

# Three Levels of Insertion: English nominalizing suffixes

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Among English “nominals” derived from Verbs, based on suffixes such as *-ing* and *-ment*, there is a *pervasive contrast between “event nominals” and “result nominals.”* Thus:

- (1) - Nouns ending in *-ing* (*writing, building, cooking, etc.*) can be events/ processes *or* their *results*.
- Similarly *development, destruction, maintenance, etc.* can be processes *or* results of processes.
- However, many such nouns with *-ing* (*eating, refusing, growing, etc.*) can *only* be events.
- Still others (*intention, pronouncement, restriction, etc.*) can *only* be results.

## 1. DEEP INSERTION OF N SUFFIXES IN RESULT NOMINALS

Result nominals like *writing(s), building(s), development(s)* combine grammatical suffixes with open class roots (*write, develop*) that have “purely semantic features” *f*. Such *f* are not used in syntax, and occur *only with open classes of the lexical head categories N, V, A, P*.

Combinations of open class roots with suffixes can occur with *further specific f*, and are bold in (2).

### (2) Result Nominals:

- a. [ *Those two ancient **writings** on parchment* ] are worth millions.
- b. [ *Some smudged **hand writing** about the politics of that time* ] didn't seem worth saving.
- c. The citizens won't appreciate [ *another treeless **highway development** of unknown cost* ]:

Result nominals are typical open-class lexical nouns because they have item-particular, *non-compositional meanings*. Such items are listed in lexicons and inserted in trees using (3):

- (3) **Deep Lexicalization.** Lexical heads associated with purely semantic features *f* satisfy lexical insertion conditions *before* transformations apply in a phrasal domain containing them.

(4) **RESULT NOMINALS** have the following regular properties, which are *all illustrated* in (2).

- (i) They describe a *physical reality*,
- (ii) can be *quantified or pluralized*, if they are count nouns,
- (iii) take modifying adjectives expressing *physical properties*,
- (iv) form productive *N-N compounds*, and
- (v) can occur with *of-phrases* expressing time and other *adjective-like properties*.

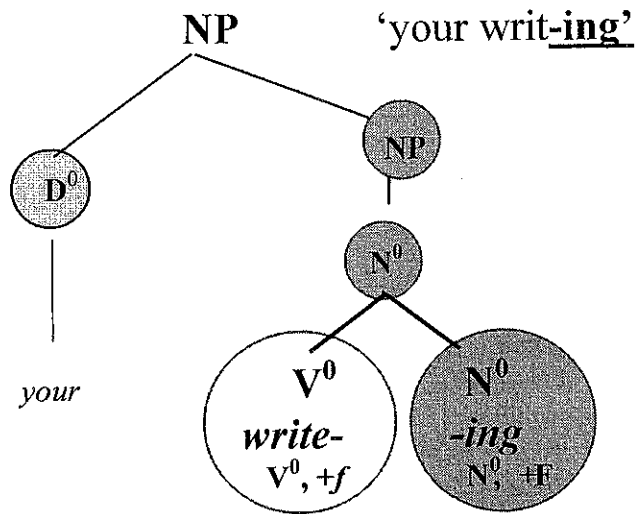
The regular properties (i)-(v) are typical syntactic properties of *nouns*, even though the lexical roots of these nominals are verbs. That is, result nominals *are syntactically pure nouns*. - i.e. the combination V+N in (6) enters derivation as a Noun (Right hand head rule), heading a NP.

### Other properties of RN:

*Idiomatic interpretations* and *lack of productivity* confirm the open class character of result nominals:

- (5) a. *develop, resent, contain*
- b. *development, resentment, containment*
- c. *gallop, present, constrain, maintain, retain*
- d. *\*gallopment, \*presentment, \*constraint, \*maintainment, \*retainment*
- e. *gallop, presentation, constraint, maintenance, retention*

