Agentivity and stativity in experiencer verbs: Implications for a typology of verb classes

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Abstract

Experiencer-object verbs are known to deviate from the prototype of transitive verbs. Previous studies have shown that a subset of these verbs is stative and non-agentive and argue that this semantic peculiarity accounts for particular non-canonical syntactic properties. This article shows that the stativity/non-agentivity of experiencer verbs is subject to typological variation. The empirical evidence comes from an experimental study on speaker's intuitions, which shows that some experiencer-object verbs in German and Modern Greek differ from canonical transitive verbs in agentivity and stativity, while experiencer-object verbs in Turkish, Yucatec Maya, and Chinese display the semanto-syntactic properties of canonical transitive verbs.

Keywords: agentive, Aktionsart, argument structure, causative, experiencer verbs, grammatical relations, syntax, transitivity, verb classes

1.   Introduction

It is generally assumed that languages possess different classes of experiencer verbs, the main division being between experiencer-subject (ES) and experiencer-object (EO) verbs (e.g., Belletti & Rizzi 1988, Croft 1993, Pesetsky 1995, Reinhart 2002, Landau 2010). These subclasses of the lexical inventory of verbs are claimed to show a particular linking behaviour that deviates from the behaviour of prototypical transitive verbs. The peculiarity of ES and EO verbs has been accounted for in terms of a difference in constituent structure (e.g., Postal 1970, Belletti & Rizzi 1988) and/or in terms of a semantic difference, either concerning the event/causative structure or the role structure of the respective verbs (e.g., Grimshaw 1990, Dowty 1991, Croft 1993, Pesetsky 1995, Anagnostopoulou 1999, Härtl 2001, Reinhart 2002).

In the center of the present study are EO verbs such as *annoy, anger*, *please*. These verbs have in common that their subject constituent hosts the stimulus argument and their complement hosts the experiencer argument. Two subclasses of these verbs have to be distinguished depending on the syntax of the complement: (i) transitive EO verbs encode the experiencer like a direct object; (ii) intransitive EO verbs encode the experiencer as an indirect or oblique object.

The crucial point of this article is the particular behaviour of transitive EO verbs. It has been shown for many languages that these verbs (or a subset thereof) differ from prototypical transitive verbs with respect to the agentivity of their subject argument, i.e., the stimulus. In particular, some of these verbs are non-agentive while other verbs alternate between an agentive and a non-agentive reading (see Arad 1998a, b; Klein & Kutscher 2002; Landau 2010 for evidence from diverse languages). This distinction is exemplified in (1) from Modern Greek, which also illustrates the impact of agentivity on the syntactic behaviour of the corresponding verb classes (see Anagnostopoulou 1999).

(1) a. *I*   *María*   (*ton*)   *xtipái*
         DEF.NOM.SG.F Maria.NOM.SG.F 3SG.ACC.M   hit.3SG
         ton   *Pétro.*
         DEF.ACC.SG.M Peter.ACC.SG.M
         'Maria hits/is hitting Peter.'
     b. *I*   *María* $^?$(*ton*)   *enðiaféri*
         DEF.NOM.SG.F Maria.NOM.SG.F 3SG.ACC.M   interest.3SG
         ton   *Pétro.*
         DEF.ACC.SG.M Peter.ACC.SG.M
         'Maria interests Peter.'

The verb *xtipái* 'hit.3SG' in (1a) is a typical transitive verb, which involves that it is agentive and eventive. The verb *enðiaféri* 'interest.3SG' in (1b) is an experiencer object verb that is characteristic of being non-agentive and stative.

The examples in (1) illustrate the interaction of lexical properties of the verb with clitic doubling in Modern Greek. Clitic doubling is the construction that contains a clitic pronoun that is co-referent with the object constituent. With canonical transitive verbs as in (1a), the availability of clitic doubling depends on the information structural properties of the object, i.e., it appears when the object constituent is part of the background of the utterance. However, with non-agentive verbs as in (1b) clitic doubling is obligatory according to some authors (see Anagnostopoulou 1999) or occurs in a wider range of contexts according to others (see Verhoeven 2008a, 2009a).[1]

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1. Hence, the question mark in (1b) indicates that this version is possible but contextually restricted. See detailed discussion in Verhoeven 2008a, 2009a.

Next to the non-agentive verbs introduced in (1b), there is another subclass of EO verbs that are characterized as "labile" because they alternate between an agentive and a non-agentive reading. These verbs are illustrated in (2):

(2) a. *I*   *María*   (*ton*)   *enoxlí*
         DEF.NOM.SG.F Maria.NOM.SG.F 3SG.ACC.M   bother.3SG
         ton   *Pétro.*
         DEF.ACC.SG.M Peter.ACC.SG.M
         'Maria bothers Peter.' (Anagnostopoulou 1999: 78)

     b. *Ta*   *épipla*   [?](*ton*)   *enoxlún*
         DEF.NOM.PL.N furniture.NOM.PL.N   3SG.ACC.M   bother.3PL
         ton   *Pétro.*
         DEF.ACC.SG.M Peter.ACC.SG.M
         'The furniture bothers Peter.' (Anagnostopoulou 1999: 79)

Example (2a) is ambiguous between an agentive and a non-agentive reading. In the non-agentive reading, clitic doubling has the same properties as in (1b), i.e., it is almost obligatory. Example (2b) illustrates the same verb with an inanimate subject, which excludes the agentive reading. As expected, clitic doubling is almost obligatory in this configuration as well.

Examples (1) and (2) show that there are two classes of EO verbs, namely non-agentive and labile, and that there is distributional evidence (from the obligatoriness of clitic doubling) that these verbs behave differently from canonical transitive verbs. Moreover, the data pattern shows that the observed syntactic phenomenon does not directly depend on the lexical distinction, i.e., it does not hold true that every verb that is member of the set of EO verbs in Greek triggers clitic doubling almost obligatorily. The crucial issue is agentivity: clitic doubling is almost obligatory either with verbs that involve the property of non-agentivity as an inherent semantic property, as illustrated in (1b), or in the non-agentive occurrences of verbs that are underspecified with respect to agentivity, see (2b). In the same vein, Arad (1998a, b) and Landau (2010) show that non-canonical object properties of experiencer objects such as restrictions in passivization and reflexivization, preposing of the experiencer object, islandhood with respect to extraction, and other so-called psych-properties only apply to non-agentive readings of EO verbs, but not to the agentive variants.

Given the assumptions in the literature about the crosslinguistically attested properties of EO verbs, this article addresses the question whether these properties are universal or subject to typological variation. It is clear that the phenomenon at issue depends on lexical specification, as already implied by the distinction between non-agentive EO verbs in (1b) and labile EO verbs in (2). It is also clear that the same concepts are not encoded through verbs with the same argument structure across languages: for instance, English *like*, which is

an ES verb, corresponds to German *gefallen*, which is an intransitive EO verb. The question dealt with here is whether the lexical specification of transitive EO verbs for non-agentivity/stativity is a universal or whether it depends on global properties of the inventory of transitive verbs in the relevant languages.

In order to obtain reliable evidence about the semantic properties at issue, we designed an acceptability study. This study examines whether assumptions about the different semantics of verb classes are empirically attested in speaker's intuitions about the felicity of the verbs at issue in particular contexts. We will focus on (non-)agentivity and stativity given that these factors are crucial in current approaches to EO verbs. The empirical study was performed in five languages: German, Modern Greek, Chinese, Turkish, and Yucatec Maya. A comparison of the results provides evidence that languages differ with respect to the lexical specification of EO verbs for agentivity/stativity.

The structure of the article is as follows. Section 2 discusses some of the so-called psych-properties of EO verbs and identifies their crosslinguistic relevance for verb class membership. Section 3 discusses the notions of agentivity and stativity and introduces the semantic tests used to identify these semantic properties. The experimental study and its results are reported in Sections 4 and 5. Section 6 discusses the implications for a typology of experiential verb classes. Section 7 summarizes the main conclusions.

2.   EO verbs in the sample languages

2.1.   *EO verb classes*

Following the seminal work of Belletti & Rizzi 1988, three different classes of experiencer verbs are distinguished in the literature on the topic: ES verbs (*temere*-type, class I) and two classes of EO verbs, namely transitive EO verbs that have an accusative experiencer object (*preoccupare*-type, class II) and intransitive EO verbs that have a dative or oblique EO (*piacere*-type, class III). Landau (2010) argues for a number of languages (among them English, Hebrew, and Finnish) that transitive EO verbs are heterogeneous as regards dynamicity. Some of these verbs (may) denote events (e.g., *scare*, *frighten*, *embarrass*, *amuse*, *surprise*) while others are purely stative (e.g., *depress*, *concern*, *interest*, *fascinate*). Stativity is inherent to intransitive EO verbs which include items such as *appeal to*, *occur to*, *matter to*. It is argued that the agentive/non-agentive contrast, illustrated in (2), only occurs with eventive verbs, i.e., with a subset of transitive EO verbs, while the intransitive EO verbs are necessarily non-agentive. There is thus a bipartite division within the classes of EO verbs according to the parameters of agentivity (agentive vs. non-agentive) and dynamicity (eventive vs. stative) resulting in the semantic subclasses indicated in Table 1.

Table 1. *Classification of EO verbs*

	Agentive	Non-agentive
Eventive	transitive	transitive
Stative	—	transitive; intransitive

It is generally argued that only non-agentive and stative transitive EO verbs and intransitive EO verbs display a special semanto-syntactic behaviour which distinguishes them from canonical transitive and intransitive verbs respectively (see Arad 1998a, b; Landau 2010). In Section 2.2, we discuss the existence of such so-called psych-properties in our sample languages.

The notion of causativity is crucially related to event structure analysis and verbal semantics. Some accounts of experiencer verbs identify causativity as a central factor that determines the semanto-syntactic behaviour (including argument realization and linking properties) of experiencer verbs (see Grimshaw 1990, Croft 1993, Pesetsky 1995, Härtl 2001; for a critical discussion of such approaches see Kutscher 2009). As concerns the classification of EO verbs in Table 1, the eventive (dynamic) verbs can be interpreted as causative in a broad sense, i.e., as bringing about a change (see, e.g., the feature cause [±c] in Reinhart 2002). Under this view, the stimulus argument of non-agentive causative EO verbs is an effector following a proposal in Holisky 1987 and Van Valin & Wilkins 1996. If the stimulus-effector argument is an animate (human) participant, the respective verbs can be interpreted as agentive.[2] In contrast, stative EO verbs (including the transitive ones) are non-causative and therefore their stimulus argument can never be interpreted as an agent.[3]

2.2. *Psych-properties*

Transitive EO verbs have been shown to display a special semanto-syntactic behaviour that distinguishes them from canonical transitive verbs. Experiencer objects exhibit backward binding of anaphoric pronouns belonging to the putative subject argument (see Postal 1971; Belletti & Rizzi 1988; Pesetsky 1987, 1995). In (3), the possessive pronoun *his* which is part of the subject constituent

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2. Following Van Valin & Wilkins (1996: 309–317) the agentivity of a causing argument (i.e., an effector) is a pragmatic inference which is based on Holisky's (1987: 118–119) pragmatic principle: "You may interpret effectors and effector-themes which are human as agents (in the absence of any information to the contrary)".

3. However, note that some authors (e.g., Arad 1998b, Pylkkänen 2000, Van Valin & LaPolla 1997) assume the existence of causative states or stative causation. Following Arad 1998b, stative causation differs from the abovementioned case in that there is no change of (mental) state involved. Rather verbs as *concern*, *worry*, etc. encode the triggering of a concomitant state.

can be interpreted as being bound by the object *every patient*, a property which is not available for canonical direct objects.

(3)   *His$_i$ health worried every patient$_i$.* (Reinhart 2002: 256)

Experiencer objects have been shown to constitute an island to extraction. In contrast to material belonging to canonical direct object constituents material belonging to experiencer object constituents (see *di cui* in (4b)) cannot be extracted (see Belletti & Rizzi 1988).

