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Diathesis Alternation and Case of Experiencer-Object with Psych-Verbs in Spanish

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Abstract This study explores the factors that motivate the choice between alternating constructions with psychological predicates in Spanish. Using data from ADESSE and CORPES XXI, we have performed regression analyses and found that the Experiencer Person, Aspect, and Verb are the main significant factors for the use of the Experiencer-Object vs Experiencer-Subject patterns. However, we do not find a significant correlation between diathesis alternation (Subject vs Object Experiencer) and case alternation (Accusative vs Dative Object Experiencer). This leads to the conclusion that each construction type has different communicative functions.

Keywords Psychological verbs. Case marking. Middle voice. Diathesis. Corpus analysis.

Index 1 Introduction. – 2 Background. – 3 Data and Methodology. – 4 Results: Experiencer-Subject vs Experiencer-Object. – 5 Case Alternation with Experiencer Object Verbs: Accusative vs Dative. – 6 Case Alternation and Diathesis Alternation. – 7 Discussion. – 8 Conclusion.

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1 Introduction

In Spanish, as in other Romance languages, psychological verbs require two participants (Experiencer and Stimulus) and can be construed with 2 opposite syntactic orientations. Some verbs (Psych-I verbs such as *amar* 'love', *temer* 'fear', *sufrir* 'suffer', *añorar* 'miss' ...) encode the Experiencer as Subject and the Stimulus as (Direct) Object, like in (1). Other verbs (Psych-II verbs such as *gustar* 'like', *desagradar* 'dislike', *sorprender* 'surprise', *asustar* 'frighten' ...) code the Experiencer as (Direct or Indirect) Object and the Stimulus as Subject, like in (2)-(4)

(1)	*Yo*	*no*	*añoro*	*la.*	*infancia*	[ADESSE/CIN:043.20]
	1SG.NOM	NEG	miss	ART	childhood	
	Exp=Subj			Stim=Obj		
	'I don't miss childhood'					

(2)	*Me*	*desagrada*	*este Madrid ruidoso*	[ADESSE/PAS:043.12]
	1SG.ACC/DAT	dislike	this Madrid noisy	
	Exp=Obj		Stim=Subj	
	'I dislike this noisy Madrid'			

(3)	*No*	*la*	*asustaba*	*el*	*contagio*	[CORPES, Arg.]
	neg	3SG.**ACC**	frighten.PST	art	contagion	
		Exp=Obj		Stim=Subj		
	'She was not afraid of contagion'					

(4)	*A*	*Leila*	*le*	*asustaba*	*casi*	*todo*	[CORPES, Arg.]
	to	Leila	3SG.**DAT**	frighten.PST	almost	everything	
	Exp=Obj		Exp		Stim=Subj		
	'Leila was scared of almost everything'						

Within Psych-II verbs we can recognise two subclasses: Psych-IIa (= Belletti, Rizzi 1988's class II) alternate accusative/dative case in 3rd person clitics [examples (3)-(4) above] and allow for the *se* construction [= middle voice] with the Experiencer as Subject [example (5)]; whereas Psych-IIb (= Belletti, Rizzi's class III) have exclusively 3rd person dative but not accusative clitics (6), and they do not allow for diathesis alternation (7).

(5)	*Ella*	*no*	***se***	*asustaba*	*(de nada)*
	She	NEG	MIDDLE	frighten.PST	of anything
	Exp=Subj		$Pred_{MIDDLE}$		Stim=Oblique
	'She wasn't scared (of anything)'				

(6)	*Le/*lo/*la*	*desagrada*	*este Madrid ruidoso*
	3SG.DAT/*ACC	dislike	this Madrid noisy
	Exp=Obj		Stim=Subj
	'(S)he dislikes this noisy Madrid'		

(7)	*	*Ella*	*no*	***se***	*desagrada*	*(de este Madrid ruidoso)*
		She	NEG	MIDDLE	dislike	(of this noisy Madrid)

The diathesis alternation exemplified in (3)-(5) is based on a regular semantic correspondence between the object of the active construction and the subject of the middle *se*-construction. Psych-IIa verbs assign the same semantic role, Experiencer, to the object of (3) and the subject of (5), whereas the Stimulus triggers subject agreement in (3) and either appears as an oblique argument (with a preposition) or is absent in the middle construction (5). The possibility of this alternation is related to transitivity, since it is permitted by Psych-IIa verbs, which also allow for the accusative case, but not by Psych-IIb verbs which encode the Experiencer as an indirect object obligatorily in the dative, not in the accusative, as shown in (6), and they do not allow for the middle construction, as illustrated in (7).

The aim of this study is to investigate the factors that influence the choice between Experiencer-Object and Experiencer-Subject constructions with psychological verbs. Building on previous studies, we focus on several linguistic and contextual features that, according to the literature, are involved in (i) the choice of the syntactic function for the Experiencer, either Subject (Exp=Subj) for Psych-I verbs or Object (Exp=Obj) for Psych-II verbs, (ii) the choice between active (Exp=Obj) and middle voice (Exp=Subj) of Psych-IIa verbs, and (iii) the choice between the accusative and the dative case for the Exp=Obj of Psych-IIa verbs. Finally, the study aims to establish (iv) the relationship between the choices mentioned in (ii) and (iii), i.e. whether there is a correlation between the use of the accusative vs dative in the active construction and the use of the middle *se*-construction.

2 Background

This study is rooted in the concept of construction as a conventional association of meaning and form (CxG), motivated by communicative goals. This approach posits that grammatical forms emerge from the discourse context to serve the expressive needs of speakers. Accordingly, our analysis of the syntactic behaviour of psychological verbs is based on the use of the constructions that appear in corpora, paying particular attention to the frequency and relative distribution

of the variable features that characterise them. The importance of the frequency of use derives from the assumption that the most frequent combinations of linguistic properties reflect the communicatively most efficient meanings (cf. Levshina 2023).

Communicative efficiency also underpins the grammatical status of clause constituents. The linking of grammatical functions and semantic roles is determined by the convergence of syntactic hierarchies, such as the Core > Oblique and Subject > Object > Oblique clines, and semantic hierarchies, such as animacy and empathy scales.

In Spanish, subject and direct and indirect objects are considered to be core syntactic roles. In addition to their tendency to be required by the verb as valency elements, the three functions are indexed within the verbal group, either by verbal agreement in person and number (subject) or by pronominal clitics, which vary for person, number, gender, and, for third person, case as well (direct and indirect objects) (cf. García-Miguel 2015). In contrast to these highly grammaticalized functions, oblique arguments are prepositionally flagged dependents that share this type of (more 'lexical') coding with non-valency elements (adjuncts).[1]

The animacy hierarchy (human > animate > inanimate) has been related to the capacities of sentience, control and agency of the participants (Silverstein 1976; Dixon 1979), while topicality and empathy scales (1st > 2nd > 3rd person) reflect the degree of identification of the speaker with the referent.

In prototypical transitive constructions, syntactic and semantic hierarchies tend to converge such that the referents with the highest levels of animation and empathy occupy the most prominent syntactic position (subject). However, with psychological predicates, even if the Experiencers are the most animate and empathetic participants, they are not necessarily the most active. In fact, it is the Stimulus that is regarded as having an effect on the Experiencer. This mismatch between the semantic-referential properties of participants and their syntactic coding indicates the need to also consider the properties of events, as outlined below.

In the literature, the contrast underlying active / middle alternation has been related to two semantic dimensions of the event, causal structure and aspectual structure (Croft 1993; 2012).

1 Note that, crosslinguistically, datives may have properties (such as verbal indexing and/or adpositional flagging) suggesting to give them "a special status, closer in some respects to that of core terms *strictu sensu* than to that of ordinary obliques" (Creissels 2024, 30). Creissels proposes to designate them as "dative obliques" and to treat them as a particular variety of obliques. However, we defend, as least for Spanish, that the dative is an additional type of core syntactic role.

Regarding causal structure, even though both alternates deviate from the prototypical model of causation, cause-related differences were found between active and middle *se*-constructions, among which the spontaneity of the event and the Experiencer's responsibility and affectedness stand out.

The degree of spontaneity attributed to the event is a factor that has been highlighted in several studies as a basis for choosing between the two structures.[2] These studies point to the probability of the spontaneous occurrence of the described situation as a relevant factor: the greater the spontaneity, the less the need to express the causal or triggering element of the situation. Usage data supports considering the degree of spontaneity of an event as a relevant component in conceptualising middle *se*-constructions as opposed to active constructions. In active voice constructions, the syntactic encoding of the stimulus as a core participant (i.e. Subject) rules out a spontaneous interpretation of the process. In contrast, in the middle voice, "el estímulo pierde su estatus de participante central y pasa a elemento marginal" (the stimulus loses its status as a central participant and becomes a marginal element) (Melis 1999, 57), allowing for its omission. This gives rise to the conception of the event as a process that is autonomous or spontaneous to some extent (i.e. not the result of a direct cause-and-effect relationship). Thus, spontaneity favours the use of the middle *se*-construction, which does not require an argument that refers to what provokes the emotional process in the Experiencer (i.e. the Stimulus). Even when a cause or Stimulus coded as oblique is mentioned in the clause, the middle *se*-construction implies a defocusing of this participant, since "sitúa en la periferia del evento al elemento oblicuo" (it places the oblique element at the periphery of the event) (Melis 1999, 55).

