A CLASSIFICATION OF SPANISH PSYCHOLOGICAL VERBS

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1. INTRODUCTION

The present paper is presented within the context of the research currently being carried out within the field of Computational Lexicography at the University of Barcelona - Linguistics Department - in collaboration with the University of Maryland - Computer Science Department - and provisionally called PIRAPIDES. The research deals with the study of verbal diathesis, subcategorization frames, θ-grids and the definition of a typology of θ-roles apt for the description of the argumental structure.

The result is intended to be a lexical Knowledge Base from which lexicons can be derived both for natural language processing systems as well as for the creation of monolingual/bilingual dictionaries.

In this paper we are going to deal with the semantic class of the so called psychological verbs, as defined in Levin 1995. Our starting point will be the classification of English psych-verbs provided by Levin and from there we will see how these verbs behave syntactically in Spanish, their classification in Spanish and how they correspond to their English counterparts.

The present paper represents a work in progress and therefore is neither definitive nor complete. In the future we are going to compare the subcategorization schemes, the diathesis that this semantic group presents and the θ-grids between the English entries and the Spanish correspondences.

All suggestions and hints with regard to the development of the present paper are welcome.

1.1 What we consider psychological verbs

We are going to consider as verbs belonging to this class i.e., psychological verbs, those that:

a) cause or provoke a <u>change or transition</u> from a mental state to another mental state. In this group, we find verbs such as "*indignar*", "*alegrar*", "*contrariar*", et ecetera. We can paraphrase them as: "*causar indignación*", "*causar alegría*", "*causar contrariedad*". They cause a change from an initial mental state to one of joy, indignation and so on.

b) express the state after a mental process has taken place. This can be viewed as a result. The focus is not on the process but on the <u>mental state</u> achived by the Experiencer after the transition. In this sense, we can understand "*amar*" as the state achieved after a Cause provokes this feeling in the Experiencer. Other verbs found in this group are: "*apreciar*", "*aborrecer*", "*odiar*", et ectera.

This is quite an intuitive definition of the class and we do not attempt an exhaustive semantic one. Much discussion on the topic is found but at this point of the research we will not try to make a definite one.

1.2 Definition of the theta roles involved in the psych-verbs

There has been considerable discussion in the literature on this topic about the theta-grid and theta roles found in these verbs. One can find such diverse names as Theme, Goal, Experiencer, Perceived object, Stimulus, et cetera.

We are not going to offer our definite classification of the theta-grids/roles since we are still working on it and there is a lot of work still to be done. This will be an initial approach to the topic which incorporates our findings up to this point.

There is common agreement that in this class we find two argument verbs and that one of them is assigned the role "Experiencer". But much discussion arises about the role assigned to the other argument of these verbs. We consider that the two roles associated with the psych-verbs are Experiencer and Cause for all the Spanish verbs.

To define the theta-roles and the semantic primitives we have followed the classification provided in Gràcia (89), although at this point some differences can be found.

We understand as Experiencer the argument found in the initial state of things in which the action takes place. It does not have an active role, in the sense that it does not provoke a situation, and it is interior to the action, meaning it is the starting point of an action that starts and finishes within it. With Cause we consider the argument which is also found in the initial state of things but which is exterior. It plays an active role (although we have not considered the notion of control in Gracia's sense) and it is self-sufficient, it can act independently. We do not distinguish between the agency or non-agency of the Cause. Up to now it has been an irrelevant notion for our discussion, which is why we have decided that Cause and

Agent are not based on a [+*will* -*will*] distribution but rather that Cause is above - more general - than Agent, so that unless the [+ agency] feature is expressed we are talking about Causes.

2. CLASSIFICATIONS FOR THE ENGLISH PSYCH-VERBS

The first classification we take into account is that proposed by Levin (95) "Verbs of Psychological State", it corresponds to number 31 in her classification of English Verb Classes. Her starting point is that grammatical alternations or diathesis can be used to make semantic distinctions on the basis of syntactic behaviour.