(4)   a.   *il   libro di cui   molta gente   disprezza l'autore*
             the   book   of which many   people despise   the.author
             'the book the author of which many people despise'
        b.   **il   libro di cui   molta gente   disgusta l'autore*
             the   book   of which many   people disgust   the.author
             'the book the author of which many people disgust' (Belletti &
             Rizzi 1988: 325)

Furthermore, EO verbs are often restricted in passivization (see (6)); and for many S-before-O-languages, it has been shown that the experiencer object tends to occur in an earlier position than the stimulus subject. Further characteristics include non-canonical behaviour regarding nominalization (5a) and reflexivization (5b) (for these and additional criteria see Bayer 2004, Belletti & Rizzi 1988, Haspelmath 2001, Klein & Kutscher 2002, Landau 2010, Pesetsky 1995, Reinhart 2002, among others).

(5)   a.   **the book's annoyance of Bill* (Pesetsky 1995: 9)
        b.   *Gianni si   teme / *preoccupa.*
             Gianni   self fears / worries
             'Gianni fears himself/worries himself.' (Belletti & Rizzi 1988: 296)

Accounts of EO verbs differ as to the weight and the status they attribute to the above-mentioned features in constituting unique properties of this verb class. Thus, some authors relate certain behavioural properties to specific semantic features that EO verbs share with other verbs, arguing that they are not unique to EO verbs. For instance, Arad (1998a, b) argues that all characteristics of EO verbs can be related to their stativity, claiming thus that there is no special experience-specific syntactic behaviour. In contrast, Landau (2010) identifies so-called core psych-properties (the exact structural effects being partly language-specific) such as restrictions in passivization, reflexivization, and extraction, while properties such as backward binding are judged as more marginal and not psych-verb-specific.

For German, there is an extended discussion of psych-properties of EO verbs which is not only based on intuition data, but is supported by evidence from

corpus studies and psycho- and neurolinguistic studies. (See discussion of coding and behavioural subject properties in Bayer 2004, Bickel 2006, Haspelmath 2001, Klein & Kutscher 2002; (corpus) evidence for word order variation and preferences with EO verbs in Hoberg 1981, Lenerz 1977, Primus 2004; psycho- and neurolinguistic evidence in Bornkessel 2002, Bornkessel et al. 2003, Haupt et al. 2008, Scheepers et al. 2000, etc.) Syntactic tests (e.g., control in co- and subordination, participial relativization) show that experiencer objects in German do not behave like subjects, but that they do not behave like canonical transitive or intransitive objects either, for instance, with respect to nominalization or permutation of the object together with the verb in sentence-initial position (Bayer 2004). Evidence from passivization shows that EO verbs in their non-agentive reading are restricted in the formation of a regular processive passive (they only form an adjectival, stative passive) (6a), while the same verbs in their agentive reading may undergo regular passivization (6b).[4]

(6)   a.   *Peter ist   / *[?]wird   von den*
              Peter COP.3.SG.NPST / AUX.PASS.3.SG.NPST by   DEF.DAT.PL
              Möbel-n   genervt.
              furniture-DAT.PL bother.PASS.PTCP
              'Peter is/is being bothered by the furniture.'

       b.   *Peter ist   / wird   von Maria*
              Peter COP.3SG.NPST / AUX.PASS.3SG.NPST by Maria(DAT)
              genervt.
              bother.PASS.PTCP
              'Peter is/is being bothered by Maria.'

As concerns word order preferences with EO verbs, Haupt et al. (2008: 84) show on the basis of a single-item rating study (outbalancing the factors definiteness and animacy) an advantage for "dative $O_{EXP} \prec$ nominative S_{STIM}" and no overall word order preference for the arguments in accusative EO constructions, where both orderings ($S_{STIM} \prec O_{EXP}$ and $O_{EXP} \prec S_{STIM}$) received nearly the same preference ratings. Thus, there is ample evidence that objects display non-canonical object properties in the non-agentive reading of dative and accusative EO verbs in German.

As regards Modern Greek, the study of Anagnostopoulou 1999 provides detailed evidence for psych-properties of dative/genitive-marked experiencer objects as well as accusative experiencer objects in their occurrence with a non-agentive reading of the verb. Evidence from intuition and corpus data shows that clitic doubling is desemanticized/grammaticalized with non-agentive EO

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4. However, see evidence for dialectal variation with respect to the acceptability of a passive construction with non-agentive EO verbs in Klein & Kutscher 2002.

verbs in contrast to canonical transitive verbs and agentive EO verbs, where clitic doubling is pragmatically licensed (see example (2), Verhoeven 2008b, 2009a). For non-agentive (dative/genitive and accusative) experiencer verbs, it has been argued that both possible orders of the arguments, namely $S_{STIM} \prec O_{EXP}$ and $O_{EXP} \prec S_{STIM}$, are considered as equally neutral (see Anagnostopoulou 1999: 69, 73). Evidence from language production shows that object preposing is significantly more frequent with non-agentive than with agentive accusative EO verbs (see Verhoeven 2009b). Given that passive formation in Modern Greek is subject to idiosyncrasy and lexicalization, it cannot supply clear syntactic evidence for psych-properties of EO verbs (see Verhoeven 2008b).

In contrast to German and Modern Greek, the other three languages of the present study – Turkish, Chinese, and Yucatec Maya – do not seem to display special psych-properties with their transitive EO verbs in the same way as German and Modern Greek do. Thus, passive formation is regular with Chinese and Yucatec Maya transitive EO verbs, as illustrated in (7) for Chinese (for Yucatec see Verhoeven 2007: 249).

(7)   a.   *Jǐngchá / hónglǜdēng / shìgù jīnù-le   xíngrén.*
           policeman / traffic.light / accident enrage-PFV pedestrian
           'The policeman/traffic light/accident enraged the pedestrian.'

       b.   *Xíngrén bèi jǐngchá   / hónglǜdēng / shìgù*
           pedestrian BEI policeman / traffic.light / accident
           jīnù-le.
           enrage-PFV
           'The pedestrian was enraged by the policeman/traffic light/accident.'

For Turkish, evidence from passivization is less clear. Elicitation with native speakers indicates that transitive EO verbs form a regular passive which is, however, restricted in use (see also Verhoeven 2008b, Kutscher 2009). Generally, a sentence with an inanimate passive agent/stimulus (8c) is rejected more clearly than a sentence with an animate agent/stimulus (8b).[5]

(8)   a.   *Öğretmen / iş delikanlı-yı sevin-dir-di.*
           teacher / job boy-ACC   be.happy-CAUS-PFV
           'The teacher/ the job delighted the boy.'

       b.   [?]*Delikanlı öğretmen tarafından sevin-dir-il-di.*
           boy   teacher   by   be.happy-CAUS-PASS-PFV
           'The boy was delighted by the teacher.'

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5. Note that there are also restrictions in the use of passives with canonical transitive verbs.

c. ^{??}*Delikanlı   iş   tarafından   sevin-dir-il-di.*
 boy job by   be.happy-CAUS-PASS-PFV
 'The boy was delighted by the job.'

Most of the Turkish transitive EO verbs are causative forms of basic intransitive verbs taking the experiencer as their subject while the stimulus can be adjoined in an oblique case, either dative or ablative (see Kural 1996, Kutscher 2009). Such constructions using the basic intransitive verb are preferred to the passive constructions in (8b, c).

(9) *Delikanlı   öğretmen-e   /   iş-e   sevin-di.*
  boy teacher-DAT / job-DAT be.happy-PFV
  'The boy was happy about the teacher/the job.'

Furthermore, none of the three languages displays a clear preference for preposing the experiencer object with transitive EO verbs. In Turkish, unmarked word order in canonical transitive clauses is SOV. This order may be influenced by information structure, in particular topical objects may precede subjects (Göksel & Kerslake 2005: 343–349). However, presented out of context, the SOV order qualifies as optimal with transitive EO verbs, independently of the animacy of the stimulus subject. Further evidence for the preference of the canonical word order with transitive EO verbs is provided by a production study reported in Verhoeven 2009c. In this experiment (based on a previous study reported in Ferreira 1994), native speakers were presented with a verb stem and two nouns and asked to construct a sentence spontaneously. The results of transitive EO verbs show the following pattern: when the stimulus subject was animate, speakers exclusively produced SOV sentences; when the stimulus subject was inanimate, speakers produced 4 OSV sentences out of total 99 (4.04 %). On the basis of such data, we may speculate that animacy has an impact, but it is clear that there is a strong preference for the SOV order, independently of the animacy of the subject constituent.

In Chinese, the unmarked constituent order is SVO, however, objects may be placed sentence-initially when they serve as sentence topics (Li & Thompson 1981: 85–101, Chu 1998: 246–281). When presented out of the blue, such utterances may invoke the intuition of non-acceptability, but utterances with these word order properties perfectly occur in naturalistic discourse. Indeed, experiencer objects may be placed sentence-initially, however, as with objects of canonical transitive verbs O≺S order is not pragmatically "neutral" but carries the pragmatics of object topicalization (see Verhoeven 2010).

In Yucatec Maya, the structurally unmarked word order is VOS. However, this order occurs seldom in natural texts when both arguments are lexically realized (see Skopeteas & Verhoeven 2009 for details). In sentences with two lexical NPs, a construction topicalizing the subject in sentence-initial position

is the most frequent pattern in a wide range of contexts, including the condition in which no presuppositions are involved. This applies to all kinds of transitive verbs including EO verbs. For a more comprehensive discussion of psych-properties of EO verbs discussing further evidence from additional tests see Verhoeven 2007 on Yucatec Maya and Verhoeven 2010 on Chinese.

2.3.   *Formation patterns of EO verbs*

The languages of the sample display different types of EO verb formation. In German and Modern Greek, most transitive EO verbs are basic verbs taking the stimulus as subject and the experiencer as direct object. They are systematically related to derived intransitive experiencer-oriented verbs which accommodate the stimulus in an oblique syntactic role. Depending on the language and the specific verb this is done by a passive-like operation as mediopassive formation in Modern Greek (see the schema "STIM *enoxlí* 'bothers' EXP → EXP *enoxlíte apó* 'is bothered by' STIM"), formation of a stative (adjectival) passive in German (see (6)), or the deagentive/anticausative use of the reflexive pronoun in German ("STIM *ärgert* 'bothers' EXP → EXP *ärgert sich über* 'is bothered by' STIM"). For another subset of Modern Greek EO verbs, the argument structure may change through simple conversion (cf. *tromázo* 'I frighten' ∼ *tromázo apó/me* 'I am frightened of something').

In Yucatec Maya (see the schema "EXP *chi'chnak ti'* 'is angry at' STIM → STIM *chi'chnakkunsik* 'angers' EXP") and Turkish (see (8) and (9)), the derivational pattern is the reverse. In the great majority of cases, the transitive EO verbs are derived by causativization from intransitive experiencer-oriented verbs or adjectives.

The Chinese EO verbs treated in this study are basic transitive verbs. In contrast to the German and Modern Greek EO verbs, they are not systematically related to intransitive experiencer-oriented verbs or adjectives. However, some of them may be (marginally) construed in an anticausative construction with the experiencer as sole participant and without overt marking of the verb (see Verhoeven 2010). Furthermore, experiencer-oriented constructions may be formed by means of the passive coverb *bèi* (see (7b)) or the verb *shòu-dào* 'get-reach', which takes the "nominalized" experience as object while the stimulus is encoded as possessor of the latter.

