) *NS* Merge (D, √) in parallel = {D, √}. Idem (9).

22) *NS* Merge by *Structural Format* ({D}, {cause, {[cause], {event}}}) = {{D}, {cause, {[cause], {event}}}}.

23) *C-I_2* Label {{D}, {cause, {[cause], {event}}}} = {cause, {{D}, {cause, {[cause], {event}}}}}

Needless to say, {D} in (21) also has a [$Case_X$] dimension, but that will be collapsed to the NOM sphere by finite T procedural dimensions. Raising-to-subject will take place if {D} is *thematic* (Krivochen, 2011a, c).

Against Adger's (2011) "Self Merge":

According to Adger, the basic units with which syntax operates are:

a) RLex, the set of LIs, which he identifies with ***roots***
b) CLex, the set of ***category labels***

Self Merge combines α and β, α = β, and CLex provide labels for the structures built by Merge. The effect of UM is to create unary branched structures which are extended projections of the root, of the type {…{{{√}}}…}. Besides the obvious criticism that Self Merge is trivial at the interface level supposing that DFI is valid (see above), we have found problems with labels and functional nodes. If CLex is a set from where a function "Label" takes an element and provides an unlabeled syntactic object with a label, some complications arise:

- Potential violation of the Inclusiveness Condition: labels should be recognized, not created.
- Stipulative labeling (there is no principled way of determining the label of an object):

Label ({√cat}) = N by Root Labeling (Adger, 2011: 12). The algorithm is as stipulative as Chomsky's.

- Labels are introduced in NS, where they play no role, instead of *recognized* in the interface. Besides, there is an *a priori* set of labels, whose nature and justification is unclear.
- Labels also take care of *categorization*, which is also unnecessary in NS. No functional / procedural elements are taken into account, what is more, "*there are no functional elements qua lexical items*" (Adger, 2011: 10). In addition, labels may *reflect* categorization, but in no way can they categorize, since they have no entity in NS.
- Functional projections, whose nature is mysterious, are arranged in an allegedly universal hierarchy, resembling Cinque's. One of the problems, apart from no reference to interface conditions, is the following: where (if anywhere) is this "hierarchy" relevant?
- Nothing is said about the nature of *roots*, and the term "Lexical Item" has a strong lexicalist flavor that we would like to avoid.

Against Unrestricted Distinct Merge:

What would happen if Merge applied as follows?

NS Merge (α, β, γ) = {α, β, γ}

In NS, everything would be fine, since Merge is blind and NS is not an interpretative component. But, in the interface, problems would arise. Let us assume that α = √ and β and γ are procedural categories, say, D and T respectively.

C-I$_2$ Label {√, D, T} = ??

Having two procedural categories results in crash at the explicature level, there is no way of labeling a structure where two elements could "guide" the interpretation in different directions. The same happens if the numbers are changed, say, two roots and one procedural category: even if we think that one root may be "categorized" (which is not a viable option at all from our perspective), there would still be an uninterpretable element, namely, a root in its ψ-state. Binary-distinct Merge, then, is interface-required, no special conditions imposed over Merge itself.

Two important conclusions to bear in mind:

Categories, phases and other units are not primitives of the syntactic theory, but arise as a result of the interaction of a free Merge system with interface conditions: the dynamics of the derivation and the biologically-determined legibility conditions of certain mental faculties or any other computational module.

There is ***no distinction between "lexical derivations" and "syntactic derivations", and this goes beyond the positing of a single generative mechanism: there are just derivations in NS****. No pre-syntactic generative lexicon and no constraints on Merge. Our analysis of IM and "categorization" has shown that many distinctions that have been posited in the last years are actually epiphenomenic.*

Reminder:

Remarks on Categorization: "Syntax all-the-way-down"

Proposal: *Categorization of roots depends on Merge and is, therefore, interface-driven and interface-recognized.*

2. **Radical Theory:**

Roots do not have dimensions whatsoever. Configuration is enough for C-I_2 to determine the "perspective" to be taken over the semantic substance.

Local relation [X…√] is enough to create "categorial interpretations" of roots, there is no need to posit quantum categorial dimensions. This depends on the relation *procedural category – perspective on the root* being one-to-one, as it seems:

- T-V
- D-N
- P-Adj / Adv

Adjectives and Adverbs are the same in every respect, except for the type of elements they modify. Mateu (2000): Adj. modify *non-relational elements*, whereas Adv. modify *relational elements*.
As the derivation grows, we have more procedural categories, and we expect to have more roots: the bigger the structure, the more we chunk it (see the sample derivation above). The number of categories and phases grow as the derivation unfolds dynamically. This growth is interface-driven: smaller chunks are easier to process (Boeckx, 2010a).