For the grouping of this class, she refers to two theta-roles, those of Stimulus and Experiencer, which are neither described nor explained in the book. She does not consider thematic role descriptions rich enough for language analysis although they are sufficient for the purpose of classification of this semantic class.

According to Levin, there are four groups: the first two classes, 31.1 and 31.2, are transitive verbs and classes 31.3 and 31.4 are intransitive verbs that subcategorize a prepositional phrase - hereinafter PP -.

They all take two arguments that she calls the Stimulus and the Experiencer and she classifies them according to their syntactic function, that is to say the Experiencer or the Cause as the subject or the object of the sentence.

Group 31.1 takes the Stimulus as the subject and the Experiencer as the object of the sentence. She types them as the *Amuse verbs*. In group 31.2, the Experiencer functions as the subject and the Stimulus as the object and they are called *Admire verbs*. This class is further subdivided into positive and negative verbs (which does not affect their syntactic behaviour according to the alternations observed by Levin). Group 31.3 are the *Marvel verbs* and they take the Experiencer as the subject and the Stimulus/Object of emotion as the head of the PP. The last of these groups is 31.4, where we find the Stimulus acting as the subject and the Experiencer is expressed in the PP. They are called *Appeal verbs* and it is a rather small class since only five verbs are found to belong to it.

Amuse Verbs

subject	verb	object
Stimulus		Experiencer

1.a. the sunlight delights her
1.b. la luz del sol le encanta

Admire Verbs

subject	verb	object
Experiencer		Stimulus

2.a. I admire his honesty
2.b. *admiro su honestidad*

Marvel Verbs

subject	int. verb	pre. phrase
Experiencer		Stimulus

3.a. I don't mind about his tardiness
3.b. *no me importan sus retrasos*

Appeal Verbs

subject	int. verb	pre. phrase
Stimulus		Experiencer

4.a. something is niggling at her but she can't put her finger on it
4.b. *algo le inquieta pero no sabe qué es*

3. A CLASSIFICATION FOR THE SPANISH PSYCH-VERBS

3.1 Spanish Psych-verbs

Taking Levin's English classification as the starting point we have divided the Spanish verbs into the groups which follow, although they represent a provisional classification. At present, they are being studied with the idea of finding a coherent and comprensive way to express the particular cases that do not fit well in a classification such as the one proposed for English in this case.

GROUP I:	SUBJECT	TR. VERB	OBJECT
	CAUSE		*EXPERIENCER*

GROUP II.1:	SUBJECT	TR. VERB	OBJECT
	EXPERIENCER		*CAUSE*

GROUP II.2:	SUBJECT	INT. VERB	(PP)
		PRO. VERB	(PP)
	EXPERIENCER		*CAUSE*

In Levin's intransitive groups Cause seems to be compulsory. But in Spanish intransitive and pronominal verbs (group II.2) the Cause can be expressed in the PP. In both subgroups it is optional:

5.a. disfrutó como un enano toda la tarde
5.b. disfrutó con la actuación toda la tarde

3.2 A classification for Spanish psych-verbs

Our list of Spanish psych-verbs is based on the translation of those proposed by Levin for English, using bilingual dictionaries -Collins and Oxford- and the list provided by the University of Maryland. These sources were additionally expanded with a search of synonyms and antonyms using monolingual dictionaries.

3.2.1 Verbs that belong to group I:

This is the most numerous class in Spanish. The verbs found in this class are transitive verbs whose subject position is theta marked as Cause and whose object position is marked as Experiencer. In this group we find verbs such as abatir, escandalizar, ofuscar, etc... (see appendix 1)

6.a. su comportamiento le escandalizó

Most of the verbs that belong to this group present the alternancy Transitive/Pronominal (what is called in Spanish "voz media") and those that take this alternancy do not usually allow either the passive or the reflexive alternations. This could be explained by the fact that they must be considered not as pure transitive verbs - such as verbs in group II are - but rather as ergative/inchoative verbs, as demonstrated by Belletti and Rizzi (87), even though there are some contradictions to their

thesis.[1] Not all the verbs belonging to this group behave the same syntactically, even though they all have the subject marked as Cause.

