

Unmarked word order in Korean and Spanish psych-verbs: Interaction of case, theta-roles, and event structures in HPSG

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1 Introduction

Psych verbs present particular properties associated with their argument structure (Belletti and Rizzi 1988; Grimshaw 1990; Pesetsky 1995; Landau 2010 a.o.), posing a problem for the representation of a single theta grid into different syntactic configurations. These concerns are not only related to their morphology and argument structure, but also to the relationship between the semantics of aspect (i.e. eventive vs. stative) and how these aspectual differences are encoded morphosyntactically.

In terms of their aspectuality, the literature has claimed that experiencer-subject (ES) verbs denote states in languages such as Spanish. However, this is not the case for experiencer-object (EO) verbs; categorized a.o. as accomplishments, causative states/events, or inchoative states (cf. Pesetsky, 1995; Pylkkänen, 2000; Marín and McNally, 2011). EO verbs show exceptional syntactic properties (i.e. “psych-effects”) with respect to linearization, binding, passivization, extraction, etc. (Verhoeven, 2014; Temme and Verhoeven, 2016). In terms of linearization, empirical studies have shown that the preferred word order in dative structures is that of EXP-DAT > STM-NOM, whereas in accusative ones the preferred word order is STM-NOM > EXP-ACC (Gattei et al. 2015; Jiménez-Fernández and Rozwadowska 2016; Temme and Verhoeven 2016).

Taking into considerations the properties exposed, we model psych verb predicates in an HPSG framework by means of a typed inheritance hierarchy and lexical rules (LRs). Our analysis contrasts two typologically different languages with free word order patterns, namely Spanish (SVO) and Korean (SOV). We propose a fourfold division in the psych domain for both languages contra the classic views proposed in the literature (for Spanish cf. Belletti and Rizzi 1988; Franco 1990; for Korean cf. Choi 2015; Kim 2008; Yang 1996).

Furthermore, our data suggests a differentiation of theta-roles similar to Pesetsky (1995)’s proposal. We are assuming a stimulus role (STM) which can be further specified as subject matter (SM) or target (TG). This division correlates with the different subtypes of psych predicates proposed.

2 Languages overview

2.1 Spanish

Spanish psych verbs classification has been proposed as a threefold (cf. Italian psych predicates in Belletti and Rizzi 1988): (a) a transitive ES class (e.g. *amar* ‘love’) where the STM takes accusative case (cf. (3a)), (b) an EO class (e.g. *gustar* ‘like’) where the EXP always takes dative case (cf. (1)), and (c) an EO class (e.g. *asustar* ‘frighten’) where the EXP alternates between dative and accusative (DAT/ACC) case marking (cf. (2)). Cross-linguistic studies have shown that dative structures are non-agentive and stative (Landau 2010; Reinhart 2002), displaying “psych-effects” in terms of linearization (EXP-first).

- (1) [A Clara]_{DAT} le gusta David/el reporte.
to Clara CL.DAT like.PRS.3.SG David/the report
'Clara likes David/the report.' [Class 1]
- (2) a. [A Clara]_{DAT} le asusta David/el reporte.
to Clara CL.DAT frighten.PRS.3.SG David/the report
'(Something about) David/the report frightens Clara.' [Class 1]

- b. David/el reporte (la) asusta [a Clara]_{ACC}.
David/the report CL.ACC frighten.PRS.3.SG to Clara
'David/the report frightens (directly) Clara.' [Class 3]
- (3) a. David (lo) ama [a Clara]_{ACC}.
David CL.ACC love.PRS.3.SG to Clara
'David loves Clara.' [Class 2]
- b. David (le) ama [a Clara]_{DAT}.
David CL.DAT love.PRS.3.SG to Clara
'David loves (something about) Clara.' [Class 4]

A closer look into the data shows case alternation not only for the EO class (cf. (2)), but also for the ES psych verbs (cf. (3)). ES verbs alternate the STM – in contrast to the EXP alternation of EO verbs – in ACC and DAT. Furthermore, this case alternation of the STM correlates with the specification of the theta-role: the accusative STM being specified as a TG, and the dative STM as a SM.

In our analysis, we constrain the previous case alternation patterns, linking and unmarked word order in an inheritance hierarchy. The alternation of EO verbs is further constrained by means of a lexical rule (cf. (5)) introducing an extra eventuality (a *happening*) and an extra theta-role (a *causer* (CSR)) accounting for the asymmetry of stative and eventive readings (cf. Section 3).

