Lexical templates for the Spanish verbs of feeling:
A further elaboration of RRG logical structures

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1. Introduction

The study of the lexico-semantic properties of verbs and their relation with syntax has long been common ground for projectionist and constructionist theories. Neither, however, has been able to provide a thorough explanation of the nature of lexicon, grammar and their relationship.

From our point of view, projectionist theories like Role and Reference Grammar (RRG; Van Valin & LaPolla 1997; Van Valin 2005), offer an insufficient description of lexical meaning. On the other hand, construction-based approaches, like Construction Grammar (CxG; Goldberg 1995, 2002, 2006), focus mainly on the representation of constructions, sometimes overlooking the kind of constraints that explain how and why constructions interact with specific verbal predicates (Ruiz de Mendoza & Mairal 2007a: 27). In this paper the Lexical Constructional Model (Mairal & Van Valin 2001; Mairal & Faber 2002, 2007; Mairal & Ruiz

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de Mendoza 2006; Ruiz de Mendoza & Mairal 2007a, 2007b) and its notion of lexical template will be presented as the meeting point for both paradigms. The elaboration of these templates will be exemplified with a sub-domain of verbs of ‘feeling’: the Spanish verbs of *anger*.

The organization of the paper is as follows: section 1 introduces the theoretical premises of the Lexical Constructional Model. In section 2, the lexical templates themselves will be presented, focusing on the syntactic (2.2.1), the lexico-semantic (2.2.2) and the pragmatic features (2.2.3) they codify. Finally, the conclusion will be provided in section 3.

2. The LCM and the paradigmatic organization of the Spanish *anger* verbs

2.1. *A brief outline of the Lexical Constructional Model*

The Lexical Constructional Modal (henceforth LCM) is a proposal for lexical representation and the relationship between syntax and all facets of meaning construction, including traditional implicature and illocutionary meaning. It is being developed within the framework of RRG, but shows full compatibility with other functional and/or cognitive approaches to language, such as CxG. Below is a graphic illustration of the model (Mairal & Faber 2007: 139):

![Figure 1. The Lexical Constructional Model](image-url)
The LCM takes for granted that (i) constructions are vital to account for the cases of multiple argument realization, and that (ii) the unification of the argument structure of a verb and a construction should be ruled in the grammar by means of a number of external and internal constraints. Semantic interpretation is then arrived at by the unification of the lexical template of the predicate under analysis and the constructional template in which it appears. This paper focuses on the former, i.e. the content and relevance of Spanish lexical templates within the LCM, leaving the latter for further research. This paper focuses on the former, i.e. the content and relevance of Spanish lexical templates within the LCM, leaving the latter for further research. The interested reader is referred to the work carried out by Ruiz de Mendoza and Mairal mentioned in the References section below, as well as the papers included on the website of the LEXICOM project.3

2.2. The paradigmatic organization of the Spanish verbs of ‘anger’

One of the landmarks of the LCM is its strong semantic concern, giving much more emphasis to the lexico-semantic properties of verbs than RRG or CxG. This is due to the fact that the LCM stems from the Functional Lexematic Model (henceforth FLM; cf. Martín Mingorance 1998; Faber & Mairal 1999), which has also been partially integrated into the new model. By using the main tenets of Dik's Functional Grammar (1997a, 1997b) and Coseriu’s Lexematic Theory (1981), the FLM organized both the English and the Spanish verbal lexicons paradigmatically and syntagmatically into a series of coherent semantic classes or lexical domains such as: existence, change, possession, speech, emotion, action, cognition, movement, physical perception and manipulation.

Each of these lexical domains is obtained by means of a process of exhaustive semantic factorization, working upwards from various dictionary entries of the possible predicates belonging in each class (Faber & Mairal 1999: 83-101). Thus, the dictionary definitions are broken down into two meaning components for each verb:

(1) a. The nuclear meaning
   b. The adverbial modification

3 For an updated account of the LCM, we refer the interested reader to the LEXICOM research webpage: http://www.lexicom.es/.
The nuclear meaning (genus, definiens or structural component in other approaches) is the generic or superordinate item in which all term members of the lexical class are directly or indirectly defined. The adverbial modification (differentia or idiosyncratic component for other theories) is indicative of the semantic, pragmatic and/or register parameters that help to distinguish the verbs from each other within the same class. Following this type of semantic factorization, the sub-domain of verbs expressing anger in Spanish is organized as follows:

<table>
<thead>
<tr>
<th>Causar enfado</th>
</tr>
</thead>
<tbody>
<tr>
<td>('to cause anger')</td>
</tr>
</tbody>
</table>

1. **Enfadar**: causar en alguien un estado de enfado
   ('anger: cause in sb a state of anger')
   
   1.1. **Enojar**: enfadar a alguien, causándole enojo (formal)
       ('anger: anger to-acc sb, causing-him/her anger')