6.a. *le tranquilizó su voz*
6.b. *se tranquilizó al oír su voz*
6.c. *? fue tranquilizado por su voz*

6.a. ** se pacificó (a sí mismo)*
6.b. *? fue pacificado por su madre*
6.c. *se pacificó de repente*

For this reason we propose a first subdivision of these groups depending on what kind of diatheses they take, eventhough we must remember that this syntactic alternations are not necessarily mutually exclusive:

a) the pronominal alternation such as afligir,   exasperar, enfermar, etc...
b) the passive alternation: insultar,   provocar, ultrajarse, etc...
c) the reciprocal/reflexive one such as gustar, desagradar, lastimar, etc...

3.2.2 Verbs that belong to group II:
We consider as verbs belonging to this group as those whose subject position is theta-marked as Experiencer. We are going to further subdivide the group in (1) transitive and (2) intransitive/pronominals.

      GROUP II: Experiencer   Cause

      II.1 Cause is compulsory (Transitive verbs).

      II.2 The expression of Cause is optional (Intransitive and pronominal verbs).

Semantically speaking, we consider this group as expressing the "resulting state" of a process. We further divide group II.1 - transitive verbs- into:

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[1] Some of the verbs belonging to this class allow the passive transformation, some allow the reflexive one and some of them do not allow the pronominal one when they supposedly should. We will deal with this problem when we do the Spanish alternancies in depth.

1. POSITIVE VERBS such as admirar, idolatrar, etc...

2. NEGATIVE VEBS such as aborrecer, odiar, etc... (see appendix 2)

The verbs that belong to this group present the <u>passive-alternation</u>. They also have the <u>reflexive and/or reciprocal</u> one with the exceptions of *lamentar, disfrutar y deplorar* (they all subcategorize complements with the semantic feature [- human]).[2]

7.a. *María ama a Pepe*
7.b. *María se ama* (a sí misma)
7.c. *María y Pepe se aman* (el uno al otro)

8.a. *la tragedia fue lamentada por todos*
8.b. *todos lamentaron la tragedia*
8.c. *se lamentó la tragedia* (impersonal)
8.d. *se lamenta de lo que dijo* (pronominal)

For group II.2, we have found verbs such as the following: disfrutar de, aburrirse de/con, admirarse de, etc... (see appendix 3)

All these verbs present a transitive equivalent construction and all but *admirarse* and *lamentar* (group II) when transitive belong to group I:

9.a. *les admira por su capacidad de concentración* (Gr. II.1)
9.b. *ella se admira de su capacidad de concentración*

10.a. *lamenta la actitud que han adoptado* (Gr. II.1)
10.b. *se lamenta de la actitud que han tomado*

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2 It is observed that *Reverenciar* allows the passive alternation but not the reflexive one.

Only the verbs *admirar/se* and *lamentar/se* present the pronimonal alternation. In these two verbs we can appreciate a slight difference in meaning when used as transitives or when used as pronominals (they can not be considered as the pure pronominal counterpart of the transitive verb found in group II). *Admirarse* is semantically more related to the meaning of sorprender (group I) than to *admirar*, in the same manner that *lamentarse* is semantically closer to *quejarse* than to *lamentar*. In both verbs - when used in their pronominal form - we can appreciate a value judgement; the attitude of the subject towards the thing that causes it is present.

With the preposition *en* we introduce the place where the action took place not the cause for its taking place. We find the preposition *en* introducing the Cause compliment only in the verbs *deleitarse con/en, recrearse con/en, regodearse en.*

In the constructions with <u>pronominal verbs</u> - group I and group II - the expression of the cause is optional. It is so since we are dealing with what is called the middle voice, a passivization of a transitive sentence. The Experiencer - internal argument of the transitive - becomes the external one and the verb case marks the clitic as its internal argument. This leaves the cause outside the argumental structure of the verb and therefore it is optional and theta-marked by the preposition and not by the verb. [3]

28.a. *se inquietó por su tardanza*
28.b. *se inquietó por la noche*
28.c. *se inquietó sin razón*
28.d. *se inquietó mucho*

4. GROUP EQUIVALENCES

In this section we are going to deal with how the English classes relate to the Spanish classes and the transfers of verbs from one group to another.

