Research Article

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Valence orientation and psych properties: Toward a typology of the psych alternation

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Abstract: Languages differ with respect to the morphological structure of their verbal inventory: some languages predominantly derive intransitive experiencer-subject verbs from more basic transitive experiencer-object verbs by morphosyntactic operations such as stative passivization (e.g., German, English), reflexivization (e.g., German, Spanish), or mediopassive voice (e.g., Greek, Icelandic). Other languages apply transitivizing operations of causativization to intransitive basic forms, e.g., via causative affixes (e.g., Turkish, Japanese, Yucatec Maya) or embedding under causative predicates (e.g., Korean, Chinese). Yet other languages derive both alternants from a common base (e.g., Hungarian, Cabécar). This classification is especially pertinent when applied to psych verbs, given that variable linking is a widely recognized characteristic of this domain. The valence orientation profile of a language's psych domain has recently been linked to the presence or absence of noncanonical syntax, another well-known property of psych predicates. This article reports results from an ongoing study which aims to test this observation on a larger typological scale, presenting comparative empirical data on the interplay of morphology and syntax in the psych domains of Icelandic, Spanish, Korean, Chinese, Yucatec Maya, Finnish, Turkish, and Bété.

Keywords: psych verbs, psych properties, valence orientation, causative alternation, morphology, syntax

1 Introduction: the psych alternation

Crosslinguistically, the domain of psych verbs (also called “experiencer verbs” or “mental verbs”) is one of the most pertinent semantic domains to participate in structural alternations resembling the causative alternation (Haspelmath 1993, Levin and Hovav 1995, Nichols et al. 2004, Alexiadou et al. 2006, Alexiadou and Iordăchioaia 2014), which is illustrated below:

- (1) (a) *The explosion broke the window.*
(b) *The window broke (from the explosion).*

In psych verbs, this manifests as derivationally related structures in which the subject position is alternately filled by either the stimulus argument or the experiencer argument:

- (2) (a) *Global warming worried George.*
(b) *George worried (about global warming).*

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- (3) (a) *Global warming puzzled George.*
 (b) *George puzzled (over global warming).*

Structures such as (2a) and (3a) are called experiencer object (EO) verbs, while those like (2b) and (3b) are referred to as experiencer subject (ES) verbs.

One crucial observation to be made in the above examples is that despite the facultative presence of the stimulus in the ES alternants (2b, 3b), both arguments are governed by the verb across the alternation. This is evidenced by the lexically determined choice of preposition (see also Alexiadou and Iordăchioaia 2014):

- (4) (a) *George worried *from global warming.*
 (b) *George worried ??over global warming.*
 (5) (a) *George puzzled *from global warming.*
 (b) *George puzzled *about global warming.*

It has been observed that different experiential subdomains differ in their crosslinguistic propensity to encode a stimulus, which is taken to reflect its involvement in the given emotion (Verhoeven 2007: 66):

- (6) bodily sensation < emotions < cognition < perception

In prototypical emotion scenarios, argument status of the stimulus is generally expected, given that the experiencer and the stimulus are both considered to be ontological components of an experiential situation (cf. Croft 1993). In light of these observations and in order to facilitate structural comparison across a diverse language sample, we treat causative alternations in psych verbs as a related but separate phenomenon (see Alexiadou and Iordăchioaia 2014) and restrict ourselves to pairs which meet the conditions set forth below.

- (7) An expression of a language L participates in the *psych alternation* iff:
- (a) It “carries psychological entailments with respect to one of its arguments (the experiencer). A psychological entailment involves an individual being in a certain mental state” (Landau 2010: 137).
 - (b) It participates in a morphosyntactic alternation between semantically equivalent ES and EO counterparts.
 - (c) At least one of the alternants exhibits a pattern which aligns with canonical transitives in L.
 - (d) The experiencer and the stimulus have argument status in both alternants.

The morphological means by which (7) is effected differ widely from language to language. This is illustrated in (8).

- (8) (a) Icelandic:
 EO → ES
gleð-ja → *gleðj-a-st*
 please-INF → please-INF-MID
 “please” → “be pleased”
 (b) Korean:
 ES → EO
pwukkulepta → *pwukkulep-key hata*
 be.ashamed → be.ashamed-ADVR do
 “be ashamed” → “make ashamed”
 (c) Finnish:
 ES ↔ EO

	<i>huole-st-u-a</i>		<i>huole-tta-a</i>
	worry-FACT-INCH-INF		worry-CAUS-INF
	“get worried”		“worry”
(c’)	ES	→	EO
	<i>huole-st-u-a</i>		<i>huole-st-u-tta-a</i> “worry”
	worry-FACT-INCH-INF		worry-FACT-INCH-CAUS-INF
	“get worried”		“worry”

In Icelandic (8a), the ES verb is formed on the basis of its EO counterpart by means of overt mediopassivization, creating a clear derivational relation between what will be referred to as the “basic form”, i.e., the less morphologically complex alternant, and its derived counterpart. The opposite process can be seen in Korean (8b), where it is the EO alternant which is secondary, derived from a basic stative ES form via periphrastic causativization. Note that we use the qualifier “basic” in the spirit of Nichols et al. (2004), i.e., its use does not entail a complete absence of morphology (cf. Mugdan 2015) but is simply intended to convey that one member of a pair has lower complexity relative to the corresponding other member.

A third strategy is exemplified by the Finnish verb in (8c): here, neither alternant is more basic than the other, as both are derived from a common underlying root – in this case a noun *huoli* “worry, concern”. However, some languages may also employ multiple strategies at the same time, sometimes even applying them to the same basic form, as illustrated in (8c’). These different patterns fall squarely within the results of the large-scale comparative study by Nichols et al. (2004) who find that the majority of languages will show a significant preference for one derivational strategy. They propose a typological parameter of *valence orientation*, which can be used to classify languages into one of the three broad categories given in (9):

- (9)
- (a) Detransitivizing languages
 - (b) Transitivity languages
 - (c) Neutral languages (double derivation, auxiliary change, conversion)

Since one of the conditions of (7) is that both arguments be governed by the verb in either alternant, it is useful to reframe (9) when applied to the psych alternation. We propose characterizing languages which conform to (7) by the linking of the experiencer argument which predominates in the basic forms, as shown below (numbering aligns with (9)):

- (10)
- (a) Languages with a preponderance of EO basic forms
 - (b) Languages with a preponderance of ES basic forms
 - (c) Languages with a preponderance of underspecified basic forms

Note that (10) is determined quantitatively on the item level, i.e., it does not discriminate between the different morphological means that languages may invoke, as shown in (11) (S = stimulus, E = experiencer; numbering aligns with (10)):

- (11)
(a)	Mediopassive: e.g., Greek						
	S	<i>ενδιαφέρ-ει</i>	E	→	E	<i>ενδιαφέρ-εται</i>	για S
	S	<i>endiafér-i</i>	E	→	E	<i>endiafér-ete</i>	ja S
	S	interest-3.SG.ACT	E	→	E	interest-3.SG.PASS	about S
	“S interests E”				“E is interested in S”		
	Reflexive: e.g., German						
	S	<i>ärger-t</i>	E	→	E	<i>ärger-t</i>	<i>sich über</i> S
	S	annoy-3.SG	E	→	E	annoy-3.SG	REFL about S
	“S annoys E”				“E is annoyed by S”		

