NEGATIVE AFFIXATION WITHIN THE LEXICAL GRAMMAR MODEL[1]

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ABSTRACT: *The purpose of this paper is to provide a description of negative word formation processes in Spanish and English. The methodology for the description is based upon the conception of word formation in the Lexical Grammar Model, which considers it as a phenomenon with two fundamental perspectives: (i) as a lexicological process of creation of a new lexical unit out of existing lexical material; that is, the derived word is the result of combining predicates, which can be free or bound morphemes; and (ii) as a grammatical process that involves the interplay of different types of conditions that range from the phonological level to the pragmatic one, via the syntactic and the morphological stages.*
KEYWORDS: Word formation, negative affixes, functional morphology

RESUMEN: *Este trabajo presenta un análisis de los procesos de formación de derivados negativos en español e inglés. La metodología utilizada se basa en la concepción de la léxico-génesis del Modelo de Gramáticas Léxicas. Según dicho modelo, la morfología derivativa es un fenómeno con dos aspectos fundamentales: (i) es un proceso lexicológico de creación de una nueva unidad léxica a partir de material léxico ya existente; es decir, la palabra derivada es resultado de la combinación de predicados, los cuales pueden ser morfemas libres o trabados; y (ii) es un proceso gramatical que conlleva la activación de diferentes tipos de condiciones que abarcan desde el nivel fonológico al pragmático pasando por los niveles sintácticos y morfológicos.*
PALABRAS CLAVE: Formación de palabras, afijos negativos, morfología funcional

0. INTRODUCTION

This paper deals with the derivational processes from both Spanish and English that involve the creation of negative derived predicates, within the framework of the Lexical Grammar Model (Mairal Usón and Cortés Rodríguez 2000-01, Mairal Usón and Cortés Rodríguez *forthcoming*, Mairal Usón and Faber 2005; Cortés Rodríguez and Mairal Usón 2005, etc) (LGM henceforth). This model proposes the organization of a lexicon to be integrated in functional explanatory grammars such as Role and Reference Grammar (Van Valin and LaPolla 1997, Van Valin 2005) (RRG, henceforth) and, secondarily, Functional Grammar (Dik 1997a, 1997b) (FG).

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One of the strongholds of the LGM is its system of semantic representation for predicates that accounts not only for the lexical semantic relations among the members of the vocabulary of a natural language, but also triggers a set of linking mechanisms that act as an interface between the lexicon and the grammatical component. In such a framework, therefore, lexical analysis and description is fundamental for the organization of the rest of the grammatical modules.

From its original conception (Martín Mingorance's Functional Lexematic Model[2], the direct predecessor of the LGM) the lexical module includes a Word formation Component, which is autonomous though interrelated with the rest of the components of the grammar. In this way, the status of word formation is clearly defined as a grammatical phenomenon that is not subservient either to the syntactic, the morphological or the phonological modules. The phenomena of lexical creation are, as Kastovsky's (1977) paper expresses in its very title, 'at the crossroads of morphology, syntax, semantics and the lexicon". Though in the 70s the term 'interface' was not so much used in the linguistic literature, the metaphor of the 'crossroads' as applied to word formation captures much of the conception proposed nowadays by that term: lexical derivational products are the result of the activation of processes from different levels of description (from semantics to phonology via morphology or even pragmatics), though with their special idiosyncrasies, which makes it inadequate to assimilate word formation to any of the components of a grammar. This paper addresses the manner in which all the different components of grammatical description participate –or interface- in the generation of a derived word.

The first section provides a description of the conception of derivational morphology in the LGM; this is preceded by a description of the analysis of these phenomena in RRG and FG. Such a description will reveal important weaknesses in both approaches, and will

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consider the way to round about them by postulating that word formation is a double sided phenomenon.

Section 2 offers an explanation of one of the two aspects that are part of the nature of word formation: derivational morphology as essentially a lexico-semantic phenomenon. This will be illustrated by analyzing the semantics of the negative affixal class, which includes two main subclasses: the lexical subclass of oppositive affixes and the subclass of reversatives.

Section 3 will provide a brief description of the different morphosyntactic and morphohonological processes involved in the generation of a derived word. This will respond to the other conception of word formation as a grammaticalization of lexical structures.

1. WORD FORMATION IN THE LGM

As advanced above, the LGM is a model of lexical description that seeks to enrich the structure of the lexicon component in RRG and some similar functionalist models like FG. Mairal Usón and Cortés Rodríguez (*forthcoming*) and Cortés and Pérez Quintero (2002) describe several of the reasons why the treatment of derivational morphology in those grammatical models does not fully respond to the intricacies of the topic. Both theories coincide in postulating lexical rules (RRG) and predicate formation rules (FG) to describe word formation processes.

By way of example, agent nominalizations are described in the following way:

(1) RRG Lexical Rule for Word Formation (Van Valin and LaPolla 1997: 188-189):

verb + *-er* → [$_{N}$ *verb* + *-er*] 'x_i which *verbs'* ([$_{LS}$ ...(x_i, ...) ...]), where 'x' is the actor argument in the logical structure

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(2) FG Predicate Formation Rule for Agent Noun Formation (Dik 1997b: 3)

input:	pred [V, +contr] $(x_1)_{Ag/Pos}$ ...(x_n) [n≥1]
output:	{Ag pred} [N] $(x_1)_{\varnothing}$ ... (x_n)
meaning:	'a person who has the property of being (habitually) involved in the action of pred-ing'

As stated elsewhere (Mairal Usón and Cortés Rodríguez 2000-01: 273-274), these rules miss important generalizations about the complexities involved in word formation. One common weakness to the two rules described above is their inefficiency to explain the following questions:

(a) they do not include in their input the possibility of creating non-deverbal formations, both in the case of *–er* formations (e.g. *astrologer, geographer*) and of other agent nouns (e.g. *cartoonist, technician*); in the case of FG Agent Noun Formation Rule it also excludes the possibility of forming nouns like *sufferer* or *loser*, where the base is [-Control].

(b) in the case of the FG rule, there is no consideration either in the input or the output of what morphological device will be triggered; that is, nothing refers to the final form that the {Ag pred} variable will have. Furthermore, it does not explain under which conditions the output form is monovalent (e.g. *writer (x)*) or bivalent (e.g. *writer (x) (y)*) and, in the second case, under which conditions the second argument will be a postmodifier (e.g. *the writer of this novel*) or a premodifier (e.g. *a book writer*).