The responsibility of the Experiencer in the occurrence of the event has been mentioned in the literature.[3] Maldonado (1999, 52) states that the middle indicates an increasing involvement and responsibility of the Experiencer. Melis (1999, 52) also points out that the subject Experiencer "lleva asociados implícitos matices de responsable iniciador del evento" (is implicitly associated with being the responsible initiator of the event).

With respect to the affectedness of the Experiencer, Melis (1999) shows that the object Experiencer of the active pattern is conceived as more affected than the subject Experiencer of the middle voice. Usage data reveal a preference for first- and second-person Experiencers to be encoded as objects in the active alternate, in contrast to the third-person Experiencers, who are more often cast

2 Cf. Haspelmath 1993; 2016; Melis 1999, 52; Heidinger 2015; García-Miguel 2023, 284.

3 See Maldonado 1999, 52; Melis 1999, 52; Croft 2012, 235; among others.

as subjects in the middle voice. This distribution is related to the 'empathy hierarchy' (Kuno, Kaburaki 1977; Kuno 1987), according to which the speaker perceives from a 1st person perspective how a given situation affects him/her and, to some extent, how it affects the interlocutor (2nd person); however, it is not so easy to determine how much a third person Experiencer is affected by a mental event.

Regarding aspect, Psych-IIa verbs are assigned a wide variety of interpretations according to the Vendler-Dowty classification.[4] Active Subject-Object constructions have been analysed alternatively as stative or inchoative, depending on the dative or accusative case marking of the object Experiencer (cf. Ackerman, Moore 1999; Cifuentes 2015), however, the aspectual classification system based on formal tests has certain limitations, and in many cases yield dubious results, as has also been pointed out by Kailuweit (2015). Nevertheless, usage-based studies have found some significant correlations between perfect tenses and the accusative case, and between imperfect tenses and the dative case (Miglio et al. 2013; Vázquez Rozas, García-Miguel 2025). These data can be taken as evidence for the association of the accusative vs dative markings with, respectively, telic vs atelic events.

Differences in aspectual class have also been observed between active and middle voice clauses with Psych-IIa verbs. Marín, McNally (2011) identify an inchoative meaning in all middle *se*-constructions, with a further distinction between punctual verbs, such as *enfadarse*, and non-punctual verbs, such as *aburrirse*. Marín (2011), on the other hand, applies several aspectual combinatorial tests to active constructions, and concludes that they behave like stative expressions.

In the remainder of the paper, we first describe the data sources for the study – the ADESSE database and CORPES XXI – and the method used to extract the data sets for the statistical tests (section 3). Section 4 contains the statistical analysis concerning the choice between Experiencer=Subject vs Experiencer=Object, where the factors influencing the Experiencer's syntactic encoding (subject vs. object) are examined; this analysis focuses on the contrast between Psych-I and Psych-II verbs, on the one hand, and on the diathesis alternation between active and middle *se*-constructions with Psych-II verbs, on the other. Next, section 5 deals with the accusative/dative alternation with Psych-IIa verbs. Section 6 examines the correlation between the frequency of accusative/dative case markings and the frequency of middle *se*-constructions. Section 7 discusses the results of the analysis, relating them to the specific communicative functions of

4 Cf. Di Tullio 2004; Vanhoe 2004; Marín 2011; Cifuentes 2015; Melis 2019.

alternative constructions allowed by psychological verbs. Finally, section 8 summarises the conclusions of the study.

3 Data and Methodology

For the present study, we have used two sources of data: ADESSE and CORPES.

ADESSE[5] is a database with detailed lexical, semantic, and syntactic information about the argument structure of 159,000 clauses of a 1.45-million-word corpus (ARTHUS) of contemporary Spanish texts published between 1980 and 1990. In the ADESSE database, clauses are analysed for many syntactic and semantic properties, and the verbs (± 4.000 lexical entries) are classified into a detailed conceptual typology of processes.

CORPES[6] is a lemmatised and POS-tagged reference corpus of Spanish with a size of 395 million words (as of version 1.0), which consists of a balanced sample of Spanish texts of the twenty-first century.

From ADESSE we have selected all verbs and clauses classified as "*Sensación*", i.e. Emotion/Psych-verbs. This amounts to a dataset of 5,845 clauses, and 265 different verbs. The whole dataset includes both Psych-I verbs (1,608 clauses, 56 verbs) and Psych-II verbs (4,237 clauses, 224 verbs), and detailed semantic and syntactic properties of the clause (e.g. Voice and TAM) and its arguments (Semantic Role, Syntactic Function, Case, Gender, Number, Animacy, etc.).

As for CORPES, we have used its search engine to extract the inventory of grammatical forms consisting of a Psych-IIa verb plus a personal pronoun (which corresponds to the Experiencer) immediately preceding or following the verb form (for example: *lo alegra, se alegró, alegrar-se, me he alegrado, alegra-te*) and the frequency of each combination. We have performed independent searches for 50 highly frequent Psych-IIa verbs that allow the accusative case for Experiencer-Object (as in *lo alegra* 'it makes him happy') and middle voice with the Experiencer-Subject (as in *se alegró* 'he was happy'). (8) contains the list of the 50 selected verbs:

5 ADESSE. *Base de datos de verbos, alternancias de diátesis y esquemas sintáctico-semánticos del español*. Universidade de Vigo. `https://adesse.uvigo.es/`.

6 CORPES. *Corpus del español del siglo XXI*. v 1.0. Real Academia Española. `https://apps2.rae.es/CORPES/`.

(8) *aburrir* 'bore', *agobiar* 'overwhelm', *alarmar* 'alarm', *alegrar* 'gladden', *animar* 'animate', *apaciguar* 'appease', *apasionar* 'be passionate about', *aplacar* 'calm down', *asombrar* 'amaze', *asustar* 'frighten', *atormentar* 'torment', *aturdir* 'stun', *avergonzar* 'embarrass', *calmar* 'calm', *cansar* 'tire out', *complacer* 'please', *conmover* 'move', *consolar* 'comfort', *decepcionar* 'disappoint', *desconcertar* 'bewilder', *disgustar* 'displease', *divertir* 'amuse', *enfadar* 'annoy', *enojar* 'annoy', *enorgullecer* 'make/be proud', *entretener* 'entertain', *entristecer* 'sadden', *entusiasmar* 'delight', *escandalizar* 'scandalize', *estremecer* 'shake/shudder', *excitar* 'excite', *extrañar** 'surprise', *fastidiar* 'annoy', *fatigar* 'tire', *horrorizar* 'horrify', *incomodar* 'disturb', *indignar* 'outrage', *inquietar* 'disquiet', *irritar* 'irritate', *joder* 'piss off', *molestar* 'bother', *obsesionar* 'obsess', *ofender* 'offend', *preocupar* 'worry', *reanimar* 'reanimate', *relajar* 'relax', *satisfacer* 'satisfy', *sobresaltar* 'startle', *sorprender* 'surprise', *tranquilizar* 'reassure'.

***** In Spain, *extrañar* is used predominantly with the meaning of 'surprise', as a Psych-IIa verb, while in Latin America it is more frequently used with the accusative and means 'to miss' (Psych-I).

Each verb was searched for the subcorpora of European or American origin, which makes a total of 100 searches (50 × 2). Once the results were filtered and cleaned, we had a dataset of 12,034 records (verb forms + pronoun forms), corresponding to 169,338 total cases (clauses), from which 104,548 from the American subcorpus and 64,790 from Spain.

As CORPES does not provide tags with the search results, several home-made scripts were developed to assign a morphosyntactic tag to each case with the morphosyntactic properties of the verb forms (TAM, person, number) and the pronoun forms (person, number, case). This is followed by an automatic assignment of a syntactic function (Subj / Obj) to the Experiencer, based on the agreement or lack of agreement in person and number between the verbal and the pronominal form. For example, in *me alegra* [Pro1 V3] '(s)he/it makes me happy', Experiencer *me* is Obj; whereas *me alegro* Pro1 V1 'I am happy' is a middle voice construction with the Experiencer as Subject. If both pronoun and verb are 3rd person, reflexive *se* is a middle voice mark and the Experiencer is Subject, otherwise the pronoun (*le*, *la*, *lo*) is the object of active voice. As we are operating over an inventory of forms, and not over concordances of real examples, ambiguities could not be resolved. This specially affects syncretic 1st-3rd person forms, as in *me alegraba* [P1 V1/3] 'I was happy' or 'it/(s)he used to make me happy'.

The final datasets contain the selected variables and levels listed in Table 1. The lack of semantic annotation in CORPES determines the selection of independent variables. Compared to ADESSE, in CORPES it is not possible to differentiate between animate and inanimate Stimuli. On the other hand, in ADESSE we cannot get

enough data on specific verbs, whereas in CORPES there are many data about all the 50 selected verbs.