In order to clarify the exposition and comparison of classes and languages we are going to codify the English classes hereinafter as E-1 (class 31.1), E-2 (class 31.2), E-3 (class 31.3), E-4 (class 31.4).

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[3] The following exception in this class of verbs is worthy of mention:

29.a. *se sumió en una profunda tristeza*
29.b. * *se sumió profundamente*
29.c. * *se sumió por la mañana*

In the case of the verb *sumir,* the argumental structure requires a PP which expresses the final (mental) state achieved by the Experiencer, not the Cause of such a state (we could consider it as a *light verb* in Grimshaw's sense). In the majority of these verbs this final state is implicit in the verb, that is to say, the verb saturates it: *enfadar* implies to cause someone to change from a state of *no enfadado* towards one of *enfadado,* but *sumir* does not imply such a state; therefore it must be specified in the sentence. However, the Cause continues to be optional.

quivalences between the English and the Spanish classifications.

following tables detail the equivalences between English and
ish verb groups. The possible transfers from the English
ps to the Spanish ones (or vice versa) can be helpful for
ications such as information extraction systems, automatic
slation systems, multilingual information retrieval, etc...

e 1.1

ENGLISH GROUPS -----> SPANISH

GROUP E-1   ----->GROUP SP-I

GROUP E-2   ----->GROUP SP-II.1
                    ----->GROUP SP-I

GROUP E-3   ----->GROUP SP-II.2
                    ----->GROUP SP-II.1
                    ----->GROUP SP-I

GROUP E-4   ----->GROUP SP-I
                         GROUP SP-II

e 1.2

        SPANISH GROUPS   ----->ENGLISH

        GROUP SP-I   ----->GROUP E-1
                                 GROUP E-2
                                 GROUP E-3
                                 GROUP E-4

        GROUP SP-II.1   ----->GROUP E-2
                                 GROUP E-3

        GROUP SP-II.2   ----->GROUP E-2
                                 GROUP E-3
                                 GROUP E-4

above English verb groups are codified to represent the
lowing:

E-1: transitive verb (CAUSE, EXPERIENCER)

E-2: transitive verb (EXPERIENCER, CAUSE)

E-3: intransitive verb (EXPERIENCER, CAUSE)

E-4: intransitive verb (CAUSE, EXPERRIENCER)

and the Spanish ones:

SP-I: transitive verb (CAUSE, EXPERIENCER)

SP-II.1: transitive verb (EXPERIENCER, CAUSE)

SP-II.2: intransitive and pronominal verbs (EXPERIENCER)

At this point, we would like to point out that some of the sentences offered to exemplify the different considerations are extracted from real corpus (bilingual dictionaries) and therefore the translations or the equivalent sentences given are, under no circumstance, the possibility but rather the alternative which was found.

11.a. she loves cats   (E-2)
11.b. *le encantan los gatos*   (SP-I)

12.a. I sicken at his hypocrisy   (E-3)
12.b. *su falsedad me enferma* (americanismo)   (SP-I)
12.c. *su falsedad me pone enferma/da rabia*   (SP-I)

13.a. *no me importa tu opinión* (SP-1)
13.b. your opinion doesn't matter to me (E-4)
13.c. I don't care about your opinion (E-3)

14.a. something is niggling at me   (E-4)
14.b. *algo me inquieta*   (SP-1)

5. THE THETA-GRIDS

Grimshaw (90) considers the theta-grid for the psych-verbs as Experiencer and Theme (using notions related to aspect). Pustejovsky (88) also distinguishes between group I and II and defines them as semantically different. Verbs belonging to Group I are considered as involving a Mental State transition whereas those belonging to group II are a Mental state. The type of arguments involved in these two groups are also different. Group I selects a subject which is of EVENT type: it has a series of properties that account for its correct semantic interpretation. The object of this group is of the INDIVIDUAL type. Group II selects arguments that are INDIVIDUALS.