- (b) Morphological factitive/causative: e.g., Yucatec Maya
<i>chi'ichnak</i>	<i>ti'</i>	S	E	→	<i>chi'ichnak-kuns</i>	E	S
annoy	LOC	S	E	→	annoy-FACT	E	S
“E is annoyed about S”					“S annoys E”		
- Periphrastic causative: e.g., Chinese
E	担心	S	→	S	使	担心	E
E	<i>dānxīn</i>	S	→	S	<i>shǐ</i>	<i>dānxīn</i>	E
E	worry	S	→	S	CAUS	worry	E
“E worries about S”					“S worries E”		
- (c) Double derivation: e.g., Hungarian
<i>megrém-ít</i>	S	E	↔	<i>megrém-ül</i>	E	<i>S-tól</i>
frighten-CAUS	S	E	↔	frighten-INCH	E	<i>S-ABL</i>
“S frightens E”					“E gets frightened by S”	
- Auxiliary change: e.g., Basque
S	E	<i>izutu</i>	<i>du</i>	↔	E	<i>S-rekin</i>	<i>izutu</i>	<i>da</i>
S	E	frighten	have:3.SG	↔	E	S-COM	frighten	be:3.SG
“S frightens E”					“E gets frightened by S”			

In fact, English, which as seen in (2) frequently exhibits (10c) underspecified basic forms, seems to instantiate a typologically infrequent type with regard to the overall causative alternation (Nichols *et al.* 2004). This fact will become relevant for our overall discussion, since the bulk of the research on the phenomena to be discussed below builds on observations made for English, including the broad definition of the psych alternation proposed in (7).

Out of the individual verbs created via (7), at least the EO alternants can be characterized as unambiguously transitive. It is at this interface that another well-known salient feature of psych verbs emerges: EO psych verbs have been found to behave unlike transitive action verbs, which are generally accepted to represent the prototypical structures for verbal predication with a dyadic configuration (Silverstein 1976, Jackendoff 1983, Dowty 1991, Van Valin and LaPolla 1997; see also Rosch and Mervis 1975). In fact, Landau (2010: 4) observes that “in just about any language where psych(ological) verbs have been studied in any depth, some special properties of these verbs have emerged”. Indeed, research on this domain is plentiful and covers a broad range of syntactic phenomena such as noncanonical linearization patterns, restrictions on passivization, aberrant licensing properties in extraction and binding, etc. (see, e.g., Belletti and Rizzi 1988, Pesetsky 1995, Haspelmath 2001a, Bayer 2004). While studies adduce evidence from a host of different languages, again most of the seminal work on these so-called “psych properties” is based on Standard Average European (cf. Haspelmath 2001b). The universality of psych properties present in transitive EO verbs has recently been challenged by crosslinguistic data such as (12)–(13):

(12) Passive of EO verbs

(a) Turkish: Licit

<i>Gezgin-ler</i>	<i>dağ-lar-da</i>	<i>köpek-ler</i>	<i>tarafından</i>
hiker-PL	mountain-PL-LOC	dog-PL	by
<i>kork-ut-ul-du-lar.</i>			
afraid-CAUS-PASS-PFV-3.PL			

“The hikers got scared by dogs in the mountains.”

(b) Icelandic: Ungrammatical

<i>*Vegfarandi-nn</i>	<i>var</i>	<i>gladd-ur</i>	<i>(af lögreglumann-i-num).</i>
pedestrian:NOM-DEF	was	gladdened-NOM.M	(by policeman-DAT-DEF)

Lit.: “The pedestrian was made glad (by the policeman).”

(13) Forward binding with EO verbs

(a) Chinese: Licit

老师和学生相互激怒了。

lǎoshī hé xuéshēng xiānghù jīnù-le.

teacher and student each.other enrage-PFV

“The teacher and the student enraged each other.”

(based on Verhoeven 2010a: 112)

(b) German: Ungrammatical

**Anna und Kim wundern / interessieren einander / sich¹ gegenseitig.*

Anna and Kim astonish / concern each.other / REFL mutually

“Anna and Kim astonish/concern each other.”

The grammaticality of the structures in (12a) and (13a) is somewhat surprising in light of the aforementioned statements. Verhoeven (2010a, 2014) finds that differences such as the above are indicative of a typological difference in the lexicon, yielding the binary classification in (14). Note that this account is limited to verbs which are structurally comparable to transitive action predicates, thus excluding dative experiencers.

- (14) (a) Languages with a set of EO verbs which exhibit noncanonical syntactic properties
 (b) Languages without a set of EO verbs which exhibit noncanonical syntactic properties

Crucially, Temme and Verhoeven (2016) find that the classification in (14) aligns neatly with the valence orientation type as identified according to the tripartite typology laid out in (10): at least for languages which have figured in pertinent studies to date, the patterns of the individual phenomena suggest that languages whose psych alternation, as defined in (7), starts out with EO basic forms (10a) are also those in which psych verbs tend to show unique syntactic patterns (14a). To put it clearly:

(15) Central observation

The valence orientation in a given language’s psych domain is a predictor for the syntactic behavior of its psych predicates, such that the existence of a set of verbs which exhibit noncanonical behavior is correlated with a preponderance of detransitivization.

Nichols et al. (2004) found that across semantic domains, valence orientation has strong areal correlates: transitivization is common globally, the crucial exception being the European macro area (cf. also Cysouw 2011), where detransitivization is the dominant type. If true, the proposed correlation in (15) may thus shed some new light on the aforementioned predominance of European languages in the canon of seminal studies on psych properties in transitive verbs. It also conforms to another crucial general observation made by Nichols et al. (2004): across languages, transitivization frequently relies on regular and functionally bounded morphological operations, while detransitivizing predicates tend to expand their domains over time, incurring structural irregularities along the way. For psych verbs, this is motivated on functional grounds: a basic ES verb already encodes the semantically and relationally prominent experiencer argument in syntactically prominent position (cf. Givón 1984, Bickel 2004, Verhoeven 2014), while the stimulus in the derived causative alternant is most commonly conceptualized

¹ Note that the reflexive marker here is an anaphoric pronoun with a clear reciprocal reading, as evidenced by its synonymous replacement with overtly reciprocal *einander* “each other” (cf. Helbig and Buscha 2005: 193f). While detransitivization is also achieved via a reflexive marker, the resulting ES structure is more complex due to the expected inclusion of the stimulus as a prepositional phrase:

- (i) *Anna und Kim wundern sich über / interessieren sich für einander.*
 Anna and Kim astonish REFL over / concern REFL for each.other
 “Anna and Kim are astonished/concerned by each other.”

as a causing actor and the experiencer as an undergoer of a caused change (Pesetsky 1995). Thus, no noncanonical phenomena are expected for this type. Conversely, in languages with EO basic forms, there is a striking mismatch between the experiencer's properties and its morphosyntactic realization. Through higher order linguistic principles such as the cognitive salience of animate entities in discourse (Langacker 1991, Rakison and Poulin-Dubois 2001), the low or "downgraded" (Bickel 2004) experiencer argument may be afforded syntactic prominence (e.g., through fronting, topicalization or privileged antecedenthood for anaphora), which may then give rise to synchronic noncanonical structures (see, e.g., Verhoeven 2015) or diachronic syntactic change (see, e.g., Seeffranz-Montag 1983).

