5

Spanish Psychological Predicates

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5.1 Introduction

This paper examines syntactic valency, semantic argument structure and subject/verb agreement in Peninsular Spanish psychological predicates, and related constructions in other languages. We formalize our approach in HPSG. We also propose solutions to some HPSG theory-internal problems connected to interfaces between these aspects of grammar.

Spanish is an SVO language. Our operational definition of a subject NP is that it be a nominal satisfying the following conditions: A) it requires nominative case upon pronominal substitution; B) it appears as the first NP in an unmarked finite clause; C) it is semantically coindexed with the "logical subject"; D) it exhibits agreement coindexing with the finite V. However, certain emotion verbs in Spanish test this definition. In (1a), *apetecer* accepts the object of fancy as a canonical subject, but this is a highly marked structure; (1b) is more acceptable. It has as its first NP a dative NP (*A mí*) rather than a nominative, and agreement features are shared between the verb and the nominative NP which follows it, even though the dative is the logical subject. If the first NP is the subject, then conditions A and D are violated, and if the postverbal NP is the subject then conditions B and C are violated.

(1) a. ? Tus pasteles me apetecieron.
Your pies DAT-CL-1SG fancy-3RD-PL-PAST
'I fancied your pies.'

b. A mí me apetecieron tus pasteles.
To me DAT-CL-1SG fancy-3RD-PL-PAST your pies
'I fancied your pies.'

From similar data Zaenen et al. (1985) conclude that 'quirky' case

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predicates in Icelandic have dative subjects, while related dative structures in German do not count as subjects. Dative subjects in Icelandic are not active agreement controllers (Zaenen et al., 1985, p. 107).

Head-Driven Phrase Structure Grammar (HPSG; Pollard and Sag 1994) provides the wherewithal to neatly account for the behavior of this class of verbs. We assume a lexical relation between the two syntactic valency patterns. As a first pass, in (1a), the verb's SUBJ list specifies a nominative NP with a semantic index that is argument to a function which determines agreement morphology on the verb (Kathol, 1994), and the verb's COMPS list specifies a dative NP whose index is the logical subject. In (1b), the verb's SUBJ list specifies a dative NP whose semantic index is the logical subject, and the verb's COMPS list requires a nominative NP whose semantic index is shared by the function that determines the verb's agreement features.

Psychological predicates are among the data which suggest that "subject" is a problematic notion. Therefore, we dispense with it and revert to the original way Pollard and Sag (1987) handled valency, using a single SUBCAT list rather than a SUBJ–COMPS partition, and propose an alternative solution to the problems pointed out by Borsley (1989). We examine the details and ramifications of this and alternative HPSG analyses for other aspects of the grammar (e.g. control and raising).

5.2 Psychological Verbs

5.2.1 Overview of The Data

The constructions under discussion follow five different valency patterns.

1. Verbs falling in this category are: *aburrir* 'to bore', *molestar* 'to disturb', *enojar* 'to annoy', *alegrar* 'to cheer', *divertir* 'to amuse', *agradar* 'to please', etc.

Nominative NP	V	Dative/Accusative NP
Cause		Experiencer
AGR: [1]	AGR: [1]	

2. The same verbs as in Type 1 but with different word order: the experiencer dative-NP occurs in initial position along with an agreeing clitic pronoun; the nominative agreement controller is postverbal.

Dative/Accusative NP	dat/acc-clitic	V	Nominative NP
Experiencer			Cause
AGR: [2]	AGR: [2]	AGR: [1]	AGR: [1]

3. Verbs representative of this type are: *apetecer* 'to fancy', *gustar* 'to like', *encantar* 'to charm', *interesar* 'to interest', *doler* 'to ache' and *apasionar* 'to fascinate'. These predicates resemble Type 2

constructions, but extremely rarely appear in a Type 1 form.

Dative NP	dative-clitic	V	Nominative NP
Experiencer			Cause
AGR: [2]	AGR: [2]	AGR: [1]	AGR: [1]

4. 'Pronominal verbs': *aburrirse* 'to get bored', *molestarse* 'to get cross', *ofenderse* 'to take offense', *enojarse* 'to get angry', *alegrarse* 'to rejoice', *divertirse* 'to amuse oneself', *apenarse* 'to grieve', etc.

Nominative NP	pronominal–*se*	V	(PP)
Experiencer			Cause
AGR: [1]		AGR: [1]	

5. Finally, a 'normal' pattern of complementation corresponds to verbs such as: *temer* 'to fear', *odiar* 'to hate', *creer* 'to believe', *adorar* 'to adore', *confiar* 'to trust', *conocer* 'to know', *añorar* 'to long for', *anhelar* 'to wish for', *admirar* 'to admire', etc.