The semantics of both rules is misleading and, furthermore, there is no interrelation between the meaning and the (internal and external) syntax of the derived word. For instance, it is not possible to distinguish among *competidor* ("someone who competes in one (specific) contest"), *fumador* ("someone who smokes habitually"), *pescador* ("someone whose habitual profession is to fish") or *flotador* ("something to help you float in the water", i.e. a float). (cf. Cortés 1997).

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The LGM proposes the study of word formation as a double-sided phenomenon, both as a grammaticalization of the lexicon (as in Coseriu 1978) and as a lexicalization of predicational structures, the view that has been adopted by the generative tradition initiated by Lees (1960) and continued by the Generative Semantics school and, more recently, by Baker (1988), Borer (1994), Ghomeshi and Massam (1994). The first perspective is concerned with the semantic relations that hold between the components of a complex lexeme; i.e., word formation is a lexicological phenomenon. The second considers complex lexical units as the morphosyntactic expression of a (group of) grammatical relation(s). From this perspective, word formation can be considered as a syntactic process, usually understood as the result of a reduction from analytical underlying structures similar to the ones that represent clauses or phrases. However, the studies located in the lexicalist tradition (initiated in Chomsky 1970 and continued in Aronoff 1979, Roeper and Siegel 1978, Scalise 1987, among many others) proved the insufficiencies of adapting derivational morphology to the syntactic apparatus of a grammar, as the productivity and predictability of word formation rules make them very different from the much more regular and consistent rules of syntax.

The conjunction of these two perspectives offers a view of word formation as a systematic process of lexicalization of analytical (predicational) structures subject to a set of particular conditions, which pertain to all the levels of a grammatical model: phonology, morphology, syntax, semantics and pragmatics. This process of lexicalization serves the purposes of creating labels for new conceptual categories, taking as ingredients already existing lexical material (lexemes and affixes).

There are two types of methodological approach to be carried out in the study of word formation processes, each of them associated with one of the perspectives just described. There is an analytical phase which essentially will decode the material of complex lexemes. This involves examining the phonological, morphological, syntactic and lexico-semantic

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structure, paying special attention to the type of semantic relation that holds between the W(ord)-Syntactic Components (see section 2) of the complex lexeme since, as expressed in Coseriu (1978), the meaning of a complex lexical unit consists of (a) the sum of the meanings of its components, which is predictable by the application of the word formation rules (their signification) plus (b) the relation of the linguistic signs with their referents (their designation).

The output of this analytical phase when applied extensively to the vocabulary of a language will be an affixal lexicon where lexical units (affixes and word formation patterns) are organized in semantically coherent classes (in a fashion similar to the organization of the primary lexicon), and each of those classes and their members will have an adequate semantic representation in the format of a Lexical Template (see also section 2).

The synthetic phase will account for the succession of processes that are necessary to generate a complex lexeme; the starting point of this phase is the lexical representations of the lexical units that participate in the derivational process, which will be subject to the effect of different types of linking rules; note that this process is conceptually similar in its working to the derivation of grammatical structures, such as clauses, in productive models of grammar (see section 3).

2. AFFIXAL NEGATION AS A GRAMMATICALIZATION OF THE LEXICON

In this section we consider word formation from the first perspective, as a relation between different lexical units in which some type of determination of one over another holds. This is reflected in the diagram for the WFC in the first linking phase, which takes place within the lexical component of the grammar (See Appendix 1). That is, the processes

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of word formation are primarily the result of the fusion between different lexical units .This fusion is mediated by certain matching conditions between the semantic representations of the morphemes that are at play; i.e. the base word and the affix, in the cases of derivation. Such compatibility conditions involve also the interplay of certain semantic redundancy rules (henceforth SRRs). Redundancy rules were originally proposed by Jackendoff (1975) for morphological processes, and their more relevant feature was their static character: they showed the lexical relation that existed between a derivative form and its corresponding base. Nevertheless, Jackendoff himself admits the possibility of them being truly generative, as they can be used for the generation of novel, non-lexicalized formations. In a similar vein, Bybee (1998) proposed that lexical rules in morphology are abstract schemas that capture a generalization; i.e. express a relationship present in several derivational products. Our use of SRRs will yield in between a static and a dynamic process: they do reveal lexicalization patterns present in a number of morphologically complex structures which are formed by a certain (class of) affix(es). But given the nature of morphogenesis (Hagége 1993), which involves using these fixed patterns for the creation of novel forms (i.e. they show the paradox of using old material for creating new one) SRRs are potentially dynamic schemas subject to more or less constant activation by language users. The frequency of activation of a given SRR will reveal the degree of productivity it has.

This process focuses then on semantic description and semantic compatibility between the meanings of the components of a derived word. For a better understanding of the format of semantic descriptions in the remainder of the paper, let us briefly describe how lexical decomposition is formulated in the LGM.

The semantic decomposition of predicates within this model is provided in the format of a Lexical Template (LT) whose design is a compromise between the *Aktionsart* characterization of lexical units as proposed in RRG and to a lesser degree in Rappaport and

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Levin (1998) on the one hand, and the richer semantic description as postulated in the Functional Lexematic Model (Faber and Mairal 1999) on the other. With regard to the first aspect, RRG uses a system to represent the semantic structure and argument structure of verbs and other predicates (their logical structure, LS). It is based on the *Aktionsart* distinctions proposed in Vendler (1967), and the decompositional system is a variant of the one proposed in Dowty (1979); there is also one non-Vendlerian class, namely semelfactives (Smith 1997). Lexical classes are divided into states, activities achievements, semelfactives and accomplishments together with their corresponding causatives. States and activities are primitives (these are marked in boldface plus a prime), whereas accomplishments and achievements consist of either a state or activity predicate plus a BECOME and an INGR operator respectively; the non-telic variants of achievements is introduced by the operator SEML. There are a number of tests which determine which class the verb in a clause is to be assigned (see Van Valin and LaPolla 1997: 90-128).