2.2 Korean

Korean psych adjectives/verbs are polysemous (Kim, 2004) and participate in double nominative constructions, where both EXP and STM are assigned nominative case. Word order is strict here (word order freezing effect); i.e. the EXP must precede the STM (cf. (4a) & (4c)). Recently, Nam (2015) has classified psych verbs with respect to the agentivity of the EXP in the predicates subevent structures, and explained case alternations in terms of: (a) agentive experiencer predicates (AEP) where the EXP is assigned NOM or DAT, and (b) patientive experiencer predicates (PEP) with the STM alternating between NOM or DAT.

Similarly to Nam (2015)'s twofold classification, we are proposing a fourfold classification for Korean where both EXP and STM alternate in case marking due to a correlation in terms of theta-role assignment, but not due to a subevent causation. The asymmetry in case marking correlates as: (a) Class 1 & 2 (*mwusepta* 'scary') including adjectives that only take SM as a stimulus argument, and (b) Class 3 & 4 (*hwanata* 'get angry') that contain inherently inchoative verbs (Choi and Demirdache, 2014) taking only TG as a stimulus.

Four predicted unmarked word order patterns are as follows:

- (4) a. [Mina-ka/nun]_{EXP} [kongpho yenghwa/Minho-ka]_{SM} mwusep-ta.
Mina-NOM/TOP horror movie/Minho-NOM scary-DECL
'Mina is scared of horror movies/Minho.' [Class 1]
- b. [kongpho yenghwa/Minho-ka/nun]_{SM} [Mina-eykey]_{EXP} mwusep-ta.
horror movie/Minho-NOM/TOP Mina-DAT scary-DECL
'The horror movie/Minho is scary to Mina.' [Class 2]
- c. [Mina-ka/nun]_{EXP} [Minho/khun soli-ka]_{TG} hwana-n-ta.
Mina-NOM/TOP Minho/big noise-NOM get.angry-PRS-DECL
'Mina gets angry at Minho/the big noise.' [Class 3]
- d. [Mina-ka/nun]_{EXP} [Minho-eykey/khun soli-ey]_{TG} hwana-n-ta.
Mina-NOM/TOP Minho/big noise-DAT get.angry-PRS-DECL
'Mina gets angry at Minho/the big noise.' [Class 4]

These word order constructions can be easily captured in HPSG as well; where items such as *mwusepta* ‘scary’ are of type *state-psych-v-lxm*, presenting further constraints as *n-d-state-psych-lxm* or *n-n-state-psych-lxm*, and items such as *hwanata* are of type *n-d-inch-psych-lxm* or *n-n-inch-psych-lxm* (see Section 3).

3 HPSG analysis

The semantic information – i.e. theta-roles and eventuality class – is constrained as elementary predications in the CONT|RELS value of the verb. The information about the (unmarked) word order is constrained as values in the valency features of the verbs (SPR and COMPS in Spanish, and COMPS in Korean). The mapping between case information and theta-roles is encoded in the values of the ARG-ST feature (along with the Case Principle (cf. Przepiórkowski, 1999)). In order to achieve the different unmarked word order patterns in both languages without assuming movement, we analyze the distinct case-to-theta-role mappings as different mapping constraints along the type hierarchy for psych-verb-lexemes (cf. Figure 1 for the Korean types and Figure 2 for Spanish), similar to the constraints on verbal lexemes given by Manning and Sag (1998) and Davis and Koenig (2000).

For Korean, we propose 4 subtypes of psych verbs with the following unmarked word orders:

1. *n-n-state-psych-lxm*: $\text{NOM}/\text{TOP}_{\text{str}}\text{-EXP} > \text{NOM-SM}$
2. *n-d-state-psych-lxm*: $\text{NOM}/\text{TOP}_{\text{str}}\text{-SM} > \text{DAT-EXP}$
3. *n-n-inch-psych-lxm*: $\text{NOM}/\text{TOP}_{\text{str}}\text{-EXP} > \text{NOM-TG}$
4. *n-d-inch-psych-lxm*: $\text{NOM}/\text{TOP}_{\text{str}}\text{-EXP} > \text{DAT-TG}$