Table 1 Factors and levels of ADESSE and CORPES datasets[7]

Factor	Levels	Dataset
(verb) Type	Psych-I vs. Psych-II	adesse
Verb	[50 selected Psych-IIa verbs]	corpes
Zone	Es [Spain] vs. Am [America]	adesse, corpes
TextGenre	Essay vs. Narrative vs. Press vs. Spoken vs. Theater	adesse
Aspect	Perf vs. Imperf [1]	adesse, corpes
Exp_fsynt	Subj vs. Obj	adesse, corpes
Exp_case	Acc vs Dat (vs NA)	adesse, corpes
Exp_person	1 vs. 2 vs. 3	adesse, corpes
Stim_person	1 vs. 2 vs. 3	adesse, corpes
Stim_anim	an [animate] vs. in [inanimate] vs. inc [clause]	adesse

1 *Perf* = simple perfective past and all compound perfects. *Imperf* = all simple tenses, except perfective past indicative, including subjunctive, imperative, and non-finite forms.

From these datasets we have selected different subsets on which we have performed multivariate logistic regression analyses. In each step we have filtered the relevant data from the datasets and calculated (mixed-effects) logistic regression models that included all the potentially relevant predictors. We have mostly used the glm() function of the base R software, the glmer() function of the lme4 package, and the Anova() function of the car package, to determine in each model which factors were statistically significant, their effect size and the relative importance of each predictor. Non-significant predictors were not discarded from the models and there was no model comparison or selection conducted (Tizón-Couto, Lorenz 2021).

Section 4 analyzes the factors that may influence the syntactic subject or object function of the Experiencer, section 5 looks into the accusative or dative case of the Experiencer, and section 6 considers a potential relation between case choice and syntactic function choice.

7 Abbreviations: Exp = Experiencer, Stim = Stimulus, FSynt = Syntactic Function, Anim = Animacy.

4 Results: Experiencer-Subject vs Experiencer-Object

The syntactic function of the Experiencer depends on the verb type and the voice. In the active unmarked voice of Psych-I verbs (such as *temer* 'fear' or *amar* 'love') the Experiencer is the Subject; whereas with Psych-II verbs (e.g. *asustar* 'frighten' or *alegrar* 'gladden') the Experiencer is the Object in the active voice clauses and the Subject in the middle voice clauses with *se*.

We want to explore which independent factors may influence the choice of the syntactic function of the Experiencer and whether those factors are the same when we choose between the two subclasses of psych verbs, and when we choose the voice of Psych-IIa verbs.

4.1 Verb Type: Experiencer Subject (Psych-I) vs Experiencer Object (Psych-II)

The choice between the Experiencer Subject construction (Psych-I verbs like *temer* 'fear') and the Experiencer Object construction (Psych-II verbs like *gustar* 'like' and *preocupar* 'worry') has been analysed by Vázquez-Rozas, Miglio (2016), who found that Experiencer person and number, Stimulus animacy, and Text Genre are significant for the selection of the construction.

Over a similar dataset – 4,359 uses of 218 psych verbs in the active voice in the ADESSE database, of which 1,339 come from 47 Psych-I verbs and 3,020 come from 176 Psych-II verbs –,[8] we have now performed a mixed effects regression analysis. The dependent variable was the verb Type (Psych-I vs Psych-II), i.e. verbs that select Experiencer Subjects vs verbs that select Experiencer Objects, and the fixed effects were Stimulus Animacy, Experiencer Person and Text Genre (as suggested by Vázquez-Rozas, Miglio 2016) plus Zone (with two levels: Spain vs America) and Aspect (with two levels: Perfective and Imperfective). We have also explored the possible interaction between Experiencer Person and Stimulus Animacy, while accounting for random intercepts by Text (34 texts). Then, the formula for the lme4::glmer() function was 'Type ~ TextGenre + Zone + Aspect + Exp_person*Stim_anim + (1|Text)' and the results are summarized in Table 2.

8 Five verbs (*admirar* 'admire', *apetecer* 'desire', *desesperar* 'despair', *extrañar* 'miss' or 'surprise', and *gustar* 'like') are counted twice as they are found both in Exp-Subject and Exp-Object constructions.

Table 2 Coefficients of main effects for Type=Psych-I (Exp=Subj)

Predictor	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	0.538	0.211	2.553	0.011	*
TextGenre = Narrative	-0.321	0.179	-1.794	0.073	.
TextGenre=Press	0.470	0.273	1.720	0.085	.
TextGenre=Spoken	-1.829	0.232	-7.884	< 0.001	***
TextGenre=Theater	-0.312	0.200	-1.564	0.118	
Zone=H	-0.069	0.147	-0.467	0.640	
Aspect=perf	0.053	0.097	0.544	0.586	
Exp_person=2	-0.430	0.223	-1.925	0.054	.
Exp_person=3	-0.539	0.156	-3.444	0.001	***
Stim_anim=in	-1.109	0.150	-7.393	< 0.001	***
Stim_anim=inc	-1.280	0.161	-7.949	< 0.001	***
Exp_person=2 x Stim_anim=in	0.413	0.283	1.462	0.144	
Exp_person=3 x Stim_anim=in	1.286	0.187	6.870	< 0.001	***
Exp_person=2 x Stim_anim=inc	-1.081	0.462	-2.340	0.019	*
Exp_person=3 x Stim_anim=inc	0.406	0.233	1.743	0.081	.

Reference levels: Type=Psych-II, TextGenre=Essay, Zone=E, Aspect=Imperf, Exp_person=1, Stim_anim=an.

The model converged successfully and showed a good fit (AIC = 4678.5). Random intercept variance for Text was estimated at 0.045 (SD = 0.21), indicating a moderate amount of between-text variation in baseline response probabilities.

To assess the relative contribution of each variable a type III ANOVA was performed using the Anova() function from the car package. The results indicated that Text Genre ($\chi^2(4) = 42.11$, $p < 0.001$), Experiencer Person ($\chi^2(2) = 20.34$, $p < 0.001$), and Stimulus Animacy ($\chi^2(2) = 16.45$, $p < 0.001$) were significant predictors of verb Type, while Zone ($\chi^2(1) = 0.21$, $p = 0.64$) and Aspect ($\chi^2(1) = 0.28$, $p = 0.59$) were not significant. All these results confirm the results of Vázquez-Rozas and Miglio (2016).

Predicted probabilities for Text Genre were highest for the Spoken genre ($\beta = -1.83$, $p < .001$, against the reference level: Essay) and lower for Press ($\beta = 0.47$, $p = .085$), with Narrative and Theater falling in between.

Of particular interest is the interaction between Stimulus animacy and Person of the Experiencer, which was statistically significant ($\chi^2(4) = 65.54$, $p < 0.001$), indicating that the effect of stimulus animacy on the probability of the Experiencer Subject Construction (Psych-I) varied by the Experiencer Person, as illustrated in Chart 1. In general, 1st person Experiencers have more probability of being encoded as the Subject of a Psych-I verb. However, 3rd-person

Experiencers had a higher probability of Psych-I for inanimate Stimuli, while the lower probability of clausal stimuli as the Object of Psych-I was particularly impactful for 2nd-person Experiencers. In general, animate Stimuli are more likely in Exp=Subj constructions (Psych-I verbs), where they are coded as Objects (*quiere a María* '(s)he loves Mary'), than inanimate Stimuli, and particularly propositional ones, which correlate significantly with Exp=Obj (Psych-II verbs), where these Stimuli are coded as Subjects (*le gusta bailar* '(s)he loves dancing', where *bailar* is the constituent triggering subject agreement).

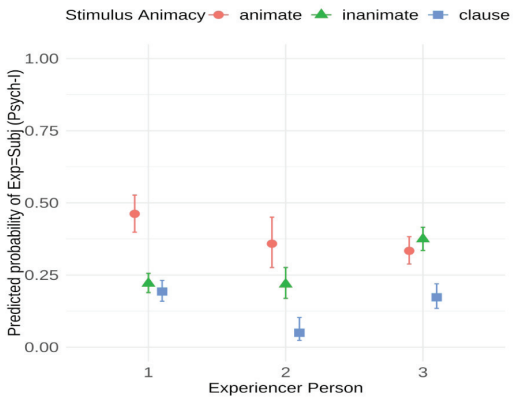

Chart 1 SInteraction effect of Stimulus Animacy and Experiencer Person on the probability of using Exp=Subj verbs (Psych-I) (ADESSE data)

The results of the analysis partially confirm the findings of Vázquez-Rozas and Miglio (2016) regarding the influence of Text Genre, Experiencer Person, and Stimulus Animacy on the choice between Psych-I and Psych-II constructions. The interaction between Experiencer Person and Stimulus Animacy is an additional evidence of the complexity of this alternation, suggesting that the syntactic realization of psychological predicates is sensitive to both the characteristics of the Experiencer and the nature of the Stimulus. On the other hand, neither Aspect nor Geographical Zone are significant predictors of the choice between those two verb classes.