Interestingly, the behaviour in EO verb formation fits the overall or predominant valence orientation type as identified in Nichols et al. 2004 for German, Modern Greek, and Chinese. While Modern Greek and German are predominantly detransitivizing, Chinese shows a tendency towards transitivizing/ ambitransitive. Yucatec Maya and Turkish were not part of the study in Nichols et al. 2004, but there is ample evidence that valence increase via causativization is a frequent process in both languages (see Kornfilt 1997, Göksel & Kerslake 2005, Verhoeven 2007).

3. Semantic properties and diagnostic tests

3.1. *Agentivity*

It is widely accepted that volitional involvement corresponds to control in a situation and this is a prerequisite for agenthood (e.g., Dowty 1991; Lehmann 1991; Van Valin & Wilkins 1996; Van Valin & LaPolla 1997; Primus 1999, 2002; etc.). Thus, with respect to EO verbs, the agentivity of the stimulus is understood as its control for the accomplishment of the verbal event. Agentivity is tested by evaluating the possibility of the volitional or intentional involvement of the stimulus in the event described.

A test that has been frequently used for agentivity is the acceptability of modifying an event with adverbs indicating volitionality (*intentionally*, *on purpose*) (see, e.g., Roeper 1987, Talmy 1976; cf. Klein & Kutscher 2002 for the use of corresponding semantic tests on agentivity/control of German EO verbs). This test indicates whether or not an agentive reading of the verb at issue can be accommodated in a particular context. A positive result in this test does not necessarily imply that the verb at issue is interpreted as agentive in all contexts, but that it can occur in a context that supports the agentive interpretation.

A further test that has been used to examine volitional involvement in a situation is the imperative test. However, the implications of imperative formation for volitionality are not straightforward (see discussion in Dik 1978, Lehmann 1993, Klein & Kutscher 2002). Verbs with a controlling subject are expected to allow for imperative formation, but also non-agentive verbs may allow imperative constructions that do not express a command but rather a wish or desire of the speaker (cf. German *Sei zufrieden!* or *Träum schön!*, English *Be happy!* or *Dream nicely!*). Thus, the availability of imperative formation is not evidence that the verb at issue is agentive. Rather, the non-availability of imperative formation is evidence for the lack of control.

3.2. *Stativity*

Stativity (vs. dynamicity) is one of the basic parameters for describing the inherent temporal properties of the verb. The stative-dynamic opposition refers to the question of whether or not there is a change inside the event described by the verb or at its margins. In this sense, properties are absolute states and can be distinguished from contingent states which do not have intrinsic boundaries, but can be located in time and allow for durational specification. A prototypical state, as opposed to a process, is described as involving no energy to go on or be kept going (see, e.g., Comrie 1976, Lehmann 1991, Van Valin & LaPolla 1997).

A commonly used test to identify states is whether the verb at issue can appear in the progressive aspect or can be successfully combined with a progres-

sivity indicating element; if it does so, then it does not designate a state (see, e.g., Vendler 1967, Van Valin & LaPolla 1997: 91–102). For languages without grammaticalized means of expressing progressivity, a common strategy to identify stativity is a test frame involving the question *What is happening*? using a verb such as English *happen* that indicates that the question asks for an event. If the verb at issue can felicitously occur in an answer to that question, it is assumed to have a dynamic reading (cf. Van Valin & LaPolla 1997: 93).

4.   Method

In order to test the semantic properties of the verb groups at issue we designed an experimental study that examines the acceptability of particular verbs in the sentential frames that are used as diagnostic tests for agentivity and stativity (see Section 3). Three standard diagnostic tests were run: (i) the VOLITIONAL-ITY TEST examines the compatibility of the verb with an adverb denoting the volitional involvement of the actor, e.g., the adverb *intentionally* in (10); (ii) the IMPERATIVE TEST examines whether an order can be expressed by using the imperative[6] form or construction of the verb and provides further evidence for the possibility of an agent to have volitional control over the event, see (11); and (iii) the STATIVITY TEST examines whether the verb can be used in a form or context that implies a dynamic internal temporal structure of the event. This latter test was differently implemented in the object languages, depending on the available aspectual categories. In those languages with a grammaticalized expression of progressivity, the verbs were tested within the corresponding construction; see as an illustration the Present Continuous tense in the English examples in (12). Otherwise, sentences involving the verbs examined were presented as answers to the question *What is happening*?, based on the assumption that this context presupposes an event answer. If the answer does not refer to an event but to a state, it is expected that the question-answer pair will not be felicitous (see Section 3.2).

The aim of this study is to show whether the classes of EO verbs show different behaviour in the three tests. Three classes of EO verbs are at issue: (i) transitive [±agentive] EO verbs (henceforth called "labile" EO verbs), see (10b), (11b), and (12b); (ii) transitive [−agentive] EO verbs, see (10c), (11c), and (12c); and (iii) intransitive (dative) EO verbs, see (10d), (11d), and (12d). In order to estimate agentivity/stativity, we added two control conditions: (iv) a verb class that is known to be agentive and dynamic, namely canonical transitive verbs encoding events in which an agent affects a patient, see (10a), (11a),

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6. The notion "imperative" is used here as a label for the form used in the target languages to express a command (with agentive verbs); this may be a dedicated morphological imperative or some other form or construction used for this purpose.

and (12a); and (v) a verb class known to be non-agentive and stative, namely transitive ES verbs, see (10e), (11e), and (12e).

The permutation of the three semantic tests with the five verb classes results in fifteen possibilities, which are illustrated in examples (10)–(12). The sample sentences here illustrate the tests in English. The exact form of each test in the object languages of this study is shown in Section 5.[7]

(10)   Volitionality test
      a.   canonical
           The girl is pinching the boy intentionally.
      b.   EO/tran/±ag
           The girl scares the boy intentionally.
      c.   EO/tran/−ag
           The delegate concerns the voter intentionally.
      d.   EO/intr
           The tenant appeals to the estate agent intentionally.
      e.   ES
           The patient hates the doctor intentionally.

(11)   Imperative test
      a.   canonical
           Pinch the boy!
      b.   EO/tran/±ag
           Scare the boy!
      c.   EO/tran/−ag
           Concern the voter!
      d.   EO/intr
           Appeal to the estate agent!
      e.   ES
           Hate the doctor!

(12)   Stativity test
      a.   canonical
           The girl is pinching the boy.
      b.   EO/tran/±ag
           The girl is scaring the boy.
      c.   EO/tran/−ag
           The delegate is concerning the voter.

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7. Note that the sentences in the experiments were not ambiguous as a result of ambiguous verb meanings – as is the case in the English translations in (10d), (11d), (12d), due to the fact that in addition to its experiential meaning *appeal* also has the non-experiential meaning 'plead'.

    d.   EO/intr
        The tenant is appealing to the estate agent.
    e.   ES
        The patient is hating the doctor.

In order to obtain repeated observations for each experimental condition, we selected four different verbs for each verb group; the lexical material used for each language is given in Appendix B. For the canonical verbs, we selected four concepts which are typically encoded through transitive verbs, namely 'kick', 'pinch', 'beat', and 'push'. The selection for experiencer verbs was based on a larger inventory of lexical items collected through elicitation with native speakers (based on the translational equivalents of 60 experiential concepts). An examination of the same concepts across languages would not make sense since the lexicalization of experiential concepts involves several aspects of variation that are crucial for the assumptions of the present study. For instance, some concepts are not encoded through verbs of the same class across languages. Hence, the concept 'hate', which is used as an instance of transitive ES verbs in German, Greek, Yucatec Maya, and Chinese, cannot be used as an instance of the same class in Turkish, since it is lexicalized through an intransitive verb taking the stimulus as an ablative-marked oblique object in this language, namely *nefret et-* 'hate'. Furthermore, since the experiment deals with verb classes, concepts that are encoded through periphrastic constructions had to be excluded, as for instance periphrastic causative EO constructions in Chinese, e.g., *shǐ* (*gǎndào*) *jīngkǒng* 'frighten; lit. make (feel) frightened'. After excluding these items, we presented the remaining verbs of each class to the native speakers, asking them to determine those four verbs that according to their intuition are more "basic" or "common" in everyday communication.

  A particular problem arises with the transitive EO verbs, since they are divided in two subclasses according to a semantic criterion, namely [±agentive] vs. [−agentive]. In order to distinguish among these two subclasses, we started from previous classifications in the literature,[8] and we examined a number of properties with a native speaker (compatibility with several adverbs including the control tests mentioned above, subordination under control verbs such as *attempt*, *conclude*, and combination with a means phrase *by means of*). Among the available verbs in each language, we selected those that were showing the clearest contrast. This procedure was successful in all object languages except Chinese, where the native speaker did not perceive any significant difference among the verb items examined. In this case, we did not have enough evidence

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8. For German see Härtl 2001, Klein & Kutscher 2002; for Modern Greek see Anagnostopoulou 1999, Kordoni 1999; for Turkish see Kural 1996; for Chinese see Cheung & Larson 2006; for Yucatec Maya see Verhoeven 2007.

to test the hypothesis of two subclasses of transitive EO verbs, hence this distinction could not be accounted for in this language.

The sentences examined contained each verb in combination with lexical NPs as arguments within the frame of the corresponding diagnostic test. The entire material was pseudo-randomized and copied in written questionnaires. Sixteen different randomizations were prepared that were presented to sixteen different speakers (see population statistics per language in Section 5).

The speakers were instructed to judge the well-formedness of each sentence and give their intuition in a 1-to-7 estimation scale (1: "bad", 7: "good"). They were instructed to consider whether the sentence sounds like a "natural" or "odd" expression according to their own spontaneous feeling and not according to the rules of grammar, and to not examine "what" is said but "how" it is said.
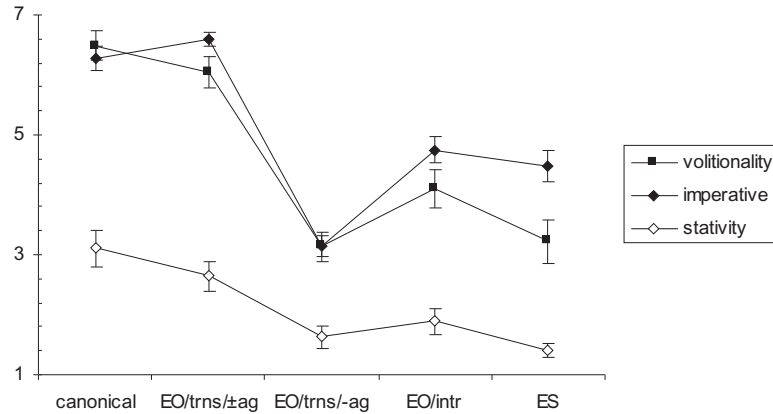
5. Results

5.1. *German*

Example (13) illustrates the three experiments for German, giving an example for each of them. A full list of the verbal items used per verb group is given in Appendix B. As to the stativity test, we first implemented the *What is happening*? frame in a pilot version of the study. However, the pilot results showed that the speakers were not sensitive to this test. Therefore we decided to implement the so-called *Rheinische Verlaufsform* ('Rhineland continuous form') as a progressive construction, which is part of the colloquial language of the northern part of the Rhine valley and less widespread in other parts of Germany.

(13)   a.   Volitionality test
            Das Mädchen ärgert den Jungen absichtlich.
            'The girl annoys the boy intentionally.'
    b.   Imperative test
            Ärgere den Jungen!
            'Annoy the boy!'
    c.   Stativity test
            Das Mädchen ist den Jungen am ärgern.
            'The girl is annoying the boy.'

Sixteen native speakers of German (students at the University of Bremen; female: 11; age range: 19–26, average: 21.2) participated in the experiment in December 2008. Each speaker was presented each verb three times, each one within the frame of the corresponding test (volitionality, imperative, stativity), pseudo-randomized in a written questionnaire. This study resulted in a data set of 20 (items) × 3 (tests) × 16 (speakers) = 960 judgments. This data set contains 4 (items) × 16 (speakers) = 64 observations for each experimental

Figure 1. *Experimental results in German*

condition that is discussed in the following. One value was missing in the filled-in questionnaires, i.e., the actual data set of valid observations relates to 959 judgments.