Nominative NP	V	NP / PP /that-clause
Experiencer		Stimulus
AGR: [1]	AGR: [1]	

Some of the structures attach greater importance to the experiencer of a psychological state and others give more relevance to the participant that induces such a state on the experiencer. Type 2 verbs could be seen as topicalizations of Type 1 predicates. However, because of their structural similarity to Type 3 constructions which lack Type 1 and Type 4 correlates, we consider Type 2 predications as related to Type 1 predicates via lexical rule, yet still distinct as constructions.

Type 2 predicates take one more syntactic constituent than Type 1 verbs. This is a dative or accusative clitic coindexed with the preceding NP agreeing in case, number, person and gender.[1] In Types 1, 2 and 3, the full NPs may be dropped once their referents have been presented in discourse but their coindexed clitics are still needed and they provide agreement information. Some studies on accusative doubling clitics (this does not entail that the clitics under discussion are accusative-marked in all predicates but their status is similar) claim that this clitic is simply an agreement marker and does not take a semantic role as that is exclusively given to the coindexed referential full NP (Suñer, 1988). However, the clitic takes a clear argument position in Type 4.

5.2.2 What is the Subject?

Alarcos Llorach (1994) argues that because the experiencer-NP in Type 3 constructions is embedded under the preposition *a*, it cannot be the syntactic subject of the sentence. In contrast, Fernández-Soriano (1999)

[1] Gender agreement is marked only for the accusative.

claims that it is possible to analyze "*a*-PPs" as dative NPs eligible to be grammatical subjects. For Alsina (1996) the dative does not have enough subject properties. Moure (1995; p. 101) argues that the subject of the verb *gustar* is the postverbal nominative NP and the initial constituent is an indirect object. Belletti and Rizzi (1988) claim that the constructions involve two nonsubject arguments. In their analysis of psychological predicates in Italian, Belletti and Rizzi (1988) classify the verbs into three groups: *temere* ('to fear') type (our Type 5 verbs), *preoccupare* ('to worry') verbs (our Types 1 and 2) and *piacere* ('to please') (our Type 3). Belletti and Rizzi (1988) analyze the first type as having a logical and syntactic subject, but the latter types as double object constructions with "derived" subjects that cannot occupy the external argument position of the VP because it is assigned inherent (rather than structural) case. Because the Type 3 ordering is unmarked, yet with the experiencer in the position the logical subject is usually in, they conclude that the dative is a quirky subject, analyzed as object.

Grimshaw (1990) classifies psych verbs into two main groups: *fear* type stative verbs and *frighten* type causative and eventive predicates. She faults the Belletti and Rizzi (1988) analysis as not explaining why the categories are what they are. *Fear* type verbs have an external argument; passivization and nominalization provide the proof. Grimshaw argues that *frighten* predicates do not have external arguments, although they do have underlying logical subjects. Grimshaw comments about a third type of psych predicate (Grimshaw, 1990, p. 29): *please* and *concern* in English (the Spanish versions of these are in our Type 3 verbs; *piacere* in Italian). Grimshaw argues that these verbs resemble the *fear* type according to their thematic argument structure and ordering of thematic arguments, although configurationally they are like the *frighten* type (thus, lack an external argument). Grimshaw's analysis is attractive in explaining differences between her two main types through the interaction of an aspectual hierarchy and the hierarchy of theta roles, but does not explain the behavior of Type 3 predicates.

Despite the apparent clarity of pretheoretic intuitions, there is not a clear analytic definition of "subject", although there is a family of properties that correlate with being a subject (Keenan, 1976). It is interesting to observe how these predicates interact with other phenomena that are arguably sensitive to grammatical functions. We present data on control and raising in Spanish, along with our analysis in §5.4.2; an interesting fact is that Spanish does admit object control but not object raising, yet Type 3 dative NPs can raise to subject position without controlling agreement. Vogel and Villada (1999) present more data on causatives, control in general, raising, nominalization, passivization,

binding, reflexivization and deverbal adjectives. Our evaluation of the raising data differs from that of Alsina (1996; p. 182) and is more compatible with the reasoning of Zaenen et al. (1985) about Icelandic—in Type 3 predicates the datives raise but do not control agreement on the raising verb. Some tests argue for subject status of the dative, some against, for each type of psychological predicate.