   1.2. **Enfurruñar**: enfadar a alguien suavemente o por mimo (informal)
       ('cause sb to sulk: anger to-acc sb gently or because of too much care')

   1.3. **Molestar**: enfadar a alguien ligeramente, causándole inquietud del ánimo
       ('annoy: anger to-acc sb a little, causing-him/her to be restless')
       
       1.3.1 **Pinchar**: molestar a alguien repetidamente con la intención de que se enfade
           ('needle: annoy to-acc sb repeatedly so that s/he gets angry')
       
       1.3.2 **Incomodar**: molestar a alguien, causándole incomodidad
           ('bother: annoy to-acc sb, causing-him/her to feel uncomfortable')

   1.4. **Disgustar**: enfadar a alguien, causándole disgusto o pesadumbre
       ('upset /displease: anger to-acc sb, causing-him/her annoyance or sorrow')
       
       1.4.1 **Contrariar**: disgustar a alguien, causándole contrariedad o dificultades
           ('vex: upset to-acc sb, causing-him/her vexation or difficulty')
       
       1.4.2 **Desazonar**: disgustar a alguien, causándole desazón
           ('disturb: upset to-acc sb, causing-him/her uneasiness')

   1.5. **Enemistar**: enfadar a alguien, haciendo que deje de ser su amigo
       ('antagonize: anger to-acc sb, causing their friendship to break off')

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4 Since we want to maintain the lexico-semantic and pragmatic parameters that define this Spanish sub-domain, the glosses translate each definition into English more or less literally in Table 1 as well as in the examples used. If the equivalent English verbs were provided, those parameters would be lost.
1.6. **Fastidiar**: enfadar a alguien, causándole fastidio o hastío
('irk: anger to-acc sb, causing-him/her nuisance or disgust')

1.6.1 **Reventar**: fastidiar mucho a alguien con la intención de que se enfade (colloquial)
('rile: irk a lot to-acc sb, so that s/he gets angry')

1.7. **Ofenderse**: enfadarse por sentirse insultado o despreciado
('take offense: get angry because one feels insulted or despised')

1.8. **Mosquear**: enfadar a alguien repentinamente y por poco tiempo (colloquial)
('bug: anger to-acc sb suddenly and for a short time')

1.9. **Cabrear**: enfadar a alguien, causándole cabreo (colloquial)
('piss off: anger to-acc sb, causing-him/her to be pissed off')

1.10. **Descomponer**: enfadar a alguien, haciéndole perder la serenidad
('disturb: anger to-acc sb, making-him/her lose their composure')

1.11. **Enrabietar/enrabiar**: enfadar mucho a alguien por motivo leve y durante poco tiempo
('nettle: anger a lot to-acc sb for no reason and for a short time')

1.12. **Irritar**: enfadar a alguien, haciéndole sentir ira
('irritate: anger to-acc sb, making-him/her feel irritated')

1.12.1 **Provocar**: irritar a alguien con palabras u obras para que se enfade
('provoke: irritate to-acc sb with words or deeds so that s/he gets angry')

1.13. **Exasperar**: enfadar mucho a alguien, haciéndole perder la paciencia y el aguante
('exasperate: anger a lot to-acc sb, making-him/her become impatient')

1.14. **Indignar**: enfadar mucho a alguien, causándole indignación
('incense: anger a lot to-acc sb, causing-him/her indignation')

1.14.1 **Escandalizarse**: indignarse, mostrándose horrorizado
('get outraged: get incensed, looking shocked')

1.15. **Enfurecer**: enfadar a alguien intensamente, provocándole furia
('infuriate: anger to-acc sb intensely, causing-him/her fury')

1.15.1 **Sulfurar**: enfurecer mucho (colloquial)
('infuriate very much')

1.16. **Encolerizar**: enfadar a alguien intensamente, poniéndole colérico
('enrage: anger to-acc sb intensely, causing-him/her to be choleric')

1.16.1 **Encorajinar**: encolerizar a alguien, provocándole rabia
('enrage to-acc sb, causing-him/her to be in a rage')

Table 1. Paradigmatic organization of the Spanish anger-verbs
Hyponymy is the semantic relationship that percolates down through the verb class of Table 1 above. The nuclear meaning of the sub-domain is lexicalized in *enfadar* ‘anger’, since all the verbs are its direct or indirect hyponyms. On the other hand, parameters such as manner, instrument, purpose, reason, time, degree and register encode a different type of specification of the more generic term *enfadar* ‘anger’, resulting in the rest of hyponyms. For example, (1.3) *molestar* ‘annoy’ gives content to degree -*ligeramente* ‘a little’-, whereas (1.3.1) *pinchar* ‘needle’ instantiates manner -*repetidamente* ‘repeatedly’- and purpose -*con la intención de que se enfade* ‘so that someone gets angry’. It is precisely this idiosyncratic component that we employ to distinguish each of the verbs that belongs to this class, constituting the basis for the internal variables of the lexical templates analyzed in section 2.2.2.