An analysis of variance on the entire data set revealed a significant main effect of diagnostic test ($F_{2,14} = 61.5$, $p < .001$), a significant main effect of verb type ($F_{4,12} = 50.8$, $p < .001$), and a significant interaction between both factors ($F_{8,8} = 8.9$, $p < .01$).[9] An observation of the descriptive data (means and standard errors) in Figure 1 suggests that the significant main effect of diagnostic test comes from the lower average judgments obtained through the stativity test.

In order to assess the influence of the verb groups on the acceptability of each test (volitionality, imperative, stativity), we carried out post-hoc Tukey tests. By means of these findings we determine the hierarchy between the obtained means as shown in Table 2: the obtained means are presented in groups, enclosed by parentheses that correspond to different levels of acceptability, α, β, and γ (the subscripts 1 to 5 indicate the hierarchy of the obtained scores in terms of means' differences).[10]

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9. All analyses of variance reported in this article were carried out only on subjects.

10. We assume that two means α and β, whereby $\alpha > \beta$, reveal a difference between the corresponding verb groups whenever α is significantly higher than β in terms of the post-hoc Tukey test (compare Keller & Alexopoulou 2001 for a similar approach to transforming scales of acceptability scores into hierarchies). A problem of this procedure is encountered in cases with three different means α, β, and γ, such that $\alpha > \beta > \gamma$, whereby the difference $\alpha > \gamma$ turns out to be significant but the smaller differences $\alpha > \beta$ and $\beta > \gamma$ are not confirmed

Table 2. *Verb-group contrasts in German*

	Canonical	EO/trns/±ag	EO/intr	ES	EO/trns/−ag
Volitionality	(α_1	| α_2) >	(β_3	| β_4	| β_5)
Imperative	(α_2	| α_1) >	(β_3	| β_4) >	γ_5
Stativity	(α_1	| α_2) >	(β_3	| β_5	| β_4)

In the volitionality test, the post-hoc tests did not reveal any significant difference between canonical transitive verbs and labile EO verbs (EO/trns/±ag), and not between non-agentive transitive EO verbs (EO/trns/−ag), intransitive EO verbs (EO/intr), and transitive ES verbs (ES) either. All differences between the members of these two subgroups are confirmed by the Tukey tests ($\alpha < .001$). In the imperative test, the difference between canonical verbs and labile EO verbs as well as the difference between intransitive EO verbs and ES verbs were not confirmed by the Tukey tests. Canonical verbs and labile EO verbs significantly differed from all means of the β and γ groups in Table 2, i.e., ES verbs, intransitive EO verbs, and non-agentive EO verbs (all obtained differences are below the $\alpha < .001$ level). Moreover, the data from non-agentive EO verbs significantly differ from the data from ES verbs and intransitive EO verbs ($\alpha < .001$ in both cases). Finally, the stativity test displays similar contrasts with the volitionality test: the means within group α and within group β do not differ significantly. Labile EO verbs do not significantly differ from either canonical verbs or intransitive EO verbs; however, intransitive EO verbs are significantly less acceptable than canonical transitive verbs ($\alpha < .01$). Since the mean of labile EO verbs (2.64) is closer to the mean of canonical verbs (3.11) than to the mean of intransitive EO verbs (1.89), the intermediate category is grouped together with the higher score (see discussion in Footnote 10).

The results in Table 2 confirm our expectations: all three tests gave a significant difference between the control conditions, namely the canonical verbs on the one hand and the ES and intransitive EO verbs on the other. Labile EO verbs pattern with the canonical transitive verbs in all tests while the non-agentive transitive EO verbs generally group with the intransitive EO verbs and the ES verbs. A comment is in order as regards the results of the imperative test. In this test, the acceptability means for the intransitive EO verbs and the ES verbs (group β) significantly differ from the mean of the canonical transitive verbs

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by the Tukey test. The evidence for statistic significance implies that we have to distinguish between two different levels of acceptability for the means α and γ, but it is not clear whether the intermediate mean β patterns with α or with γ. In such cases, we adopt the convention to group β together with the closest mean (α or γ).

(group α). The important point for our purposes is that the non-agentive transitive EO verbs reach a lower level of acceptability. The difference between this verb group and the ES and intransitive EO verbs is not expected and reveals differences that are beyond the scope of this article. We speculate that ES and intransitive EO verbs allow for the formation of an imperative expressing the desire of the speaker, which is not possible for non-agentive transitive EO verbs.

5.2.   *Modern Greek*

Example (14) illustrates the three experiments of the Modern Greek part of the study giving an example for each of them; see a full list of the verbal items in Appendix B.

(14)   a.   Volitionality test
            O   iðioktítis   enoxlí   ton
            DEF.NOM.SG.M   owner.NOM.SG.M   annoy.3SG   DEF.ACC.SG.M
            éniko   epítiðes.
            dweller.ACC.SG.M   intentionally
            'The owner annoys the dweller intentionally.'

        b.   Imperative test
            Se   parakaló   Xári,   enóxlise
            2SG.ACC   please.1SG   Charis.VOC.SG.M   annoy.PFV.IMP.2SG
            ton   Mário!
            DEF.ACC.SG.M   Marios.ACC.SG.M
            'Please Charis, annoy Marios!'

        c.   Stativity test
            Ti   jínete?   Aftó   pu   jínete
            what.NOM.SG.N   happen.3SG   this.NOM.SG.N   that   happen.3SG
            íne   óti   o   iðioktítis   enoxlí
            be.3SG   that   DEF.NOM.SG.M   owner.NOM.SG.M   annoy.3SG
            ton   éniko.
            DEF.ACC.SG.M   dweller.ACC.SG.M
            'What happens? What happens is that the owner annoys the dweller.'

The group of the dative experiencer verbs included only one item since there are no further clear cases of experiencer verbs in this class.[11] Modern Greek

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11. There are some verbs with a similar constituent structure, e.g., *miázo* 'resemble', *teriázo* 'match', but these do not encode an experiential situation.
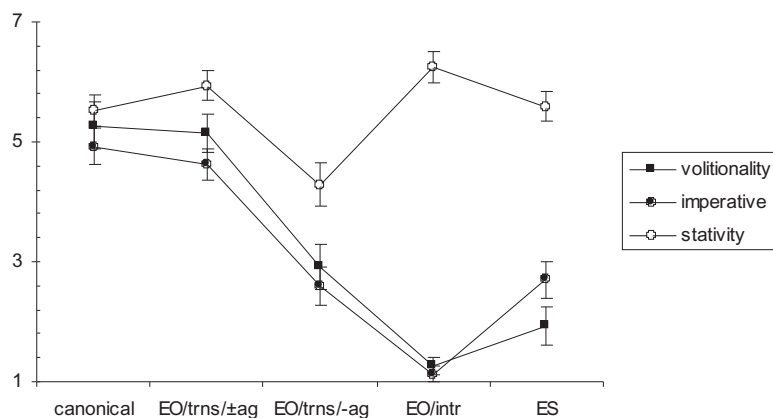
Figure 2. *Experimental results in Modern Greek*

does not have either a progressive tense or periphrastic means for the expression of progressivity. Hence, we tested stativity by means of answers to an event question, as illustrated in (14c) (see discussion in Section 3.2).

Sixteen native speakers of Modern Greek (students at the University of Athens; female: 6; age range: 19–33, average: 25.7) participated in the experiment in August 2007. Each speaker was presented each verb three times, each one within the frame of the corresponding test (volitionality, imperative, stativity), pseudo-randomized in a written questionnaire. This study resulted in a data set of 17 (items) × 3 (tests) × 16 (speakers) = 816 judgments. This data set contains 4 (items) × 16 (speakers) = 64 observations for each experimental condition with the exception of the EO/intr verbs for which we examined a single verb, i.e., we obtained 16 judgments for this condition. 3 values were missing in the questionnaires (all three in the canonical verbs of the volitionality test), i.e., the actual data set of valid observations relates to 813 judgments.

An analysis of variance on the entire data set revealed a significant main effect of verb type ($F_{4,12} = 60.6$, $p < .001$), no significant main effect of diagnostic test and a significant interaction between both factors ($F_{8,8} = 5.3$, $p < 0.5$).

Post-hoc Tukey tests do not confirm the obtained differences between canonical and labile EO verbs in the volitionality, the imperative, and the stativity tests. In the volitionality test, non-agentive EO verbs are significantly lower than labile verbs ($\alpha < .001$), while non-agentive EO verbs, ES verbs, and intransitive EO verbs do not significantly differ from each other. The imperative test revealed a significant difference between labile and non-agentive EO verbs ($\alpha < .001$), no significant difference between non-agentive EO verbs and ES

Table 3. *Verb-group contrasts in Modern Greek*

	Canonical	EO/trns/±ag	EO/trns/−ag	ES	EO/intr
Volitionality	(α_1	| α_2) >	(β_3	| β_4	| β_5)
Imperative	(α_1	| α_2) >	(β_4	| β_3) >	γ_5
	Canonical	EO/trns/±ag	EO/intr	ES	EO/trns/−ag
Stativity	(α_4	| α_2	| α_1	| α_3) >	β_5

verbs, but a significant difference of the latter to intransitive EO verbs ($\alpha <$ .001). The stativity test revealed a different pattern: the only verb group that significantly differs from the others is the group of non-agentive EO verbs (α < .01 comparing to the closest mean, i.e., the canonical verbs).

As is seen in Table 3, the results from the volitionality test and the imperative test in Modern Greek are similar to the results for German, and are thus fully expected. The reason for the three-partitioned results in the imperative test has been discussed for German in Section 5.1 and equally applies here. However, the stativity test does not produce the expected outcome. Since the means of the control conditions do not significantly differ from each other (canonical verbs vs. ES/intransitive EO verbs), the interpretation of this data pattern is not obvious. In general, we hypothesize that the stativity test at issue, i.e., examination of contextual felicity in the context of event questions, did not induce the expected reaction.

5.3. *Turkish*

Example (15) presents illustrations of each of the three experiments of the Turkish part of the study.

(15)   a.   Volitionality test
       Kız   çocuğu   bilerek   kız-dır-ıyor.
       girl   child.ACC   intentionally   be.angry-CAUS-IPFV
       'The girl annoys the boy intentionally.'
   b.   Imperative test
       Çocuğu   kız-dır!
       child.ACC   be.angry-CAUS
       'Annoy the boy!'
   c.   Stativity test
       Kız   çocuğu   kız-dır-makta.
       girl   child.ACC   be.angry-CAUS-IPFV/PROG
   'The girl is annoying the boy.' (lit. 'The girl is in the act of annoying the boy.')

The group of dative experiencer verbs is rather small in Turkish (see also Kutscher 2009: 210–211), so that it was not possible to identify more than three items when the experiment was carried out. Some further items such as *cesaret ver-* 'encourage', *korku ver-* 'frighten' also take a dative marked experiencer, but given that they are complex expressions based on the verb *ver-* 'give', the stimulus may be interpreted as agentive so that they do not meet the necessary conditions for this verb group in our experimental study.

In order to observe the impact of stativity in Turkish, we tested the acceptability of the verbs in a copular construction using the form *-mAk-tA* [-INF-LOC] 'be in the act of' (see (15c)). Following Kornfilt (1997: 357–358) the construction expresses progressivity with dynamic verbs, but is "either ungrammatical or quite infelicitous" with stative verbs.

Sixteen native speakers of Turkish (residents of Germany; female: 7; age range: 18–57, average: 36.7) participated in the experiment in May 2008. Each speaker was presented each verb three times, each one within the frame of the corresponding test (volitionality, imperative, stativity), pseudo-randomized in a written questionnaire. This study resulted in a data set of 19 (verbs) × 3 (tests) × 16 (speakers) = 912 judgments (all obtained judgments were valid tokens for our analysis). This data set contains 4 (verbs) × 16 (speakers) = 64 observations for each experimental condition that is discussed in the following, except for the EO/intr verbs for which we collected 3 (verbs) × 16 (speakers) = 48 observations due to the lack of further lexical items.