Jackendoff (72) defines Theme as a moving object or an object whose location is being determined. He extends the notion of location to an abstract location with respect to psych-verbs, where Theme is the source of the experimentation. In this regard he considers what we called Cause, Theme. Jackendoff (90) considers the theta-roles involved in a semantic relation as complex; they can be theta-marked by not only one element but also can receive theta-roles from various elements of the conceptual structure.

In Dorr (95), the theta-grids she assigns to English group E-1 are the following:

        _ag_exp,instr(with)[4]
        _perc(that)_exp
        _exp

English group E-2 presents the following possible theta-grids:

        _exp_perc, purp(for),instr(as)
        _exp_perc,mod_poss(in)
        _exp_perc(that)
        _exp_perc

English group E-3:

        _exp_perc(about)
        _exp_perc(at)
        _exp_perc(for)
        _exp_perc(from)
        _exp_perc(in)
        _exp_perc(on)
        _exp_perc(of)
        _exp_perc(over)
        _exp_perc(to)

English group E-4:

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[4] where _ stands for the compulsory arguments and , for the optional
ag is the agent argument
exp is the Experiencer argument
prop is an event or state
perc is a perceived argument
instr () is the instrument modifier with preposition
mod_poss() possessional modifier headed by a preposition

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_perc_exp(at)
_perc_exp(on)
_perc_exp(to)
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At present our proposal for the Spanish theta-grids that describe this semantic class is the following (it cannot be considered definitive since we must first make an exahustive study of the possible diatheses).

For Spanish group I:

_Cause_Exp

PRONOMINAL ALTERNANCY

_Exp,Cause(ante)

_Exp,Cause(con)

_Exp,Cause(contra)

_Exp,Cause(de)

_Exp,Cause(en)

_Exp,Cause(por)

PASSIVE ALTERNANCY

_Exp,Cause(por)

For Spanish group II.1 (transitive verbs)

_Exp_Cause

PASSIVE ALTERNANCY

_Exp,Cause(por)

Spanish group II.2   (intransitive verbs)

_Exp,Cause(ante)

_Exp,Cause(con)

_Exp,Cause(de)

_Exp,Cause(en)

_Exp,Cause(por)

(pronominal verbs)

_Exp,Cause(de)
_Exp,Cause(por)