4.2 Diathesis Alternation: Experiencer Subject (Middle Voice) vs Experiencer Object (Active Voice) in ADESSE Data

In this section, we will analyze the voice alternation (Active vs Middle), that is associated with the choice of the syntactic function of the Experiencer (Subject in the middle voice, Object in the active voice), in a dataset of 3929 tokens in ADESSE corresponding to 265 Psych-II verbs, of which 2982 are in the Active Voice (Exp=Obj, as in *algo le/lo preocupa* 'something worries him') and 947 are in the Middle Voice (Exp=Subj as in *Él se preocupa (por algo)* 'he is worried about something'). The dataset includes Psych-IIa verbs like *preocupar* that allow for voice alternation, Psych-IIb verbs like *gustar* 'like' that do not admit middle voice, and verbs like *arrepentirse* 'repent' and *sobreponerse* 'overcome' that in this corpus are documented only in middle voice.

Middle voice tends to include the Experiencer as the only explicit argument (*él se preocupa* 'He is worried'). However, the Stimulus is expressed as an oblique argument in one third of the occurrences of the middle construction (*El se preocupa por algo* 'he is worried about something'). Obviously, if there is not a Stimulus argument, the only option is to use the Exp=Subj middle construction, which does not require the expression of the Stimulus. Therefore, we have not included any factor related to the Stimulus features in the statistical models used to predict the choice of the middle voice constructions.

The dependent variable is the voice alternation (whether Experiencer occupies the subject slot or not) and, as in the preceding section, we will consider as potential predictors Text Genre, Geographical Zone, Aspect and Experiencer Person. A generalized linear mixed-effects model was fitted to predict Exp_subj using TextGenre, Zone, Aspect, Exp_person, and their interaction, with random intercepts for Verb and Text. The formula for the glmer() function is 'Exp_subj ~ Exp_person*Aspect + TextGenre + Zone + (1 | Verb) + (1 | Text)'.

The model demonstrated good fit (AIC = 2462.6; BIC = 2544.0; log-likelihood = -1218.2). Random effects indicated substantial variability across verbs (SD = 2.74) but only a minimal variability across texts (SD = 0.32).

The results of the type III Wald chi-square tests revealed significant main effects of Aspect ($\chi^2(1) = 14.89$, $p < .001$) and Experiencer person ($\chi^2(2) = 66.36$, $p < .001$) on the response variable *Exp_subj*. Additionally, a significant interaction was found between Aspect and Experiencer person ($\chi^2(2) = 6.45$, $p = .040$), suggesting that the influence of Aspect varies depending on the level of Exp_person. In contrast, Text Genre ($\chi^2(4) = 7.55$, $p = .110$) and Zone ($\chi^2(1) = 0.13$, $p = .723$) did not exhibit statistically significant effects.

The coefficients of fixed effects for the base value Exp = Subj (middle voice) are summarized in Table 3.

Table 3 Coefficients of main effects for Exp=Subject (middle voice)

Predictor	Estimate	Std.Error	z-value	Pr(>|z|)	
(Intercept)	-2.379	0.376	-6.331	< 0.001	***
Aspect=Perf	0.951	0.247	3.859	< 0.001	***
Exp_person=2	1.442	0.214	6.748	< 0.001	***
Exp_person=3	1.358	0.181	7.516	< 0.001	***
Aspect=perf x Exp_person=2	-1.429	0.573	-2.493	0.013	*
Aspect=perf x Exp_person=3	-0.119	0.297	-0.399	0.690	
TextGenre=Narrative	-0.202	0.268	-0.755	0.450	
TextGenre=Press	-0.524	0.435	-1.206	0.228	
TextGenre=Spoken	-0.123	0.341	-0.360	0.719	
TextGenre=Theater	0.290	0.303	0.957	0.339	
Zone=H	-0.075	0.213	-0.355	0.723	

The model revealed significant main effects of perfective Aspect (β = 0.95, p <.001), Exp_person = 2 (β = 1.44, p <.001), and Exp_person = 3 (β = 1.36, p <.001). The results show a higher predicted proportion of Middle construction in perfective Aspect and non-1st person Experiencers, as illustrated in Chart 2.

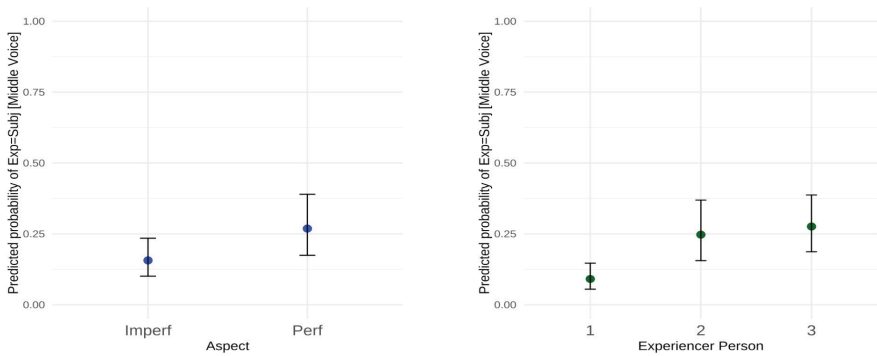

Chart 2 Main effects of Aspect and Person of Experiencer on the predicted probability of Exp=Subj middle construction (Psych-II verbs in ADESSE dataset)

A significant negative interaction was observed between perfective Aspect and 2nd person Experiencer (β = -1.42, p =.013), indicating that the effect of the perfective aspect was attenuated for second person. The interaction between Aspect and 3rd person Experiencers was not

significant. The positive effect of perfective aspect is significantly reduced for 2nd person Experiencers, as illustrated in Chart 3.

This apparently anomalous behaviour of 2nd person Experiencers led us to explore those examples, and we have found that in middle voice the 2nd person Experiencers appear very frequently (63% of their uses in middle voice) in the exhortative modality, either in the affirmative imperative form (*alégrate* 'be happy') or negative in present subjunctive form (*no te preocupes*, 'don't worry'). As we have coded in our data only the compound perfect tenses and the simple past perfective as "Perf", all other forms have been coded as "Imperf", including subjunctives and imperatives (a decision which we admit may be controversial). In any case, the quantitative analysis of the interaction between Aspect and Person has led us to observe an interesting pattern of usage. We will comment a bit more on that in the discussion section.

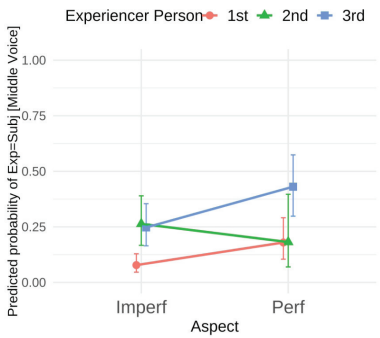

Chart 3 Interaction effect of Aspect and Experiencer Person on the probability of using the middle voice Exp=Subj construction (Psych-II verbs in ADESSE dataset)

Compared to the previous section about verb types (Psych-I vs Psych-II), the present analysis about diathesis alternation within Psych-II verbs (active vs middle) reveals notable shifts in the significance and behaviour of key predictors, even though both analyses are related to the choice of the Experiencer in Subject function. While Text Genre previously emerged as a significant factor for verb type, it turns out that there is no statistically meaningful effect on diathesis alternation. In contrast, Aspect, which was not significant before, now plays a crucial role: the middle voice is more likely to occur with the perfective aspect. The behaviour of Experiencer person remains consistent, with first person continuing to be less likely to appear in subject function as compared to third person experiencers. However, a new interaction between Aspect and Experiencer person has emerged: second person is now significantly less likely to occupy subject function in the perfective than in the imperfective aspect,

suggesting a more nuanced relationship between grammatical aspect and subject selection across different person categories.

The analysis also showed substantial variability across verbs, introduced in the model as a random effect. In the next section, CORPES data will allow us to incorporate the verb lexema as a fixed effect.

4.3 Diathesis alternation: Experiencer Subject (Middle Voice) vs Experiencer Object (Active Voice) in CORPES Data

For the analysis of this section, we have data from CORPES on the combination of Verb + Pronoun with 50 Psych-IIa verbs, from which we have been able to obtain several morphosyntactic characteristics derived from nominal and verbal morphology. We can also analyse, as in the models used with the ADESSE dataset, the variables Aspect, Experiencer person, and Zone. But now we cannot include variables related to Text Genre and Stimulus features. Information about text genre is not available in the CORPES dataset, and for the Stimulus the only data we could obtain is the verbal number and person when it functions as a subject (in the active voice), but nothing when it eventually appears as an oblique adjunct in middle voice. On the positive side, we have enough data on each verb to introduce it as one of the possible relevant factors. In fact, we will see that this is the main determining factor in the choice between Active (Exp=Obj) and Middle (Exp=Subj). From the remainder of the factors in these data, we obtain results that are very similar to those we had obtained in ADESSE with a larger number of verbs and a much smaller number of tokens. For the CORPES data, we have not introduced any random factors as the variable Verb will be included as a fixed effect and there is no Text variable in our dataset. The final generalized linear model calculates the formula 'Exp_fsynt ~ Exp_person*Aspect + Zone*Verb'.

Overall, the model demonstrated a good fit, with a substantial reduction in deviance from the null model (Δ Deviance = 50,203; AIC = 160,278).

