Evidence from compositional aspect for the modelling of psych verbs

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Introduction Cross-linguistically, psych verbs come along in two major structural configurations.

(1) *Kids   enjoy   water slides.* | subject experiencer verb (SubjExp)
     EXPERIENCER   STIMULUS

(2) *Water slides   fascinate   Kids.* | object experiencer verb (ObjExp)
     STIMULUS   EXPERIENCER

There is no agreement, yet, on how the projection of the arguments is to be modelled (see the many proposals for a structural analysis of psych verbs, e.g. Belletti und Rizzi 1988, Grimshaw 1990, Arad 1998, Pesetsky 1996, Anagnostopoulou 1999, Pylkkänen 2000, Landau 2010, Alexiadou und Iordăchioaia 2014, Fábregas und Marín 2015). The proposals differ, among other, in the positioning of the stimulus argument (also called causer, theme, target, subject matter) in ObjExp verbs like in (2). The stimulus is either modelled as external or internal argument, lower or higher than the experiencer. I provide empirical evidence that the stimulus in ObjExp verbs is an internal argument that is structurally closer to the verb than the experiencer.

Hypothesis Husband (2010, 2012a, 2012b) states that, in English stative predicates (e.g *live*), aspectual shifts from Individual-level (IL) to Stage-level (SL) readings are facilitated by the definiteness of the internal (Theme) argument (a demonstrative like in (4) is considered to be definite):

(3) *Monkeys live in <u>trees</u>.* | IL reading (no existential reading of *monkeys*)

(4) *Monkeys live in <u>these trees</u>.* | IL or SL reading (existential reading of *monkeys* available)

Transferring these effects to stative psych verbs raises the question whether the element decisive for the aspectual reading is uniformly the syntactic object in the two structures in (1) and (2), or whether, in ObjExp verbs, the stimulus argument persists to facilitate aspectual shifts, even though it is the grammatical subject. The two possibilities bring about different implications: (i) If aspectual shifts are facilitated by the object only, then the experiencer in ObjExp verbs is to be modelled as an internal argument, whereas the stimulus might be external. (ii) If the effect relates to the theta role then the stimulus should rather be an internal argument surfacing in subject position (providing support for an unaccusative analysis of ObjExp verbs).

Experiment design Four experiments of the same design were conducted in order to investigate a) if the findings for English in Husband (2010, 2012a, 2012b) can be observed in German, as well, and b) where the facilitating effect is situated in stative verbs of the psych domain. Exp.1 explores question a) by examining German verbs of the same group investigated in Husband (2012a), e.g. *besitzen* (own) or *leben* (live). Exp. 2 examines if potential facilitating effects hold for German stative verbs from the psych domain (SubjExp verbs), as well. Verbs in this group include e.g. *genießen* (enjoy) or *verabscheuen* (detest). Exp 3 & 4 test the same for ObjExp verbs (both accusative and dative) like *faszinieren* (fascinate) or *bezaubern* (enchant). Here, special attention was put into determining which of the two arguments is responsible for an aspectual shift: The experiencer object (exp 3) or the stimulus subject (exp 4).

In order to trigger SL readings, a definite determiner was added to an otherwise bare plural, resulting in the first variable [± Definiteness]. As an indicator for the presence or absence of a SL reading in the bare and definite sentences, a temporal modifier was introduced (cf. Chierchia 1995, Kratzer 1995) as a second variable [± Temporal modifier].

(5) Two variables resulting in four conditions

a) variable [± Definiteness]   b) variable [±Temporal modification]
Water slides fascinate kids.   *Water slides fascinate kids, this month.*
Water slides fascinate the kids.   *Water slides fascinate the kids, this month.*

Method In the four experiments a total of 36 verbs, resulting from 12 verbs per verb group, were tested in the four conditions in (5). The resulting sentences were presented to 67 monolingual German speakers in an online acceptability judgment task with items to be rated on a Likert scale from 1 (very bad) to 7 (very good). A Latin square design with a pseudo-randomized order was chosen as mode of presentation. Under the assumption that a definite determiner licenses a SL reading, the rationale of the task was that temporally modified definite determiner sentences receive higher judgements than temporally modified bare plural sentences.

Results The data were analyzed in a linear mixed effects model. Across all four experiments, temporally modified sentences (like in 5b) receive lower judgements (thus resulting in an overall penalty for temporal

modification). For non-psych stative (exp. 1) and ObjExp verbs with a definite stimulus subject (exp. 4), the results (significance values in Table 1) show a significant interaction between the type of determiner ([± Definiteness]) and the presence of a temporal modifier ([± Temporal modifier]). That is, for those two groups the penalty for temporal modification is lower in sentences with a definite determiner. In contrast, no such interaction was attested for ObjExp verbs with a definite experiencer (exp. 3) which suggests that a definite experiencer has no facilitating effect for a SL reading. Unexpectedly, this also holds for a definite stimulus in SubjExp verbs (exp. 2). Even though, numerically, there is less penalty for temporally modified definite stimulus objects (see Figure 1), this effect is not significant and asks for further investigation.