With the inheritance hierarchy in Figure 1, there is no need to postulate two different lexical entries for verbs such as *mwusepta* which show a regular alternation between $\text{NOM} > \text{DAT}$ (cf. (4b)) and $\text{NOM} > \text{NOM}$ (cf. (4a)). This adjective/verb is of type *state-psych-v-lxm* and can be further specified either by the constraint of type *n-d-state-psych-lxm* or *exp-stm-psych-v-lxm* and *n-n-state-psych-lxm*. A further correlation revealed by the data can be captured by this hierarchy: While the event(uality) structure of verbs such as *mwusepta* ‘scary’, *sulphuta* ‘sad’, *himtulata* ‘hard’, etc. is simple (only one predication), being a *state* with an EXP and a SM (also called *pure states* in the aspectual categorization), verbs such as *hwanata* ‘get angry’, *nollata* ‘get surprised’, *cichita* ‘get tired’, etc. are complex, i.e. two predications are introduced (sometimes called *inchoative states* in the aspectual categorization). Firstly, there is a stative eventuality (*state*) with a TG and an EXP , and in addition there is a happening (assuming Bach’s 1986 ontology for eventualities) which indicates the beginning of the state (cf. (4c) and (4d)).

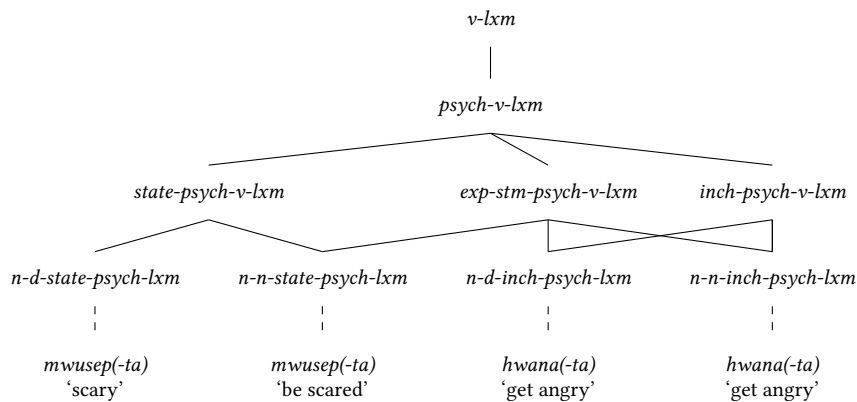


Figure 1: Psych-verb types in Korean

In a similar fashion, we propose an inheritance hierarchy for Spanish yielding 4 subclasses of psych-verbs:

1. *es-acc-psych-v-lxm*: $\text{NOM}_{str}\text{-EXP} > \text{ACC}_{str}\text{-TG}$
2. *es-dat-psych-v-lxm*: $\text{NOM}_{str}\text{-EXP} > \text{DAT}_{str}\text{-SM}$
3. *non-alt-psych-v-lxm*: $\text{DAT}\text{-EXP} > \text{NOM}_{str}\text{-SM}$
4. *alt-psych-v-lxm*: $\text{DAT}\text{-EXP} > \text{NOM}_{str}\text{-SM}$

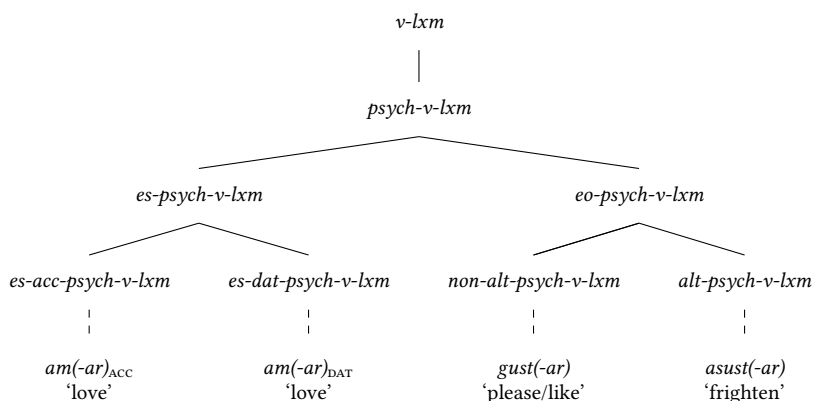


Figure 2: Psych-verb types in Spanish

All four classes described by the inheritance hierarchy are stative. The first class *es-acc-psych-v-lxm*, for verbs such as *amar*, have the unmarked word order $\text{NOM} > \text{ACC}$ and are in many respects similar to strict transitive verbs. The second class *es-dat-psych-v-lxm*, also for verbs such as *amar*, have the unmarked word order $\text{NOM} > \text{DAT}$. The ACC/DAT alternation correlates with a theta-role alternation TG/SM .