To assess the relative contribution of each predictor to the model, a Type III analysis of deviance was conducted. Among the main effects, Verb emerged as the most influential factor, accounting for the largest proportion of explained deviance (LR $\chi^2(49) = 21{,}459.0$, $p < .001$), followed by Experiencer Person (LR $\chi^2(2) = 11{,}837.5$, $p < .001$) and Aspect (LR $\chi^2(1) = 1{,}933.6$, $p < .001$). In contrast, Zone did not significantly contribute to the model (LR $\chi^2(1) = 0.6$, $p = .42$), although there is a significant interaction between Zone and Verb (LR $\chi^2(49) = 2{,}027.5$, $p < .001$). These results indicate that lexical and grammatical features related to the verb and the experiencer play a central role in predicting syntactic structure, whereas regional variation (Zone) has a negligible effect when controlling for other variables.

The coefficients of the main effects (excluding verb coefficients and their interaction with zone in order to simplify the table) are given in Table 4.

Table 4 Coefficients of main predictors of Exp = Subj [Middle Voice] (CORPES data) (verb coefficients not included in this table)

Predictor	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	-0.451	0.053	-8.599	< 0.001	***
Exp_person = 2nd	2.134	0.028	75.754	< 0.001	***
Exp_person = 3rd	1.982	0.021	96.509	< 0.001	***
Aspect = Perf	1.173	0.027	43.521	< 0.001	***
Zone = Es	-0.062	0.077	-0.806	0.420	
Exp_person = 2nd x Aspect = Perf	-1.973	0.075	-26.472	< 0.001	***
Exp_person = 3rd x Aspect = Perf	-0.805	0.032	-25.465	< 0.001	***

The results revealed significant main effects for Experiencer person and Aspect: the odds of middle voice increases with second and third person Experiencers compared to first person (2nd: $\beta = 2.13$, $p < .001$; 3rd: $\beta = 1.98$, $p < .001$), as well as with perfective Aspect compared to imperfective ($\beta = 1.17$, $p < .001$). Significant interactions were found between Experiencer person and aspect, indicating that the effect of perfective aspect was attenuated for non-first-person Experiencers, above all with 2nd person, as illustrated in Chart 2, which confirms the results of Chart 3 with the ADESSE dataset.

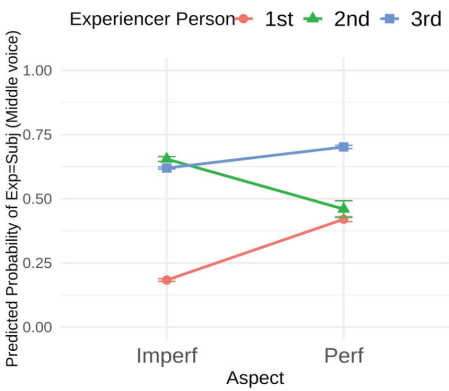

Chart 4 Predicted probabilities of Exp=Subj by Experiencer Person and Aspect (CORPES data)

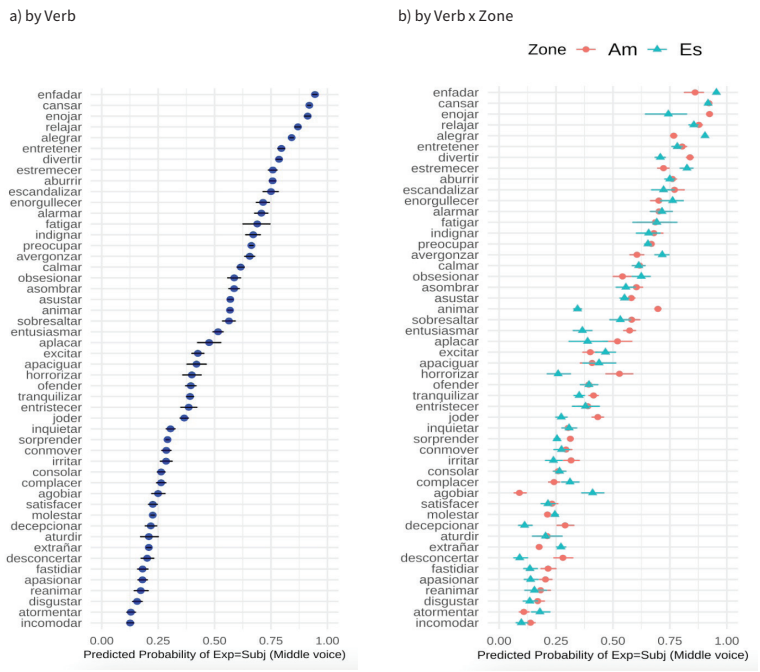

Chart 5 Predicted probabilities of Exp=Subj (& middle voice) (CORPES data)

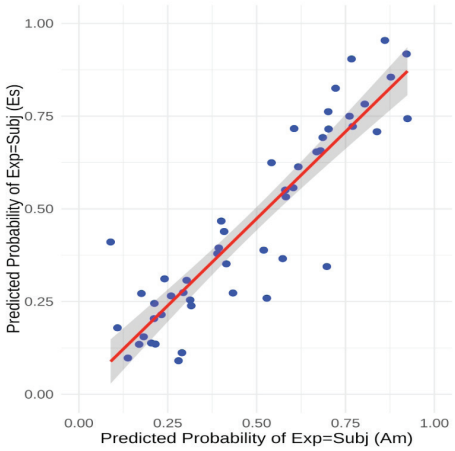

Chart 6 Predicted probabilities of Psych-IIa verbs been used in middle voice in Spain vs America. Each dot represents a verb

The number of tokens provided by CORPES for each verb provides strong statistical support to the relevance of the differences between verbs. Additionally, although the main effect of Zone was not significant, several zone-by-verb interactions emerged, suggesting that the influence of some specific verbs varied across zones. The Chart 5 shows a ranking of verbs acording to their predicted probability of being construed in middle voice, and the interaction of Verb and Zone maintaining the same ranking.

The verb rank in Chart 5 is likely related to the spontaneity of the event, with verbs at the top end (like *enfadar**se*** / *enojar**se*** 'get angry' and *cansar**se*** 'get tired') referring to events that occur more spontaneously as some internal process, whereas the verbs at the bottom (like *incomodar**lo*** 'disturb him') indicate the involvement of a participant external to the Experiencer.[9] Some (near-)synonyms, like *enfadar* and *enojar* 'anger', show a similar behaviour as regards their preference for the middle construction. However, several other near-synonyms behave differently: first, for example, *fatigar* 'fatigue, tire' is associated with the middle construction to a lesser degree than *cansar*, although both are situated near the top; second, verbs related to the meaning 'bother' (*joder*, *irritar*, *molestar*, *fastidiar*) also behave differently, although they are situated rather towards the bottom, and, finally, verbs whose meaning is 'calm down' or something similar (*relajar*, *calmar*, *aplacar*, *apaciguar*, *tranquilizar*) are distributed along different points of the scale. So, it seems that there are always some lexical idiosyncracies.

Interestingly, there are not big differences between geographical zones, as there is a strong positive correlation between the predicted probabilities by verb in Spain and America (Pearson's $r = 0.90$ $p < .001$, Spearman's $\rho = 0.89$, $p < .001$). Among the outliers there are the nearly synonymous *enojar* and *enfadar* '(get) angry': *enfadarse* has a greater probability of being used in middle voice in Spain, just as *enojarse* in America.

9 In some cases, nuances of meaning emerge, which we cannot explore here. For example, (i) *Me cansa hacerlo* 'I tires me to do it' contrasts with (ii) *Me canso de hacerlo* 'I get tired of doing it', both of which have an explicit external cause and a durative value in the present (and an inchoative-momentaneous value in the past). The active construction (i) is usually associated with physical fatigue, whereas the middle construction (ii), lacking an explicit cause, does not specify the type of fatigue.

4.4 The Syntactic Function of the Experiencer: Summary of Results

The choice of the syntactic function of the Experiencer (Subject or Object) is associated with the verb class (Psych-I vs. Psych-II) or with the grammatical voice with Psych-II verbs (Active vs. Middle *se*-construction). After analysing the effect of several independent variables on this choice across different data subsets, we summarize here the main results.

There are significant differences in use across Text Genres with respect to lexical choice: the Spoken subcorpus of ADESSE shows a higher probability of Psych-II verbs (vs Psych-I) than another genre. However, Text Genre is not a significant predictor of middle voice (vs active) within Psych-II verbs. On the other hand, we have not found significant differences between Zones (Spain vs. America) neither in the choice of verb types nor in the preference for any voice. External factors, such as geolect and register, appear to be of secondary importance in the choice of the syntactic constructions of psych verbs.

With respect to linguistic factors, we have analysed some features of the participants, and our results show that Experiencer Person is a significant predictor of the choice of constructions: 3rd person Experiencers are more associated with EXP=SUBJ constructions (either Psych-I, as in *temen* 'they fear', or middle voice Psych-II, as in *se asustan* 'they got scared'); while 1st person Experiencers are more associated with EXP=OBJ constructions (Active voice Psych-II, as in *me asustan* 'they scare me'). However, this general tendency must be nuanced as there are significant interactions of Experiencer Person and Stimulus Animacy on the choice of verb type, and interaction of Experiencer Person and Aspect on the voice alternation.