3. Lexical templates for the Spanish verbs of anger

3.1. Lexical templates: a further elaboration of RRG logical structures

The term lexical template (henceforth LT) is used here to refer to the formalized construct that functions as a metaentry, containing the core meaning and the syntactic information relevant for the verbs of a lexical class or sub-domain.

The RRG logical structures (LSs) are the starting point of the L Ts developed by the LCM. However, whereas LSs only capture those features that have a direct role in the mapping into syntax, the LCM incorporates an enriched semantic component by using all world-knowledge elements previously identified by the FLM; as a result, a complete domain of verbs is certainly defined (cf. Table 1). As this new semantic component includes relevant aspects of word meaning, LTs become methodologically closer to CxG semantic frames (Mairal & Faber 2007: 141). Furthermore, since LCM templates are set out to be universally and typologically valid -unlike frames-, they employ a metalanguage based on semantic primitives, lexical functions and *Aktionsart* distinctions. With this in mind, LCM templates are made up of the following modules or components:

(2)  

<pragmatic information> [semantic representation] + [syntactic representation]

The syntactic component, on the one hand, is realized by means of the LSs proposed in RRG and the predicate classes identified there: states, activities, achieve-
ments, semelfactives, accomplishments, active accomplishments, and their corresponding causative versions (Van Valin 2005: 45). The semantic component, on the other hand, is encoded by means of semantic primitives and lexical functions. The former correspond to the superordinate verbal predicates previously identified by the FLM through extensive factorization of meaning definitions in each lexical domain:

<table>
<thead>
<tr>
<th>Lexical domain</th>
<th>Nuclear term</th>
</tr>
</thead>
<tbody>
<tr>
<td>existence</td>
<td>be / happen/ exist</td>
</tr>
<tr>
<td>change</td>
<td>become</td>
</tr>
<tr>
<td>possession</td>
<td>have</td>
</tr>
<tr>
<td>speech</td>
<td>say</td>
</tr>
<tr>
<td>emotion</td>
<td>feel / anger / fear</td>
</tr>
<tr>
<td>action</td>
<td>do, make</td>
</tr>
<tr>
<td>cognition</td>
<td>know, think</td>
</tr>
<tr>
<td>movement</td>
<td>move (go / come)</td>
</tr>
<tr>
<td>physical perception</td>
<td>see / hear / taste / smell / touch</td>
</tr>
<tr>
<td>manipulation</td>
<td>use</td>
</tr>
</tbody>
</table>

Table 2. FLM lexical domains and nuclear terms
(adapted from Mairal & Faber 2007: 144)

Interestingly enough, the FLM nuclear terms coincide, to a great extent, with Wierzbicka’s inventory of primitives identified in the Natural Semantic Metalanguage framework (NSM; Wierzbicka 1996, 1999; Goddard y Wierzbicka 2002, 2005, 2007), which has been shown to be valid for over a hundred languages. The semantic primitives identified so far in the NSM are presented in Table 3 (in next page).