Odd agreement patterns that we have described for the psychological predicates also hold for certain other verbs that are not considered psychological predicates. For example, Fernández-Soriano (1999) discusses stative verbs (*constar* 'to state', *bastar* 'to be enough', *faltar* 'to lack', *sobrar* 'to have extra' and existential *haber* 'there is/are'), eventive verbs (*suceder, ocurrir* 'to happen') and weather verbs (*llover* 'to rain', *nevar* 'to snow') among others with odd case and agreement control patterns. Masullo (1992) presents additional predicates.

5.2.3 Odd Case and Agreement in English

While the English correlates of Type 3 predicates behave as ordinary (SVO) predicates with respect to agreement and case assignment, certain constructions in English act differently. Consider the data in (2-5). Examples (2-3) demonstrate that the agreement controller in these constructions is the non-expletive NP following the verb. (4-5) show that the postverbal agreement controller is also in nominative case.[2]

(2) There is/*are a book on the table.

(3) There are/*is three books on the table.

(4) Who laughs loudly?
There is she/*her who laughs last.

(5) Who eats junk food?
There is she/*her who McDonald's targets successfully.

The existential sentences in English have properties similar to the Type 3 predicates in Spanish. They lack Type 1 counterparts: inverting the arguments yields a strictly demonstrative reading for *there*. Consider raising, using (2) for reference, and (6) as its raised counterpart.

(6) There seems/*seem to be a book on the table.

(7) There seem/?seems to be three books on the table.

Examples (6) and (7) demonstrate that in English (like Spanish; see (16)) it is not necessary for an NP raised to "subject" to control agreement on

[2]Both subject and object relatives are used to demonstrate that the case does not arise from the relative clause.

the raising verb. Pollard and Sag (1994; p. 154) analyze this expletive raising data by taking the expletive as subject of 'be' yet with a NUM value that is coindexed with the NUM value of the post copular noun. In contrast, our account is entirely parallel with our account of raising in Type 3 predicates. The NPs may have incompatible NUM values, and grammaticality results provided that the raising verb and embedded verb share agreement controllers.

Locative inversion and dative shift are additional cases discussed in the literature as providing examples in English in which subjects are assigned quirky case (e.g. see den Dikken and Næss 1993).

5.2.4 Summary

Neither the data nor theorists are univocal on whether the constructions have a subject. We favor a version of HPSG in which that question is moot. Linearization and agreement control properties are indisputable: in the relevant Spanish cases (Type 3) the logical subject is in leftmost position, is marked dative and does not control agreement.

5.3 Background Debate in HPSG

Pollard and Sag (1994; Chr. 9) accept arguments from Borsley that there is a problem with the theory as originally formulated, and this inspired the partitioning of SUBCAT into SUBJ and COMPS. In English, case marking PPs provide an example of the problem. Such a preposition subcategorizes for one argument, but that argument is an oblique argument, not a subject. The preposition is a lexical head expecting its sole argument to occur to its right; this is what the LP constraint dictates, but the ID schema don't allow lexical heads to combine with *all* of their complements unless they are inverted. Under the revision suggested by Borsley, valency features on such heads specify the SUBJ list to be empty, and the COMPS list to contain one element. The ID schema and valency reduction principle are adjusted accordingly.

A simple solution for the problem would be to mark nonpredicative prepositions as [INV+]. However, a number of other aesthetic reasons are provided by Pollard and Sag (1994; Chr. 9) to further motivate the change. Many of these boil down to the convenience of being able to refer to 'subject' rather than 'least oblique element of the subcat list'. A net increase in linguistic ontology ensues when a head is deemed to possess a least oblique complement that does not count as a subject. Our view is that the constructions typically thought of as subjectless have enough subject properties to make the assertion contentious (if one accepts "subject" as a contentful syntactic notion in the first place). Our solution is to drop the notion of syntactic subject from linguistic

ontology, reverting to a position in which explanations are based upon less disputable properties of linguistic types.[3]

We propose the alternative ID and LP constraints in (8) and (9). Our alternative solution suggests a feature called POS associated with lexical heads. The subcategorization frame of a verb is the local domain in which the head occurs, and a head declares its position within that domain as at the beginning, the end, or somewhere in the middle (cf. Reape 1990, 1994). We posit POS as a feature of lexical items which can take one of three values: *b*, *m* or *e*. We omit detail of the relation between this and other proposals that suggest positional features (e.g. Nerbonne and Mullen 1999). We suppose that the feature is appropriate only to lexical signs (just as DTRS is appropriate only to phrasal signs), because we cannot imagine a calculus without epicycles that determines phrasal head placement on the basis of lexical head placement. The POS feature is specified on heads and nonheads, but our theory interprets the feature as specified only on nonvacuously subcategorizing elements.