The data also show that the animacy of the stimulus seems to be a relevant predictor of the contrast between Psych-I and Psych-II verbs. However, the significance of this variable for the choice of Experiencer as Subject with the middle construction is not demonstrated since the statistical models for the class II alternants did not include such variable due to the sparseness of ADESSE data, and the absence of this kind of information in CORPES data.

Aspect is not significant for the choice between Psych-I and Psych-II; but it is significant within class II for the voice alternation: the middle EXP=SUBJ is more likely with the perfective aspect, and active EXP=OBJ with the imperfective. Frequency of perfective aspect is correlated with telic Aktionsarten (Becker, Malchukov 2022), so that we can infer that the middle voice tends to construe the event as an effective change of state. On the contrary, in the active voice both Psych-I and Psych-II tend to construe the event as stative, without significant aspectual differences between the two types of verbs, despite the differences in syntactic patterning.

Finally, the lexical verb is the main significant factor for the choice of the syntactic constructions. The syntactic function of each participant in a psychological process is at large lexically determined. This is obvious for the alternation between Psych-I and Psych-II constructions, where we have two (almost) disjoint classes. Within the Psych-II class, the Psych-IIa verbs allow voice alternation and, within those verbs that allow the voice alternation, we have found in CORPES data that there is a continuous cline from verbs that show a preference for the use of the middle voice EXP=SUBJ construction (like *enfadar**se*** / *enojar**se*** 'get angry' and *cansar**se*** 'get tired') to verbs that show a preference for the use of the active voice EXP=OBJ construction (like in *incomodarlo* 'disturb him'). The possibility of middle voice is related to spontaneity, and the relative probability of using middle voice construction may be also related to transitivity. We will explore this possibility in the following sections, in which we try to relate the voice alternation with the case alternation in the object.

5 Case Alternation with Experiencer Object Verbs: Accusative vs Dative

The verbs that allow the middle voice construction also alternate in the active voice for the Experiencer as Object between the Accusative (***lo*** *preocupa* 'he/she/it worries him') and the Dative (***le*** *preocupa* 'he/she/it worries him') case. This alternation is limited to Psych-IIa verbs and can be seen only in 3rd person pronominal clitics, as 1st and 2nd person clitics (*me preocupa* 'he/she/it worries me', *te preocupa* 'he/she/it worries you') do not manifest this case distinction. Although the Experiencer-Object is most frequently 1st person, in the CORPES dataset we have got 38,072 valid cases of 3rd person Experiencer in which we can explore this alternation from which 19,779 of Accusative and 18,293 of Dative.

Taking the Case of Experiencer as dependent variable, in the statistical model we have introduced as independent variables the same factors as in the analysis of the voice alternation, with the exclusion of Experiencer person (not relevant because case alternation is limited to 3rd person) and the inclusion of Stimulus person, which is recoverable from the verb morphology. Verb person indexes the Subject argument (Stimulus) and is related to animacy: 1st and 2nd person forms always have human referents while 3rd person forms can refer to both animate and inanimate entities. As imperfect (*preocupaba*), conditional (*preocuparía*) and subjuntive present (*preocupe*) verb forms are ambiguous between 1st and 3rd person, and infinitive (*preocupar*) and gerund (*preocupando*) forms can correspond to any person, all these forms have been recoded as Stim_anim = "ambiguous". Therefore, the generalized linear model was fitted to predict the likelihood of case selection based on the

predictors Zone, Verb, Stimulus Person, and Aspect (formula = 'Exp_case ~ Zone * Verb + Stim_person + Aspect').

The model fitted with an AIC = 38,825, suggesting a good balance between model complexity and explanatory power. A Type III analysis of deviance was conducted to assess the unique contribution of each predictor in the model. As illustrated in Chart 7, the results revealed a highly significant main effect of Verb ($\chi^2(49) = 6549.4$, $p < .001$), followed by Stimulus Person ($\chi^2(3) = 1491.5$, $p < .001$) and Zone ($\chi^2(1) = 68.5$, $p < .001$), and Aspect ($\chi^2(1) = 8.7$, $p = .003$). A significant Zone × Verb interaction ($\chi^2(49) = 609.6$, $p < .001$) suggests regional variation in the syntactic behaviour of specific verbs.

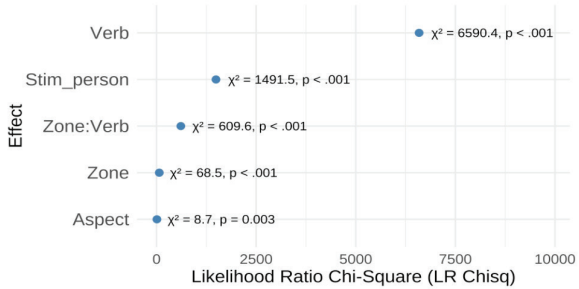

Chart 7 Accusative (lo / la) vs Dative (le). Relative importance of predictors. (CORPES data)

The effect of Aspect and Stimulus Person is illustrated in Chart 8. 1st and 2nd person Stimuli show a lower probability of Dative Experiencers (and, consequently, a higher probability of Accusative). In contrast, ambiguous and 3rd-person stimuli showed higher proportions of dative Experiencer. Imperfective Aspect shows a slightly higher probability of dative than Perfective.

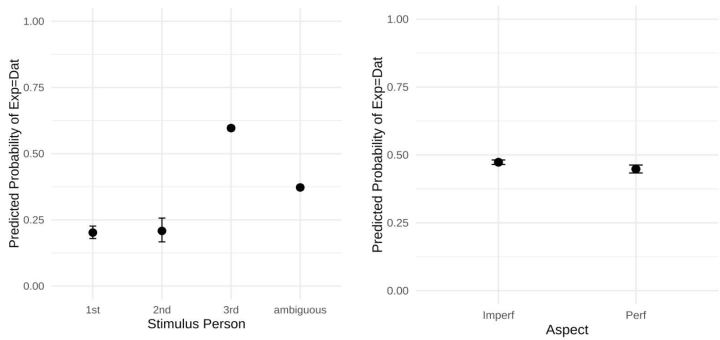

Chart 8 Predicted probabilities of Exp=Dative by Stimulus Person and Aspect (CORPES data)

Regarding the variable Zone, American texts clearly correlate with Accusative case while texts from Spain prefer Dative case. This is clearly a consequence of the prevalence of *leísmo* in Peninsular Spanish.

Finally, the verb lemma is the strongest predictor of the object case, which seems to be lexically determined, with a cline going from verbs like *preocupar* 'worry' and *disgustar* 'upset' with the highest proportion of Dative (***le*** *preocupa* '(s)he/it worries him/her') to verbs like *consolar* 'comfort', *tranquilizar* 'reassure' and *sobresaltar* 'startle' with the highest proportion of Accusative (***lo*** *consuela* '(s)he/it comforts him'), as shown in Chart 9a. In Chart 9b we can see that most verbs are more likely with Dative in Spain than in American Spanish; but the ranking appears to correlate across both zones.

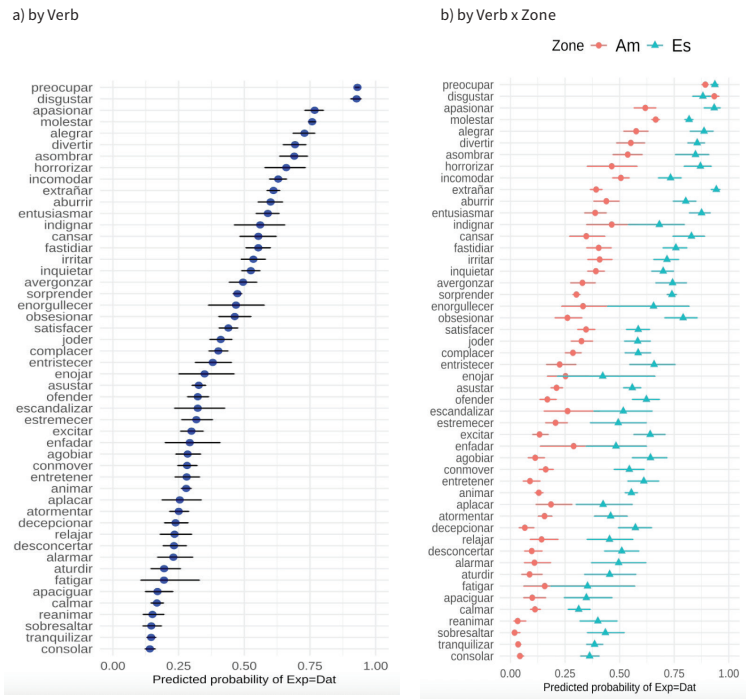

Chart 9 Predicted probabilities of Exp=DAT vs ACC (CORPES data)

The preference for Accusative or Dative case with psych verbs has been related to transitivity, and it can be seen as differences in relative 'kinesis', 'agency', and/or 'object affectedness' (Whitley 1995, 581). However, the lexical meanings do not show clear tendencies and there must be something idiosyncratic in lexical preferences. Some synonyms, like *enojar* and *enfadar* 'annoy', behave similarly and we

can find them in the middle of the scales, whereas other synonyms like *cansar* and *fatigar* 'tire' are clearly separated: *cansar* is situated towards the top, associated with a preference for the dative, and *fatigar* is situated almost at the bottom, associated with a preference for the accusative.