The inventory of logical structures formulated within the RRG framework is the following (Van Valin and LaPolla 1997: 109; Van Valin 2005: 45):

Verb Class	Logical Structure
State	**predicate'** (x) or (x,y)
Activity	**do'** (x, [**predicate'** (x) or (x,y)]
Achievement	INGR **predicate'** (x) or (x,y), *or* INGR **do'** (x, [**predicate'** (x) or (x,y)]
Semelfactive	SEML **predicate'** (x) or (x,y), *or* SEML **do'** (x, [**predicate'** (x) or (x,y)]
Accomplishment	BECOME **predicate'** (x) or (x,y), *or* BECOME **do'** (x, [**predicate'** (x) or (x,y)]
Active accomplishment	**do'** (x, [**predicate$_1$'** (x, (y))] and BECOME **predicate$_2$**' (z,x) or (y)
Causative	α CAUSES ß where α, ß are LS of any type

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However, the LGM proposes an enrichment of these logical structures by adding a semantic characterization, which will permit firstly to organize the lexicon in semantically coherent classes and hierarchies, and secondly –once it has been assumed (Mairal and Faber 2005) that semantic characterization is done by means of a restricted semantic metalanguage –a close set of undefinables or primitives- the cross-linguistic validity of the approach is guaranteed. Such a semantic metalanguage is a combination of Wierzbicka's Natural Semantic Metalanguage (Wierzbicka 1987, 1996, Goddard and Wierzbicka 2002), Mel'cuk's Text-Meaning Theory (Mel'cuk 1988, 1989, Mel'cuk and Wanner 1996) and the set of nuclear terms or superordinates of the lexical classes as analyzed in Faber and Mairal (1999: 279-293). Lexical templates have the following format:

[semantic representation] + logical structure = predicate

The first part of the template includes the semantic parameters that differentiate one predicate form others within the same domain; the second part codifies its event structure and the set of grammatically salient properties.

The first component is encoded by means of semantic primitives and lexical functions that are essentially paradigmatic, while the representation of the second component is the same as RRG logical structures. With regard to the notational conventions, the LGM makes use of internal and external variables. Internal variables are marked with numerical subscripts, while external variables are represented by Roman characters.

Thus, according to Mairal and Faber (2005) in the lexical class of cognition verbs in English, the lexical units are defined on the basis of *know*, which is the superordinate term in the whole verbal domain. The various hyponyms of *know* are generated by applying Mel'cuk's Lexical Functions to them; for example, the representation of the verb *fathom* would be the following:

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(3) **fathom**: [MAGNOBSTR & CULM$_{1,2[all]}$] **know'** (x, y)

The entry in (3) is composed of: (i) the semantic component in brackets; (ii) the representation of the logical structure. This predicate is given in the form of a state logical structure which takes **know'** as a primitive and has two arguments. Furthermore, this logical structure is in turn modified by a lexical function (or operator), MAGNOBSTR, which refers to the difficulty involved in carrying out an action, and in the case of *fathom*, there is great difficulty. As shown in (3), lexical inheritance allows the packaging of enriched lexical information into one unified format since the hyponyms inherit the properties of their superordinate terms.

One important assumption of the LGM is its conception of the lexicon as composed of lexical morphemes of two types, free lexical morphemes –or words- and bound lexical morphemes –derivational affixes-; both free and bound morphemes will be semantically represented by means of their corresponding lexical template (LT). In the following sections there are detailed descriptions of the LTs that encode the semantic content of the class of affixal negative predicates.

2.1. Oppositives

Negation is a universal feature, as all languages have means for expressing the notion of opposition, and many exhibit this meaning by means of morphological exponents. Thus, In English there is a class of affixal units which includes, among others, *un-*, *dis-*, *a-*, *non-*, *in-*, *anti-*, etc. and in Spanish *in-*, *des-*, *contra-*, *a-*, etc. Their semantic function is to produce lexical negatives or antonyms. However, antonymy is not a simple phenomenon, as it

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includes different types of meaning opposition. At least there are two ways of codifying negativity: by expressing the lack of properties or attributes of an entity (then, we may speak of cases of contradictoriness or privativity), or by expressing opposing features or attributes of entities (cases of contrariness)[3]. Contradictory terms constitute binary pairs of the type *live/dead*, whereas contrary terms allow for gradable properties as in *hot/warm/cool/cold* (for detailed descriptions of (non)gradability and negation cf. Lyons 1977: 281ff.; Kastovsky 1982; Cruse 1986: Chapters 9-11; Saeed 1997: 66-68, among many others).

Affixal negatives exhibit these two types of meaning opposition, which are encoded in the following templates:

(4) φ_X: $ANTI_{COMP}$[LT (x <φ_{BASE}>)] E.g. *non-moral, amoral*

(5) φ_X: ANTI [LT (x <φ_{BASE}>)] E.g. *immoral*

Due to their universal character, the templates encode the meaning in terms of two Lexical Functions, ANTI and $ANTI_{COMP}$, extracted from Mel'cuk and Wanner's (1996) inventory and Alonso and Tutin's (1996) modifications to the inventory, respectively. $ANTI_{COMP}$ is to be understood merely as a function that encodes complementary antonymy and, therefore, has an absolute non-gradable (i.e. binary) value (cf. Alonso Ramos and Tutin 1996: 152), whereas contrary values are encoded by ANTI; i.e. it involves a negative value along some scalar standard; thus, negativity is as long as it is compared with the value(s) of the attributes expressed by the base word. The function $ANTI_{COMP}$, on the other hand, merely states the absence of such (an) attribute(s).

There is a subtype of the contradiction template, in which the operator ANTI is semantically modified by a temporal lexical function:

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(6) φ_V: [LT_{LOCin} $^{temp \leftarrow}$] ANTI [LT (<φ_{BASE}>)]

This variant of the original template is necessary to explain the meaning of those formations that involve the cessation of an event *(disuse$_v$, discontinue* 'to use/continue no longer') or of a property or condition: *(descreer, disbelieve* 'not to believe any more'). That is, these prefixed formations presuppose the occurrence of these states of affairs in some previous time-span.

Another interesting feature of this class concerns its internal structure; the templates above involve a major division into two subclasses; affixes are distributed along this major division between the contrary-negative and the contradictory-negative subclasses, thus having one group of exclusively contrary affixes (counter-, anti-, e.g. *antibody, anticommunist, counter-irritant, countertenor*), another of exclusively contradictory ones (a-, non- formations e.g. *amoral, achromatic, non-metal, non-smoker*) and a third group with both values (in-,dis-, un- e.g. *invisible, inactive, infertile vs. immoral, inhuman; unavailable, unbeliever, unborn vs. unclean, unsmooth, unperson, unfrequented; distrust, disbelieve, discommodity vs. dissimilar, disharmonious, disapproval, distaste$_N$*).

