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SPECIAL ISSUE IN HONOUR OF PROF. BOŻENA ROZWADOSKA

QUESTIONS and ANSWERS in LINGUISTICS

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Questions and Answers in Linguistics
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SPECIAL ISSUE IN HONOUR OF PROF. BOŻENA ROZWadowska

Edited by
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Questions and Answers in Linguistics (QAL) is an online, open-access peer-reviewed journal edited and published by the Center for General and Comparative Linguistics at the University of Wrocław in cooperation with De Gruyter Open. QAL presents papers focused on especially problematic areas of linguistic research, based on data from diverse languages. As far as theoretical analyses are concerned, we are primarily interested in works within the generative paradigm, although papers using different theoretical approaches can also be considered. We express an interest in interdisciplinary research employing methods from typology, historical studies, corpus studies and experimental psycholinguistics or neurolinguistics providing an empirical background to purely theoretical research. We assume that an exhaustive understanding of a phenomenon as complex as natural language can only come about from bringing together pieces of evidence from many different sources.

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CONTENTS

Preface i-vi

ARTEMIS ALEXIADOU
English psych verbs and the causative alternation: A case study in the history of English 1-14

JOANNA BLASZCZAK AND DOROTA KLIMEK-JANKOWSKA
What can psycholinguistic research on word class ambiguities tell us about categories? 15-26

BOŻENA CETNAROWSKA
Group adjectives, possessives and single-participant derived nominals in Polish 27-40

ANTONIO FÁBREGAS AND ÁNGEL L. JIMÉNEZ-FERNÁNDEZ
Extraction out of adjectival secondary predicates in English and Spanish: A nanosyntactic account 41-56

HENRIËTTE DE SWART
Perfect usage across languages 57-62

EWA WILLSM
On inchoative states. Evidence from modification of Polish perfective psych verbs by degree quantifiers 63-80

JACEK WITKOŚ
A brief note on undermerge and case overwriting 81-89
The present issue has a special character since it is dedicated to a very special person, professor Bożena Rozwadowska. The collection of six articles contained within it, originally conceived as a Festschrift for professor Bożena Rozwadowska on her 60th birthday, is intended to honour her outstanding scientific achievements. Prof. Bożena Rozwadowska is without doubt one of the most renowned scientists not only in Poland but worldwide. She is not only an outstanding researcher but also a wonderful teacher and a good organizer.

Prof. Bożena Rozwadowska started her academic career in Wrocław, then in the 1980s she moved to the USA, where she continued her PhD studies in Amherst. Later, in the 1990s she was a research fellow at Utrecht University and Strathclyde University in Glasgow. In 2001 she was awarded a Fulbright senior grant for a research stay at Rutgers University. These and several other smaller visits abroad gave her the opportunity to study the most recent linguistic theories, to discuss her ideas with the best researchers and to make international contacts. Back in Poland, she used that potential to establish the Section of English Linguistics at the University of Wrocław, one of the best and most prestigious Polish research institutes, recognized as such in Poland and abroad. She has been the head of the section since the very beginning. Her students have always belonged to the best, as evidenced by the high number of students who continued or still continue their scientific career abroad (to mention just a few: dr Patrycja Jabłońska, the University of Tromsø; dr Dorota Klimek-Jankowska, Utrecht University; dr Krzysztof Migdański, Tilburg University and the University of Connecticut; dr Barbara Tomaszewicz and dr Agnieszka Łazarczyk, the University of Southern California; mgr Joanna Pietraszko, the University of Chicago).

During my own studies abroad (in Berlin and Potsdam), prof. Rozwadowska was one of those Polish scientists whose names were known to the “non-Polish” research community, whose books were read and well-known. She was also someone who was invited to international conferences or workshops. Obviously, she was such an internationally renowned person that the committee of the most prestigious linguistic conference GLOW (Generative Linguistics in the Old World) made her the GLOW president. Prof. Rozwadowska managed to organize the 33rd Colloquium of GLOW at the University of Wrocław. It was the first time in the history of the GLOW conference that it was hosted in Poland, and in this part of Europe.

Her teaching and organizational talent notwithstanding, prof. Rozwadowska is above all a gifted scientist. Her works have been published in, among others, Academic Press (New York), John Benjamins Publishing Company (Amsterdam – Philadelphia), Tilburg University Press or in the Journal of Slavic Linguistics. But it was not only through publications that her ideas have been disseminated. Her publications have been supplemented by equally attractive...
invited presentations. To mention just a few places of her lectures: Tilburg, Amsterdam, Utrecht, Glasgow, Edinburgh, Göteborg, Vilnius, Barcelona, Stuttgart, Rutgers University, Princeton University or the University of Southern California. Currently she is Director of the project Comparative Analysis of Psychological Predicates in Polish, Spanish and English, funded by the National Science Centre, Poland, as part of the OPUS 8 programme.

What makes Bożena Rozwadowska’s work so attractive? It is certainly the high originality of her work in the first place. This originality concerns both the subject of her research and the properties she observes. Starting with the first aspect, while the majority of linguistic papers at that time had been discussing canonical cases of nominalizations, Bożena Rozwadowska initiated research on nominalizations derived from psychological predicates. Psychological predicates, in and by themselves, already are highly problematic; in combination with nominalizations they pose a real challenge. Prof. Rozwadowska not only faced this challenge, and here I turn to the second aspect of the originality of her work, but she developed her own perspective on how psychological predicates and how nominalizations should be treated. It is a richness of new, fine-grained observations, intelligently made connections between different phenomena or different frameworks which make Bożena Rozwadowska’s work so precious.

Let us look now in more detail at her work. The two most important and influential areas of Bożena Rozwadowska’s research are derived nominals and psychological predicates.