Apart from the general preference for the dative in Spain and for the accusative in America, there is a high correlation of verb ranking across both regions (Pearson's r = 0.808, Spearman's rho = 0.829, p <.001), shown in Chart 10. In VázquezRozas, García-Miguel (2025, 429), we even documented a high correlation among Spanish-speaking countries in the ranking of verbs according to their preference for the dative or the accusative. There are, however, some outliers in this correlation that show greater differences in behaviour than expected. The most notable case is *extrañar*, which expresses different meanings: in Spain, it is predominantly used with the dative and conveys the meaning 'to surprise' (*le extrañó* 'it surprised him/her'), whereas in Latin America, it is more commonly used with the accusative and means 'to miss' (*lo/la extrañó* 'he/she missed it/him/her').

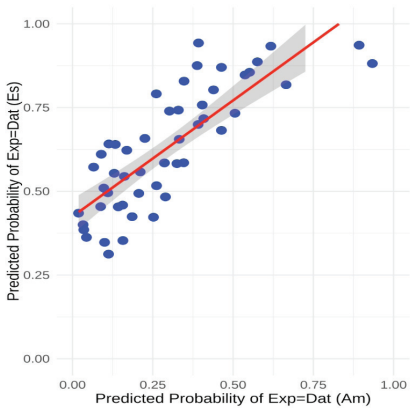

Chart 10 Correlation between Zones (Am vs Es) in the selection of case of Experiencer. Each dot represents a verb (CORPES data)

6 Case Alternation and Diathesis Alternation

We have shown that psych verbs class IIb always take the dative case in the EXP=OBJ construction and consistently reject the EXP=Subj middle construction, whereas Psych-IIa verbs alternate accusative and dative case in their EXP=OBJ construction and alternate EXP=OBJ and EXP=Subj middle construction (diathesis alternation). This allows for the hypothesis that the frequency of use of accusative case for the object of Psych-IIa verbs correlates with the relative

frequency of their use of the EXP=Subj middle construction. Is there a relation between case alternation and voice alternation? If there is, which is the direction of the correlation?

Chart 11 is a scatterplot whose axes are the data of Chart 5a and Chart 9a, i.e., for each of the 50 verbs of CORPES data set, the predicted proportions of Exp=Subj (& Middle Voice) on the horizontal axis, and the predicted proportions of Exp=Dat (vs Exp=Acc) on the vertical axis.

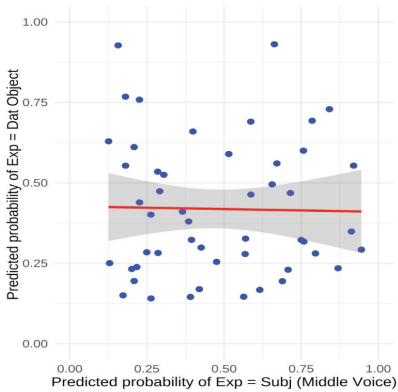

Chart 11 Proportions of Exp=Acc and Exp=Subj for each verb, as predicted by regression models. (Each dot represents a verb). [Pearson's correlation coefficient r=0.005, p-value=0.975, not significant]

The line in Chart 11 shows that there is no correlation, neither positive nor negative, between the preference for Accusative or Dative in the active voice and the higher or lower use of the Middle Voice. A correlation test confirms that there is absolutely no correlation between those two variables (r=0.005, p-value=0.975). The possibility of accusative case implies the possibility of middle voice constructions with Psych-II verbs. However, the probability of Accusative does not correlate neither positively nor negatively with the probability of middle voice.

Why do we dismiss the relationship between Exp=Obj_{ACC} and Exp=Subj? It is due to the functional differences between the two constructions. We will elaborate a bit more on that in the next section.

7 Discussion

In the preceding sections we have analysed a few alternative constructions allowed by psychological verbs and explored the main contextual factors that may condition the choice between the one or the other. Unlike prototypical transitive verbs (action verbs such as

romper 'break' or *matar* 'kill'), psychological verbs allow for reversal of participants, so that the Experiencer can have either Object or Subject function. This alternation may depend on the type of verb or be a result of a diathetic alternation with certain verbs.

As for the type of verb, we have seen in 4.1. that the alternation between Psych-I verbs, which encode the Experiencer as the subject, and Psych-II verbs, which in their basic schema encode the Experiencer as an object, may depend on discourse genre (Psych-II verbs are more likely in spoken discourse) and on the interaction of inherent properties of the participants: the person of the Experiencer and the animacy of the Stimulus; but that there are no significant differences between these two groups in either geographical zone or aspect. This suggests that both groups are fundamentally lexically specialized stative predicates.

The Object Experiencer constructions (Psych-II verbs) in Spanish show case variation in the third person clitics. With some verbs, such as *gustar* 'like', the clitic must necessarily be in the dative; but other verbs such as *preocupar* 'worry' vary with different proportions of dative and accusative. The differences in usage between accusative and dative with these verbs have been interpreted in relation to a greater affectedness of the object and higher agentivity of the subject in accusative constructions, as opposed to a more static relation and less agentivity of the subject in dative constructions (cf. Vázquez Rozas 2006). As we have seen in Section 5, our data reflect this in that 1st and 2nd person Stimuli (always animate, with higher agency potential) correlate with an Experiencer in Accusative, whereas 3rd person Stimuli (very often inanimate, with lower agency potential) correlate with an Experiencer in Dative. However, the effect of Aspect is less clear, although we have observed that there is some interaction with the person of the Stimulus.

The most relevant factor in the choice of case, however, is the verbal lexeme itself. The object case is lexically conditioned, in the sense that some verbs like *gustar* 'like' require dative, others like *preocupar* 'worry' or *disgustar* 'displease' are more likely in the dative but not impossible in the accusative, and others like *tranquilizar* 'calm down' and *consolar* 'comfort' prefer the accusative. We have shown how verbs are ranked according to their case preferences in Chart 9, which also indicates that lexical preferences are consistent across geolectal variation.

Our focus of interest is on the diathesis alternation that allows for the selection of the Experiencer as a subject when Psych-II verbs are constructed in the middle voice. And we have found, on the one hand, that the factors conditioning this choice are not the same as those conditioning the choice between Psych-I and Psych-II classes: in this case Text Genre and the interaction of Experiencer Person and Stimulus Animacy are significant, whereas in the diathetic alternation,

Aspect and the Person of the Experiencer are significant. That is, the key point is not simply what conditions must be in place to select the Experiencer as the subject, but that Psych-I verbs and middle voice Psych-II verbs constitute different constructions with different communicative functions. On the other hand, we have found with Psych-II verbs that, although there is a relationship between the possibility of accusative and that of middle voice, there is no relationship between the probability of using accusative and the probability of using middle voice with those verbs. Therefore, we need to pay attention to the peculiarities of middle-voice constructions with Psych-II verbs.

The main difference between the active <Stim=Subj - Exp=Obj> construction and the middle <Exp=Subj> alternative lies in the presence vs absence of the Stimulus as a core participant of the clause. Whereas in active Exp=Obj clauses the Stimulus is encoded as a subject, the privileged core argument, in middle Exp=Subj clauses the Stimulus is either not expressed at all or is downgraded to an oblique. This syntactic difference relates to the communicative function of each type of construction and to the statistically significant conditioning factors: person of the Experiencer, Aspect, and lexical meaning of the verb.

The person of the Experiencer (a participant that is inherently human) is related to empathy and topicality rather than to the animacy hierarchy, which is more related to agentivity. 1st person Experiencers, highest in the empathy hierarchy, are more likely as objects in the active construction, which give prominence to the Stimulus in subject function. Then, 1st person Experiencers are more likely in constructions with two core participants. The 1st person singular Experiencer perceives his/her inner feelings and emotions directly and is aware of the Stimulus that triggers them, which is not directly accessible to outsiders. His/her awareness of the entity or situation that brings about the emotion, i.e. the Stimulus, leads 1st person speakers to include it as a core participant in the event, and therefore to favour the two-argument active pattern <Stim=Subj - Exp=Obj> instead of the middle <Exp=Subj>, which only allows for a single core participant, the Experiencer.

In contrast, 3rd person Experiencers show a higher probability of being used in the middle Exp=Subj constructions, which do not require the Stimulus to be specified, although causal-related information can be expressed either as an oblique (9)-(10), as an adjunct clause (11), or as another type of constructions such as a consecutive (12).

(9) *Se* *extrañó* ***de aquella brusca aparición*** [adesse/CAR:086.33]
MIDDLE surprise.PST of that sudden appearance
'She was surprised by that sudden appearance'

(10) *Arancha* *se* *enfadó* ***en alguna bola dudosa*** [adesse/3VO:045]
Arancha MIDDLE got.angry in some ball dubious
'Arancha got angry at some dubious ball.'

(11) *Ella* *se* *alegra* ***al*** ***ver=le*** [adesse/SON:205.01]
She MIDDLE get.happy to.the see=him
'She is happy to see him.'

(12) ***… un gesto tan maternal que*** *el viejo se* *conmueve* [adesse/SON:105.31]
a gesture so maternal that the old MIDDLE move
'…a gesture so maternal that the old man is moved.'