It is worth mentioning that all predicates used in the syntactic module of the LCM templates, unlike the ‘canonical’ RRG LSs, have been taken from the FLM’s inventory of nuclear terms (cf. Table 2) or from the NSM’s list of semantic primes above. Besides, since primes are language-neutral in the NSM, Spanish predicates have been employed in the elaboration of the LTs for the Spanish verbs of anger. For the NSM theory, “any natural language is adequate as its own semantic metalanguage” (Goddard 2002: 5). Thus, the hypothesis is that the set of irreducible semantic primes identified for English must have exponents not only in Spanish, as illustrated in Table 3, but in almost all the languages one sets up to study. It
<table>
<thead>
<tr>
<th>Grammatical category</th>
<th>NSM semantic primes</th>
<th>Spanish exponents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantives</td>
<td>I, YOU, SOMEONE/PERSON, PEOPLE, SOMETHING/THING, BODY</td>
<td>YO, TÚ, ALGUIEN/Persona, GENTE, ALGO/COSA, CUERPO</td>
</tr>
<tr>
<td>Determiners</td>
<td>THIS, THE SAME, OTHER/ELSE</td>
<td>ESTO, LO MISMO, OTRO</td>
</tr>
<tr>
<td>Quantifiers</td>
<td>ONE, TWO, SOME, ALL, MANY/MUCH</td>
<td>UNO, DOS, ALGUNOS, TODO, MUCH</td>
</tr>
<tr>
<td>Evaluator</td>
<td>GOOD, BAD</td>
<td>BUENO, MALO</td>
</tr>
<tr>
<td>Descriptors</td>
<td>BIG, SMALL</td>
<td>GRANDE, PEQUEÑO</td>
</tr>
<tr>
<td>Augmentor, intensifier</td>
<td>VERY, MORE</td>
<td>MUY, MÁS</td>
</tr>
<tr>
<td>Mental predicates</td>
<td>THINK, KNOW, WANT, FEEL, SEE, HEAR</td>
<td>PENSAR, SABER, QUERER, SENTIR, VER, OÍR</td>
</tr>
<tr>
<td>Speech</td>
<td>SAY, WORDS, TRUE</td>
<td>DECIR, PALABRAS, VERDAD</td>
</tr>
<tr>
<td>Actions, events, movement, contact</td>
<td>DO, HAPPEN, MOVE, TOUCH</td>
<td>HACER, PASAR, MOVERSE, TOCAR</td>
</tr>
<tr>
<td>Location, existence, possession, specification</td>
<td>BE (SOMEBWHERE), THERE IS/EXIST, HAVE, BE</td>
<td>ESTAR, HAY, TENER, SER</td>
</tr>
<tr>
<td>Life and death</td>
<td>LIVE, DIE</td>
<td>VIVIR, MORIR</td>
</tr>
<tr>
<td>Time</td>
<td>WHEN/TIEMPO, NOW, BEFORE, AFTER, A LONG TIME, A SHORT TIME, FOR SOME TIME, MOMENT</td>
<td>CUÁNDO/TIEMPO, AHORA, ANTES, DESPUÉS, MUCHO TIEMPO, POR UN TIEMPO, MOMENTO</td>
</tr>
<tr>
<td>Space</td>
<td>WHERE/SITIO, HERE, ABOVE, BELOW; FAR, NEAR; SIDE, INSIDE</td>
<td>DÓNDE/SITIO, AQUÍ, ARRIBA, DEBAJO; CERCA, LEJOS; LADO, DENTRO</td>
</tr>
<tr>
<td>“Logical” concepts</td>
<td>NOT, MAYBE, CAN, BECAUSE, IF</td>
<td>NO, TAL VEZ, PODER, PORQUE, SI</td>
</tr>
<tr>
<td>Relational substantives</td>
<td>KIND, PART</td>
<td>TIPO, PARTE</td>
</tr>
<tr>
<td>Similarity</td>
<td>LIKE</td>
<td>COMO</td>
</tr>
</tbody>
</table>

Table 3. NSM semantic primes (Goddard & Wierzbicka 2005)
does not mean, however, that semantic primes are expressed identically in all the world’s languages: exponents of primes may be single words, phrasemes or bound morphemes, depending on the language under consideration. They may even have different morphosyntactic properties and belong to different word-classes, as long as the prime conveys the same requisite meaning in each language (Goddard & Wierzbicka 2007: 800). The numerous NSM studies (cf. Goddard & Wierzbicka 2002) carried out in languages as different as Polish, Lao, Russian, or French, to name just a few, provide sufficient evidence that a language-neutral metalanguage is a valid tool to account for the lexico-semantic properties of predicates in maximum detail.

In the LCM, this core of semantic primitives is in turn combined with the operators or lexical functions proposed by Mel’cuk (1989) and his colleagues (Alonso Ramos 2002) in Meaning and Text Theory (MTT) to explain the lexical collocations of a language:

(3) a. Magn (easy) = as pie, as a piece of cake (Mel’cuk 1989: 75)
    b. Magn (contrast) = sharp; vivid

In MTT, English collocations such as those of (3) are captured by means of the application of the lexical function “Magn”, which expresses intensification, to its arguments –easy or contrast–, which yields a high set of values, namely, the same collocations –as pie or sharp. In the LCM, however, these lexical functions are employed paradigmatically to combine semantic primes and so differentiate one predicate from others within the same domain. Besides, new functions have been added in order to account for the characteristics of the verbs under analysis, as illustrated in Table 4. Hence, within the LCM framework, the MTT lexical functions have been renamed as semantic functions.

<table>
<thead>
<tr>
<th>Semantic function</th>
<th>MTT lexical functions (with their application adapted to paradigmatic structure)</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>anti</td>
<td>Antonym/negation</td>
<td></td>
</tr>
<tr>
<td>caus</td>
<td>Cause</td>
<td></td>
</tr>
<tr>
<td>cont</td>
<td>Continuity/duration</td>
<td></td>
</tr>
</tbody>
</table>
3.2. The elaboration of lexical templates for the Spanish verbs of anger

As observed in Table 1, the Spanish sub-domain of anger verbs groups twenty-six predicates, each of which lexicalizes the way in which anger is conceptualized. Then, it is crucial to find out a robust means of lexico-semantic representation that allows us to capture all the pragmatic, semantic and syntactic subtleties of this rich subclass. However, to the best of our knowledge, no such representations have been provided.

Most of the literature on psychological verbs has been concerned with the inverse linking of the arguments of these predicates or with their different aspectual structure (Belleti & Rizzi 1987; Grimshaw 1990; Pesetsky 1990; Pustejovsky 1992). Therefore, the lexical representations proposed by these studies only contain syntactically relevant information (cf. Jiménez Briones 2004: 124).