One interesting case of overlap between classes concerns the relation between the contrariness-as-opposition meanings and the locative class.

The notion of contrariness, expressed in (5) by means of the Lexical Function ANTI, can be further divided into more specific semantic values, as is shown for instance by the formations with the affix *anti-* not only in Spanish or English, but also in other languages like Old Greek, where the origin of the affix lies. There are formations from that period –some of which still are present in Modern Greek and in other contemporary languages- where the meaning of opposition is clearly seen as a development from a locative meaning ('be-in-front-of': *Ant-artic*; *Anti-kythira* –the name of the Greek island that is in front of the island

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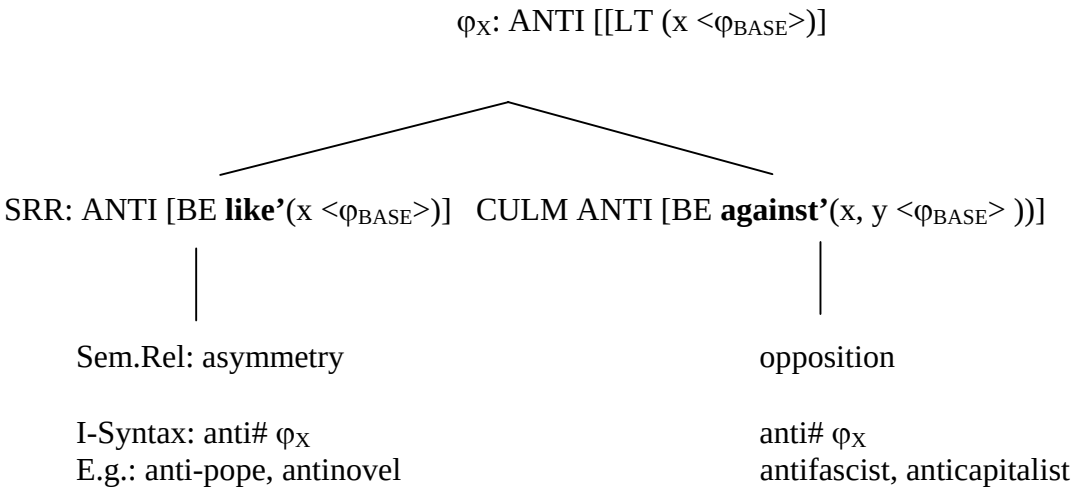
called Kythira, which by the way is bigger than the other); the conceptual development is schematically as follows: what is located in front of an entity is seen as an obstacle, and obstacles are opposed to the entity; there is also the implication of (a)symmetry: what opposes to something is somehow similar to it and somehow dissimilar at the same time: an anti-novel is contrary to a novel being a novel at the same time, or an anti-hero is the contrary of a hero; however, not any character is an anti-hero as it must have some 'heroic' attributes though in an insufficient or adequate degree (cf. Cortés and García Gálvez 1990); Sosa Acevedo (2001, 2005) provides a detailed explanation of the semantic relations among the different values of prefixes. The following diagram illustrates the different values of the prefix *anti-* that are derived from the original template:



A more recent development in the meaning values of this affix –and others of the contrary class- is the one present in formations like *anti-dandruff, anticorrosion*, with clear causative nuances, thus leading us to another transition zone between the negative class and the reversative one, in this case. It seems logical to consider that the source for the causative

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formations is the opposition value. The semantic transition implicit in these formations can be captured by the following scheme:

(7) φ_X: ANTI [[LT (x <φ_{BASE}>)]

→ CULM ANTI [BE **against'**(x, y <φ_{BASE}>))]

→→ **do'**(x, ∅) CAUSE [ANTI EXIST (y <φ_{BASE}>)]

→→→ **do'**(x, ∅) CAUSE [NOT EXIST (y <φ_{BASE}>)]

2.2. Reversatives

As can be deduced from the above representation the subclass of reversative formations lies in an overlapping area between negative formations and causative verbalizations (where English affixes like –ize,-ate,-en, etc. belong). This is reflected in the format of the maximal template for reversative formations:

(8) φ_V: [LT_{LOCin} $^{temp\leftarrow}$] **do'**(x, ∅) CAUSE [ANTI [LT]][4]

For a better understanding of this type of processes, let us consider the general template for causative deverbal formations:

(9) φ_V: **do'**(x, ∅) CAUSE [LT]

The formula in (9) encodes a complex semantic structure in which there is causal bond between two subevents, the induced one corresponding to a state of affairs in which the base

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word is involved or affected more or less directly. That is, as a subclass of verbalizations the function of causative affixes is to build up a predicational structure around the LS of a(n) (potential) argument. A verb like Spanish *enlatar* is the output of a causative locative template such that the base noun *lata* is enmeshed in a semantic scenario as a locus for the placement of some other entity (see 13 for the representation of the reversative equivalent formation *destronar*). Thus the derived formation takes the base noun as a pillar around which to build up an event. The locative meaning is determined by the semantic characterization of the noun –specifically its Formal and Telic Qualia characterization (Pustejovsky 1995) [5]- and the SRRs that would read this characterization and impose a definite interpretation of the template. The reversative template also yields different interpretations similar to the ones for causatives, which makes it feasible to postulate that they result from the interaction of SRRs whose scope of application seems to range the whole class of verbalizations[6]; in fact, there are at least the following three rules that can be applied to the basic reversative template (8) when combined with different base words:

(10) SRR1: [LT] → BE-LOC (x, φ_{BASE})

(11) SRR2: [LT] → BE-LOC (φ_{BASE},y)

(12) SRR3: [LT] → BECOME/BE **pred'** (φ_{BASE})

Rules SRR1 and SRR2 account for those cases where the derived formations have locative interpretations; i.e. there is a combination of three basic parameters: causativity + negativity + location; whereas the two first semantic primitives are criterial for the delimitation of the affixal classes to which reversatives belong (in other words, they are part of the meaning characterization of the morphemes that constitute the class), the last one –

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location- is motivated by the semantic characterization of the bases. Their Qualia characterization (formal and/or telic) provides the contextual feature that triggers this reading: these nouns typically have the form or the function of containers, involving a locative relation with respect to another entity, and therefore the rule to be applied is SRR2 above. On some occasions, the base noun is the locandum/theme argument, as it is also involved by some of its Qualia features, and the rule that is at work then is SRR1 above; the following examples illustrate both possibilities:

(13) destronar$_V$:

/des#/ φ_N /Ø/$_V$**:** [BE-LOC$_{2,3LOCin}$ $^{temp \leftarrow}$] **do'**(x, ∅) CAUSE [ANTI [LT]] + *trono*$_N$: **throne'** (x < {… *Q*$_{FORMAL}$: **seat'** (x,y) *Q*$_{TELIC}$: [BE **on'** (trono,y)]…}>)

→ SRR : [LT] → BE-LOC φ_{BASE},y).