The occurrence of this incipient mismatch is highly dependent on the stative reading of the psych verb in question, as an agentive reading will render the verb an action predicate and thus obviate noncanonical behavior (Arad 1998, Landau 2010, Verhoeven 2010b). In a sense, it appears then that alternants of basic EO forms compete, diachronically and in some languages synchronically, with a subset of the noncanonical structures. Operations such as the fronting of an oblique experiencer (cf. Verhoeven 2015, Temme and Verhoeven 2016) serve the same function as detransitivization, i.e., they resolve the conflict arising from mismatched semantics and syntax by restoring prominence to the salient argument. However, this is a conjecture which awaits empirical substantiation from historical linguistics. The goal of the present study is to test whether our central observation (15) is borne out on a strictly synchronic level. Against this background, we do nonetheless expect psych properties to occur with verbs which do not conform to our definition of the psych alternation as given in (7), most prominently those which license dative-marked experiencers (Landau 2010, Temme and Verhoeven 2016). It is the aim of the present contribution to work toward a better understanding of all of these points, reporting results from an ongoing large-scale study. The rest of this article is structured as follows: Section 2 gives a brief overview of the method developed for testing the above claims empirically. Section 3 discusses the results from the first set of languages investigated and relates them to pertinent findings in the literature in order to address the questions laid out above. Section 4 concludes with a summary and an outlook on the following steps in this ongoing research.

2 Method

This section will briefly outline the cornerstones of our method. For a detailed discussion of the underlying rationale and its application, see Rott and Verhoeven (2019).

2.1 Elicitation

It is a well-known issue that comparative elicitation-based linguistic studies usually rely on translational tasks when gathering material in their target languages. While understandable from an economic perspective, it is highly problematic for highly culturally informed semantic fields such as emotion. English especially has undergone somewhat of a reification, despite the fact that its emotion vocabulary is as much a cultural artifact as that of any other language (Wierzbicka 1992). In order to circumvent this problem, we chose to operationalize findings from anthropological and psychological research. Johnson-Laird and Oatley (1989) identified five basic, broadly defined emotions which are predicated on abstract universal antecedent events, i.e., contingencies which every human can be assumed to encounter in their lifetime (see also Boucher and Brandt 1981, Ekman 1994, 1999, Hupka et al. 1999, Turner 2007). While these are referred to using English labels in Table 1, note that their definitions are grounded in human social plans, representing junctures requiring a reaction.

Table 1: Basic emotion modes and universal antecedent events

Emotion	Universal antecedent events	English examples
HAPPINESS	Subgoals being achieved	<i>delight, please, amuse, interest, enjoy</i>
SADNESS	Failure of major plan or loss of active goal	<i>sadden, mourn, depress, bore</i>
ANGER	Active plan obstructed	<i>annoy, anger, hate, frustrate</i>
FEAR	Self-preservation goal threatened	<i>fear, frighten, worry, scare, dread</i>
DISGUST	Gustatory goal violated	<i>disgust, nauseate, offend, appall</i>

Based on these definitions, we created simple scenarios with generic human referents and controlled for stimulus animacy. This yielded $5 \times 2 = 10$ scenarios such as the ones illustrated below, presented orally to consultants in a common language (English, German, or Spanish):

- (16) (a) SADNESS, inanimate stimulus:
A girl loses her favorite toy and is unable to find it again.
 (b) FEAR, animate stimulus:
A woman encounters a robber.

Speakers were then asked to imagine the given situations in a native language context and to empathize with the character representing the experiencer. Finally, a series of questions designed to highlight different parametric aspects of the target emotion (e.g., intensity, onset, social appraisal; cf. Johnson-Laird and Oatley 1989) were asked in order to facilitate broad lexical retrieval. Speakers provided verbs which they considered adequate descriptions of the situations in citation form as well as in naturalistic usage in simple declarative sentences. In order to elicit verbal alternations, consultants were also required to invert the structure of the latter, e.g., by rephrasing with a focus on the object of the original sentence. Additional information about distributive restrictions (e.g., stimulus animacy, register) as well as transparent interlexical relations were also recorded.

2.2 Sample and morphosyntactic analysis

The areal dispersal of valence orientation as identified by Nichols et al. (2004) bears directly on our central observation in (15). We therefore based our study on a convenience sample of eight typologically and genetically diverse languages from seven language families and four different linguistic macro areas, see (17). We chose languages that employ an array of different morphological strategies to achieve the psych alternation, see (11) and Table 2. Research on noncanonical behavior in the psych domain is available for all languages except Bété (17h).

- (17) (a) Icelandic (Germanic, Europe)
 (b) Spanish (Romance, Europe)
 (c) Korean (Isolate, Asia)
 (d) Chinese (Sino-Tibetan, Asia)
 (e) Yucatec Maya (Mayan, America)
 (f) Turkish (Turkic, Asia)
 (g) Finnish (Finno-Ugric, Europe)
 (h) Bété (Niger-Congo, Africa)

We worked with one native speaker per language, gathering material across multiple sessions. Upon completion of the elicitation, we identified pairs conforming to the criteria for the psych alternation as given in (7) and coded the respective associated data points for morphological and syntactic patterns,

Table 2: Distribution of basic form orientation in sample

Language	Bases total	ES	EO	Underspecified	Most frequent strategies
Icelandic	27	1	25	1	middle voice, reflexive
Spanish	118	0	118	0	reflexive
Korean	57	55	0	2	causative
Chinese	93	91	2	0	causative, passive, conversion
Yucatec	17	16	0	1	causative, factitive
Turkish	63	44	8	11	causative, passive, aux. change
Finnish	60	30	20	10	causative, inchoative
Bété	0	0	0	0	N/A

yielding a crosslinguistic database of alternating psych predicates which will form the core piece of the remainder of the present discussion.

3 Results and discussion

3.1 Overview

The distribution of base orientation in our sample is summarized in Table 2. A number of important observations are to be made here. Perhaps most strikingly, Bété was found to altogether lack structures which qualify as psych alternation according to the definition in (7). This, however, does not mean that Bété does not exhibit alternating psych structures at all – we will return to this issue at the end of this section.

For the languages in our sample which do conform to (7), the geographic patterns of the predominant strategies are in line with Nichols *et al.*'s (2004) observation for valence orientation in general. Detransitivization (i.e., a majority of EO basic forms) was found to be globally rare, with the critical exception of the Indo-European phylum. Both detransitivizing languages in the sample are Indo-European languages, while those with a preference for transitivity are found outside of Europe.² Moreover, Nichols *et al.* (2004) observed for their class of *animate* verbs (which encompasses experiential predicates because they by definition select for a sentient, and thus animate, participant) that languages with a propensity to detransitivize will disfavor causative derivations. This is also borne out, as the overview of morphological means in Table 2 shows: across Icelandic and Spanish, where reflexivization and middle voice formation prevail, only a single pair with an ES basic form is attested. By applying the classification in (10) to our set of languages in (17), we arrive at the distribution in Figure 1.