(8) a. $\begin{bmatrix}\text{LEX: } - \\ \text{SUBCAT: } \langle\,\rangle\end{bmatrix} \rightarrow \text{H } \neg[\text{POS: m }]\ \text{C}^+$

b. $\begin{bmatrix}\text{LEX: } - \\ \text{SUBCAT: } \langle \underline{\quad} \rangle\end{bmatrix} \rightarrow \text{H}[\text{POS: m }]\ \text{C}^+$

(9) a. $\text{C} < \text{H}$ LEX$-$

b. $\text{H} \begin{bmatrix}\text{lex: } + \\ \text{pos: } \neg\ \text{e}\end{bmatrix} < \text{C}$

c. $\text{C} < \text{H} \begin{bmatrix}\text{lex: } + \\ \text{pos: e}\end{bmatrix}$

d. $\text{C}^1 \leq \text{C}^2$

As the POS feature is appropriate only to lexical signs, it is obviously not a head feature, nor is it shared between mother and head daughter by other means. The first rule can apply to [LEX +] or [LEX −] heads. The second applies only to [LEX +] heads because of the appropriateness constraints on POS. Realizing no complements is not an option (no unary branches). The ID rules are mutually exclusive due to their specification of POS. The negation in the LP rules is just a value negation, but the negation in (8) can be satisfied by a head lacking the POS feature as well as one that is either [POS b] or [POS e].

The following table indicates how standard phrase structure rules for English correspond to applications of these ID and LP constraints.

[3]For clarity we keep the term in description of phenomena like "subject raising".

Structure	Example	Schema	LP
NP $\longrightarrow$ D N	my car	a	c
PP $\longrightarrow$ P NP	to the child	a	b
PP $\longrightarrow$ P NP	on the highway	b	b
VP $\longrightarrow$ V NP	drove my car	b	b
S $\longrightarrow$ NP VP	Val drove my car	a	a
S $\longrightarrow$ V NP VP	Did Val drive my car	a	b, d
S $\longrightarrow$ NP V	The child slept	a	c

Predicative and nonpredicative PPs each depend on different rule schema. Inverted clauses and clauses with intransitive verbs fall under the same ID schema. In fact, it is the same schema that puts a subject together with a transitive VP and which builds a nonpredicative PP. We have shown the structure of an NP analysis, but DPs could also be realized (using ID schema a and LP constraint b); whichever analysis is taken requires the corresponding POS marking on the head. Vacuous applications of rules through unary branching structures are unnecessary in the construction of predications using intransitive verbs.

5.4 Spanish Psychological Predicates in HPSG

5.4.1 Semantic and Syntactic Argument Structure

HPSG does not require that the agreement controller of the verb have canonical subject properties. Pollard and Sag (1994; p. 82) note that verbs in some languages have non-initial SUBCAT elements participating in agreement relations. Our syntax semantics interface for Type 3 predicates is such that the dative experiencer-NP is the first element of SUBCAT and the nominative cause-NP second.

We propose an additional HEAD feature on signs. The feature is AGRC, for agreement controller. We presume this to be a SYNSEM valued feature (risking no violation of locality constraints).[4] The head feature principle ensures that AGRC is token identical between head daughter and root sign. It is a property of an unsaturated lexical head that its AGRC is coindexed with one of its SUBCAT elements (if it has any). Whether phonological/morphological consequences follow depends on further structure sharing of that value with, for example, PHON values.

We propose a lexical entry for *gustar* ('to like') in (10).[5] The con-

[4] INDEX values are an alternative but SYNSEM values account for differences in control and raising (see §5.4.2).Vogel and Villada (1999) consider list values.

[5] The entry is a simplification that omits clitics. The assertions in the following section hold even when clitics are fully accounted for, however we do not mention them there for the sake of clarity and compactness. It is necessary to have a theory of clitics which allows that some are affixes (Miller and Sag, 1997) and that some occupy argument positions (for such a theory, see Monachesi, 1998). Vogel and

straints require that the logical subject (the X-ER) of the verb *gustar* be an NP bearing dative case; no constraints are imposed on the INDEX of that NP. This verb subcategorizes for a second complement bearing nominative case. The CONTENT value states the *gustar* relation also has an X-ED role structure shared with the referential index of the nominative. For comparison, in (11) we offer a lexical entry for *molestar* (to bother) as well, a Type 1 predicate. The advantage of this theory is that it entails no connection between AGRC and the leftmost element of SUBCAT.