(6) "Compositional" characteristics of V+ing



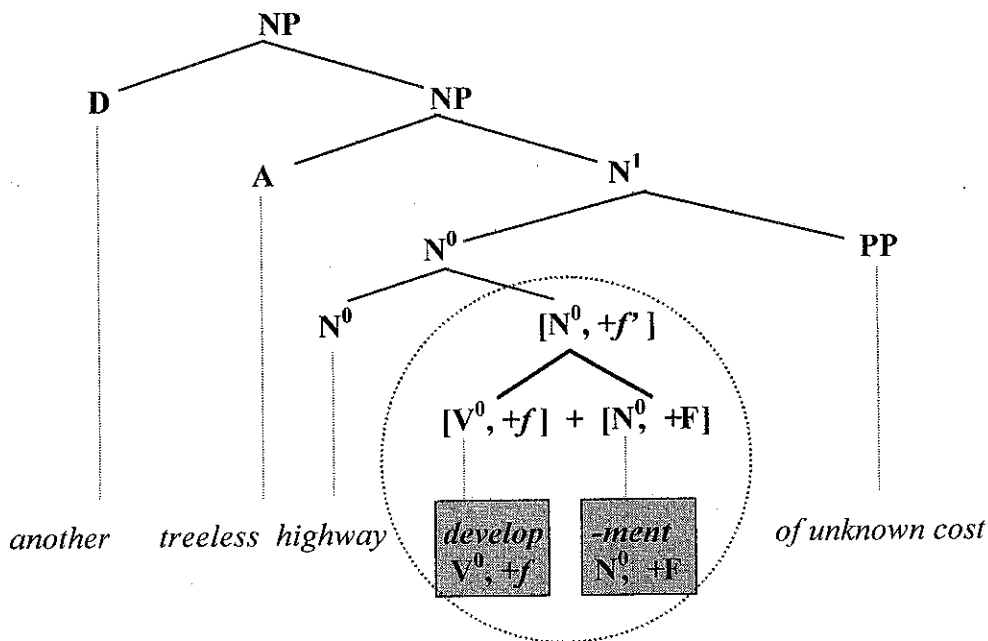
(7) Semantic features

- a) pure semantic features " f " (a wide variety, open class)
- b) "grammaticalized" semantic features " F " (language specific, limited amount)

Result nominal suffixes such as *-ing* and *-ment* have semantic *f* when they combine with roots. So, due to (3), they are inserted as "deep lexical heads" of words, as in (8).

Note an extra **f** on N, in addition to the f on V.

(8) " another treeless highway develop+ment of unknown cost "



With result nominals, the nominalising morpheme *-ing* is "deep" inserted, i.e. it becomes a head, and the unit enters derivation as a N from the very beginning.

## 2. SYNTACTIC INSERTION IN EVENT NOMINALS

A second type of propositional nominal: *John's refusing of the offer, John's proving of the theorem, the growing of tomatoes*. Grimshaw's (1990) thorough study names them "complex event nominals."

(9) **Event Nominals** (some examples from Grimshaw's study):

- a. [ *The **assignment** of unsolvable problems to novices* ] should be avoided.
- b. We are forced to witness [ *the constant **felling** of ancient forests* ].
- c. [ *The frequent **expression** of one's feelings* ] can get on your friends' nerves.
- d. I was watching [ *the teacher's deliberate **examination** of the papers* ].
- e. [ ***Construction** of a hotel without first obtaining permits* ] can take several years.

(10) The following **Event Nominals contrast with the Result Nominals in (2)**.

- a. [ *The **writing** of love letters on parchment* ] was a common practice.
- b. [ *Your quick and willful **penning** of a political tract Monday* ] was dangerous.
- c. They are protesting [ *any rapid **development** of new roads into the hills to attract industry* ].

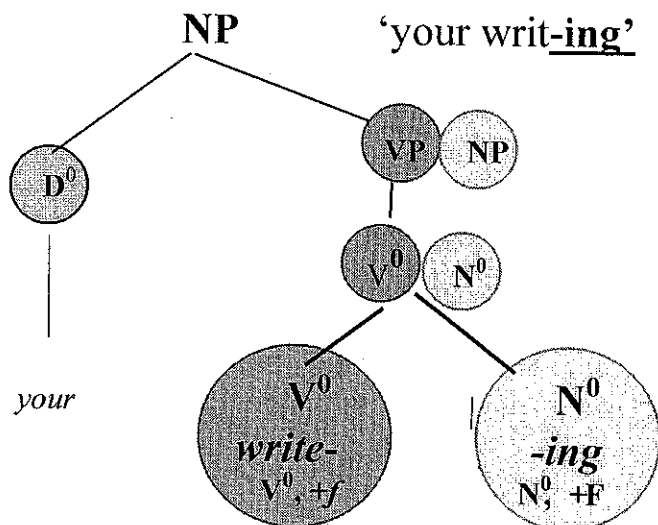
In contrast to result nominals, the suffixal N heads of event nominals seem *grammatically inert*. Event nominals act rather as if *the stem verbs are their heads*, since they have many verbal properties.