An analysis of variance on the entire data set revealed a significant main effect of verb type ($F_{4,12} = 27.26, p < .001$). The three experiments differ with respect to the data pattern of the ES verbs, however the analysis of variance on the overall data did not reveal either a significant main effect of experiment or of the interaction between experiment and verb type.

Post-hoc Tukey tests on the Turkish data reveal that the means' differences between canonical verbs, labile and non-agentive transitive EO verbs are not significant in all three diagnostic tests. In the volitionality test, non-agentive transitive EO verbs are significantly more acceptable than intransitive EO verbs ($\alpha < .001$), and the latter do not significantly differ from ES verbs. In the imperative test, intransitive EO verbs differ significantly from non-agentive EO verbs ($\alpha < .01$), and do not differ significantly from ES verbs. ES verbs do not significantly differ from either labile EO verbs or intransitive EO verbs, but their mean (4.11) is closer to the mean of the higher category (4.58) than to the mean of the lower category (3.29); hence they are grouped with the former category. In the stativity test, the only significant contrast is between the intransitive EO verbs and the canonical, labile, and ES verbs (all differences below $\alpha < .01$). Non-agentive intransitive EO verbs (mean: 4.67) do not significantly differ from either intransitive EO verbs (3.52) or experiencer subject verbs (5.14), hence they are classified with the higher level α on the basis of the means' differences (see Footnote 10).
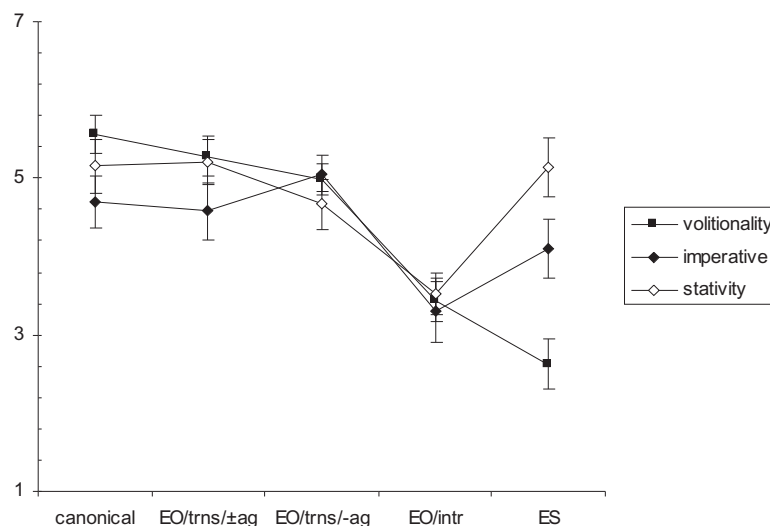
Figure 3. *Experimental results in Turkish*

Table 4. *Verb-group contrasts in Turkish*

	Canonical	EO/trns/$\pm$ag	EO/trns/$-$ag	ES	EO/intr
Volitionality	(α_1	$\mid \alpha_2$	$\mid \alpha_3$) >	(β_5	$\mid \beta_4$)
Imperative	(α_2	$\mid \alpha_3$	$\mid \alpha_1$	$\mid \alpha_4$) >	β_5
Stativity	(α_2	$\mid \alpha_1$	$\mid \alpha_4$	$\mid \alpha_3$) >	β_5

The experimental results for Turkish in Table 4 show that the language differs from German and Modern Greek as concerns the semantic property of agentivity in the transitive EO verbs. Both the labile transitive EO verbs and the alleged non-agentive transitive EO verbs pattern with the canonical transitive verbs as regards their acceptability in the volitionality test and the imperative test. In the imperative test, it turns out that ES verbs are quite acceptable due to reasons that are out of consideration in this article (compare German in Section 5.1).

The Turkish stativity test does not produce the expected outcome. The obtained means suggest that only the intransitive EO verbs but not the ES verbs are stative. A possible explanation for the high acceptability of ES verbs in the *-mAktA* construction is that subjects gave an ingressive interpretation to the verbs. Konfilt (1997: 358) mentions such a possibility as marginally acceptable. However, lacking further decisive evidence, we have to draw the same

conclusion from the results of this test as we did in the parallel case for Modern Greek (see Section 5.2), namely that subjects were not sensitive to the test and that the difference obtained may not be triggered by the semantic feature of stativity vs. dynamicity.

5.4. *Yucatec Maya*

The three diagnostic tests in Yucatec Maya are illustrated in (16).

(16)   a.   Volitionality test
        Le   x-ch'úuppal-o' t-u   pat-ah   u   báah u
        DEF F-girl-DIST   PFV-A.3 dare-CMPL A.3 self A.3
        chi'chnak-kuns   le   xibpal-o'.
        cross-FACT(SUBJ) DEF boy-DIST
        'The girl tried to bother the boy.'
     b.   Imperative test
        (i)   *Chi'chnak-kuns   le   xibpal-o'!*
              cross-FACT(SUBJ) DEF boy-DIST
              'Bother the boy!'
        (ii) *Ko'x   k'a'h-al   ti'   le   x-ch'úuppal-o'!*
              let's.go occur.to-INCMPL LOC DEF F-girl-DIST
              lit.: 'Let's cross the girl's mind!'
     c.   Stativity test
        Ba'x táan u   y-úuch-ul?
        what PROG A.3 0-happen-INCMPL
        'What is happening?'
        (i)   *Le   x-ch'úuppal-o' táan   u   chi'chnak-kuns-ik*
              DEF F-girl-DIST   PROG A.3 cross-FACT-INCMPL
              le   xibpal-o'.
              DEF boy-DIST
              'The girl is bothering the boy.'
        (ii) *Le   h-k'oha'n-o' u   p'èek le   ah   ts'àak-o'.*
              DEF M-sick-DIST A.3 hate   DEF master cure-DIST
              'The ill person hates the doctor.'

The volitionality test had to be adapted since there is no "idiomatic" adverbial expression of volitionality in the language. Instead, we chose another test frame, which tests control by subordinating the verbs at issue under the matrix verb *pat- u báah* [dare-A.3 self] 'dare, attempt, exert', which presupposes control of the matrix actor over the verbal event described in the subordinated clause (see (16a), Lehmann 1993, Verhoeven 2007).

Yucatec Maya has a progressive marker (*táan*) which is appropriate for the stativity test (see (16c-i)). However, stative predicates cannot occur with an as-

pectual marker. Thus, those experiential concepts which are lexicalized as stative predicates (i.e., *sùuk* 'be accustomed', *k'abéet* 'necessary, need', *yàakumah* 'love', *p'èek* 'dislike, hate', and *k'áhóol* 'know', see list in Appendix B) cannot be presented with the progressive marker. In order to obtain an estimation of stativity, we presented all verbs in the context of an event question (see (16c)). Answers containing a verb were formed with the progressive marker (see (16c-i)), while answers containing a stative predicate were formed without this marker (see (16c-ii)).

Finally, the imperative test had to be adjusted to the structural facts of Yucatec Maya. Among the intransitive EO verbs there are two, namely *sùuktal* 'become accustomed' and *k'abéettal* 'become necessary, need', which do not form an imperative due to their membership in the class of inchoative intransitive verbs. Furthermore, the imperative forms of the intransitive EO verbs *tu'b* 'get forgotten, escape' and *k'a'h* 'cross one's mind' are homophonous with the 1st person singular completive form, so that the respective sentences could not be presented without ambiguity. In order to implement the test for the intransitive EO verbs we chose the hortative forms, which imply control of the verbs' main argument similar to the imperative forms (see (16b-ii)).

Sixteen Yucatec Maya native speakers (all bilingual in Spanish but speaking Maya in their everyday communication, residents of Yaxley in the municipality of Felipe Carrillo Puerto in Quintana Roo, Mexico; female: 5; age range: 17–59, average: 38.9) participated in the experiment in March 2008. Each speaker was presented each verb three times, each one within the frame of the corresponding test (volitionality, imperative, stativity), pseudo-randomized in a written questionnaire. This study resulted in a data set of 20 (verbs) $\times$ 3 (tests) $\times$ 16 (speakers) = 960 judgments (64 observations for each experimental condition). 17 values distributed in different conditions (up to 3 values in a single condition) were missing in total, i.e., the actual data set relates to 943 valid judgments.

An analysis of variance on the entire data set revealed a significant main effect of verb type ($F_{4,12} = 37.01$, $p < .001$), no significant main effect of diagnostic test, and a significant interaction effect ($F_{8,8} = 5.59$, $p < .05$). The descriptive data in Figure 4 suggests that the significant interaction relates to the difference in the data pattern of the stativity test, in particular with respect to the reaction to the EO/intr verbs.

Post-hoc Tukey tests show that the acceptability of the intransitive EO verbs in the volitionality test is significantly lower than the acceptability of labile EO verbs ($\alpha < .05$) and of canonical verbs ($\alpha < .02$). Non-agentive EO verbs and ES verbs do not significantly differ from any other category. Since the means of these categories (EO/trns/−ag: 6.02; ES: 5.84) are closer to the higher level (EO/trns/±ag: 6.20) than to the lower level (EO/intr: 4.95), they are grouped together with the higher scores. In the imperative test, the differences of the in-
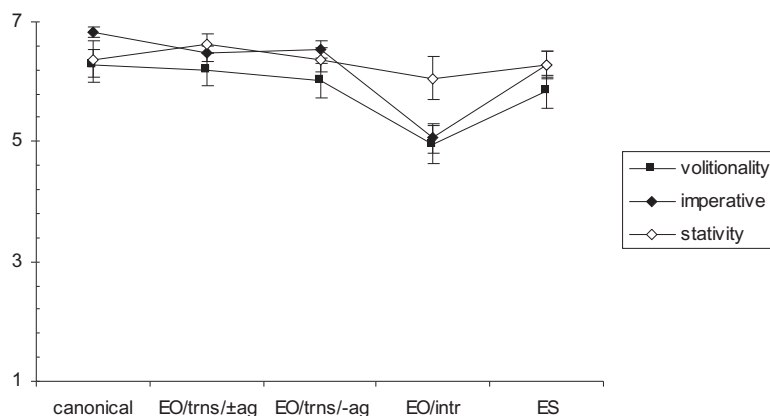
Figure 4. *Experimental results in Yucatec Maya*

transitive EO verbs to all other categories and only these are significant (all differences below the $\alpha < .001$ level). In the stativity test, no differences reached significance.

The experimental results in Table 5 show that this language differs from German and Modern Greek and patterns with Turkish as to the agentivity of transitive EO verbs. Both the labile transitive EO verbs and the alleged non-agentive transitive EO verbs group with the canonical transitive verbs as regards their acceptability in the volitionality test and the imperative test and they differ from the intransitive EO verbs. Note that in both tests ES verbs also belong to the same group since they receive high acceptability ratings in both tests, too. For the imperative test, the reason discussed for German in Section 5.1 may account for this behaviour. However, the volitionality test clearly indicates that the Yucatec Mayan ES verbs can indeed accommodate an agentive reading. This is supported by other control tests reported in Verhoeven (2007: 231–232) and applies to the transitivized versions of the basic stative predicates

Table 5. *Verb-group contrasts in Yucatec Maya*

	Canonical	EO/trns/±ag	EO/trns/−ag	ES	EO/intr
Volitionality	(α_1	| α_2	| α_3	| α_4) >	β_1
Imperative	(α_1	| α_3	| α_2	| α_4) >	β_1
Stativity	(α_2	| α_1	| α_3	| α_4	| α_5)

yàakumah 'love', *p'èek* 'dislike, hate', and *k'áhóol* 'know', which themselves are non-agentive.[12]

The stativity test in Yucatec Maya does not produce any significant distinctions between the verb classes, so that we have to conclude that the subjects were not sensitive to the test.