Since the sample includes languages with a clear valence orientation (Icelandic, Spanish, Korean, Chinese, and Yucatec Maya) as well as less clear cases (Turkish and Finnish), it represents an interesting testing ground for our central observation as stated in (15). Before discussing individual languages, we need to address one caveat: the crosslinguistic study of noncanonical phenomena is notoriously difficult, because noncanonicity is language-specific by definition. It is construed as deviations from what is unmarked in a given language's grammar, chiefly its syntax (see, e.g., Belletti and Rizzi 1988, Pesetsky 1995, Bayer 2004, Landau 2010). The uniting feature, as mentioned in the introduction, is the alignment of

² Seeing as the sample in (17) consists largely of well-described languages, this may perhaps not be surprising in and of itself. However, it confirms that the relatively novel empirical approach taken in this study does indeed target the structures of psych verbs in the desired manner and is thus suited for further inquiry into the domain. An analysis of a more extensive sample can be found in Rott *et al.* (2020).

Figure 1: Distribution of basic forms in sample ($n = 435$).

syntactic and semantic prominence in the experiencer argument. How this plays out, though, is dependent on the means and constraints set by the typological properties of a language. Hence, it is difficult to identify and operationalize a homogeneous set of phenomena which one would predict to find in every language that aligns with our central observation (15). This will become clear in the following account.

3.2 Valence orientation and psych properties in the sample languages

As mentioned previously, Icelandic and Spanish are two clear cases of a detransitivizing psych domain. This coincides with the robust psych properties found for both languages within and outside of the psych alternation. As seen in (12b), there is a restriction on psych passives in Icelandic in EO alternants. Further, the language is arguably infamous for its unmarked structures with oblique arguments (most commonly in accusative and dative case), as illustrated in (18).

- (18) (a) *Eirík dreyim-di krúttleg-an kött.*
 Eric:ACC dream-PST.3.SG cute-ACC cat:ACC
 “Eric dreamed of a cute cat.”
- (b) *Önn-u blöskra-ði (bjórverð-ið).*
 Anna-DAT be.appalled-PST.3.SG (beer.price:NOM-DEF)
 “Anna was appalled (by the beer price).”

Numerous studies have shown that the oblique arguments in constructions such as those in (18) pass all kinds of subjecthood tests and behave unlike objects with identical case marking (see, e.g., Höskuldur Þráinsson 1979, Zaenen et al. 1985, Halldór Ármann Sigurðsson 2004). More recently, an ongoing morphosyntactic change known as *þágufallssýki* “dative sickness” or *þágufallshneigð* “dative inclination” has begun to single out the subject-like obliques of psych verbs (Ásta Svavarsdóttir 1982, Smith 1994, Jóhanna Barðdal 2011), affecting accusative experiencers and turning them into datives³ (Jóhannes Gísl

³ The argument is also occasionally attested with accusative marking (Þórhallur Eyþórsson 2000).

Jónsson and Þórhallur Eyþórsson 2003). Speakers who manifest this phenomenon will produce (19) for (18a).

- (19) *Eirík-i dreyim-di krúttleg-an kött.*
 Eirík-DAT dream-PST.3.SG cute-ACC cat:ACC
 “Eric dreamed of a cute cat.”

Even a few isolated ES verbs may be affected by this change for some speakers who will realize the canonical nominative experiencer argument in (20a) as a dative (20b):

- (20) (a) *Helg-a hlakk-ar til tónleik-a-nna.*
 Helga-NOM look.forward-PRS.3.SG to concert-GEN-DEF
 “Helga is looking forward to the concert.”
 (b) *Helg-u hlakk-ar til tónleik-a-nna.*
 Helga-DAT look.forward-PRS.3.SG to concert-GEN-DEF
 “idem.”

Icelandic also has subject-like obliques which lack any clear psych meaning. These typically denote nonagentive themes. Crucially however, these are never affected by *þágufallshneigð* but may acquire structural nominative case instead (Þórhallur Eyþórsson 2000: 28). This is shown in (21).

- (21) (a) *Bát-inn rak að land-i.*
 boat:ACC-DEF drift:PST.3.SG at land-DAT
 “The boat drifted ashore.”
 (b) *Bát-ur-inn rak að land-i.*
 boat-NOM-DEF drift:PST.3.SG at land-DAT
 “idem.”
 (c) **Bát-num rak að land-i.*
 boat-DAT-DEF drift:PST.3.SG at land-DAT
 “idem.”

This further attests to the special status of experiential arguments in the Icelandic system and the impact this category has on syntax.

Similarly, Spanish shows case variation in pronominal clitics which alternate between accusative and dative marking when used with psych verbs (Vázquez Rozas 2006, Fábregas et al. 2017), giving rise to a systematic link between basic EO alternants and forms outside the alternation. Accusative clitics are correlated with an eventive interpretation, whereas the use of dative clitics oblige a stative reading. As illustrated in (22), the choice of case in turn has a direct effect on the markedness of domain-specific word order patterns, facilitating the occurrence of oblique-first structures with dative experiencers (see, e.g., Jiménez-Fernández and Rozwadowska 2016), a structure which can only be licensed pragmatically for accusatives.

- (22) (a) *Sofía (lo) divierte-a a Nicolás.*
 Sophie (CL.ACC) entertain-PRS.3.SG to Nicholas
 “Sophie entertains Nicholas.”
 (b) *A Nicolás le divierte-a Sofía*
 to Nicholas CL.DAT entertain-PRS.3.SG Sophie
 “Sophie entertains Nicholas.”

Moreover, Spanish exhibits noncanonical behavior in binding, extraction, and passive constructions both within and outside the psych alternation (Franco 1990, Marín 2014, Marín 2015).

In contrast, the psych domains of Chinese, Korean, and Yucatec Maya are highly transitivizing. The unrestricted availability of forward binding in Chinese EO verbs was already demonstrated in (13a). The behavior of the psych domain in this language was further investigated by Verhoeven (2010a) who showed that psych verbs do not differ from canonical transitives with regard to properties of lexical aspect, passive formation, nor binding of reflexives and reciprocals. It must be noted that Chinese has been shown to exhibit backward binding (Cheung and Larson 2015). Structures such as those in (23), which is based on Cheung and Larson (2015, 130), may be considered problematic for our claim.

- (23) (a) 自己的支持者的背叛激怒了丽思。
 zìjǐ de zhīchízhě de bèipàn jīnù-le Lìsī.
 self ATTR supporter ATTR betrayal infuriate-PFV Lisi
 “Self_i’s supporter’s betrayal infuriated Lisi_i.”
- (b) 自己的支持者的背叛激怒了每个候选人。
 zìjǐ de zhīchízhě de bèipàn jīnù-le měigè hòuxuǎnrén.
 self ATTR supporter ATTR betrayal infuriate-PFV every candidate
 “Self_i’s supporter’s betrayal infuriated every candidate_i.”

However, the status of this phenomenon as a valid psych property has been questioned, as it may rather be attributable to pragmatic effects of logophoricity and givenness (Haspelmath 2001a, Bickel 2004, Landau 2010). Structures such as (23) thus do not pose a clear counterexample to our claim.

For Korean, evidence is somewhat scarcer. Verhoeven (2008) shows that EO verbs behave canonically in terms of passivization, topic marking, and word order. Temme and Verhoeven (2016) substantiate this last observation with experimental evidence. Following analyses by Ki-Seong Park (1993) and Shibatani and Chung (2001), we propose that the canonicity of these constructions can likely be attributed to the semantics of the causative light verb - 게 하다 *-key hata* “do”, as shown in (24) from our own data.