Thus, event nominals are incompatible with plurals, cardinal numerals, and adjectives describing physical attributes, etc. Chomsky (1970) notes that noun heads are incompatible with purpose and other adverbial clauses. But such clauses are acceptable in event nominals (9)-(10).

(11) **EVENT NOMINALS** have the following *syntactic properties of verbs*, which are illustrated in (9)-(10):

- (i) **Event Nominals describe events rather than physical reality,**
- (ii) **- accept quantification or plurals with difficulty,**
- (iii) **- can be modified by adjectives with the meaning of temporal and volitional adverbs,**
- (iv) **- occur with of-phrase counterparts to direct objects (but not with temporal of-phrases), and**
- (v) **- don't easily form N-N compounds.**

(12) "Later/Syntactic" characteristics of the event nominal "-ing "



With event nominals, the nominalising morpheme *-ing* is inserted "later/as late as in syntax", i.e. the unit enters the beginning of the derivation as a V - it becomes a Noun only after the *-ing* morpheme is added.



**Note on empty P.** P generally signals space/ time LOCATION, but not with *of, for, without*, etc. The feature + $\Phi$  on X (here P) indicates that *X does not receive its usual interpretation in Logical Form*.

### Feature +EVENT

Nominalizers such as *-ing* and *-ment* have very simple lexical specifications, such as N, +EVENT, +V\_\_\_, where EVENT is a syntactic feature suggested by Grimshaw. Whatever the exact nature of the EVENT feature, it cannot combine with stems of “stative” verbs:

- (16) a. \**The sudden knowing of the entire periodic table* would be quite useful.  
b. \*He would disapprove of any *owing of more money*.  
c. \**Continual possessing of too many material goods* can worsen obsessive behavior.

I claim that since the head Ns *-ment* and *-ing* in event nominals have no purely semantic feature *f'*, they are inserted into a tree (15) *only during syntactic processing of the NP domain*.

However, they still must enter the tree prior to interpreting EVENT in Logical Form, and hence *prior to later syntactic operations on any domain containing this NP*. Contrast (17) with Deep Insertion (3).

- (17) **Syntactic Lexicalization.** Items with *interpreted syntactic F* (but no purely semantic *f*) satisfy insertion conditions *as part of* transformations applying in a phrasal domain containing them.

*From the point of lexical insertion onward, an event nominal has an N head.* Therefore in larger syntactic domains it is selected and distributed like a NP, and no longer like a V-headed construction.

**Productivity:** Unlike result nominals, event nominals are *productive* in English (Anderson 1982). Event nominals for *activity (= non-stative) verbs* are just as productive as, say, past tense is for English verbs. (Note on what “productive” means. Irregular forms are *irrelevant* for deciding whether a formation is productive; what makes something non-productive is *absence* of combinatorial options.)

Nominals using *-ing* are thus *default event nominals*, e.g. *eating, growing, surrounding, refusing, writing*, whenever a verb lacks a lexically specified variant, such as *construction, development*, etc.

- (18) a. *The surrounding of the enemy camp* took place at night.  
b. None of us witnessed *the building of the Charles Bridge*.

## 3. LATE OR PHONOLOGICAL INSERTION OF UNINTERPRETED GRAMMATICAL MORPHEMES

The tree (15) contains an empty P which is filled in PF with an uninterpreted morpheme, the case-assigning preposition *of*. Emonds (2000) and several other works justify such “late insertion.”

- (19) **Phonological Lexicalization.** Vocabulary items specified solely in terms of contextual and other uninterpretable features are inserted subsequent to any operation contributing to LF.