The 'cause phrases' (so called by Babcock 1970, 41) highlighted in (9)-(12) refer to observable events that precede or accompany the emotions attributed to third-person Experiencers. This external point of view, which contextualises the reporting of emotions of others, is consistent with Brinton's (1980, 370-1) 'outer perspective' as opposed to an 'inner perspective', and with Wiebe's (1994) 'private-state action' as opposed to a 'private-state report'. Wiebe points out that, in third-person narrative, the perceptions and feelings of the characters can either be expressed through 'private-state reports' (*She was unhappy*), as is common in first-person narrative (*I am happy*), or inferred from 'private-state actions': "The sentence *She frowned* narrates a private-state action from which unhappiness or displeasure can be inferred, but does not directly report the character's private state" (Wiebe 2002, 264).

As examples (9)-(12) show, events causally related to the generation of the emotion expressed by the middle Exp=Subj clauses usually denote dynamic and telic situations. Conversely, the stimuli of the active constructions are propositional entities without spatio-temporal anchoring, as can be observed when comparing (13) and (14)

(13) *Ella* *se* *alegra* *al* *ver=le*
she MIDDLE get.happy to.the see=him
'She is happy to see him' (i.e., she is happy when she sees him.)

(14) *A* *ella* *la/le* *alegra* *ver=le*
to her O.3SG.ACC/DAT make.happy see=him
'She is happy to see him.' (i.e., the fact of seeing him makes her happy)

This difference in the conceptualisation of the Stimulus is also related to the aspectual interpretation of clauses with Psych-IIa predicates: the middle Exp=Subj construction is expected to be associated with the perfective aspect, which is also consistent with its 3rd person preference. As previously mentioned, the description of psychological states of others generally requires observing the person's reactions and visible physical changes. This implies a 'narrative' distance between the event and its linguistic description, which favours the use of the perfective aspect.

As for 2nd person Experiencers, it is common to find them in middle voice exhortative constructions with which the speaker expresses empathy and solidarity with the listener, wishing him/her a positive state of mind in affirmative sentences (*cálmate / anímate / alégrate /…*, 'calm down / cheer up / be happy / …') and the avoiding of negative feelings in negative exhortative sentences (*no te preocupes / asustes / enfades* / … 'do not worry / be scared / be angry /…')

(15) *¡* ***Cálmate****,* *no* *te* *pasa* *nada* *!* [adesse/2IN:056.17]
calm.2SG.MIDDLE NEG 2SG happens nothing
'Calm down, nothing's wrong with you!'

(16) ***No*** ***te*** ***preocupes****,* *que* *está* *todo* *controlado.* [adesse/MOR:037.37]
NEG 2SG.MIDDLE worry *that* is all controlled
'Don't worry, everything is under control.'

In examples such as those in (15)-(16) the focus is on the state of mind of the hearer-Experiencer, who remains the only central participant in the event, with the Stimulus or cause of that state of mind in the background, as inferable from the context or expressed in a separate sentence. In our data we have counted these imperatives as imperfective (and hence the interaction of person and aspect that can be observed in Chart 3 and Chart 4), but these are situations that can involve a potentially controlled change of state.

In addition to the aspect and person variables, the statistical analysis underlines the importance of the verb as a key factor in the choice of construction. The individual verbs appear as the most relevant factor as a predictor of the probability of using the middle voice and as a predictor of using the dative or accusative case in Experiencer object constructions. We have shown in charts 5 and 9 two clines showing the lexical preference for one or another alternating construction. However, it seems that the association verb – construction is idiosyncratic in nature, as near-synonymous pairs such a *cansar* and *fatigar* 'tire' exhibit different syntactic behaviour, and it is very difficult to find common semantic tendencies in the lexical meaning of verbs that share syntactic preferences.

Moreover, we have shown in Chart 13 that there is absolutely no correlation between the probability of being used with accusative case and the probability of being used in middle voice, and we take it as negative evidence against a direct relation between those constructions. This might imply a difference in construction meaning that could be related to lexical meaning: The accusative object construction is statistically associated with human Stimuli, which may voluntarily act on an Experiencer and effectively cause a change of his/her psychological state, as with *consolar* 'comfort', *tranquilizar* 'reassure', which are the highest ranked verbs in the preference for accusative. On the other hand, the middle construction does not imply an Agent that acts on a Patient, but it rather puts the focus on a change of state that may occur spontaneously and leaves in the background the potential causes of this change. The top ranked verbs in the preference for being used in middle voice (*enfadarse* / *enojarse* 'get angry', and *cansarse* 'get tired') are semantically coherent with a spontaneous change of state, whereas at the other end of the cline, *incomodar* 'disturb' and *atormentar* 'torment' imply an agent or a cause for the state of the Experiencer.

Finally, it should be noted that the middle Exp=Subj construction is seen as a transitivity reducing mechanism, since one of the two inherent participants, the Stimulus, is omitted or coded as non-core oblique argument. Therefore, active Exp=Obj clauses are more transitive than middle ones in terms of the number of core participants (parameter no. 1 of Hopper, Thompson 1980). On the other hand, middle clauses with Psych-II verbs are associated with the perfective aspect, which characterises them as more transitive than active clauses, which are correlated with the imperfective aspect. Moreover, the subject experiencer of the middle construction shows characteristics related to the agency (control, volition), for example being compatible with the imperative, as we have seen in examples (15)-(16).

The association of middle *se*-clauses with the perfective aspect and third person subjects makes them a syntactic device for foregrounding psychological events attributed to characters in narratives. Note that, according to Hopper, Thompson's (1980) transitivity hypothesis, the pragmatic function of highly transitive clauses in discourse is precisely that of foregrounding information, in contrast to the low transitive clauses, which tend to be associated with background information.

All these features contribute to the strange semantic transitivity of psychological verbs, which leads to the existence of non-canonical marking in many languages and to the paradox that constructions with one core participant seem more transitive than constructions with 2-core participants.

8 Conclusion

The aim of this study was to explore the factors that motivate the choice between Experiencer-Object and Experiencer-Subject constructions. The analysis also considered the choice between accusative and dative case for the Experiencer-object in active clauses, to determine whether case alternation and diathesis alternation are related.

First, we have found that Text Genre, Experiencer Person, and Stimulus Animacy are significant factors on the choice between Psych-I (Exp=Subj) and Psych-II (Exp=Obj) verbs. The interaction between Experiencer Person and Stimulus Animacy is indicative of the complexity of this alternation, suggesting that the syntactic realisation of psychological predicates is sensitive to both the properties of the Experiencer and the nature of the Stimulus. In any case, the greater likelihood of animate Stimuli and 1st person Experiencers to function as objects rather than subjects challenges the animacy and empathy hierarchies to some extent. On the other hand, neither Aspect nor Zone are significant predictors of the choice between those two verb classes. All this suggests that both groups are basically lexically specialised stative predicates.

Second, concerning the choice between active voice (Exp=Obj) and middle voice (Exp=Subj) with Psych-II verbs, neither Text Genre nor Zone has a statistically significant effect on diathesis alternation. However, Aspect, which was not significant for the contrast between Psych-I and Psych-II, turns out to play a crucial role: middle voice is more likely to occur with perfective aspect, which is consistent with the semantic association of middle voice with spontaneous changes of state. This is corroborated by the statistical preference for the middle voice of verbs such as *cansarse* 'get tired' and *enfadarse* 'get angry'. Lexical preferences remain stable across geographical zone (Spain vs America). The behaviour of Experiencer person remains consistent, with first person Experiencers continuing to be less likely to appear in subject function than second and third person experiencers. This behaviour is related to the communicative functions of active and middle voice constructions: 1st person Experiencers have a higher probability of being used in active voice constructions, as they reflect a perceived stative relation with the Stimulus, whereas 3rd person Experiencers are more likely to be found in middle voice, because the focus on an externally perceived change of state, and 2nd person Experiencers frequently appear in exhortative middle voice constructions, where the speaker shows his/her solidarity with the interlocutor.

Third, we have found highly significant effects of Verb, Zone, and Stimulus Person on the choice between the accusative and the dative case for the Exp=Obj of Psych-IIa verbs. The relevance of Aspect is less clear and may require further research. 1st and 2nd person Stimuli (always animate, with higher agency potential)

correlate with accusative Experiencers, whereas 3rd person Stimuli (mostly inanimate, with lower agency potential) correlate with dative Experiencers. However, the most relevant factor in the choice of case is the verbal lexeme, and the lexical preferences for dative or accusative correlate across geographical zones, despite the general preference for dative in the European variety as compared to American Spanish.

Finally, even though only psych verbs that can be combined with accusative case are grammatical in the middle voice Experiencer subject construction, we have found no correlation, neither positive nor negative, between the preference for Accusative or Dative in the active voice and the probability of a verb being used in the Middle Voice. This might imply a difference in the meaning of the construction which could be related to lexical meaning: the construction with accusative object in active voice is conceptually related to an Agent acting on a Patient and affecting it, whereas the Experiencer subject middle voice construction is more related to a change of state involving only one core participant.

The whole picture shows that the frequency tendencies turn out to be the result of the interplay of a number of different lexical, syntactical, and communicative factors, which cannot be reduced to a single principle.

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