- (24) (a) 동생은 (형이) 원망스러웠다.
 tongsayng-un (hyeng-i) wenmang-sulew-ess-ta.
 younger.brother-TOP (older.brother-NOM) resentful-ADJR-PST-DECL
 “The younger brother was resentful (of his older brother).”
- (b) 형은 동생을 원망스럽게 한다.
 hyeng-un tongsayng-ul wenmang-sulep-key ha-n-ta.
 older.brother-TOP younger.brother-ACC resentful-ADJ-ADVR do-PRS-DECL
 “The older brother makes his younger brother feel resentful.”

This means of causativization can be construed as an agentive predicate and thus favors an agent subject (see also Fritz-Huechante et al. 2020).

Evidence for canonical psych-verb behavior in Yucatec Maya parallels that for Chinese and Korean (Verhoeven 2010b: 220ff). Passive formation is completely regular with transitive EO verbs (Verhoeven 2007: 249). These verbs also regularly allow forward binding, in parallel to example (13a) from Chinese, as shown in (25) (Verhoeven 2007: 256). Moreover, there are no noncanonical linearization preferences with transitive EO verbs.⁴

- (25) (a) Juan yéetel Pedro k-u p'u'uj-s-ik u báaj-o'ob.
 Juan and Pedro IPFV-SBJ.3 get.mad-CAUS-INCMPL POSS.3 self-PL
 “Juan and Pedro annoy each other.” (Verhoeven 2007, 256, ex. 298c)
- (b) Teen-e' chéen táan in ki'imak-kuns-ik in w-óol.
 me-TOP just PROG SBJ.1.SG happy-FACT-INCMPL POSS.1.SG Ø-mind

⁴ For a comprehensive discussion of putative psych properties in Yucatec Maya, see Verhoeven (2007, ch. 6).

“I am just entertaining myself”

Lit.: “I am just making my mind happy.” (Verhoeven 2007: 256, ex. 297b)

Example (25b) illustrates an instance of a psych construction recurrent in Yucatec Maya but not (systematically) present in the other languages of our sample, with the exception of Bété, which will be discussed in Section 3.3. It is best described in terms of Matisoff’s (1986) *psi*-collocations, which are very common in languages of Africa, South East Asia, and South America (cf. e.g., Craig 1977, McElhanon 1977, Ameka 1990, Bugenhagen 1990). It consists of a *psycho-mate*, i.e., a verb or adjective, and a *psycho-noun* which represents the experiential locus, usually a body part. The latter is possessed by the experiencer, i.e., the experiencer does not figure as a direct dependent of the psych predicate but rather is encoded as a possessor of the body part noun. Hence, with these structures, the alternating entity is not the experiencer, as in the cases presented in (11), but rather the body part noun phrase (NP). The alternation is shown in (26) with data we obtained using the method introduced in Section 2.1.

- (26) (a) *Le máak-o' ki'imak u y-óol yéetel le tsikbal-o'.*
 DEF person-D2 happy POSS.3 $\emptyset$ -mind with DEF story-D2
 “The man (lit.: the man’s mind) is happy with the story.”
- (b) *Le tsikbal-o' t-u ki'imak-kuns-aj u y-óol le máak-o'.*
 DEF story-D2 PFV-SBJ.3 happy-FACT-CMPL POSS.3 $\emptyset$ -mind DEF person-D2
 “The story made the man (lit.: the man’s mind) happy.”

Most importantly for the present discussion, the possessor experiencer does not exhibit noncanonical syntactic properties, differently from what has been shown for possessor experiencers in other languages (Bickel 1997, Bickel 2004 on Tibeto-Burman languages).

The Turkish patterns are somewhat more heterogeneous, although the majority of basic forms is ES. The second largest group is formed by underspecified bases whose linking is rendered via auxiliary change. This is achieved via embedding under the light verbs *olmak* “be” for the ES alternant and *etmek* “do” for the EO alternant, as shown in (27). In a few items, univerbation with the light verb has created double-deriving pairs. The resulting alternation is illustrated in (28).

- (27) (a) *Adam ses-ten tedirgin ol-ur.*
 man noise-ABL worried be-PRS
 “The man feels uneasy about the noise.”
- (b) *Ses adam-ı tedirgin ed-er.*
 noise man-ACC worried do-PRS
 “The noise worries the man.”
- (28) (a) *Kız oyuncağ-in-in kaybolma-sın-a kahr-ol-ur.*
 girl toy-POSS.3.SG-GEN loss-POSS.3.SG-DAT sorrow-be-PRS
 “The girl is upset due to the loss of her toy.”
- (b) *Oyuncağ-in-in kaybolma-sı kız-ı kahr-ed-er.*
 toy-POSS.3.SG-GEN loss-POSS.3.SG girl-ACC sorrow-do-PRS
 “The loss of her toy upsets the girl.”

In terms of psych properties, research points toward canonical patterns in the domain (Kutscher 2009, Özsoy 2009, Verhoeven 2010b, 2014).

So far, the patterns of these two groups are in line with our observation in (15). Finnish presents a more complex case, as its basic forms are distributed across the different orientations, with ES basic forms being around 1.5 times as frequent as EO basic forms as well as a substantial subset of pairs originating from double derivation. It thus embodies the entire range of the valence orientation classification in (10), making it a touchstone for our central observation as given in (15). Examples of the derivational relations attested in our sample are given in (29).

(29)	(a)	Transitivizing							
		E	<i>häpeä-ä</i>	S	→	S	<i>häve-ttä-ä</i>	E	
		E	shame-3.SG	E	→	S	shame-CAUS-3.SG	E	
		“E is ashamed about S”				“S makes E ashamed”			
		E	<i>hätä-änty-y</i>	S- <i>stA</i> ⁵	→	S	<i>hätä-änny-ttä-ä</i>	E	
		E	alarm-INCH-3.SG	S-ELA	→	S	alarm-INCH-CAUS-3.SG	E	
		“E gets alarmed about S”				“S alarms E”			
		(b)	Detransitivizing						
	S		<i>pettä-ä</i>	E	→	E	<i>pett-y-y</i>	S- <i>stA</i>	
	S		disappoint-3.SG	E	→	E	disappoint-INCH-3.SG	S-ELA	
	“S disappoints E”				“E is disappointed in S”				
	S		<i>helpo-tta-a</i>	E	→	E	<i>helpo-tt-u-u</i>	S- <i>stA</i>	
	S		easy-CAUS-3.SG	E	→	E	easy-CAUS-INCH-3.SG	S-ELA	
	“S relieves E”				“E is relieved about S”				
	S		<i>kiinno-sta-a</i>	E	→	E	<i>kiinno-st-u-u</i>	S- <i>stA</i>	
	S		interest-FACT-3.SG	E	→	E	interest-FACT-INCH-3.SG	S-ELA	
	“S makes E anxious”				“E gets anxious about S”				
	(c)		Double deriving						
			E	<i>ärsy-ynty-y</i>	S- <i>stA</i>	↔	S	<i>ärsy-ttä-ä</i>	E
			E	irritate-INCH-3.SG	S-ELA	↔	S	irritate-CAUS-3.SG	E
			“E gets irritated by S”				“S irritates E”		

We found that some verbs even participate in multiple strategies, forming multiple alternating pairs with one shared form. This is illustrated in (30) for the detransitivizing pair *innostaa* “excite” ~ *innostua* “get excited”, which coexists with the transitivizing pair *innostua* “get excited” ~ *innostuttaa* “make get excited”.