The *same nominalizing suffix -ing* is used for both result nominals (Deep Lexicalization) and event nominals (Syntactic Lexicalization). Moreover, this *-ing* also has a *third* much studied grammatical use, which results from *the only interpretable syntactic feature* in its lexical entry *being optional*:

- (20) **Lexical entry:** *ing*, N, +V\_\_\_, (+EVENT)

If *-ing* is selected without its syntactic feature EVENT, N remains empty *throughout the syntactic derivation*. The suffix *-ing* is then inserted *only in Phonological Form*. When this happens, N-like properties of event nominals due to its presence prior to Spell Out disappear. *Gerunds act like Vs*:

(21) English Gerunds (GERUNDIVE NOMINALS)

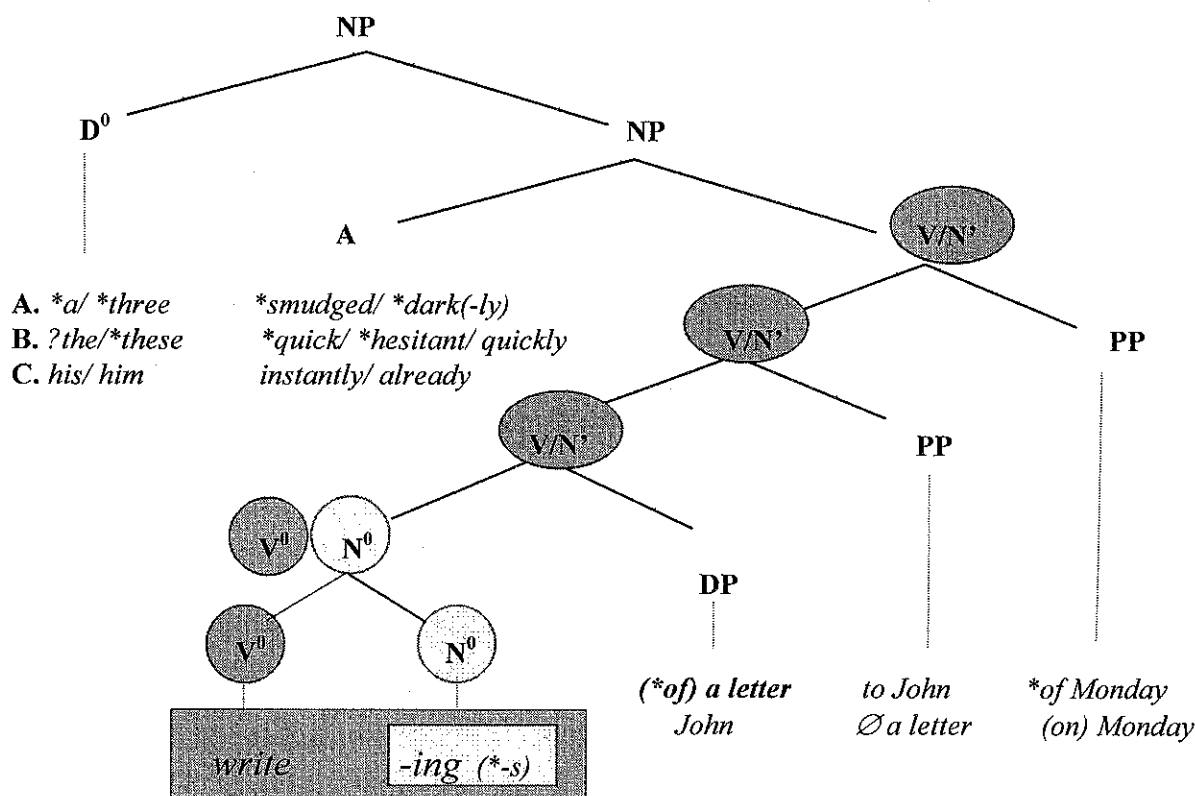
- (i) Gerunds lack articles and most quantifiers, and are marginal with demonstratives;
- (ii) - their direct objects are not marked with *of* and they can have double objects;
- (iii) - their AP modifiers have adverbial rather than adjectival form; and
- (iv) - they are compatible with stative (*and all*) predicates.

What emerges is the *completely productive English gerundive nominal*, italicized in (22), whose only distributional restriction is that it can appear in NP positions only where grammatical case is available.