Conclusions With respect to non-psych stative verbs (exp. 1) the results show that the effects described by Husband (2010, 2012 a,b) for English are present in German as well: An additional SL reading is licensed by the presence of a definite determiner. In ObjExp verbs (exp 3 & 4), the very same effect appears when the definite determiner occurs with the subject stimulus but not with the object experiencer. This suggests that, in ObjExp verbs like in (2), the stimulus, regardless of being the grammatical subject, is part of the composition of aspect, whereas the experiencer object is out of the picture. Thus, in stative ObjExp verbs, the stimulus should be modelled as an internal argument and lower than the experiencer which is in line with an unaccusative analysis as e.g. provided by Landau (2010) and Pesetsky (1996).
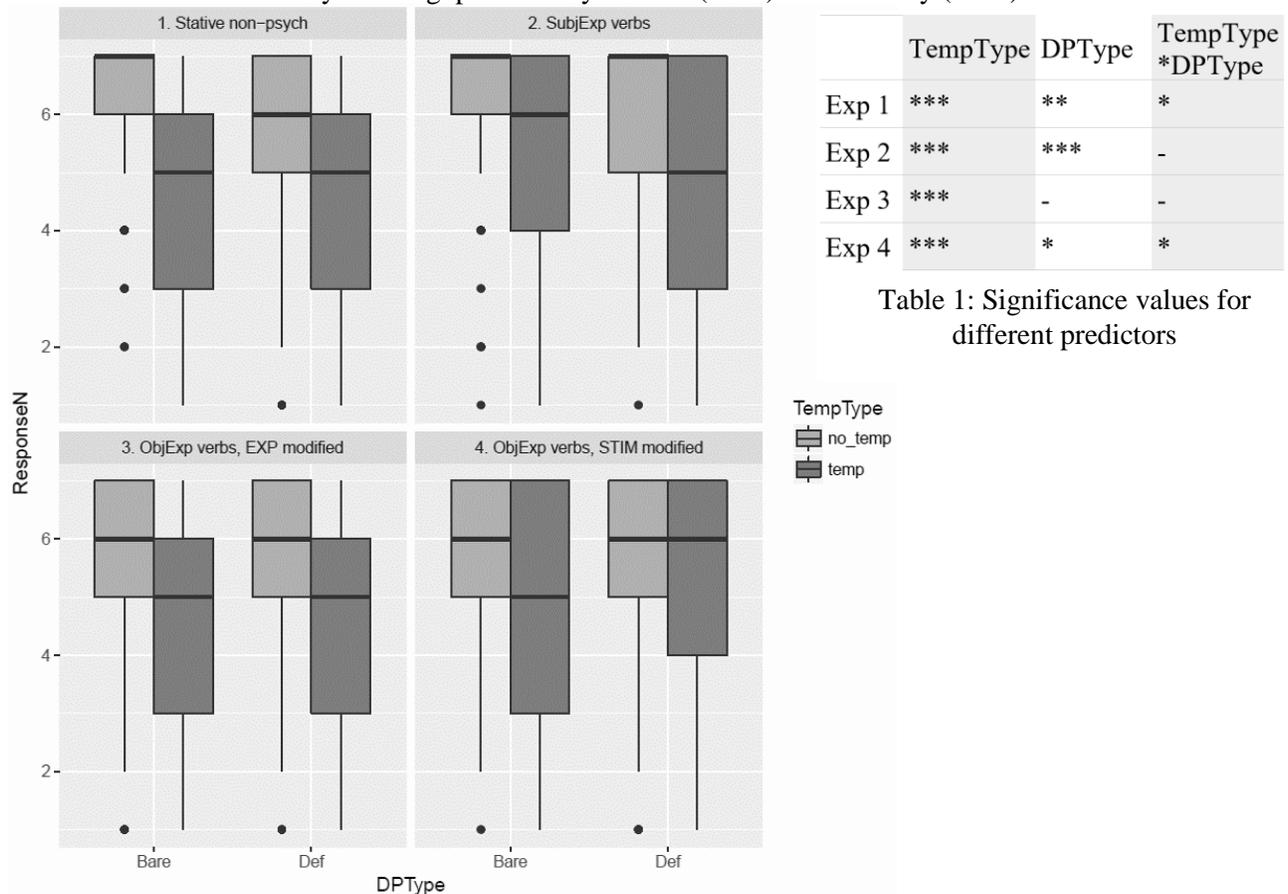

	TempType	DPType	TempType *DPType
Exp 1	***	**	*
Exp 2	***	***	-
Exp 3	***	-	-
Exp 4	***	*	*

Table 1: Significance values for different predictors

Figure 1: Acceptability Judgment data for all 4 Experiments

Selected literature Alexiadou, A.; Iordăchioaia, G. (2014): The psych causative alternation. In: Lingua 148. | Anagnostopoulou, E. (1999): On experiencers. In: Studies in Greek syntax. | Arad, M. (1998): Psych-notes. In: UCL WPL 10. | Belletti, A.; Rizzi, L. (1988): Psych-verbs and θ-theory. In: Nat Lang Linguist Theory 6 (3). | Chierchia, G. (1995): Individual level predicates as inherent generics. In: G. N. Carlson (Hg.): The generic book. | Fábregas, A.; Marín, R. (2015): Deriving individual-level and stage-level psych verbs in Spanish. In: Linguist Rev 32 (2). | Grimshaw, J. (1990): Argument structure: The MIT Press. | Husband, E. M. (2010): Compositional states. In: SALT 20. | Husband, E. M. (2012a): On the compositional nature of states: John Benjamins. | Husband, E. M. (2012b): Stages of individuals and the composition of states. In: Linguist Rev 29 (3). | Kratzer, A. (1995): Individual-level predicates. In: G. N. Carlson (Hg.): The generic book. Chicago | Landau, I. (2010): The Locative Syntax of Experiencers: MIT Press. | Pesetsky, D. M. (1996): Zero syntax. Experiencers and cascades: MIT Press. | Pylkkänen, L. (2000): On stativity and causation. In: C. Tenny und J. Pustejovsky (Hg.): Events as grammatical objects. Stanford