→ Semantic Relation: Location: [BE-LOC (y <φ_N>, z)]

→ Syntaxeme's realization: Illative : BE-LOC > BE-**on'**

→→OUTPUT: destronar$_V$: [BE-LOC$_{2,3LOCin}$ $^{temp \leftarrow}$] **do'**(x, ∅) CAUSE [ANTI]BE-**on'**(trono$_N$, z)]

(14) descamar :

[/des#/ φ_N /Ø/$_V$]$_V$**:** [BE-LOC$_{2,3LOCin}$ $^{temp \leftarrow}$] **do'**(x, ∅) CAUSE [ANTI [LT]] + *escama*$_N$: (x < {… *Q*$_{FORMAL}$: **be-on'/around'** (x,y)…}>)

→ SRR : [LT] → BE-LOC (y, φ_{BASE}).

→ Semantic Relation: Locandum/Theme: [BE-LOC (y, z <φ_N>)]

→ Syntaxeme's realization: Superpositive/Circumlative : BE-LOC > BE **on'/around'**

→→OUTPUT: descamar$_V$: [BE-LOC$_{2,3LOCin}$ $^{temp \leftarrow}$] **do'**(x, ∅) CAUSE [ANTI]BE-**on'/around'**(y, escama$_N$)][7]

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With regard to the operator LOC, it must still be specified for specific dimensional values. Such values are considered variants of a 'syntaxeme', as defined by Mukhin and Yulikova (1991: 291):

> […] an elementary syntactic unit (an invariant) represented in the language by a system of variants, which may be expressed by both individual lexemes and syntactically indissoluble combinations of lexemes with auxiliary elements, e.g. prepositions. The content of a syntaxeme is formed by its syntactico-semantic features which manifest themselves by the distributional characteristics of the syntaxeme, as well as by its specific system of variants.

SRR3 in (12) accounts for formations where the fusion with the bases yields an adscriptive/attributive reading, as in the following formations: *defrost, decentralize, demagnetize, unsanctify*, *decontaminate*. The semantic representation for these derived verbs is as follows:

(15) φ_V: [BE-**pred'**$_{2LOCin}$ ^{temp} ←] **do'**(x, ∅) CAUSE [BECOME/BE ANTI**pred'** (y <φ_{BASE}>)]

The effect of the overlap with the negative class can be seen in the necessity on most occasions of adding a semantic specification that refers to a temporal modification ([BE-LOC/ **pred'**$_{22,3LOCin}$ ^{temp} ←]): the implication is that the reversative effect presupposes a previous contrary state of affairs; hence, a formation like *decentralize* means not just 'to cause to be not central' but 'to cause to be no longer central'. There are, however, a minority of formations that may not imply such semantic specification, as in the case of *unbarbarize* (cf. Kastovsky 2002: 100).

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Once the fusion process between a base morpheme and an affixal morpheme takes place, the output will be the fully specified semantic representation of a new derived lexeme. This representation will be the input to trigger the second phase of the linking process, which accounts for the generation of a morphologically complex structure whose components show some type of syntactic connection and are subject to certain morphological and morphophonological conditions. This process corresponds to the other view of word formation within the LGM, i.e. word formation as a lexicalisation of grammatical structures. The next section deals with theses issues.

3. THE SEMANTICS-TO-GRAMMAR INTERFACE

The second phase of linking within the word formation component in the LGM takes as input the fully specified semantic representation and produces the adequate morpho-syntagmatic structure of the derived word. This is achieved by means of two sets of rules:

- W-Syntactic rules, which will account for the internal grammatical configuration of the predicate, and
- S-Syntactic rules, which will explain its external syntagmatic structure.

W-Syntactic rules stipulate which elements of the underlying representation will be marked as Determinant (DT) and Determinatum (DM) components. The internal structure of a word can be described as a grammatical *syntagma* in which *"the determinatum is that element of the syntagma which is dominant in that it can stand for the whole syntagma in all positions"* (Marchand 1969: 11-12), being the Determinant a modifier of the Determinatum.

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The assignment of these functions to the elements in the LT of a derived word will predict the functional structure of the word; following Martín Arista (2006), the Layered structure of the Word would be as follows:

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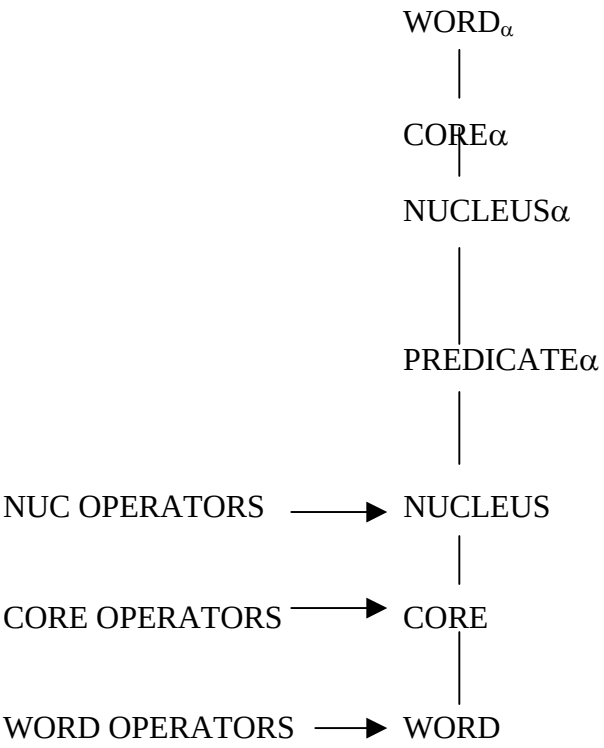
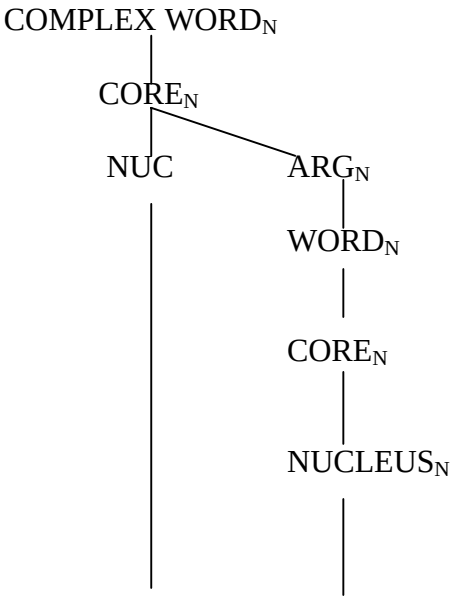
(16)