(22) Gerundive Nominals:

- a. [*(\*Much) Writing each other love letters on parchment*] was an imperial practice.
- b. [*Your quickly and willfully penning a political tract Monday*] was dangerous.
- c. Citizens protest [*(\*each/ \*a) rapidly developing new roads into the hills to attract industry*].
- d. [*Suddenly knowing the entire periodic table*] would be quite an experience.
- e. He would disapprove of [*(\*any/ \*the) owing them more money*].
- f. [*Continually possessing too many material goods*] can worsen obsessive behavior.

(23) '-ing' Inserted at PF (phonology only) : GERUNDIVE NOMINALS



PF-INSERTED (MORPHOLOGICAL COMPONENT)

With gerunds/participles, the nominalising morpheme *-ing* is inserted "at phonological component". only, i.e. the unit goes through the whole derivation as a Verb - it is interpreted as a Verb - and it takes the function of NP only externally. This instance of Late or PF Insertion for *-ing* corresponds to what traditionally counts as the *most regular English inflection, i.e. gerundive formation*.

## 4. THE OVERALL PICTURE FOR TRI-LEVEL INSERTION

English event nominals are productive, since a default form *-ing* is *always available* for activity verbs. Result and Event Nominals are respectively prototypical of non-productive and productive derivational morphology.

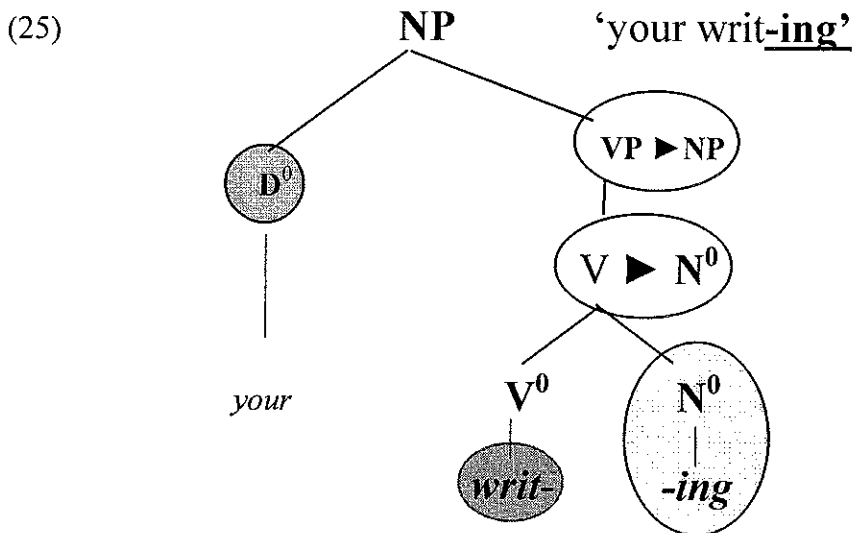
We have seen that the two types are formed by Deep and Syntactic Lexicalization, and I claim that these two types of insertion can *systematically explain these traditional categories of morphology*.

The three-way variation in English nominalizations is a predictable consequence of a syntax-based theory of *lexical insertion at three levels in a transformational derivation*.

- (24) Deep Insertion (available for LF): Non-productive idiosyncratic derivation (result nominals)
- Syntax Insertion (available for LF): Productive derivation prior to "Spell Out" (event nominals)
- Late Insertion (available only in PF): Inflection after Spell Out (gerundive nominals)