In functional theories like RRG, the lexico-semantic representations for feeling predicates do not add much to the picture, since their LSs, among other shortcomings, reveal an undesirable circularity in the use of their “alleged” primitives:
Unlike the theories above, the LCM conceives verbal meaning as an enhanced representation made up of a pragmatic, a semantic and a syntactic component which makes use of a metalanguage based on an inventory of primes, semantic functions and Aktionsart distinctions: the lexical template. This format reduces circularity and gives templates a typological dimension that is impossible with language-specific representations.

The specific LCM templates for the definitions previously introduced in Table 1 are presented in great detail in the next three sub-sections. As a generalization to all LCM templates, the reader must bear in mind that two types of variables are employed to differentiate the syntactic and the semantic modules that make up each template: internal variables and external variables. The former are signaled with Arabic numerals (1, 2, 3) and appear as subscripts of the semantic functions they are arguments of, whereas the latter are marked in Roman letters (x, y, z) and will always be mapped into syntax. The default linking between external and internal variables is x = 1, y = 2, and z = 3, although it can be specified if necessary. Let us now analyze the particular features of the syntactic, semantic and pragmatic components of the lexical templates for the Spanish verbs of anger.

3.2.1. The syntactic module

The syntactic component of the verbs under study is a causative accomplishment LS, which codifies two sub-events: the first sub-event carried out by \(x\) ([\(\text{do}' (x, \emptyset)\)]) causes the second sub-event or the change of state of anger in \(y\) (CAUSE [BECOME feel' (y, [anger'])]):

\[
([\text{do}' (x, \emptyset)] \text{CAUSE [BECOME sentir'} (y, [enfado'])])\]

(5)

a. \textit{Mary surprised Sally}: \([\text{do}' (\text{Mary}, \emptyset)] \text{CAUSE [INGR surprised'} (\text{Sally})]\)

(Van Valin & LaPolla 1997: 290)

b. \textit{love}:

\textsc{love}' (x, y)

(Van Valin 2005: 55)

c. \textit{The dog scared the boy}:

\([\text{do}' (\text{dog}, \emptyset)] \text{CAUSE [feel'} (\text{boy}, [\text{afraid'}])]\)

(Van Valin 2005: 47)
As detailed in section 3.1, the syntactic module of LCM templates, unlike LSs, employs predicates drawn from the FLM’s inventory of nuclear terms (cf. Table 2) or from the NSM’s list of semantic primes (cf. Table 3). Furthermore, since each language is described on its own in the NSM, without imposing the categories of the linguist’s native language, usually English, Spanish predicates have been used in the LTs of the Spanish verbs of anger. On the grounds of typological analysis, the LCM is thus able to solve the two major drawbacks of RRG structures: the delimitation of the decompositional chains and the usage of English as the only language of lexical representation (Ruiz de Mendoza & Mairal 2007a: 30; Ruiz de Mendoza & Mairal, 2007b).

The RRG LS of (5) is inherited by all the hyponyms of enfadar ‘anger’, so it is not included again in the LTs, unless specified differently, like in (1.7) ofenderse ‘take offense’ and (1.14.1) escandalizarse ‘get outraged’, which exhibit the following LS:

(6) \[\text{BECOME}\ \text{sentir}\ (x, [\text{enfado}'])\]

The Spanish predicate ofenderse ‘take offense’ and escandalizarse ‘get outraged’ are semantically related to the feeling of anger when used as accomplishments only. According to the Spanish dictionaries consulted for this study, the causative accomplishments related to these verbs, that is, ofender ‘cause offense’ and escandalizar ‘outrage’, are closer to causing someone to lose respect and to causing a shock, respectively, rather than to causing anger. Therefore, they are included in this sub-domain with their accomplishment LS, instead of the ‘canonical’ LS in (5).

Neither does the Spanish predicate (1.5) enemistar ‘antagonize’ fully inherit the causative accomplishment LS of (5), as presented below:

(7) \[\text{(do} (x, \emptyset)] \text{CAUSE [BECOME}\ \text{sentir}\ (y, [\text{enfado'} (z)])\]

Although the LS in (7) is also a causative accomplishment, there is a third external variable not present in the other LSs: z. This is due to the fact that enemistar ‘antagonize’ is a reciprocal verb that implies the existence of at least two participants that get angry with each other (8b), as the anomaly of (8c) and (8c’) makes explicit:5

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5 We are aware that reciprocal verbs are represented differently in RRG (cf. Van Valin
(8) a. *Tus palabras enemistaron a mis amigos*
   your words antagonized to ACC my friends
   ‘Your words antagonized my friends.’

b. *Your words caused my friends to get angry with each other*

b’. [do’ (your words, ∅)] CAUSE [BECOME feel’ (my friends, [anger’ (my friends)]]

c. *#Your words caused my friends to get angry*

c’. [do’ (your words, ∅)] CAUSE [BECOME feel’ (my friends, [anger’ (?)]]