(30)	(a)	<i>Satu</i>	<i>inno-sta-a</i>	<i>mies-tä</i>
		fairy.tale:NOM	zeal-FACT-3.SG	man-PTV
		“The fairy tale excites the man.”		
	(b)	<i>Mies</i>	<i>inno-st-u-u</i>	<i>(sadu-sta).</i>
		man:NOM	zeal-FACT-INCH-3.SG	<i>(fairy.tale-ELA)</i>
		“The man gets excited (about the fairy tale).”		
	(c)	<i>Satu</i>	<i>inno-st-u-tta-a</i>	<i>mies-tä.</i>
		fairy.tale:NOM	zeal-FACT-INCH-CAUS-3.SG	man-PTV
		“The fairy tale makes the man get excited.”		

Note however that (30) does not entail that the relationships laid out here are mere artifacts of our method. As we illustrate in (31), the most basic forms only license a binary alternation whose derivational directionality is not predictable from the morphology of an individual alternant.

(31)	(a)	<i>inno-sta-a</i>	:	<i>inno-st-u-a</i>	:	<i>inno-st-u-tta-a</i>
		zeal-FACT-INF		zeal-FACT-INCH-INF		zeal-FACT-INCH-CAUS-INF
		“excite”		“get excited”		“make get excited”
	(b)	<i>ahdi-sta-a</i>	:	<i>ahdi-st-u-a</i>	:	* <i>ahdi-st-u-tta-a</i>
		anxious-FACT-INF		anxious-FACT-INCH-INF		*anxious-FACT-INCH-CAUS-INF
		“make anxious”		“get anxious”		N/A

⁵ Finnish exhibits vowel harmony in bound morphemes. Capital letters are used to generalize over all variants of a given affix, e.g., *-stA* resolves to *-sta* or *-stä* depending on the stem.

(c)	<i>*hermo-sta-a</i>	:	<i>hermo-st-u-a</i>	:	<i>hermo-st-u-tta-a</i>
	*nerve-FACT-INF		nerve-FACT-INCH-INF		nerve-FACT-INCH-CAUS-INF
	N/A		“get nervous”		“make nervous”

Interestingly, multiple valency orientation in the Finnish psych domain coincides with divided opinions on noncanonical psych-behavior in the literature. In light of the prominence-based motivation for the observation in (15), *a priori* one might expect psych properties to only occur within the set of EO basic forms, since both ES basic forms and double-deriving forms should have a clear, overtly marked functional allocation. Starting with our own elicited data, we find structural alternations such as those in (32) where the nonnominative experiencer can unmarkedly occur in subject position, while the stimulus is facultative.

(32)	(a)	<i>Ystävä-n</i>	<i>näkeminen</i>	<i>inno-sta-a</i>	<i>nais-ta.</i>
		friend-GEN	seeing:NOM	zeal-FACT-3.SG	woman-PTV
		“Seeing the friend excites the woman.”			
	(b)	<i>Nais-ta</i>	<i>inno-sta-a</i>	<i>(ystävä-n</i>	<i>näkeminen).</i>
		woman-PTV	zeal-FACT-3.SG	(friend-GEN	seeing:NOM)
		“The woman is excited (about seeing the friend).”			

Notably, according to our consultant, inversions such as (32b) are only available with inanimate and abstract stimuli. Clearly a noncanonical property, such partitive-initial structures are widely recognized in Finnish linguistics and are even referred to as “experiencer constructions” (see, e.g., Siirainen 2005). However, our data show that while it is not entirely unrestricted, this inversion is found in EO basic forms, causativized ES basic forms as well as doubly derived EO forms, contra our expectations. We will return to this issue shortly. In the literature, Landau (2010) cites Finnish as one example of a language with noncanonical restrictions on passivization in stative psych verbs, although he only gives a few examples and does not explicate whether there is any interaction with the derivational makeup of the individual verbs. He concludes that these psych verbs must be unaccusative. However, Finnish passives do not straightforwardly compare to Indo-European structures despite superficial similarities, differing in a number of crucial respects. The most important difference is the fact that the underlying operation in Finnish passivization is one of argument suppression, while in Indo-European passivization, it is one of argument promotion (see, e.g., Shore 1988, Sakuma 2013). Consequently, Finnish passives are freely formed of predicates which have traditionally been classified as unaccusatives as well as copulas and thus cannot serve as a diagnostic in this regard (see Shore 1988). Nelson (1999) acknowledges this complication and evokes aspect and event structure to explain the exceptional linking properties and unaccusative behavior observed for causative EO verbs, i.e., verbs overtly derived from ES basic forms (see also Pykkänen 2000). Depending on how these results are interpreted, this may be problematic for the central observation (15), or at least suggest that for some languages with substantial heterogeneity in the psych domain, the availability of stative readings may expand from the set of EO basic forms to derived EO forms, yielding “psych causatives”, seemingly creating a violation of the functional motivation given above for our proposed functional correlation (Pykkänen 2000). Seeing as Finnish causatives outside of the psych domain seem to be typical representatives of this crosslinguistic category (cf. Brattico *et al.* 2007), this is especially surprising. However, at present, the exact impact of the derivational structure within the Finnish psych alternation on the (non-)canonical behavior has not been investigated systematically. Seeing as (15) was borne out for all other languages in our sample which showed a psych alternation, this is a crucial issue which needs to be studied in more detail.

Lastly, it is worth noting that both Nelson (1999) and Pykkänen (2000) set up a four-way classification of the Finnish psych domain, focusing on pure states, inchoatives (i.e., ES verbs), and their respective EO causativizations (see also Siirainen 1998), while our findings as summarized in (29)–(31) indicate that the situation is actually more complex than that, given the multitude of directed and nondirected derivational relations which hold among Finnish psych verbs.

3.3 The case of Bété

Let us now return to the seemingly exceptional case of Bété. Following Zogbo (1981: 72–7) and Koopman (1984, ch. 2), Bété has causative morphology and middle voice morphology. Both of these devices are frequently employed in the psych alternation by other languages (cf. the examples in (11) and the summary of our sample in Table 2). Bété’s failure to evince a psych alternation is thus not due to a complete lack of alternating expressions. Yet no pairs in our data satisfy criterion (7d) of the psych alternation, since they all violate the required inclusion of the stimulus as an argument. Another crucial difference from the alternations found in cases such as those shown in (11) is that, although structural alternations are formed, the experiencer appears to remain in the same or similar syntactic position across alternants, i.e., criterion (7b) requiring an ES ~ EO alternation is not satisfied. Our proposal is that both of these observations are epiphenomena of the overall structure of the psych domain in this language: Bété lexicalizes psych meanings as complex constructions, unlike most other languages in our sample save for Yucatec Maya. Judging from our data, Bété constructions seem to fall into two major types, which we will refer to as types A and B. Both have the same basic makeup schematized in (33).

(33) N + V + Experiencer

Type A constructions, illustrated in (34)–(35), closely resemble Bouchard’s (1995) *nonincorporated psych verbs*.