There are some important differences with Martín Arista's proposal: his proposal considers that the NUC node of a complex word is either a bound stem or a free from. Thus, a word like Old English *bocere* ("writer", "instructor") has the following structure:

(17)



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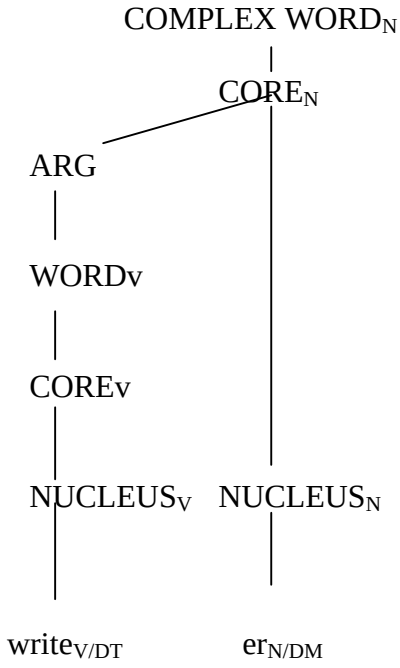
boc ere

The LGM approach considers that the Nucleus of a derived word is the constituent which perlocates its features in the structure; feature perlocation is associated to the Determinatum function; thus, the structure of *writer* would be as follows:

(18)



This analysis is based on the semantic nature of the process: Actor nominalizations are processes that build up a referential structure from one of the arguments present in the LT of the base; however, the nominalized element is not an argument in the morphological structure, as it becomes the lexical component with predominating grammatical import on the overall structure of the complex word. This involves also that within the LGM framework affixation does not entail subordination or any kind of nexus relation, as proposed by Martín Arista (2006)[8]. In this type of formations the only case of a special juncture relation will occur with synthetic compounds of the type *watch-maker* (Marchand 1969: 15-17), whose structure is as follows:

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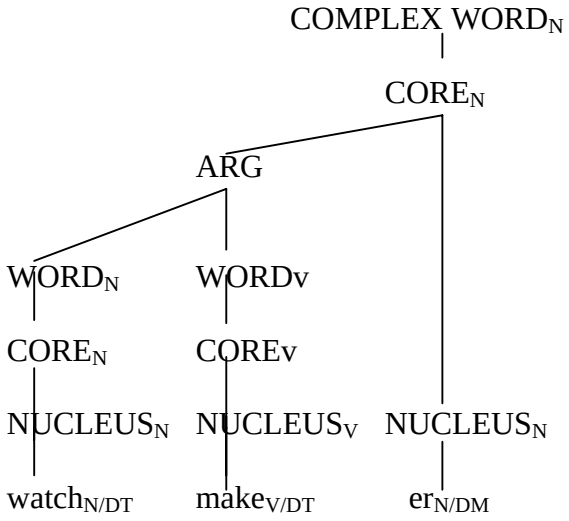
(19)



In Cortés and Mairal (2000-01: 286)[9] it is explained that there is one interesting condition in synthetic Actor compounds; the ARG is incorporated as a secondary determinant, and therefore as a constituent within the structure of the complex word only if it is a non-referential argument.[10]

The other aspect in Martín Arista's proposal that seems debatable is the status of affixes; he considers them as operators either at nucleus or core level, depending on whether they can be attached to derived bases or not. Despite this, in his analysis of agentive formations (see 17 above) the suffix is part of the constituent projection. Nevertheless, he proposes a classification of affixes in which, by way of example, causative morphemes are treated as nuclear operators, and negative affixes are either nuclear (internal negation) or core operators (logical negation). From the LGM perspective, derivational affixes are to be treated as elements in the constituent projection and not as operators, since they are predicates and as such they convey lexical meaning. Let us recall that operators within the RRG model are linguistic elements with grammatical meaning. At the morphological level the distinction between lexical and grammatical meanings draws the line between derivational and inflectional processes. In the previous section it has been shown that negative derivation

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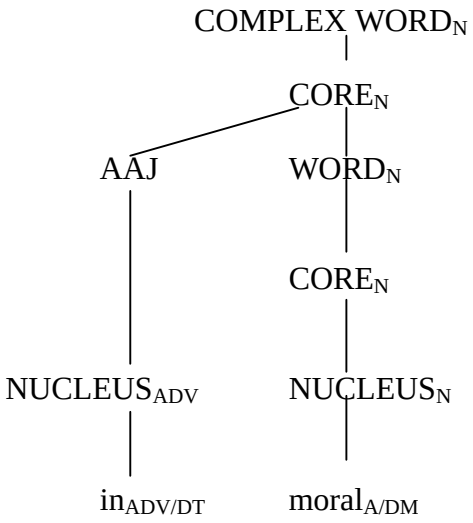
involves certain complexities of meaning that are only logical insofar as we are dealing with a lexical class; thus, a form like *immoral* should be better analyzed as follows:

(20)



One interesting feature of the structure of *immoral* is that it also reveals the status of prefixes in our model. As Marchand (1969: 134-136) states, prefixes are determinants of expansions with either adjectival or adverbial force; i.e. the nucleus of a prefixed word will be the base, provided that its features are the ones that percolate in the structure. The prefix, in our view, is better analyzed as an argument-adjunct in the constituent projection. This is its status even in cases of parasynthetic formations like reversatives (*encage, delouse*, etc), where the prefix is also part of the determinant, together with the base word, being the determinatum either a suffix or a conversion process on the base.