3.2.2. The semantic module

The syntactic component is in turn modified by the appropriate semantic functions in the semantic module, as well as by the pragmatic properties of each verb in the pragmatic component; in other words, these idiosyncratic semantic and pragmatic features that the FLM framework captures as adverbial modification.

In the case of the prototypical term *enfadar* ‘anger’, since the feeling of anger is considered a primitive within the domain of emotions (Wierzbicka 1999: 36), along with fear-like, shame-like, love-like, smile, cry, hunger, thirst, and pain, the corresponding LT coincides with the LS in RRG terms (cf. (5)). Other less prototypical verbs, however, need to capture how the change of state is brought about, which is neatly done in the semantic part of the template by means of the combination of a number of semantic functions and their appropriate arguments.

LCM semantic functions are understood based on the MTT definitions, i.e. as logical or mathematical operations on arguments or features which yield a value (cf. (3)). In the LCM, the value corresponds to the definition of the verb under study, being our aim to find out which combination of functions and features is responsible for that value.

As far as functions are concerned, their nature will determine the number of arguments they select. Hence, unary functions like minus, anti, culm, magn, cont,
and plus in Table 4, require one argument only; binary functions like manner, result, sympt, because, purp, instr, and manif select two arguments. Arguments may appear as subscripts of the function that operates on them and/or at the same level of the function they are related to. For instance, in the semantic module of (1.3) molestar ‘annoy’, a unary function and two binary functions are present. This is illustrated in (9).

(9) a. (1.3) **Molestar**: enfadar a alguien ligeramente, causándole inquietud del ánimo
    ('annoy: anger to-ACC sb a little, causing-him/her to be restless')

    b. [MINUSEnfadar & RESULT₂ SYMPT₂ inquietud] \[\{do' (x, Ø)\}] CAUSE \{BECOME sentir' (y, [enfado'])\]  

In this representation, **minus** is a unary function that expresses less of something, so it takes scope over one argument only: the hypernym enfadar ‘anger’. **result**, on the other hand, is a binary function –i.e. something results in someone/something or because of someone/something else-, so in (9b) the subscript 2 is interpreted as one of its arguments and what comes afterwards –sympt₂ inquietud– as its second argument. Likewise, **sympt** is a binary function –someone develops the symptoms of a physical or mental illness– that operates on two arguments: the subscript 2 and the symptom or feeling of inquietud ‘restlessness’. Since these subscripts are the internal variables which, by default, are bound to the second participant of the event, the complete lexical template of (9b) indicates that in molestar ‘annoy’ the first participant \(x\) does something that causes in the second participant \(y\) to become less angry, with the result in \(y\) of a symptom of restlessness.

Notice that the semantic functions result and sympt account for most of the Spanish verbs of anger defined in Table 1, in a consistent and elegant fashion, as captured below.

(10) a. 1.1 **Enojar**: \(<\text{fml}>\) [enfadar & RESULT₂ SYMPT₂ enojo]

    b. 1.3.2 **Incomodar**: [molestar & RESULT₂ SYMPT₂ incomodidad]

    c. 1.4 **Disgustar**: [enfadar & RESULT₂ SYMPT₂ disgusto/pesadumbre]
d. 1.4.1 Contrariar: [disgustar & RESULT₂ SYMPT₂ contrariedad/dificultad]
e. 1.4.2 Desazonar: [disgustar & RESULT₂ SYMPT₂ desazón]
f. 1.6 Fastidiar: [enfadar & RESULT₂ SYMPT₂ fastidio/hastío]
g. 1.9 Cabrear: <col> [enfadar & RESULT₂ SYMPT₂ cabreo]
h. 1.12 Irritar: [enfadar & RESULT₂ SYMPT₂ ira]
i. 1.16.1 Encorajinar: [encolerizar & RESULT₂ SYMPT₂ rabia]


In other predicates, the semantic function SYMPT can serve as the argument of ANTI, a unary function that negates it. In other words, the combination of SYMPT and ANTI is used to express that a friendship relationship has ended—as in (1.5) enemistar ‘antagonize’—or that composure and patience have been lost—as in (1.10) descomponer ‘disturb’, and (1.13) exasperar ‘exasperate’.

Another unary function like MAGN may take the hypernym of the class enfadar ‘anger’ as its argument and thus define notions such as: (1.11) enrabietar/enrabiar ‘nettle’, (1.13) exasperar ‘exasperate’ and (1.14) indignar ‘incense’, each of one encoding a higher degree of anger. Furthermore, the function PLUS can operate on MAGN-enfadador to express the highest degree of anger in this class, as it is lexicalized in Spanish in (1.15) enfurecer ‘infuriate’, (1.15.1) sufurar ‘infuriate very much’, and (1.16) encolerizar ‘enrage’.