Conceptual-procedural interface symmetry:

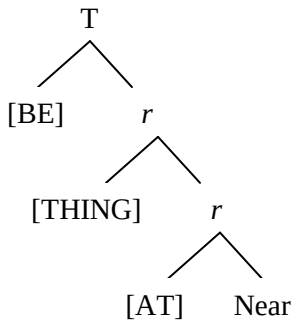
There cannot be bare roots without having been merged with a procedural node or procedural nodes without having been merged with a root in the syntax-semantics interface.

We have already seen that roots cannot get transferred "bare", as they are semantically underspecified and thus no explicature could be built. But, what happens with procedural material? It would be a nice symmetry if, as we stated above, procedural elements could not get to the interface if they are not in a local relation with a root. This follows naturally from the very definition of *procedural* elements: they (sub-) determine the relations to be

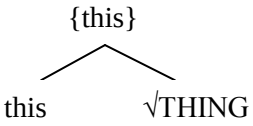
established between conceptual elements, and how a conceptual element should be interpreted as the first available option (i.e., determine *categories*, perspectives on the semantic content of the roots). Let us analyze a curious case: *demonstrative pronouns*.

Our claim is that demonstrative pronouns are the instantiation of *unaccusative RSSs* with a generic root √THING as *figure* and *vectorial* procedural instructions (summed up as "near", but see below) as *ground*. As spelling that out would add nothing informationally, it is left silent, thus surfacing as *pronominal*. When there is a further specification of the *figure* in the RSS, Spell-Out is *relevant*, as it adds information which can be used to extract positive cognitive effects, thus surfacing as *prenominal*. Let us see the structures:

Relational Semantic Structure:



Syntactic Instantiation:



Simple though this may seem, we have missed some interesting facts, so let's get a bit cartographic. There is a curious difference between English and Spanish regarding ellipsis in certain contexts:

a) I want those two blue toys. (pre-nominal Adj)
b) Quiero esos dos juguetes azules. (post-nominal Adj)

Let us ask the question "Which toys did you say you want?" (or something of the sort). The answer could be (d) in Spanish, but (c) is banned in English:

c) * I want those two blue Ø.
d) Quiero esos dos Ø azules.

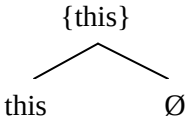
Is there an inter-linguistic difference regarding the relative position of the root and other nodes (Num, Deg, etc.) within the {D} structure? Certainly, that would not be the optimal scenario, as it would require positing some

sort of "*parameter*", and we have argued against parameters in previous works (Krivochen, 2010d), somehow following the line of Boeckx (2010b). Besides, we have already said that LCA did not apply "sub-categorially", and, if there is no sub-categorial / categorial distinction (as we have tried to show), then the validity of LCA is at risk in Radical Minimalism. We can explain that post-N Adj act in Spanish as *abridged restrictive relative clauses* (ARRC), whereas pre-N Adj are just qualifying Adj, that do not restrict reference. Thus:

e) (? In my variety, but it depends on the register) Azules juguetes (the set of blue relevant things and the set of relevant toys are identical)
f) Juguetes azules (of the whole set of existent toys, just the blue ones: juguetes [que son] azules)

ARRC are enough to restrict the reference of the phonologically null root, so an explicature can be built. English ARRC are commonly PPs or Present Participle non finite clauses, heavy structures that go at the end of the phrase. Thus, pre-N (Num, Deg, Quality, etc.) elements cannot assure C-I convergence / legibility, as they *qualify* but do not restrict enough for C-I to identify a referent.

Coming back to demonstratives, their *pronominal* use, as we have analyzed it, show a structure in which all the information is conserved. Consider what would happen if we had posited something like:



We would have a null element merged with the bundle of vectorial dimensions: *initial point* (0:0), *sense*, *magnitude* and *direction*, which compositionally with Num give us *this*, *that*, *these*, *those*. In Spanish, Gender plays a role along with these dimensions, giving *esto/s, esta/s, eso/s, esa/s, aquello/s, aquélla/s*. This configuration reminds that of De Belder & van Craenenbroeck (2011), which we have criticized: if we accept that there is a RSS underlying these kind of elements, then, erasing all trace of the root would be a violation of the *Conservation Principle*. We return to our previous thesis: we have a generic root √THING, whose Spell-Out is irrelevant, unless further specification is provided. The symmetry between conceptual and procedural elements has then been derived from interface conditions and a general principle of physical systems.

Conclusion:

In this paper we have tried to derive some properties of roots, explain their nature and their functioning in a syntactic derivation. By doing so, under the assumption that there is only one generative mechanism in the mind-brain, we hope to have demonstrated that there is no need to resort to the "l- / s- syntax" or "categorial / sub-categorial" distinctions to account for some "special" properties of words, their coinage and interpretation. As usual, we hope this paper has helped in the understanding of the nature of syntax and its interface with the semantic component, which is our main concern. Our goal might be ambitious: to build a uniform stipulation-less theory not only of FL, but of the mind-brain as a physical system (SRMT); but we think we have drawn some new light on problems that have a long history within linguistic studies. Whether we are on the right track or not, we let the reader decide.

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