APPENDIX 1

abatir, abochornar, abrumar, absorver, aburrir, acalorar, aclarar, acorbardar, acongojar, acosar, adormecer, adular, afectar, afligir, afrentar, agitar, agobiar, agotar, agradar, alarmar, alborozar, alegrar, alentar, alertar, alienar, aliviar, alterar, alumbrar, amedentrar, amenazar, amilanar, amotinar, angustirar, animar, apaciguar, apenar, aplacar, aplastar, apocar, apurar, aquietar, arrebatar, arrobar, arrollar, arrullar, asolar, asombrar, asquear, asurar, asustar, atacar, atemorizar, aterrar, aterrorizar, atormentar, atraer, aturdir, aturullar, avergonzar, avivar, azorar, burlar?, calmar, cansar, cautivar, chafar, chiflar, chocar, complacer, concernir, confortar, confundir, conmover, consolar, consternar, contentar, contrariar, convencer, cortar, dañar, dar asco, dar rabia, dar un nuevo ímpetu, dar una lección de humildad, decepcionar, defraudar, dejar alucinado, dejar atónito/helado dejar estupefacto/pasmado dejar helado/de una pieza dejar perplejo, dejar sin habla/atónito, deleitar, demoler, deprimir, derribar, desagradar, desalentar, desanimar, desarmar, desbaratar*, escomponer, desconcertar, desconcertar, desconfortar, descontentar, descorazonar, desestabilizar, deshonrar, desilusionar, deslumbrar, desmoralizar, desorientar, despertar, desquiciar, destruir, devastar, disgustar, distraer, disuadir, divertir, doler, echar por tierra, electrizar, elevar, embelesar, embriagar, embrollar, embrujar, emocionar, enajenar, encandilar, encantar, encolerizar, enemistar, enervar, enfadar, enfermar, enfriar, enfurecer, engañar, enloquecer, enojar, enredar, enternecer, entorpecer, entretener, entristecer, entusiasmar, envalentonar, equivocar, escandalizar, esclavizar, espantar, estar embelesado/extasiado, estimular, estremecer, exaltar, exasperar, excitar, extasiar, extrañar, fascinar, fastidiar, fatigar, fortalecer, frustar, fundir, galvanizar, , gustar, hacer daño, hacer gracia, hacer rabiar, halagar, hartar, hastiar, hechizar, helar, herir, hipnotizar, horrorizar, hostigar, humillar, iluminar, ilusionar, ilustrar, imponer respeto, impresionar, impulsar, incitar, incomodar, indignar, infundir, inquietar, insensibilizar, inspirar, insultar, interesar, intimidar, intoxicar, intranquilizar, intrigar,

inundar, irritar, lastimar, lisonjear, llenar de alegría,
llenar de júbilo, machacar, magnetizar, maleficiar, manipular,
maravillar, marcar, marear, martirizar, mistificar, mitigar,
moler, molestar, mortificar, nausar, nublar, obsesionar,
ofender, ofuscar, pacificar, pasmar, perseguir, persuadir,
perturbar, picar, placer, poner a prueba, poner nervioso,
preocupar, provocar, punzar, quebrantar, reanimar, rechazar,
reducir, refrescar, regocigar, relajar, remorder, repeler,
repugnar, repulsar, revitalizar, revivificar, revolver, sacar de
quicio, sacudir, satisfacer, seducir, ser un golpe, serenar,
sobresaltar, sojuzgar, solazar, soportar, sorprender, sosegar,
suavizar, sublevar, sufrir, tentar, tranquilizar, transtornar,
triturar, turbar, ultrajar, vacilar, vejar, vencer, vigorizar,
violar, vivificar, zaherir.

APPENDIX 2

1. POSITIVE VERBS: *admirar, adorar, agraciar, amar, anhelar,
apoyar, apreciar, atesorar, considerar, divertir, disfrutar,
echar de menos, encantar, favorecer ?, estimar, extrañar,
idealizar, idolatrar, gozar, preferir, querer, soportar, rendir
culto, respetar, reverenciar, saborear, tolerar, valorar,
valorizar, venerar.*

2. NEGATIVE VERBS: *aborrecer, codiciar, compadecer, deplorar,
desconfiar, desdeñar, despreciar, detestar, envidiar, execrar,
lamentar, llorar, menospreciar, odiar, resentir, temer, tener
lástima.*

APPENDIX 3

1 INTRANSITIVES:

*disfrutar de, estar furioso por, pensar en (? to moon over),
rabiar por/de, reaccionar ante/con/, ? salivar (hacerse la boca
agua) ante/con, sentir afecto por, sentir lástima por/de.*

2 PRONOMINALS:

*aburrirse con/de, admirarse de, alegrarse por/de, asombrarse
con/de/por, arrepentirse de, cansarse de, conmoverse con/de,
deleitarse en, deprimirse con/por, descontertarse por,
desesperarse con/por, emocionarse ante/con/por, enojarse
con/por, entusiasmarse con, extasiarse ante/con, extraarse de,
hartarse de, indignarse con/contra/de/por, inquietarse
con/de/en/por, lamentarse de/por, molestarse con/por,*

obsesionarse con/por, preocuparse de/por, recrearse en, regocijarse en, regodearse en, refocilarse en, sumirse en.

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