5.5. *Chinese*

As explained in Section 4, the Chinese part of the parallel study is reduced for language internal reasons. First, in Chinese there are no intransitive EO verbs, i.e., verbs displaying an argument structure parallel to the intransitive (dative) EO verbs in the other languages. Thus, this part of the parallel study could not be carried out in Chinese. Furthermore, by means of the control tests in elicitation, no EO verbs with reduced agentivity could be identified. All EO verbs were judged as equally good (see also data in Verhoeven 2010). Therefore, it was not possible to group Chinese EO verbs into one agentive and one non-agentive group. As a consequence, the Chinese part of the study distinguishes between three verb groups, namely transitive EO verbs, canonical transitive verbs, and ES verbs. Each of the three tests carried out with these verbs is illustrated in (17).

(17)   a.   Volitionality test
            Nǔhái gùyì-de   rěnǎo nánhái.
            girl   intention-ADVR annoy boy
            'The girl annoys the boy intentionally.'
        b.   Imperative test
            Rěnǎo zhè nánhái!
            annoy this boy
            'Annoy the boy!'
        c.   Stativity test
            Nǔhái zhèng-zài rěnǎo-zhe   nánhái.
            girl   just-PROG annoy-DUR boy
            'The girl is annoying the boy.'

Stativity is tested by means of the combination of the verbs with the progressive marker *zài*, which occurs in our examples in combination with the adverb *zhèng* in *zhèng-zài* (17c). According to Li & Thompson (1981: 218), only activity verbs can be combined with *zài* to indicate the duration of the

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12. Note that the chosen test frame only allows to test verbs since stative predicates cannot occur in subordinate clauses.

event denoted by the verb. This analysis is generally supported by the corpus evidence presented in Xiao & McEnery 2004: 209.[13]

Sixteen native speakers of Mandarin Chinese (residents of Kunming and students at the University of Yunnan; female: 6; age range: 19–30, average: 23.1) participated in the experiment in April 2008. Each speaker was presented each verb three times, each one within the frame of the corresponding test (volitionality, imperative, stativity), pseudo-randomized in a written questionnaire. This study resulted in a data set of 12 (verbs) × 3 (tests) × 16 (speakers) = 576 judgments. This data set contains 4 (verbs) × 16 (speakers) = 64 observations for each experimental condition. A single judgment was missing in a written questionnaire, i.e., the data reported in the following refer to a data set of 575 judgments.

An analysis of variance was carried out on the entire data set obtained by the Mandarin Chinese speakers. This analysis revealed a significant main effect of verb type ($F_{2,14} = 25.4$, $p < .001$), a significant main effect of diagnostic test ($F_{2,14} = 17.86$, $p < .001$), and a significant interaction effect ($F_{4,12} = 14.45$, $p < .002$). The question is how to explain these effects. We observe in Figure 5 that the stativity test induced generally lower judgments, which accounts for the main effect of diagnostic test. The imperative test induced a different data pattern from the other tests, in particular for the acceptability of ES verbs in the corresponding frame. The means' difference that we may descriptively observe in Figure 5 accounts for the statistical finding that verb type significantly interacts with the type of test.

Post-hoc Tukey tests on the means' differences show that the only significant differences in this data set are obtained in the volitionality experiment: ES verbs are significantly less acceptable than canonical transitive verbs and labile EO verbs ($\alpha < .001$ in both cases), while the latter categories do not significantly differ from each other.

The experimental results in Table 6 suggest that Chinese patterns with Turkish and Yucatec Maya as concerns the agentivity of the transitive EO verbs. Transitive EO verbs group with canonical transitive verbs and differ from ES verbs as to their acceptability in the volitionality test. In the imperative test, ES verbs received high acceptability ratings, supposedly for the reasons discussed before (see Section 5.1), so that the results of this part of the test are not decisive in identifying agentivity. The stativity test also failed to produce significant distinctions between the three verb groups. However, we can observe in Figure 5 that the acceptability of transitive EO verbs is more similar to that of canonical transitive verbs than to that of ES verbs.

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13. The corpus data analyzed in Xiao & McEnery 2004 show that states may marginally occur with *zài* 'PROG'. For a more detailed discussion of the construction of EO verbs with *zhèng-zài* see Verhoeven 2010.
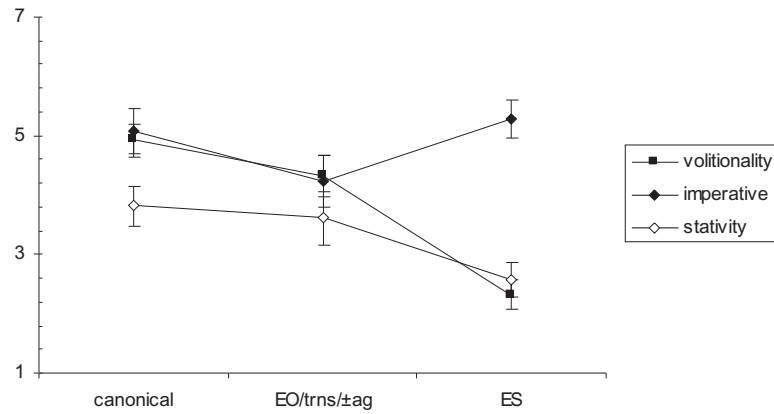
Figure 5. *Experimental results in Chinese*

Table 6. *Verb-group contrasts in Chinese*

	Canonical	EO/trns/±ag	ES
Volitionality	(α_1	| α_2) >	β_3
Imperative	(α_2	| α_3	| α_1)
Stativity	(α_1	| α_2	| α_3)

6. Typology of experiential classes

In our study we pursued the question of whether the lexical specification of transitive EO verbs for non-agentivity/stativity is a crosslinguistic universal, as is often implicitly assumed. For this purpose, we applied two diagnostic tests for agentivity (combination with volitionality indicating adverbs; imperative formation) and a test for stativity (progressive/eventive constructions) with different verb groups. In order to estimate the agentivity/stativity of EO verbs, we used two control conditions: (i) verbs that by hypothesis are agentive and dynamic, namely canonical transitive verbs (such as *kick*, *pinch*, *beat*, *push*), and (ii) verbs that by hypothesis are non-agentive and stative, namely ES verbs (such as *love*, *hate*, *like*, *know*) and intransitive EO verbs (such as *appeal to*, *occur to*, *matter to*). The former verbs were expected to obtain high acceptability ratings in all tests (combination with volitionality adverbs; imperative; progressive). The verbs of the latter groups were expected to obtain low acceptability in the same tests. Speakers' intuitions largely confirmed these hy-

potheses with a few exceptions that were discussed in the previous section. In some languages (Chinese, Yucatec Maya, Turkish), ES verbs received a relatively high acceptability rate in the imperative test, which was explained by the nature of the test, since imperatives can also be used to express the desire of the speaker (see Section 3.1). Furthermore, in some languages the subjects did not seem to be sensitive to the stativity test (see results for Yucatec Maya, Modern Greek, Turkish (to some degree)). Apart from these limitations, the collected data provided us with a positive and a negative baseline that indicate the acceptability of ±agentive and ±stative verbs in our diagnostic tests. Having established these two baselines, we can now estimate the properties of the target verb group(s).

The aim of this study was to evaluate agentivity and stativity in the transitive EO verbs of the sample languages. It should be tested if they are uniform across languages with respect to the semantic parameters mentioned. The motivation for this comparison was that the object languages differ with respect to the properties of EO verbs (see Section 2.2). Transitive EO verbs in German and Modern Greek display a number of non-canonical object properties, while this does not hold true for the corresponding verbs in Turkish, Yucatec Maya, and Chinese. The experimental study was expected to show whether transitive EO verbs pattern with canonical transitive verbs or with ES and intransitive EO verbs in the three diagnostic tests. Based on the observations in Section 2.2, the crosslinguistic prediction was that the former empirical situation would apply to all transitive EO verbs in Turkish, Yucatec Maya, and Chinese, as well as to those transitive EO verbs in German and Modern Greek that can accommodate an agentive eventive reading,[14] while the latter empirical situation would apply to verbs with non-canonical object properties in German and Modern Greek.

In line with our crosslinguistic prediction, the results of the experimental study provide evidence that the sample languages split in two groups regarding the semantic properties of their transitive EO verbs. German and Modern Greek distinguish between two types of transitive EO verbs. The judgments for labile EO verbs (such as *amuse*, *scare*, *surprise*, *frighten*) reach the positive baseline (canonical transitive verbs) in the volitionality test, the imperative test, and the stativity test. By contrast, the judgments for non-agentive transitive EO verbs (such as *interest*, *concern*, *depress*, *fascinate*) are closer to the negative baseline (ES verbs and/or the intransitive EO verbs) in all three tests (with the exception of the stativity test in Greek, where the negative baseline was not established, see discussion in Section 5.2). The judgments in both agentivity tests suggest that labile EO verbs may accommodate an agentive reading similar to

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14. The occurrence of these verbs in contexts that test dynamicity and agentivity is expected to be acceptable as far as an agentive eventive reading is possible. The possibility of an alternative (non-agentive) reading is not expected to reduce the acceptability of these examples.

canonical transitive verbs while non-agentive transitive EO verbs do not allow for an agentive interpretation, similar to intransitive EO verbs and ES verbs. The results of the stativity test suggest that labile EO verbs may be interpreted as dynamic, similar to canonical transitive verbs while non-agentive transitive EO verbs receive a stative interpretation similar to intransitive EO verbs and ES verbs.

For the remaining languages, Turkish, Chinese, and Yucatec Maya, our results suggest that they possess one uniform class of transitive EO verbs. In Turkish and Yucatec Maya, there was no significant difference between labile EO verbs and the alleged non-agentive transitive EO verbs in any of the diagnostic tests. Acceptability ratings of both transitive EO verb groups do not significantly differ from the positive baseline (canonical transitive verbs) in the agentivity tests. Likewise, in the stativity test both groups of transitive EO verbs do not significantly differ from the positive baseline (canonical transitive verbs), but differ from the negative baseline whenever it is empirically established (the exception is the stativity test in Yucatec Maya, see Section 5.4). For Chinese, a distinction within the inventory of EO verbs could not be detected. However, the transitive EO verbs that were empirically examined show the behaviour of the positive baseline (canonical transitive verbs) in the sole test that gave significant differences (volitionality test). In sum, the evidence from the two agentivity tests indicates that all transitive EO verbs in Turkish, Yucatec Maya, and Chinese may accommodate an agentive reading similar to canonical transitive verbs. This is in line with the predominant derivational pattern of transitive EO verbs in Turkish and Yucatec Maya which are mostly overtly derived by causativization from basic experiencer-oriented intransitive verbs (cf. Section 2.3). Given that these verbs are overtly causative, they always provide for the accommodation of an animate causer that is interpreted as an actor (see Section 2.1).

Based on the differences in semanto-syntactic properties of the EO verbs in the sample languages, we may distinguish two language types. The first type is instantiated in German and Modern Greek and illustrated in the top part of Table 7 (repeated here from Table 1). These languages possess two classes of transitive EO verbs: (i) labile verbs may accommodate an agentive reading if the stimulus role is taken by a human and thus possibly controlling entity, otherwise they are interpreted as non-agentive; these verbs may also accommodate a dynamic reading, and (ii) non-agentive verbs that cannot accommodate an agentive reading (irrespective of the animacy of the stimulus) and are necessarily interpreted as stative. Languages of this type display a further type of EO verb, namely intransitive EO verbs which encode the experiencer in an oblique case and are stative.