The third and fourth classes, *non-alt-psych-v-lxm* and *alt-psych-v-lxm*, show the same word order and linking patterns. The difference between both classes lies on the possibility of the latter to undergo case-alternation ($\text{DAT} > \text{NOM}$ to $\text{NOM} > \text{ACC}$ (cf. (2a) and (2b)), while the former does not show this behavior (cf. (1)). The case alternation for the verbs of type *alt-psych-v-lxm* is described by the following lexical rule (5).

(5) Lexical Rule: Case alternation for Spanish type *alt-psych-v-lxm*

$$\left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{SPR} \langle [3] \rangle \\ \text{COMPS} \langle [4] \rangle \\ \text{AS} \langle [3]\text{NP}[\text{dat}]_{[1]}, [4]\text{NP}[\text{str}]_{[2]} \rangle \end{array} \right] \\ \text{CONT} \left[\begin{array}{l} \text{IND} [0] \\ \text{RELS} \langle [5] \rangle \left\langle \begin{array}{l} \text{THT } \textit{pred} \\ \text{ENT } [0] \textit{state} \\ \text{REL } \textit{rel} \end{array} \right\rangle, [6] \left\langle \begin{array}{l} \text{THT } \textit{exp} \\ \text{ENT } [1] \textit{inx} \\ \text{EV } [0] \end{array} \right\rangle, [7] \left\langle \begin{array}{l} \text{THT } \textit{sm} \\ \text{ENT } [2] \textit{inx} \\ \text{EV } [0] \end{array} \right\rangle \end{array} \right] \\ \textit{alt-psych-v-lxm} \end{array} \right] \mapsto \left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{SPR} \langle [8] \rangle \\ \text{COMPS} \langle [9] \rangle \\ \text{AS} \langle [8]\text{NP}[\text{str}]_{[10]}, [9]\text{NP}[\text{str}]_{[1]} \rangle \end{array} \right] \\ \text{CONT} \left[\begin{array}{l} \text{IND} [11] \\ \text{RELS} \langle [5], [6] \rangle \oplus \left\langle \begin{array}{l} \text{THT } \textit{pred} \\ \text{ENT } [11] \textit{hpng} \\ \text{REL } \textit{begin} \\ \text{EV } [0] \end{array} \right\rangle, \left\langle \begin{array}{l} \text{THT } \textit{causer} \\ \text{ENT } [10] \textit{inx} \\ \text{EV } [11] \end{array} \right\rangle \end{array} \right] \\ \textit{cause-psych-v-lxm} \end{array} \right]$$

While verbs of type *alt-psych-v-lxm* have a simple eventuality structure (*state*) (e.g. *asustar* ‘frighten’, *deprimir* ‘depress’, *preocupar* ‘worry’, etc.), the output of the rule in (5) shows a complex causative eventuality structure in which – besides the *state* – one further eventuality (i.e. *happening*) is involved. The STM/SM of the input is not realized in the output of the rule. The EXP which bears dative in the input is realized bearing accusative

in the output and occupies the object position. The subject of the output verb is interpreted as the CSR of the happening (11) and is not an argument of the input lexeme.

4 Conclusion

We have explored the semantic and linking peculiarities of psych verbs in Korean and Spanish together with their linearization patterns. We have argued that the fronting of EXP dative arguments does not necessarily imply movement, but the unmarked word order can be correctly predicted by means of constraints along the type hierarchy for *psych-v-lxm*.

Taking the following aspects into consideration: (1) case marking and case marking alternations, (2) theta-role assignment, (3) linearization, and (4) eventuality structure, we are able to achieve a fine grained differentiation of psych verb subtypes. The inheritance hierarchies proposed here yield 4 subtypes of psych verbs for each language, and predicts the correct unmarked linearizations.

A further benefit of this kind of analysis is that commonalities and differences between the distinct verb classes can be displayed at different levels of the hierarchy, for instance the commonalities between *n-d-state-psych-lxm* and *n-n-state-psych-lxm* in Korean, or the differences between *non-alt-psych-v-lxm* and *alt-psych-v-lxm* in Spanish. Furthermore, in our analysis we incorporate the eventuality structure of psych verbs leading to a more adequate description of the psych verb domain.

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