- (34) (a) *Jórú jé cǐcǐjī sībā (dàgǔ kádō ɔ jé).*
 anger PFV little.one sting (brother big POSS reason)
 “The little brother is enraged (because of the big brother).”
 Lit.: “Anger stings the little brother (because of the big brother).”
 (b) *Dàgú kádō jé cǐcǐjī jórú sīb-à.*
 brother big PFV little.one anger sting-CAUS
 “The big brother has enraged the little brother.”
 Lit.: “The big brother has made anger sting the little brother.”
- (35) (a) *W’ɣnō jé ɲnǒ ɲānō wǔ súrú.⁶*
 robber PFV woman fear onto pour
 “The robber has scared the woman.”
 Lit.: “The robber has poured fear onto the woman.”
 (b) *Ŋānō jé ɲnǒ wǔ súr-ó.*
 fear PFV woman onto pour-MID
 “The woman was scared.”
 Lit.: “Fear has poured onto the woman.”

In terms of the schema in (33), they can be analyzed as follows: the nominal component N renders the semantic core of the predicate, i.e., the emotion itself, e.g., *mǔnā* “joy”, *jórú* “anger”, *ɲwǎní* “happiness”, *ɲāzī* “pity”, *ɲānō* “fear”, and *ɲāzī* “pity” (see also Verhoeven 2007: 51–4). The verbal component V is a semantically bleached light verb, e.g., *sībā* “sting”, *p(ū)lā* “penetrate”, *wǔ súrú* “pour onto”, *mǔ pālī* “put into”, and *lībā* “hit”. In fact, we found that many of these light verbs combine with a multitude of different emotion nouns. Derivational directionality is lexically determined and follows from the choice of light verb. In alternants such as (34a) and (35b), the emotion noun takes the subject role. Crucially, the experiencer argument is then encoded as the object of the light verb. In (34a), the only felicitous way to specify the stimulus is via a free adjunct introduced by the equivalent of English “because”, while in middle

⁶ Note that *wǔ súrú* is a particle verb (see Koopman 1984: 48–53). Particle verbs are frequent in the psych domain, which means that the psycho-noun is not part of a postpositional phrase in such constructions.

constructions such as (35b), there is no structural option to include the stimulus (cf. Koopman 1984: 22f). Note that type A expressions already have a dyadic structure prior to the inclusion of the stimulus. When a stimulus is added as in (34b), a causative form of the transitive light verb is used. The stimulus is rendered as a causer subject while the emotion component becomes the causee, the result being a double-object construction.⁷ Conversely, the stimulus is present in the underived alternant (35a), which also gives rise to a double-object construction. It is then removed via middle voice morphology. The important observation for our analysis is that the experiencer remains in an object position across the alternants.⁸ In addition to causativization, Bété employs another double-object construction, achieved through applicative formation when adding a stimulus to the schema in (33), as illustrated in (36). Example (36a) is parallel to (34a) in featuring a transitive light verb *libá* “hit”, an emotion noun in subject function and the experiencer as a (direct) object. In (36b) an applicative construction is used: the stimulus appears in the subject position, while the emotion component is rendered as an applied object in instrumental function (cf. Zogbo 1981: 74–5).⁹ Crucially for our analysis, again the experiencer remains in an object position.

- (36) (a) *Nāzī=è gũ libá lě.*
 pity=PROG child hit PROG
 “The child is sad.”
 Lit.: “Pity is hitting the child.”
- (b) *Gbú jé gũ nāzī libá-nī.*
 problem PFV child pity hit-APPL
 “The problem made the child sad.”
 Lit.: “The problem is hitting the child with pity.”

The three types of alternations (subsumed here as type A constructions) differ structurally from the pattern observed in languages such as those shown in (11), because the experiencer is always low in the structure, being coded as an object. What alternates is the emotion, i.e., the nominal component N from (33). This means that type A constructions fail another criterion for the psych alternation in addition to (7d) stimulus inclusion, namely, (7b) the requirement for an ES ~ EO interchange. Since the central observation (15) is predicated on this definition, it does not transfer straightforwardly to type A expressions. Hence, such constructions in Bété, and likely other languages with similar patterns, present an altogether different dimension of variation as regards structural alternations in the psych domain (see also Rott *et al.* 2020) which cannot be classified as a psych alternation. However, the mechanisms underlying (15) should hold regardless, since they are independently motivated. The experiencer in type A is downgraded across the board, which suggests that noncanonical phenomena could develop or may be found, given further study. Their occurrence, however, should not be correlated with the morphological strategies employed to create the alternants. Rather, they should apply consistently in accordance with the downgraded status of the experiencer.

Type B, shown in (38)–(39), is structurally similar to the “psi-collocations” found in the Yucatec Maya data (see (26)).

- (37) (a) *Ććějĩ é drí=è jírí lě.*
 little.one POSS heart=PROG cook PROG
 “The little brother is annoyed.”

⁷ Note that Bété does not have overt case marking. Following Koopman (1984: 29), object order is relatively free, so that it is difficult to determine more specific object types based on surface order.

⁸ For our present purposes, the crucial question is the variation between a subject vs. object realization of the experiencer across the alternants (see criterion (7b) of the psych alternation). Therefore, at this point, we refrain from a further analysis of the exact syntactic properties of the two internal arguments and a potential object shift that the experiencer might undergo in the alternation.

⁹ In Bété, applicative verbs can add instrumentals, locatives, or beneficiary/goals as internal arguments (Koopman 1984: 23–4).

- Lit.: “The little brother’s heart is cooking.”
- (b) *Dàgú kád̥=ḡ cícějǐ é drí jīrī-à lě.*
 brother big=PROG little.one POSS heart cook-CAUS PROG
 “The big brother is annoying the little brother.”
- Lit.: “The big brother is making the little brother’s heart cook.”
- (38) (a) *Nikpē jē ŋǝnǝ ó drí wú júrà.¹⁰*
 man PFV woman POSS heart onto disgust
 “The man has disgusted the woman (lit.: the woman’s heart).”
- (b) *Ŋǝnǝ ó drí=è wú júr-ḡ lě.*
 woman POSS heart=PROG onto disgust-MID PROG
 “The woman (lit.: the woman’s heart) is disgusted.”

It places the semantic burden on the psycho-mate, i.e., the verbal component V in (33), which surfaces as a metaphorically loaded action predicate such as *jírí* “cook”, *sī* “burn”, and *mà dó* “cut off”. The construction is then shifted into the psych domain by means of the nominal component N in (33), which is a typical psycho-noun such as *digbā* “heart ~ soul” or *drí* “heart”. Other body parts are also found with certain specific psycho-mates, forming highly lexicalized collocations. According to our findings, the experiencer is most commonly realized as a possessive attribute to the NP headed by the psycho-noun, as in (37)–(38) (cf. Bickel 1997, Bickel 2004). The inclusion or the suppression of the stimulus is achieved through the same structures as introduced for type A in (34)–(35), namely, causativization and middle formation with the psycho-noun being the head of the NP alternating between subject and object function. Apart from the possessor experiencer structures, we also frequently found forms such as (39) in which the experiencer and the psycho-noun coexist without any overt possessive marking.¹¹ We propose that the experiencer in (39) is a dative-like verbal dependent of the external possessor type (cf. Payne and Barshi 1999, Lehmann et al. 2000: 55–6, Deal 2017). Causativization of the verb in (39b) allows the stimulus to be added as a causer subject, while the psycho-noun becomes the causee in the resulting double-object construction.