A second type of language, represented by Turkish, Yucatec Maya, and Chinese, has a uniform class of transitive EO verbs, which correspond to labile EO

Table 7. *Classification of EO verbs*

		Agentive	Non-agentive
Type 1	Eventive	transitive	transitive
	Stative	—	transitive; intransitive
Type 2a	Eventive	transitive	transitive
	Stative	—	intransitive
Type 2b	Eventive	transitive	transitive
	Stative	—	—

verbs of language type 1. These EO verbs may receive either an agentive or a non-agentive interpretation depending on the type of stimulus and the context. They are open to a dynamic (eventive) interpretation. These languages may be further divided according to whether or not they possess a class of intransitive EO verbs (which are supposed to be stative). The middle of Table 7 represents the first subtype instantiated by Turkish and Yucatec Maya (type 2a), and the bottom part represents the second subtype instantiated by Chinese (type 2b).

7.   Conclusion

The methodological contribution of this article is that it reports the results of an experiment based on standard diagnostic tests for agentivity and stativity. These diagnostic tests have long been used in the literature in order to identify semantic properties of particular verbs. In the study reported here, these tests are implemented in a repeated-observations design and carried out with verbs of different verb classes in five different languages. A first observation is that tests that are based on the acceptability of particular sentence frames, such as the combination with particular adverbs, the formation of imperatives, or the use in constructions expressing progressive aspect, have a stronger impact on speaker's intuition than tests that are based on contextual felicity and hence require the consideration of presuppositions in discourse, such as the felicity in the context of an event question.

   A second methodological implication of the present study relates to the possibility of carrying out the same diagnostic test across languages. We have seen that already in a small sample of five languages it is well-nigh illusory to implement some standard semantic tests in a way that is reliably identical across languages. For instance, we have been able to carry out a stativity test by means of a construction expressing progressive aspect in German, but there was no corresponding construction for testing the same concept in Modern Greek (hence we examined the felicity in the context of event questions), while the progressive marker in Yucatec Maya combines only with a subset of the pred-

icates at issue due to grammatical reasons. In our crosslinguistic comparison, the only comparable fact is the evidence for significant differences among the verb groups at issue. What we are actually observing is whether or not particular verb groups pattern together in different constructional environments. It is obvious that this interpretation does not imply that the sentential frames in the individual languages are strictly synonymous.

The results of the experimental study provide systematic evidence that the agentivity and stativity of transitive EO verbs is subject to typological variation. Speakers' intuitions show that the heterogeneity of transitive EO verbs is special to languages like German and Modern Greek, but is not confirmed for Yucatec Maya, Turkish, and Chinese. Transitive EO verbs in the latter languages are more or less systematically ambiguous as to an agentive vs. non-agentive reading. This is in line with the result that transitive experiencer objects in these languages behave like the objects of canonical transitive verbs, i.e., they do not show syntactic reflexes of a prominent experiencer with this type of EO verbs.

The present study has implications for a typology of EO verb classes. The languages investigated split in two main types regarding the structure of their inventories of EO verbs. Type 1 is represented by German and Modern Greek in our sample. These languages distinguish between a class of labile transitive EO verbs, which are compatible with an agentive dynamic reading, and another class of transitive non-agentive EO verbs which are stative. It should be noted that the non-canonical properties of experiencer objects apply to non-agentive EO verbs. Type 2 is represented by Turkish, Yucatec Maya, and Chinese. These languages possess a homogeneous class of transitive EO verbs which are similar to canonical transitive verbs and can always accommodate an agentive reading. In accordance with the main derivational pattern in Yucatec Maya and Turkish (EO verbs are causativized forms of intransitive ES verbs), EO verbs share the agentivity properties of canonical transitive verbs in these languages. This is also in line with the constructional properties of EO verbs in type 2 languages, namely that the experiencer object does not deviate from the properties of canonical direct objects in these languages.

We have empirically verified that experiential verb classes are not semantically and structurally homogeneous across languages. This typological finding has crucial implications for our assumptions about argument structure. It indicates that non-canonical object properties of EO verbs do not constitute a crosslinguistic constant that could be accounted for through language-independent asymmetries with reference to the semantic properties of experiencer objects. Crucially, the properties of transitive EO verbs depend on properties of the inventory of transitive verbs in the languages at issue, which are subject to crosslinguistic variation. Universal preferences related to the animacy or (non-)agentivity of the arguments at issue probably determine that experiencer objects are privileged candidates for non-canonical object prop-

erties, but it is open to the development of a particular grammar whether the language at issue will select this typological option.

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Abbreviations: 2/3 2nd/3rd person; 0 meaningless element; A person marker set A; ACC accusative; ADVR adverbializer; ag agentive; AOR aorist; AUX auxiliary; CAUS causative; CMPL completive; COP copula; DIST distal deictic; DAT dative; DEF definite; DUR durative; EO experiencer-object (verb); ES experiencer-subject (verb); EXP experiencer; F feminine; FACT factitive; IMP imperative; INCMPL incomplete; intr intransitive; IPFV imperfective; LOC locative; M masculine; MEDPASS mediopassive; N neuter; NOM nominative; NPST nonpast; PASS passive; PFV perfective; PL plural; PROG progressive; PTCP participle; SG singular; STIM stimulus; SUBJ subjunctive; tran transitive; VOC vocative.

Appendix A. Experimental results

			Mean	SD[a]	SE
German	Volitionality	canonical	6.48	0.97	0.24
		EO/tran/±ag	6.05	1.01	0.25
		EO/tran/−ag	3.14	0.97	0.24
		EO/intr	4.11	1.27	0.32
		ES	3.22	1.43	0.36
	Imperative	canonical	6.28	0.79	0.20
		EO/tran/±ag	6.59	0.46	0.11
		EO/tran/−ag	3.14	0.72	0.18
		EO/intr	4.75	0.90	0.23
		ES	4.48	1.02	0.26
	Stativity	canonical	3.11	1.24	0.31
		EO/tran/±ag	2.64	1.02	0.25
		EO/tran/−ag	1.63	0.77	0.19
		EO/intr	1.89	0.87	0.22

			Mean	SD[a]	SE
		ES	1.41	0.43	0.11
Greek	Volitionality	canonical	5.27	1.56	0.39
		EO/tran/±ag	5.14	1.30	0.33
		EO/tran/−ag	2.91	1.49	0.37
		EO/intr	1.25	0.58	0.14
		ES	1.92	1.27	0.32
	Imperative	canonical	4.92	1.23	0.31
		EO/tran/±ag	4.63	1.06	0.26
		EO/tran/−ag	2.59	1.23	0.31
		EO/intr	1.13	0.50	0.13
		ES	2.70	1.20	0.30
	Stativity	canonical	5.53	1.04	0.26
		EO/tran/±ag	5.94	1.01	0.25
		EO/tran/−ag	4.28	1.44	0.36
		EO/intr	6.25	1.00	0.25
		ES	5.59	1.03	0.26
Turkish	Volitionality	canonical	5.56	0.99	0.25
		EO/tran/±ag	5.28	0.99	0.25
		EO/tran/−ag	4.98	0.80	0.20
		EO/intr	3.44	1.11	0.28
		ES	2.63	1.30	0.33
	Imperative	canonical	4.70	1.34	0.34
		EO/tran/±ag	4.58	1.46	0.36
		EO/tran/−ag	5.06	0.90	0.22
		EO/intr	3.29	1.51	0.38
		ES	4.11	1.50	0.38
	Stativity	canonical	5.16	1.37	0.34
		EO/tran/±ag	5.20	1.18	0.29
		EO/tran/−ag	4.67	1.31	0.33
		EO/intr	3.52	1.04	0.26
		ES	5.14	1.47	0.37
Yucatec Maya	Volitionality	canonical	6.27	1.15	0.29
		EO/tran/±ag	6.20	1.11	0.28
		EO/tran/−ag	6.02	1.15	0.29
		EO/intr	4.95	1.30	0.33
		ES	5.84	1.11	0.28
	Imperative	canonical	6.83	0.32	0.08
		EO/tran/±ag	6.47	0.52	0.13
		EO/tran/−ag	6.53	0.57	0.14
		EO/intr	5.06	0.98	0.24
		ES	6.28	0.86	0.22
	Stativity	canonical	6.38	1.19	0.30

			Mean	SD[a]	SE
		EO/tran/±ag	6.63	0.62	0.16
		EO/tran/−ag	6.36	0.81	0.20
		EO/intr	6.06	1.41	0.35
		ES	6.28	0.93	0.23
Chinese	Volitionality	canonical	4.92	1.14	0.28
		EO/tran/±ag	4.33	1.43	0.36
		ES	2.31	0.99	0.25
	Imperative	canonical	5.08	1.51	0.38
		EO/tran/±ag	4.23	1.78	0.45
		ES	5.28	1.27	0.32
	Stativity	canonical	3.81	1.38	0.35
		EO/tran/±ag	3.61	1.77	0.44
		ES	2.58	1.17	0.29

[a] SD: Standard deviation, SE: Standard error of the means

Appendix B. Lexical material

Language	Group	Verbs
German	canonical	*treten* 'kick', *zwicken* 'pinch', *schlagen* 'beat', *schubsen* 'push'
	EO/tran/±ag	*ärgern* 'annoy', *amüsieren* 'amuse', *enttäuschen* 'disappoint', *überraschen* 'surprise'
	EO/tran/−ag	*wundern* 'astonish', *interessieren* 'concern', *freuen* 'give pleasure', *ekeln* 'disgust'
	EO/intr	*gefallen* 'please', *nahegehen* 'affect', *missfallen* 'displease', *imponieren* 'impress'
	ES	*mögen* 'like', *hassen* 'hate', *kennen* 'know', *schätzen* 'appreciate'
Greek	canonical	*klotsáo* 'kick', *tsibáo* 'pinch', *xtipáo* 'beat', *spróxno* 'push'
	EO/tran/±ag	*enθaríno* 'encourage', *prokaló* 'provoke', *kseɣeláo* 'fiddle', *enoxló* 'bother'
	EO/tran/−ag	*enðiaféro* 'interest, concern', *provlimatízo* 'puzzle', *ɣoitévo* 'captivate, charm', *siginó* 'touch, affect'
	EO/intr	*aréso* 'please'
	ES	*aɣapó* 'like', *misó* 'hate', *latrévo* 'adore', *θavmázo* 'admire'
Turkish	canonical	*tekmele-* 'kick', *cimcikle-* 'pinch', *döv-* 'beat', *hırpala-* 'push'

Language	Group	Verbs
	EO/tran/±ag	*sars-* 'shock, distress', *kızdır-* 'anger, annoy', *üz-* 'sadden', *ürküt-* 'scare'
	EO/tran/−ag	*sevindir-* 'please, delight', *eğlendir-* 'amuse', *etkile-* 'impress', *tiksindir-* 'disgust'
	EO/intr	*görün-* 'seem, appear (to)', *dokun-* 'touch', *itici gel-* 'be disgusting to'
	ES	*beğen-* 'like', *sev-* 'love', *tanı-* 'know', *anla-* 'understand'
Yucatec Maya	canonical	*kóochek't* 'kick', *xéep'* 'pinch', *hats'* 'beat', *léench'int* 'push'
	EO/tran/±ag	*hets'kuns* 'appease', *chi'chnakkuns* 'disturb, bother', *sahbes* 'frighten', *ki'makkuns óol* 'delight'
	EO/tran/−ag	*ma'óolkint* 'make listless', *pòochkins* 'make desirous', *su'lakkunt* 'shame, embarrass', *wi'hkuns* 'make hungry/appetite'
	EO/intr	*tu'b* 'get forgotten, escape', *k'a'h* 'cross one's mind', *sùuk(tal)* 'be/ become accustomed', *k'abéet(tal)* 'be/become necessary, need'
	ES	*yàakumah/yàakunt* 'love', *p'èek(t)* 'dislike, hate', *k'ahóol(t)* 'know', *ts'íibóolt* 'wish, desire'
Chinese	canonical	*tī* 'kick', *qiā* 'pinch', *dǎ* 'beat', *tuī* 'push'
	EO/tran/±ag	*xīyǐn* 'attract, fascinate', *gǎndòng* 'move, touch', *rěnǎo* 'anger, annoy', *jīnù* 'enrage'
	ES	*xǐhuān* 'like', *tǎoyàn* 'hate', *rènshí* 'know', *zūnzhòng* 'respect, appreciate'

References

Anagnostopoulou, Elena. 1999. On experiencers. In Artemis Alexiadou, Geoffrey Horrocks & Melita Stavrou (eds.), *Studies in Greek syntax*, 67–93. Dordrecht: Kluwer.