(10)
$$\begin{bmatrix} \text{PHON: } f(gustar, \boxed{2}, \boxed{4}) \\ \text{CAT: } \begin{bmatrix} \text{HEAD: } {}_{verb}\begin{bmatrix} \text{VFORM: } \boxed{4}\ \text{fin} \\ \text{AGRC: } \boxed{3} \end{bmatrix} \\ \text{SUBCAT: } \langle np[dat]\text{: } \boxed{1}, \boxed{3}\, np[nom]\text{: } \boxed{2} \rangle \end{bmatrix} \\ \text{CONTENT: } \begin{bmatrix} \text{RELN: } gustar \\ \text{LIKER: } \boxed{1} \\ \text{LIKED: } \boxed{2} \end{bmatrix} \end{bmatrix}$$

(11)
$$\begin{bmatrix} \text{PHON: } f(molestar, \boxed{2}, \boxed{4}) \\ \text{CAT: } \begin{bmatrix} \text{HEAD: } {}_{verb}\begin{bmatrix} \text{VFORM: } \boxed{4}\ \text{fin} \\ \text{AGRC: } \boxed{3} \end{bmatrix} \\ \text{SUBCAT: } \langle \boxed{3}\, np[nom]\text{: } \boxed{2}, np[dat]\text{: } \boxed{1} \rangle \end{bmatrix} \\ \text{CONTENT: } \begin{bmatrix} \text{RELN: } molestar \\ \text{BOTHERER: } \boxed{2} \\ \text{BOTHERED: } \boxed{1} \end{bmatrix} \end{bmatrix}$$

The AGRC feature, as a head feature, and unlike the SUBJ feature, is not a valency feature and thus does not get reduced between levels of constituency. Phonological consequences of AGRC depend on the PHON value. AGRC has systematic relations to the Borsley-Pollard-Sag SUBJ feature. For most constructions in English, the leftmost SUBCAT element and AGRC element coincide with the usual notion of subject. In Spanish there is a divergence of SUBCAT elements from the usual position for the AGRC in the case of psychological predicates.[6] The verbs which diverge from the norm do so in a systematic way which abets generalization across lexical entries.

Villada (1999) provide a version of the entries with clitics. For Type 2 and Type 3, the clitic is coindexed with an adjacent dative element on the SUBCAT list; in Type 4, the clitic is the sole entity coindexed with the X-ER in CONTENT.

[6] In an analysis along these lines that keeps a SUBJ/COMPS distinction, the AGRC can be among the COMPS; however, such an analysis must defend why SUBJ is discriminated at all when AGRC is acknowledged as distinct.

5.4.2 Embedded Contexts

Here we provide relevant data from control and raising predicates along with our analysis. The AGRC feature turns out to be a useful mechanism for capturing the fact that Spanish admits both subject and object control, but only subject raising, not object raising (yet for Type 3 predicates it is possible to raise the dative marked experiencer which does not control agreement on either predicate). In (12–15) we provide lexical entries for Spanish control verbs showing the interactions with Type 1 and Type 3 embedded predicates.

(12)
$$\begin{bmatrix} \textsc{phon}: & \text{morph}(\text{permitir}, \boxed{1}, \boxed{6}) \\ \textsc{ss}: & \begin{bmatrix} \textsc{loc}: & \begin{bmatrix} \textsc{cat}: & \begin{bmatrix} \textsc{head}: & \begin{bmatrix} \textsc{vform}: & \boxed{6} \\ \textsc{agrc}: & \boxed{3} \end{bmatrix} \\ \textsc{subcat}: & \boxed{\text{A}} \end{bmatrix} \\ \textsc{content}: & \begin{bmatrix} \textsc{reln}: & \textit{permitir} \\ \textsc{x-er}: & \boxed{1} \\ \textsc{x-ed}: & \boxed{2} \\ \textsc{to-y}: & \boxed{5} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$\text{A} = \langle \boxed{3}\text{NP}: \boxed{1}, \text{NP}: \boxed{2}, \text{VP-Y} \begin{bmatrix} \textsc{fin}: & - \\ \textsc{agrc}: & \boxed{4} \\ \textsc{subcat}: & \langle NP: \boxed{2} \rangle \end{bmatrix} : \boxed{5} \rangle$$