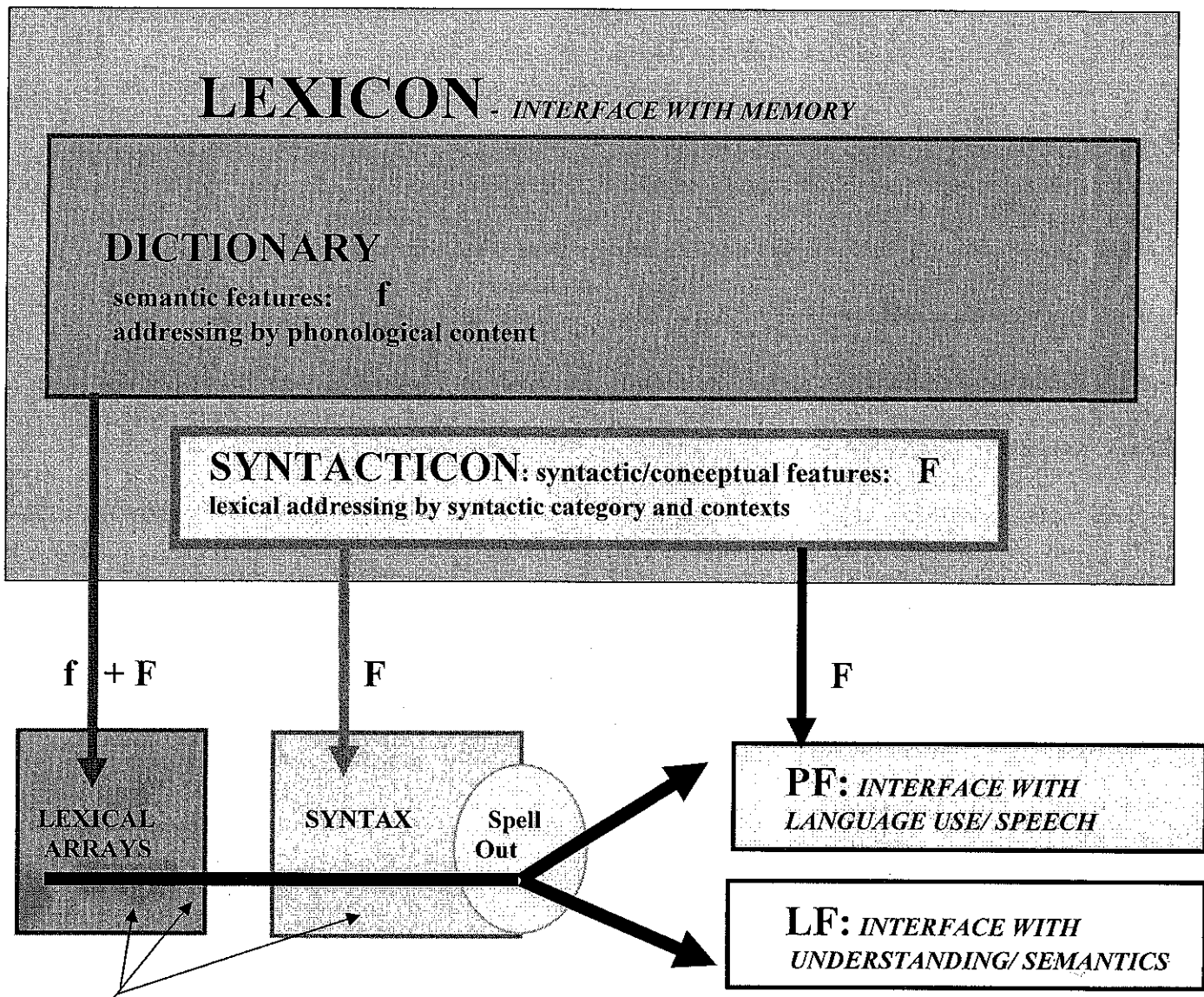
The properties of the two main devices of traditional morphology, inflection and derivation, are both better explained in terms of *a lexical theory justified by syntax* than in any framework which tries to treat morphology separately. The theory of tri-level lexical insertion can recapitulated as follows:

- (3) **Deep Lexicalization.** Lexical heads associated with purely semantic features *f* satisfy lexical insertion conditions *before* transformations apply in a phrasal domain containing them.
- (17) **Syntactic Lexicalization.** Items with interpreted syntactic F (but no purely semantic *f*) satisfy insertion conditions as *part* of transformations applying in a phrasal domain containing them.
- (19) **Phonological Lexicalization.** Vocabulary items specified solely in terms of contextual and other uninterpretable features are inserted subsequent to any operation contributing to LF.



- (26) **A:** 'Deep or Phase-initial Insertion,' via the Dictionary  
=> semantic + syntactic features = *f* + F (N,V,A,P only) ..... see (4)
- B:** 'Insertion in Syntax' or 'Phase-final Insertion'  
=> syntactic/cognitive features interpretable at LF = F (all categories)... see (11)
- C:** 'PF Insertion'=> syntactic features not interpretable at LF = F (all categories) such as contextual features, absence of content: STATIVE = [V, +Ø]; -LOCATIVE = [P, +Ø] etc. ... see (21)

## 5. LEXICON + PHASE BY PHASE ERIVATION



*T-model of derivation*

## 6. REFERENCES

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