- (39) (a) *Ŋíní jē gú mūnā.*
 inside.of.mouth PFV child dry.out
 “The child is perplexed.”
 Lit.: “The inside of the mouth has dried out on the child.”
- (b) *Gbó jē gú ŋíní mūn-à.*
 problem PFV child inside.of.mouth dry.out-CAUS
 “The problem has perplexed the child.”
 Lit.: “The problem has dried out the inside of the mouth on the child.”

Some further support for the object status of the experiencer is provided by applicative morphology variants which we found for some overt possessor structures such as (40). Example (41a) shows its applicative variant, where the experiencer is licensed as an internal argument in goal function by the applicative suffix on the verb (cf. Zogbo 1981: 74, Koopman 1984: 23–4). The example in (41b) shows that the stimulus can be added as a subject which again results in a double-object construction, parallel to (39b).

- (40) *Gú ó kwá jē jā tīrī.¹²*
 child POSS bone PFV by die

¹⁰ According to our consultant, this verb is only used in this collocation and has lost its nonpsych meaning, making this a noncompositional collocation in the sense of Bickel (1997). It is possible that it represents a lexicalized causative form of an obsolete lexeme. Such developments are common in complex psycho-collocations (see also Verhoeven 2007: ch. 3).

¹¹ According to our consultant, examples such as (40) can also be rendered by structures with overt possessive marking (like in (38)), although this form is considered more stylistically marked.

¹² The meaning of this particle verb is along the lines of “weaken”.

“The child is discouraged.”

Lit.: “The child’s bone has weakened.”

- (41) (a) *Kwǎ́ jé gú jǎ tīrī-nì.*
 bone PFV child by die-APPL
 “The child is discouraged.”
 Lit.: “The bone has weakened on the child.”
- (b) *Gbǒ́ jé gú kwǎ́ jǎ tīrī-nì.*
 problem PFV child bone by die-APPL
 “The problem has discouraged the child.”
 Lit.: “The problem has made the bone die on the child.”

Note that in (41) the applicative occurs across both alternants. In this regard, type B expressions necessarily differ from type A expressions such as (36), where the applicative contributes directly to the alternation.

If our overall analysis is correct, type B expressions parallel type A as well as our findings for Yucatec Maya in that the pivot of the alternation is the nominal component N rather than the experiencer, which remains in a syntactically low position across alternants. Further, throughout all pairs given for type B, one alternant consistently lacks the means to include the stimulus as an argument (i.e., (37a), (38b), (39a), (40), (41a)). This complete lack of a governed stimulus also sets these constructions apart from equivalents in Yucatec Maya such as (26a), where the stimulus argument is introduced by a preposition. A possible explanation which holds across both types A and B may be that Bété has an altogether different cutoff point on Verhoeven’s (2007) hierarchy for stimulus inclusion (see (6)). If true, this invites a reassessment of the stimulus inclusion criterion (7d), because a consistent lack of stimulus inclusion could be an independent typological feature. In contrast to type A expressions, the alternations with an overt adnominal possessor experiencer in (37)–(38) can be taken as a variation of the ES ~ EO pattern since the experiencer consistently occurs as a nominal dependent of the NP headed by the metonymically related psycho-noun, which does change its syntactic function across the alternants (see also Goossens 1989, Verhoeven 2007). This places type B at an interesting position regarding our central observation (15) about the correlation between valence orientation and noncanonical behavior. In Yucatec Maya, the lack of noncanonical structures is expected due to its highly transitivity psych domain. Bété actually employs a mixture of morphological strategies similar to Finnish, which does show psych properties which transcend the derivational patterns. While this aspect of Bété has yet to be investigated, there is ample crosslinguistic evidence of the acquisition of syntactic prominence in possessor experiencers (Bickel 1997, 2004) as well as oblique experiencers (cf. e.g., Seefranz-Montag 1983, Haspelmath 2001a). This suggests that noncanonical phenomena could potentially exist in Bété type B expressions as well.

4 Conclusion and outlook

In this article, we have put forward evidence that the morphosyntactic behavior of psych verbs is subject to typological variation with parameters that intersect with well-established factors such as valence orientation in the sense of Nichols *et al.* (2004) and areality, but whose unique patterns merit further investigation in their own right.

It was shown that although a language like Bété may have the morphological means to form a general causative alternation, the internal structures arising from the particular lexicalizations in the psych domain may reshape these mechanisms for at least part of its domain (see Rott *et al.* 2020). This is especially relevant since “animate verbs” like psych verbs have been considered to represent a substantial fraction of verbs which exhibit alternations of this kind (cf. Nichols *et al.* 2004). In the interest of a typologically adequate theory of experiential constructions and the causative alternation in general, the psych domains of such languages need to be studied further.

Moreover, we demonstrated that the canonicity of the psych domain in a given language may follow from the predominant derivational relations that hold between its exponents, given that such a tendency exists. Indeed, the behavior of languages which lack a clear preference is a highly relevant issue at the

interface of concerns of syntactic theory and typology, as they may offer insights into the genesis and spread of noncanonical patterns in general. As stated in Section 1, the results discussed in this work are part of a larger ongoing study. It follows that the sample used in the present analysis is subject to a number of restrictions. First, the sample is still biased for the European macro-area, and with the exception of Bété and Yucatec Maya, only well-researched languages were used. In particular, the detransitivizing languages both had close ties to the Standard Average European Sprachbund. Since the behavior of psych verbs in this language type is pivotal for the falsification of our central observation, further research on detransitivizing languages from other linguistic macroareas is essential. The sample also lacked a predominantly double-deriving language. It is as yet unclear how the neutral type as well as mixed types pattern with regard to the binary classification of languages exhibiting or lacking noncanonical phenomena. Bété type B expressions seem to be a particular fruitful testing ground, because they combine a mixture of derivational strategies with possessor or dative-like/goal experiencers. A next step thus needs to be the expansion of our data set to more typologically diverse languages as well as rigorous empirical testing of the canonicity of the domain within languages which present with unexpected patterns.

Lastly, the classification of Finnish psych verbs as proposed in the literature was shown to only cover part of a more complex picture, underlining the benefit of using a broad range of empirical methods in crosslinguistic studies.

Abbreviations

Ø	meaningless element
1	first person
3	third person
ACC	accusative
ABL	ablative
ACT	active voice
ADJR	adjectivizer
ADVR	adverbializer
APPL	applicative
ATTR	attributive
CAUS	causative
CMPL	completive
COM	comitative
DECL	declarative
CL	clitic
D2	second person deictic
DAT	dative
DEF	definite
E	experiencer
ELA	elative
EO	experiencer object
ES	experiencer subject
FACT	factitive
GEN	genitive
HUM	human
INCH	inchoative
INCMPL	incompletive
IPFV	imperfective

LOC	locative
M	masculine
MID	middle voice
N/A	not applicable
NOM	nominative
PASS	passive voice
PFV	perfective
PL	plural
POSS	possessive
PROG	progressive
PRS	present
PST	past
PTV	partitive
REFL	reflexive
S	stimulus
SBJ	subject
SG	singular
TOP	topic

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