* Leslie le permitió a Val gustar los músicos diabólicos
Leslie DAT-CL permitted to Val to like the musicians evil
'Leslie permitted Val to like the evil musicians'

(13)
$$\begin{bmatrix} \textsc{phon}: & \text{morph}(\text{permitir}, \boxed{1}, \boxed{6}) \\ \textsc{ss}: & \begin{bmatrix} \textsc{loc}: & \begin{bmatrix} \textsc{cat}: & \begin{bmatrix} \textsc{head}: & \begin{bmatrix} \textsc{vform}: & \boxed{6} \\ \textsc{agrc}: & \boxed{3} \end{bmatrix} \\ \textsc{subcat}: & \boxed{\text{A}} \end{bmatrix} \\ \textsc{content}: & \begin{bmatrix} \textsc{reln}: & \textit{permitir} \\ \textsc{x-er}: & \boxed{1} \\ \textsc{x-ed}: & \boxed{2} \\ \textsc{to-y}: & \boxed{5} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$\text{A} = \langle \boxed{3}\text{NP}: \boxed{1}, \text{NP}: \boxed{2}, \text{VP-Y} \begin{bmatrix} \textsc{fin}: & - \\ \textsc{agrc}: & \boxed{4} \\ \textsc{subcat}: & \langle \boxed{4} NP: \boxed{2} \rangle \end{bmatrix} : \boxed{5} \rangle$$

Leslie permitió a Val molestar a los músicos diabólicos.
Leslie permitted to Val to bother the musicians evil
'Leslie permitted Val to bother the evil musicians.'

Example (12) shows object control of Type 3 experiencer, and (13) shows object control of Type 1 cause. A generalization is evident: the

agreement controller of the embedded VP must be coindexed with something in the same SUBCAT list as the embedded VP. The sentence in (12) is ill-formed because the AGRC value of the embedded VP ([4]) is realized insided the embedded VP and not coindexed with its sister. Example (14) demonstrates the case of subject control of cause in a Type 1 predicate, and (15) illustrates subject control of Type 3 experiencer. Both (12) and (15) violate the principle of complement control.

(14)
$$\begin{bmatrix} \text{PHON: morph(prometer, } \boxed{1}, \boxed{5}) \\ \text{SS: } \begin{bmatrix} \text{LOC: } \begin{bmatrix} \text{CAT: } \begin{bmatrix} \text{HEAD: } \begin{bmatrix} \text{VFORM: } \boxed{5} \\ \text{AGRC: } \boxed{3} \end{bmatrix} \\ \text{SUBCAT: } \boxed{\text{A}} \end{bmatrix} \\ \text{CONTENT: } \begin{bmatrix} \text{RELN: } \textit{prometer} \\ \text{X-ER: } \boxed{1} \\ \text{X-ED: } \boxed{2} \\ \text{TO-Y: } \boxed{4} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$\text{A} = \langle \boxed{3}\text{NP: } \boxed{1}, \text{NP: } \boxed{2}, \text{VP-Y } \begin{bmatrix} \text{FIN: -} \\ \text{AGRC: } \boxed{3} \\ \text{SUBCAT: } \langle \boxed{3} NP : \boxed{1} \rangle \end{bmatrix} : \boxed{4} \rangle$$

Leslie le prometió a Val molestar a sus padres.
Leslie DAT-CL promised Val to bother to his parents
'Leslie promised Val to bother his parents.'

(15)
$$\begin{bmatrix} \text{PHON: morph(prometer, } \boxed{1}, \boxed{6}) \\ \text{SS: } \begin{bmatrix} \text{LOC: } \begin{bmatrix} \text{CAT: } \begin{bmatrix} \text{HEAD: } \begin{bmatrix} \text{VFORM: } \boxed{6} \\ \text{AGRC: } \boxed{3} \end{bmatrix} \\ \text{SUBCAT: } \boxed{\text{A}} \end{bmatrix} \\ \text{CONTENT: } \begin{bmatrix} \text{RELN: } \textit{prometer} \\ \text{X-ER: } \boxed{1} \\ \text{X-ED: } \boxed{2} \\ \text{TO-Y: } \boxed{5} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$\text{A} = \langle \boxed{3}\text{NP: } \boxed{1}, \text{NP: } \boxed{2}, \text{VP-Y } \begin{bmatrix} \text{FIN: -} \\ \text{AGRC: } \boxed{4} \\ \text{SUBCAT: } \langle NP : \boxed{1} \rangle \end{bmatrix} : \boxed{5} \rangle$$

* Leslie prometió a Val gustar las uvas
Leslie promised Val to like the grapes
'Leslie promised Val to like the grapes'

PRINCIPLE **1** PRINCIPLE OF COMPLEMENT CONTROL

The AGRC *value of a nonfinite VP embedded as a complement in a control predicate shares its semantic index with a less oblique constituent on the same* SUBCAT *list as the embedded VP.*

The raising data is easily accommodated. We provide a lexical entry for *parecer* ('to seem') (16). The raised SUBCAT list is nonempty: *parecer*, in combination with weather predicates that do not subcategorize, requires the embedded predicate to be in finite form under a complementizer; thus the complement of *parecer* in that case is saturated.