After the application of W-Syntactic rules, S-Syntactic Rules are activated to finally determine the combinatorial behavior of the word in its immediate syntagmatic context, the NP. In Cortés and Mairal (2000-01: 287-289) there is a description of the effect of S-syntactic rules within the class of Agentive formations, where the S-Syntactic behavior of the derived word is essentially determined by Macrorole Assignment in terms of the Actor-Undergoer

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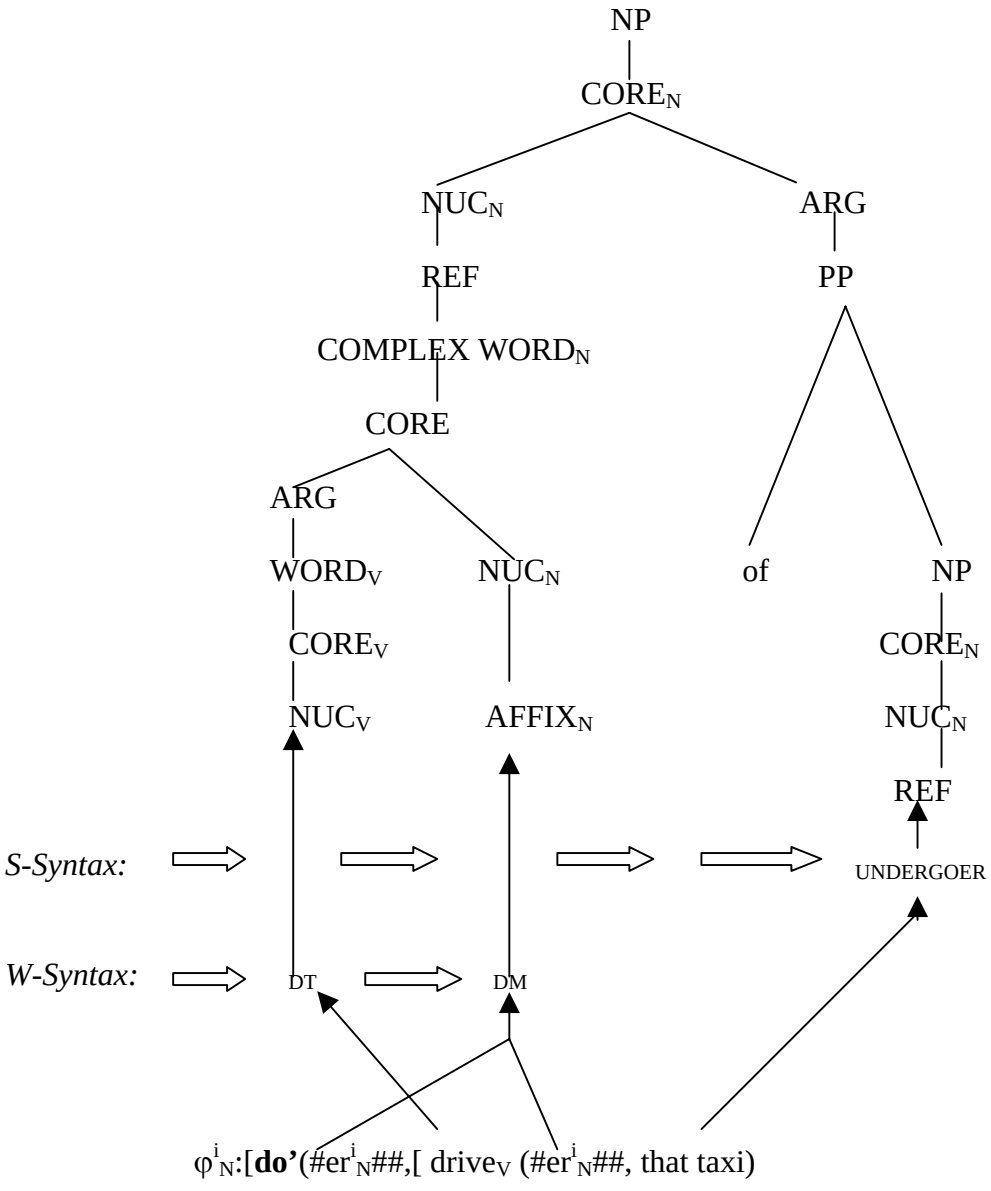
Hierarchy[11]. The most typical case happens when the second argument of the LT of a base is referential, and consequently it is blocked for determinant status at W-syntactic level; however, at S-syntactic level it is a good candidate for Undergoer assignment, which will determine its appearance as a PP postmodifier within the Core of the NP structure, as in the following structure which corresponds to the NP "the driver of that taxi":

(21)



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4. CONCLUSIONS

The LGM conception of the lexicon as an organized storehouse of lexical units arranged in terms of semantic, grammatical and cognitive relations involves an exhaustive and highly explanatory approach to the analysis of both the primary and the derived lexicon. In the case of word formation, it involves a study in two phases: (i) a lexicological analytical phase that explores the semantic intricacies related to the process of combining lexical units for the production of a new one; the meaning of the coinage is motivated by the meanings of its component parts; nevertheless, motivation is not equivalent to amalgamation of meanings, as has been demonstrated with regard to negative affixation in the second section of this paper; (ii) the synthetic phase considers word formation from a grammatical perspective; section 3 is a brief example of how complex can be the intertwining of grammatical functions both within and without the word level when dealing with morphologically complex structures.

The fact that both types of approaches must be dealt with for a full description of what lies behind the creation of a new lexeme reveals the adequacy of the LGM approach to word formation and makes it a powerful tool for the description of this kind of processes.