Arad, Maya. 1998a. *VP-structure and the syntax-lexicon interface*. London: University College London doctoral dissertation.

Arad, Maya 1998b. Psych-notes. *UCL Working Papers in Linguistics* 10. http://www.phon.ucl.ac.uk/home/PUB/WPL/uclwpl10.html, 17.09.2010

Bayer, Joseph. 2004. Non-nominative subjects in comparison. In Peri Bhaskararao & Karumuri Venkata Subbarao (eds.), *Non-nominative subjects*, Vol. 1, 49–76. Amsterdam: Benjamins.

Belletti, Adriana & Luigi Rizzi. 1988. Psych-verbs and θ-theory. *Natural Language & Linguistic Theory* 6. 291–352.

Bickel, Balthasar. 2006. Clause level vs. predicate-level linking. In Ina Bornkessel, Matthias Schlesewsky, Bernard Comrie & Angela D. Friederici (eds.), *Semantic role universals and argument linking: Theoretical, typological, and psycholinguistic perspectives*, 155–190. Berlin: Mouton de Gruyter.

Bornkessel, Ina. 2002. *The argument dependency model: A neurocognitive approach to incremental interpretation* (MPI Series in Cognitive Neuroscience 28). Leipzig: Max-Planck-Institut für Neuropsychologische Forschung.

Bornkessel, Ina, Matthias Schlesewsky & Angela D. Friederici. 2003. Eliciting thematic reanalysis effects: The role of structure-independent information during parsing. *Language and Cognitive Processes* 18. 268–298.

Cheung, Candice & Richard Larson. 2006. Chinese psych verbs and covert clausal complementation. Paper read at the Chicago Workshop on Chinese Linguistics, Chicago, December 2006.

Chu, Chauncey C. 1998. *A discourse grammar of Mandarin Chinese*. New York: Lang.

Comrie, Bernard. 1976. *Aspect: An introduction to the study of verbal aspect and related problems*. Cambridge: Cambridge University Press.

Croft, William. 1993. Case marking and the semantics of mental verbs. In James Pustejovsky (ed.), *Semantics and the lexicon*, 55–72. Dordrecht: Kluwer.

Dik, Simon. 1978. *Functional grammar*. Amsterdam: North-Holland.

Dowty, David. 1991. Thematic proto-roles and argument selection. *Language* 67. 547–619.

Ferreira, Fernanda. 1994. Choice of passive voice is affected by verb type and animacy. *Journal of Memory and Language* 33. 715–736.

Göksel, Aslı & Celia Kerslake. 2005. *Turkish: A comprehensive grammar*. London: Routledge.

Grimshaw, Jane. 1990. *Argument structure*. Cambridge, MA: MIT Press.

Härtl, Holden. 2001. *Cause and change: Thematische Relationen und Ereignisstrukturen in Konzeptualisierung und Grammatikalisierung*. Berlin: Akademie-Verlag.

Haspelmath, Martin. 2001. Non-canonical marking of core arguments in European languages. In Alexandra Y. Aikhenvald, R. M. W. Dixon & Masayuki Onishi (eds.), *Non-canonical marking of subjects and objects*, 53–83. Amsterdam: Benjamins.

Haupt, Friederike, Matthias Schlesewsky, Dieter Roehm, Angela D. Friederici & Ina Bornkessel-Schlesewsky 2008. The status of subject-object reanalyses in language comprehension architecture. *Journal of Memory and Language* 59. 54–96.

Hoberg, Ursula. 1981. *Die Wortstellung in der geschriebenen deutschen Gegenwartssprache*. München: Hueber.

Holisky, Dee Ann. 1987. The case of the intransitive subject in Tsova-Tush (Batsbi). *Lingua* 71. 103–132.

Keller, Frank & Theodora Alexopoulou 2001. Phonology competes with syntax: Experimental evidence for the interaction of word order and accent placement in the realization of information structure. *Cognition* 79. 301–371.

Klein, Katarina & Kutscher, Silvia. 2002. Psych-verbs and lexical economy. *Arbeiten des Sonderforschungsbereichs 282 "Theorie des Lexikons"* 122. Düsseldorf: SFB 282, Heinrich-Heine-Universität Düsseldorf. http://www.phil-fak.uni-duesseldorf.de/sfb282/working_papers/sfb122.pdf, 17.09.2010

Kordoni, Valia. 1999. Lexical semantics and linking in HPSG: The case of psych verb constructions. In Valia Kordoni (ed.), *Tübingen studies in Head-Driven Phrase Structure Grammar* (Arbeitspapiere des SFB 340 "Sprachtheoretische Grundlagen für die Computerlinguistik" 132), 494–527. Tübingen: SFB 340, Eberhard-Karls-Universität Tübingen.

Kornfilt, Jaklin. 1997. *Turkish*. London: Routledge.

Kural, Murat. 1996. *Verb incorporation and elementary predicates*. Los Angeles: University of California doctoral dissertation.

Kutscher, Silvia. 2009. *Kausalität und Argumentrealisierung: Zur Konstruktionsvarianz bei Psychverben am Beispiel europäischer Sprachen*. Tübingen: Niemeyer.

Landau, Idan. 2010. *The locative syntax of experiencers*. Cambridge, MA: MIT Press.

Lehmann, Christian. 1991. Predicate classes and PARTICIPATION. In Hansjakob Seiler & Waldfried Premper (eds.), *Partizipation: Das sprachliche Erfassen von Sachverhalten*, 183–239. Tübingen: Narr.

Lehmann, Christian. 1993. Predicate classes in Yucatec Maya. *Función* (Guadalajara) 13/14. 195–272.

Lenerz, Jürgen. 1977. Zum Einfluß von "Agens" auf die Wortstellung des Deutschen. In Heinz Werner Viethen, Wolf-Dietrich Bald & Konrad Sprengel (eds.), *Grammatik und interdisziplinäre Bereiche der Linguistik: Akten des 11. Linguistischen Kolloquiums Aachen 1976*, 133–142. Tübingen: Niemeyer.

Li, Charles N. & Sandra A. Thompson. 1981. *Mandarin Chinese: A functional reference grammar*. Berkeley, CA: University of California Press.

Nichols, Johanna, David A. Peterson & Jonathan Barnes. 2004. Transitivizing and detransitivizing languages. *Linguistic Typology* 8. 149–211.

Pesetsky, David 1987. Binding problems with experiencer verbs. *Linguistic Inquiry* 18. 126–140.

Pesetsky, David. 1995. *Zero syntax: Experiencer and cascades*. Cambridge, MA: MIT Press.

Postal, Paul M. 1971. *Cross over phenomena*. New York: Holt, Rinehart & Winston.

Primus, Beatrice. 1999. *Cases and thematic roles: Ergative, accusative and active*. Tübingen: Niemeyer.

Primus, Beatrice. 2002. Proto-roles and case selection in Optimality Theory. *Arbeiten des Sonderforschungsbereichs 282 "Theorie des Lexikons"* 122. Düsseldorf: Heinrich-Heine-Universität Düsseldorf. http://www.phil-fak.uni-duesseldorf.de/sfb282/working_papers/sfb122.pdf, 17.09.2010

Primus, Beatrice. 2004. Protorollen und Verbtyp: Kasusvariaton bei psychischen Verben. In Rolf Kailuweit & Martin Hummel (eds.), *Semantische Rollen*, 377–401. Tübingen: Narr.

Pylkkänen, Liina. 2000. On stativity and causation. In Carol L. Tenny & James Pustejovsky (eds.), *Events as grammatical objects: The converging perspectives of lexical semantics and syntax*, 417–442. Stanford, CA: CSLI Publications.

Reinhart, Tanya. 2002. The theta system – an overview. *Theoretical Linguistics* 28. 229–290.

Roeper, Thomas. 1987. Implicit arguments and the head-complement relation. *Linguistic Inquiry* 18. 267–310.

Scheepers, Christoph, Barbara Hemforth & Lars Konieczny. 2000. Linking syntactic functions with thematic roles: Psych verbs and the resolution of subject-object ambiguity. In Barbara Hemforth & Lars Konieczny (eds.), *German sentence processing*, 95–135. Dordrecht: Kluwer.

Skopeteas, Stavros & Elisabeth Verhoeven. 2009. Distinctness effects on VOS order: Evidence from Yucatec Maya. In Heriberto Avelino, Jessica Coon & Elisabeth Norcliffe (eds.), *New perspectives in Mayan linguistics* (MIT Working Papers in Linguistics 59), 157–173. Cambridge, MA: Massachusetts Institute of Technology.

Talmy, Leonard. 1976. Semantic causative types. In Masayoshi Shibatani (ed.), *The grammar of causative constructions* (Syntax and Semantics 6), 43–116. New York: Academic Press.

Van Valin, Robert D., Jr. & Randy J. LaPolla. 1997. *Syntax: Structure, meaning, and function*. Cambridge: Cambridge University Press.

Van Valin, Robert D., Jr. & David P. Wilkins. 1996. The case for 'effector': Case roles, agents, and agency revisited. In Masayoshi Shibatani & Sandra A. Thompson (eds.), *Grammatical constructions: Their form and meaning*, 289–322. Oxford: Clarendon.

Vendler, Zeno. 1967. *Linguistics in philosophy*. Ithaca, NY: Cornell University Press.

Verhoeven, Elisabeth. 2007. *Experiential constructions in Yucatec Maya*. Amsterdam: Benjamins.

Verhoeven, Elisabeth. 2008a. Grammaticalization in constructions: Clitic doubling with experiencers in Modern Greek. In Elisabeth Verhoeven, Stavros Skopeteas, Yong-Min Shin, Yoko Nishina & Johannes Helmbrecht (eds.), *Studies on grammaticalization*, 251–281. Berlin: Mouton de Gruyter.

Verhoeven, Elisabeth. 2008b. (Non-)canonical marking of experiencer objects: A typological comparison of Chinese, Korean, Turkish, and Modern Greek. *Language Typology and Universals* 61. 81–92.

Verhoeven, Elisabeth. 2009a. Experiencer object and object clitics in Modern Greek: Evidence from a corpus study. In Mary Baltazani, George K. Giannakis, Tasos Tsagalidis & George J. Xydopoulos (eds.), *Proceedings of the 8th International Conference on Greek Linguistics*, 574–588. Ioannina: Panepistemio Ioanninon. http://www.linguist-uoi.gr/cd_web/case_en.html, 17.09.2010

Verhoeven, Elisabeth. 2009b. Subjects, agents, experiencers, and animates in competition: Modern Greek argument order. *Linguistische Berichte* 219. 355–376.

Verhoeven, Elisabeth. 2009c. Word order and subject choice with experiencer verbs: Cross-linguistic evidence from language production. Manuscript, Universität Bremen.

Verhoeven, Elisabeth. 2010. Transitivity in Chinese experiencer object verbs. In Patrick Brandt & Marco García García (eds.), *Transitivity: Form, meaning, acquisition, and processing*, 95–118. Amsterdam: Benjamins.

Xiao, Richard & Tony McEnery. 2004. *Aspect in Mandarin Chinese: A corpus-based study*. Amsterdam: Benjamins.