(16)
$$\begin{bmatrix} \textsc{phon}: \ \text{morph}(\text{parecer}, \boxed{4}, \boxed{5}) \\ \textsc{ss}: \begin{bmatrix} \textsc{loc}: \begin{bmatrix} \textsc{Cat}: \begin{bmatrix} \textsc{Head}: \begin{bmatrix} \textsc{vform}: \boxed{5} \\ \textsc{agrc}: \boxed{3}:\boxed{4} \end{bmatrix} \\ \textsc{Subcat}: \boxed{A} \end{bmatrix} \\ \textsc{content}: \begin{bmatrix} \textsc{reln}: \textit{parecer} \\ \textsc{X-ed}: \boxed{1} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$A = \boxed{2} \oplus \langle \text{ VP-Y } \begin{bmatrix} \textsc{fin}: - \\ \textsc{agrc}: \boxed{3} \\ \textsc{subcat}: \boxed{2}\ \textit{ne-list} \end{bmatrix} : \boxed{1} \rangle$$

Leslie pareció molestar a sus padres.
Leslie$_i$ seemed$_i$ to bother$_i$ to his parents
'Leslie seemed to bother his parents.'
A Leslie le parecieron gustar los regalos.
To Leslie DAT-CL-3SG seemed$_i$ to like$_i$ the presents$_i$
'Leslie seemed to like the presents.'

We propose an additional clause to the raising principle which constrains lexical entries given by Pollard and Sag (1994; p. 140).

PRINCIPLE **2** Raising Principle

If E is a lexical entry whose SUBCAT *list L contains an element X not specified as expletive.*

1. *Then X is lexically assigned no semantic role in the content of E if and only if L also contains a (nonsubject) Y*[SUBCAT⟨*X*⟩]
2. AGRC *on E is identical to the* AGRC *on Y.*

This principle rules out lexical entries like (17) which involve semantically two-place object raising verbs. The entry is ruled out because although the first condition of the Raising Principle is met—the verb subcategorizes for an NP whose index is not an argument to the finite verb semantics and also for a nonfinite VP subcategorizing for the NP—but the second condition is not: the agreement controller of the embedded predicate is not agreement controller of the raising verb. The corresponding sentence is ungrammatical. On the other hand, if the agreement controller of *creer* were $\boxed{3}$ instead of $\boxed{5}$, then ungrammaticality would result because it would agree with the wrong NP. The principle correctly predicts which examples are correct for subject raising as well as why *creer* does not function as an object raising verb

in Spanish (the constraint does not apply to English lexical elements, but as a lexical principle, its parochial restriction is easy to fathom). A subject raising instance of *creer* is correctly accepted, as in (18); the corresponding subject raising entry of *creer* is parallel to that for *parecer* in (16) but has an additional semantic argument for the believer.

(17)
$$\left[\begin{array}{l}\textsc{phon}:\ \text{morph}(\text{creer}, \boxed{4}, \boxed{6}) \\ \textsc{ss}:\ \left[\textsc{loc}:\ \left[\begin{array}{l}\textsc{Cat}:\ \left[\begin{array}{l}\textsc{Head}:\ \left[\begin{array}{l}\textsc{vform}:\ \boxed{6} \\ \textsc{agrc}:\ \boxed{5}\end{array}\right] \\ \textsc{Subcat}:\ \boxed{A}\end{array}\right] \\ \textsc{content}:\ \left[\begin{array}{l}\textsc{reln}:\ \textit{creer} \\ \text{X-}\textsc{er}:\ \boxed{4} \\ \text{X-}\textsc{ed}:\ \boxed{1}\end{array}\right]\end{array}\right]\right]\end{array}\right]$$

$$A = \langle \boxed{5}\text{NP}: \boxed{4} \rangle \oplus \boxed{2} \oplus \langle \text{VP-Y} \left[\begin{array}{l}\textsc{fin}: - \\ \textsc{agrc}:\ \boxed{3} \\ \textsc{subcat}:\ \boxed{2}\langle \boxed{3}\text{NP}\rangle\end{array}\right] : \boxed{1} \rangle$$

* Jose cree Kim divertir a los niños
Jose$_i$ believes$_i$ Kim$_j$ to amuse$_j$ to the children
Jose believes Kim amuses the children

(18) Jose cree divertir a los niños.
Jose$_i$ believes$_i$ to amuse$_i$ to the children
Jose believes himself to amuse the children.