As illustrated below, semantic functions like MANNER, BECAUSE, PURP, CULM, CONT, INSTR, and MANIF are also helpful to further delineate the rest of the predicates in the class under study:

(11)a. 1.2 Enfurruñar: [MINUS enfadar & BECAUSE₂ SYMPT₂ mimo]
b. 1.6.1 Reventar: <col> [MAGNfastidiar & PURP₁ CULMSYMPT₂ enfado]

c. 1.7 Ofenderse: [BECAUSE₁ SYMPT₁ insulto/desprecio] [BECOMEsentir‘ (x, [enfado’])]

d. 1.8 Mosquear: <col> [enfadar & MANNER₂ repentino & MINUSCONTI tiempo]

e. 1.12.1 Provocar: [irritar & INSTR₁ decir/hacer & PURP₁ CULMSYMPT₂ enfado]

f. 1.14.1 Escandalizarse: [CULMinignar & MANIF₁ SYMPT₁ horror/escándalo] [BECOME sentir’ (x, [enfado’])]

Example (11a) inherits the LS of its hypernym –(5)–, which is then modified by the semantic component coded in brackets. This semantic part, MINUSEnfar & BECAUSE₂ SYMPT₂ mimo, has the following interpretation: enfurruñar ‘cause sb to sulk’, used in an informal register, means to anger somebody a little because the second participant has the symptom of (= feels) too much care.

In the same way as in (11a), the templates of (11b), (11d), and (11e) inherit the causative accomplishment structure and show a semantic description of the idiosyncratic properties of each verb. In (11b), the semantic part is interpreted as follows: reventar ‘rile’, a predicate used colloquially, is fastidiar ‘irk’ to a higher degree (MAGNfastidiar), with the purpose of the first participant (PURP₁) of making the second one reach the highest point of anger (CULMSYMPT₂ anger). This formalization neatly mirrors the dictionary definitions of this verb as presented in Table 1: (1.6.1) ‘Reventar: fastidiar mucho a alguien con la intención de que se enfade (‘rile: irk somebody a lot so that they get angry’). In (11d), the second participant is suddenly angered (MANNER₂ repentino) for a short time (MINUSCONTI tiempo), whereas in (11e) the irritation of 2 is carried out by the first participant, who says and does something (INSTR₁ say/do) with the purpose of making the second participant reach the highest point of anger (CULMSYMPT₂ anger).

As pointed out in section 2.2.1, both (11c) and (11f) contain an accomplishment LS in this sub-domain. In (11c), this syntactic structure is modified with a semantic representation of the following type: [BECAUSE₁ SYMPT₁ insulto/desprecio]. This indicates that the participant involved in the accomplishment gets angry because s/he feels insulted or despised. In (11f), the only participant gets incensed (CULMinignar) and that anger can be seen because s/he looks shocked (MANIF₁ SYMPT₁ horror/escándalo).
As formalized in the examples (9), (10) and (11), the kinds of arguments that a function can operate on are the following:

(12) a. Function + hypernym:
(1.14) \textit{Indignar: enfadar mucho a alguien} (...) \Rightarrow [\textsc{Magnenfadar}]
\hspace{1cm} (’incense: anger a lot to-acc sb (...))

b. Function + internal variable:
(1.14) \textit{Indignar: (...) causándole} (...) \Rightarrow [\textsc{Result}_2]
\hspace{1cm} (’incense: (...) causing-him/her (...))

c. Function + function:
(1.14) \textit{Indignar: (...) causándole indignación} \Rightarrow [\textsc{Result}_2,\textsc{Sympt}_2,\textit{indignación}]
\hspace{1cm} (’incense: (...) causing-him/her indignation)

d. Function + prime:
(1.12.1) \textit{Provocar: irritar a alguien con palabras u obras} (...) \Rightarrow [\textsc{irritar} \& \textsc{Instr}_1 \text{decir/hacer}]
\hspace{1cm} (’provoke: irritate to-acc sb with words or deeds (...))

e. Function + natural language word:
[\textsc{Sympt}_2,\textit{indignación}]

A word is needed for (12e). Since defining all the predicates of a language with only sixty-five primes in such a concise format as the LT would be highly unlikely, the LCM contemplates using natural language words in its representations. Such words would be stored in an ontology of nouns and adjectives, and retrieved whenever a kind/type of symptom, manner, place, etc., is specified. These non-primitive elements would eventually be defined in terms of the primes already employed in LTs.

In the semantic module, the inheritance system of semantic information is also captured. As specified in the examples above, templates make use of the ampersand symbol —’&’, which is a connective meaning ‘and’— followed by the immediate hyperonym to show that hyponyms inherit the properties of their superordinate terms. This unified format allows us to build up LTs that are simpler and easier to read, since we do not have to repeat the previous semantic information already given for the hypernym.
Before explaining the last component of templates, viz. the pragmatic module, let us summarize the LCM templates previously explained in sections 2.2.1 and 2.2.2. Table 5 below accounts for them.