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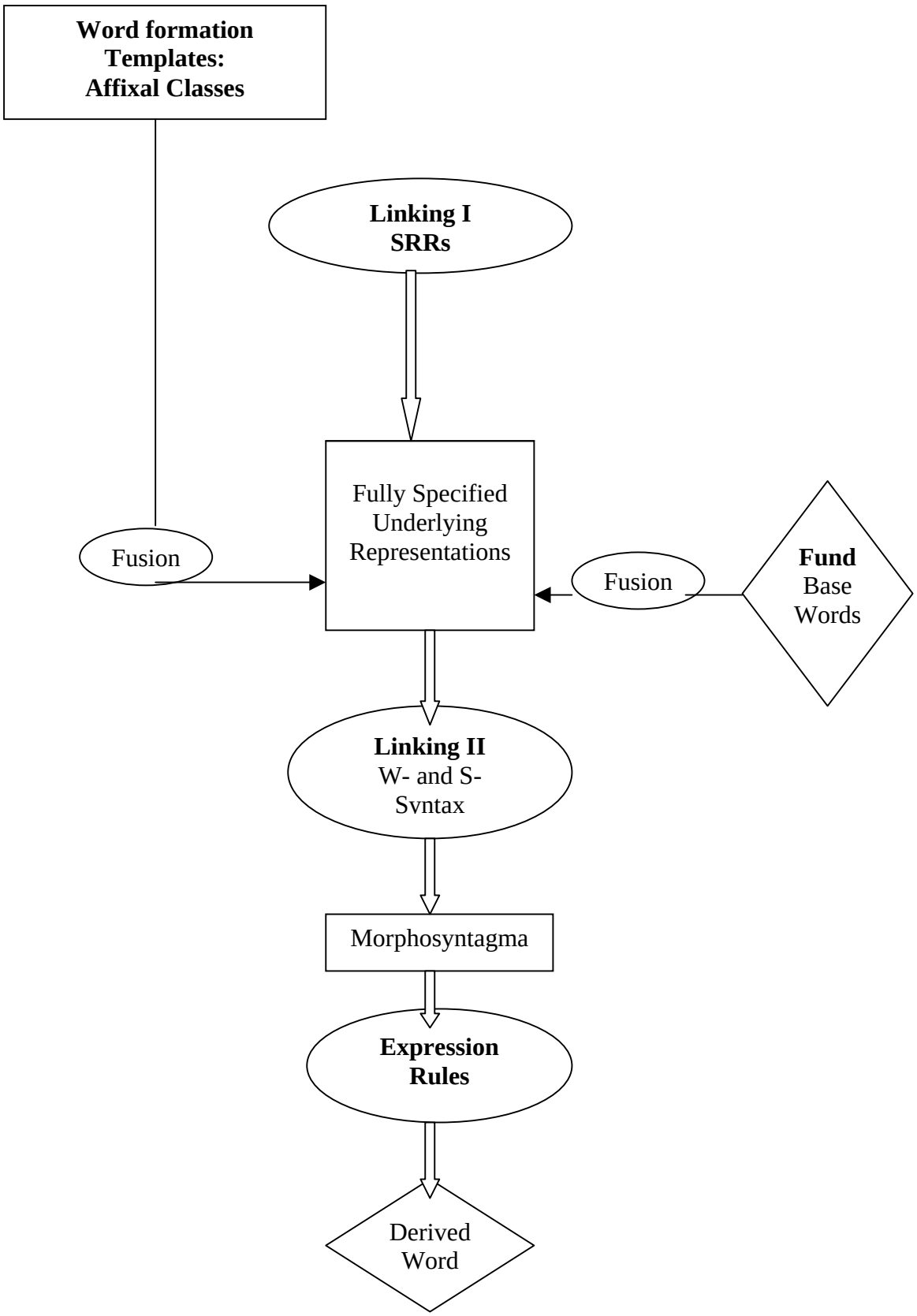
Appendix 1: The Word formation Model



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NOTES

[1] Financial support for this research has come from the Research Project HUM2005--07651-C02-01, funded by the Spanish Ministry of Education.
[2] See Marín Rubiales (1998) for a compilation of Martín Mingorance's works.
[3] The terms *contrary* and *contradictory* are taken from Zimmer (1964: 21ff.).
[4] Joe and Lee (2006) analyze the differences between two types of 'removal' predicates, those whose meaning involves one absence-state and those labelled removal-process by them. The first group includes adjectives like *free from, clear, of, regardless of,* and the second group includes verbs such as *remove, destroy, erase*. It seems logical that reversatives would belong to the second group. The features of removal process predicates (they are neither monotone decreasing, nor nonveridical in a strict sense) seem to favour the selection of the LF ANTI in their corresponding template; $ANTI_{comp}$ would correspond to the negative meaning of statal (monotone decreasing and anti-additive) predicates.
[5] RRG makes use of Pustejovsky' s Qualia Theory for a characterization of the semantic properties of nouns. The Qualia representation of Spanish *lata* ('can') includes: **can'**:*Qconstituive:* **metallic'** (x)**,** *Qformal*: **container'** (x,y) *Qtelic:* [BE **in'** (x,y)])], *Qagentive:*[**artifact'** (x ∨ y).
[6] English and Spanish verbalizations are vast affixal classes that include several subtypes with many interrelations and overlapping areas; among these subclasses are, at least, causatives, inchoatives, reversatives and –partly- privatives and locatives.
[7] Following Kastovsky (2002: 99-101) it is possible to establish a parallelism with the rest of causatives with regard to the possible interpretations of some of the reversative- locative formations as reversative-privative; e.g. *delouse* may be interpreted not only as 'cause louse not be on entity' but also 'cause entity not have louse'). The alternative representation would be: [$HAVE_{2,3LOCin}$ $^{temp\ \leftarrow}$] **do'**(x, ∅) CAUSE [ANTI]**have'** (y, z)]. For him, some are clearly privative, like *behead,* whereas others like *disarm* have both a privative and a locative-reversative interpretation. The privative reading can be understood in our proposal as the output of another SRR that substitutes the variable [LT] with the primitive HAVE.
[8] Van Valin and LaPolla (1997: 495-497) have a similar interpretation: they propose to interpret compounds of this kind as cases of nuclear juncture without any nexus contrast at the $nuclear_N$ level.
[9] Note, however, that this analysis differs from the one in Cortés and Mairal (2000-01), where there is no description of the internal structure of complex words in terms of the layered structure of the word proposed by Martín Arista (2006), but a description following only the structure for NPs in Van Valin and LaPolla (1997).
[10] Non-referential or inherent arguments are defined in Van Valin and LaPolla (1997: 123) as "an argument which expresses an intrinsic facet of the meaning of the verb and does not refer specifically to any participants in an event denoted by the verb; it serves to characterize the nature of the action rather than to refer to any of the participants".
[11] The S-syntactic behavior of negative affixes is null, as derived negative formations would not show any special behavior at this level.

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