We believe the solution of adding an agreement controller to the head features on signs is a good one. It enables a predicate's lexical head to indicate exactly which of its arguments co-varies in agreement features, without prejudice to the linear position of that argument. In particular, the agreement controller need not be the subject. The solution integrates the analysis of expletive raising with raising of "quirky subjects" where the raised element has a NUM value that may differ from the value the PHON value of raising verb depends on. A unified account is not possible for the solution to expletive raising given by Pollard and Sag (1994).

5.5 Conclusions

We have examined a range of predications which have been examined in the literature as having no subject at all or having quirky subjects. We have argued not that the predicates are subjectless in a world of otherwise subjectful clauses, but that subject is not an explanatory notion, and that these predicates supply the evidence for this. We argue instead that observable quantities are explanatory: position and agreement control, cause and experiencer. We have offered a theory of raising

and control in Spanish which explains the data and makes correct predictions.

The theory we presented is formalized in a version of HPSG with just a SUBCAT list, rather than a SUBJ/COMPS distinction. However, our main proposal could be integrated in the split valency account as well. Our account involves keeping track of the agreement controller.[7] A lexical head selects one of its SUBCAT elements (hence, a SYNSEM) as the value of AGRC. As AGRC is a head feature, this value is shared through all phrasal projections of the head. Principles of control and raising dictate how the AGRC value of an embedded predicate interacts with the value of the embedding verb itself and sisters of the embedded predicate. With raising, the AGRC of the embedded verb must be the same as that of the embedding verb. For control, the AGRC of the embedded verb must be coindexed with a less oblique sister on the SUBCAT list of the embedding verb (in the case of "subject" control this element will also be the AGRC of the embedding verb as well). If AGRC is instead taken as congruent to SUBJ then linearization principles must be significantly augmented.

Given that we have maintained an obliqueness ordered SUBCAT list, we have also proposed an alternative solution to the SUBJ/COMPS distinction for constructions like nonpredicative PPs problematic to earlier versions of HPSG. The solution we proposed reduces the number

[7] Heinz and Matiasek (1994) offer an account of German case assignment and argument structure in HPSG, noting that the SUBCAT list on its own does not supply sufficient information to determine what counts as an internal or external argument. Their approach is more conservative than splitting the SUBCAT list into SUBJ and COMPS to indicate what the external argument is. Instead they propose a feature for the Designated Argument (DA). While this seems likely to be identical to AGRC, it is not. The DA feature picks out the external argument of predications to distinguish ergative predicates (those which have an empty DA list are ergative). However, even ergative structures have agreement controllers. Heinz and Matiasek (1994) make use of the DA value as a trigger to lexical rules that reduce argument structure (e.g. passivization). The idea is to capture case constraints in languages like German in which assignment of case can be structural (case of an NP varying with its syntactic context) or lexical (invariant case). Related work by Kathol (1994) marks not the DA but ERG: the ERG value is the list containing the accusative argument of a predication. The intention is to capture the fact that only those base entries with a nonempty ERG value are available for passivization. Unergative verbs have a nonempty SUBJ feature, but an empty ERG feature. Thus, the function of ERG is the complement of the function of DA. Pollard (1994) also addresses passivization in German and provides an analysis heavily influenced by that of Kathol (1994); it is different in certain respects (lexical rules vs. inheritance hierarchies for the lexicon) but uses the main idea of the ERG feature with only minor modifications. Przepiórkowski (1999; Chr. 4) also adopts the ERG feature but substantially refines the theory of case assignment in HPSG. However it is clear that neither DA nor ERG is coextensive with AGRC.

of phrase structure schema and eliminates unary branching structures. The proposal is to dispense with the INV feature in favor of a POS feature which has three possible values for beginning, middle and end. We assume that a lexical head declares its position, but that as this feature is appropriate only to words, phrasal heads do not. Thus, a transitive verb indicates that it appears in the middle of its complements, and an intransitive at the end, and a nonpredicative preposition at the beginning, and so on.

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