<table>
<thead>
<tr>
<th>Causar enfado ('to cause anger')</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enfadar [(do’ (x, Ø)] CAUSE [BECOME sentir’ (y, [enfado'])]</td>
</tr>
<tr>
<td>1.1 Enojar</td>
</tr>
<tr>
<td>1.2 Enfurruñar</td>
</tr>
<tr>
<td>1.3 Molestar</td>
</tr>
<tr>
<td>1.3.1 Pinchar</td>
</tr>
<tr>
<td>1.3.2 Incomodar</td>
</tr>
<tr>
<td>1.4 Disgustar</td>
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<tr>
<td>1.4.1 Contrariar</td>
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<tr>
<td>1.4.2 Desazonar</td>
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<tr>
<td>1.5 Enemistar</td>
</tr>
<tr>
<td>1.6 Fastidiar</td>
</tr>
<tr>
<td>1.6.1 Reventar</td>
</tr>
<tr>
<td>1.7 Ofenderse</td>
</tr>
<tr>
<td>1.8 Mosquear</td>
</tr>
<tr>
<td>1.9 Cabrear</td>
</tr>
</tbody>
</table>
1.10 **Descomponer**  
[enfadar & RESULT₂ ANTI SYMPT₂ serenidad]

1.11 **Enrabietar/enrabiar**  
[MAGNenfadar & BECAUSE₂ motovoleve & MINUSCONE NTtiempo]

1.12 **Irritar**  
[enfadar & RESULT₂ SYMPT₂ ira]

1.12.1 **Provocar**  
[irritar & INSTR₁ decir/hacer & PURP₁ CULMSYMPT₂ enfado]

1.13 **Exasperar**  
[MAGNenfadar & RESULT₂ ANTI SYMPT₂ paciencia/ aguante]

1.14 **Indignar**  
[MAGNenfadar & RESULT₂ SYMPT₂ indignación]

1.14.1 **Escandalizarse**  
[CULMindignar & MANIF₁ SYMPT₁ horror/ escándalo] [BECOME sentir'(x, [enfado'])]

1.15 **Enfurecer**  
[PLUSMAGNenfadar & RESULT₂ SYMPT₂ furia]

1.15.1 **Sulfurar**  
<col> [PLUSMAGNenfurecer]

1.16 **Encolerizar**  
[PLUSMAGNenfadar & RESULT₂ SYMPT₂ cólera]

1.16.1 **Encorajinar**  
[encolerizar & RESULT₂ SYMPT₂ rabia]

Table 5. Organization of the LCM templates in the Spanish sub-domain of anger-verbs

3.2.3. The pragmatic module

The pragmatic component of a template codifies pragmatic and/or register features that also contribute towards the differentiation of the verbs within the same class. This information is written between angled brackets and placed at the beginning of the template. Following Martín Mingorance (1998: 96-97), the pragmatic module may include features related to these three functions:

(13) a. the informative function: it is the type of discourse a word appears in (legal, religious, etc.)
b. the psychological function: the connotation of a word (ironic, pejorative, and so on and so forth)

c. the social function: it is related to differences concerning socio-cultural features like the formality of the word, its geographical use, etc.

Within the sub-domain of the Spanish verbs of anger, the register features identified are *formality* (<fml>), *informality* (<infml>) and *colloquialism* (<col>). They play a role when differentiating predicates like *enojar* ‘formal anger’, *enfurruñar* ‘cause sb to sulk’, *reventar* ‘rile’, *mosquear* ‘bug’, *cabrerar* ‘piss off’ and *sulfurar* ‘infuriate very much’, which their templates reflect accordingly in (10a), (11a), (11b), (11d) and (10g).

4. Conclusion

This paper has put forth the possibility of bringing together the best of the projectionist and the constructionist worlds by means of the LCM and its notion of lexical template. As exemplified in the lexical class of Spanish anger verbs, LTs contain syntactic specifications (external variables) as well as world-knowledge elements (internal variables), thus providing the explicit connection between syntax and semantics. Since the two modules employ a similar formalism -primes, semantic functions and Aktionsart distinctions-, the connection between them is straightforward. Furthermore, since constructional templates, with which LTs fuse to arrive at the full semantic interpretation of an expression, make use also of the same neat and precise metalanguage, then the interrelation between the two is complete.

This paper has also suggested that the three components of LCM templates, viz., the syntactic, semantic and pragmatic modules, enable us to systematically express the subtleties of each of the verbs that make up the anger sub-domain in Spanish. As opposed to ‘plain’ RRG structures, these enriched lexico-semantic representations have already come to be crucial in the mapping into syntax, allowing or banning the occurrence of certain psychological verbs in syntactic patterns like the middle construction (cf. Jiménez Briones 2006: 415). We will leave for further research the role of the templates analyzed here in the relationship between lexical and constructional meaning within the Spanish domain of anger.
References