Derived nominals are understood as deverbal nominalizations (i.e., nouns derived from verbs through derivational affixes, e.g., destruction). Cross-linguistically, derived nominals constitute a mixed category and show intra-language and inter-language variation in the degree of their “nouniness” or “verbiness” and in morphosyntactic patterns. Among many ambiguities, the least controversial is a clear contrast between result nominal and process nominals (i.e., complex event nominals). There is no consensus, however, as to the account of this dichotomy, the relationship of the derived nominal to the base verb and the nature of the nominalization process. Most of nominalization research so far has focused on action nominalizations (derived from Agent-Patient verbs like destroy). However, Bożena Rozwadowska successively demonstrates that one can develop more insightful accounts by investigating derived nominals from other semantic classes (e.g., stative nominalizations) and by looking at languages with morphological aspectual properties (such as Slavic languages).

Thus, in her work prof. Rozwadowska emphasizes the relevance of event structure and aspect for behavioral properties of nominalizations and focuses on psychological nominalizations. What are psychological predicates and psychological nominals? Psychological verbs and psychological adjectives (often referred to as ‘psych predicates’) describe emotions and mental states. They can also be defined as predicates that take Experiencer as one of their arguments. Cross-linguistically, psych predicates systematically exhibit peculiar properties. Psychological verbs are subdivided into three major subclasses: Subject Experiencer verbs, Object Experiencer verbs and Dative Experiencer verbs. Linking problems associated with their argument structure present a challenge for UTAH (Uniformity of Theta Assignment Hypothesis) or similar mapping generalizations. Apart from that, in various languages psychological verbs exhibit clusters of characteristic syntactic properties that clearly set them apart from prototypical transitive agentic predicates. Importantly, psychological verbs are ambiguous between stative, eventive (causative) and agitative readings. The peculiar psych properties obtain only on the stative and, arguably, eventive (causative) readings. On the agitive reading they behave like transitive action verbs. To account for the “psych phenomenon” various approaches appeared in the literature. Bożena Rozwadowska argues that research on nominalizations can provide important evidence for the nature of the psych phenomenon. So, she investigates, among other things, aspectual distinctions among Polish nominalizations belonging to different semantic domains, in particular action nominals and psych nominals. She demonstrates that in Polish there are two types of nominals that qualify as complex event nominals in the understanding of Grimshaw (1990): aspectually ambiguous derived nominals whose properties are like those of English derived nominals and verbal nouns which have grammatical aspect and form aspectual pairs like the related verbs. In particular, she argues that not only action nominalizations but also psych nominalizations denote complex eventualities, except that in the former the culmination point terminates the eventuality whereas in the latter it is at the beginning. Prof. Rozwadowska takes the perfective/imperfecitive contrast as evidence for the complexity of the eventuality and the heterogeneous nature of the component subevents. She demonstrates that the atomic Vendlerian taxonomy of event types is insufficient for the analysis of different types of complex events and furthermore that the overt aspectual distinctions among Polish nominalizations belonging to different semantic domains might be also present covertly in other languages, which leads to ambiguities of various sorts.

More recently, prof. Rozwadowska has investigated another topic, neglected in the literature so far, namely the onset of psych-eventualities. In contrast to the terminal point of an event (defining telicity), which received a lot of attention within the current aspectual and event-related literature, there is very little discussion on the initial point of an event. In fact even events that describe the initial stage of a new state have often been treated as telic events, that is, events that have a termination point. Bożena Rozwadowska shows that the so-called initial boundary eventualities should not be reduced to telicity, but deserve a separate treatment. She argues that such predicates are not telic but should rather be treated as a mirror image of telic events. Marin and McNally (2011), who discuss psych predicates in Spanish, come independently to similar conclusions. In her papers, prof. Rozwadowska develops a hypothesis that psych predicates constitute a natural class of initial boundary eventualities, different from final boundary eventualities. Moreover, in response to other proposals (in particular Bialy, 2005) she suggests that the eventive subclass of Polish psych predicates instead of being included in the set of telic events should be treated as instantaneous non-telic boundary eventualities. She argues that psych eventualities, in addition to referring to emotional or mental states, may also refer to their onset. This is expressed by means of the perfective forms (in contrast to the imperfective forms referring to states). Bożena Rozwadowska claims that unlike accomplishments, all psych eventualities are not telic (on the standard understanding of telicity as describing an event with a terminative point). She also demonstrates that the perfective forms of Polish non-stative Object Experiencer verbs refer to instantaneous (punctual) boundary happenings which lack the development part of the complex event.

I hope that these few paragraphs above are enough to give at least an inkling of the complex character of Bożena Rozwadowska’s influential work. This influence is visible in all contributions to the present issue. The Authors of the collected works contributed to this Festschrift because they wanted to express their gratitude for and admiration of Bożena Rozwadowska’s outstanding scientific achievements.

Artemis Alexiadou in her contribution entitled English psych verbs and the causative alternation: A case study in the history of English directly addresses the crucial aspect of Bożena Rozwadowska’s research: psychological predicates. More concretely, in her paper Artemis Alexiadou discusses the absence of the causative alternation with psych predicates in English from a comparative perspective and argues that English lacks the psych causative alternation due to a combination of factors that have been pointed out independently in the
Henriëtte de Swart in her contribution entitled *Perfect usage across languages* addresses yet another aspect of Bożena Rozwadowska’s work, namely: aspect. More specifically, Henriëtte de Swart focuses on the *PERFECT* and convincingly demonstrates why the *PERFECT* is a puzzling category for typologists, historical linguists and formal semanticists alike. It is not clear whether it is a category of tense or aspect. Neither is it obvious which grammatical forms qualify as *PERFECT* and what the core of the *PERFECT* meaning is. In her article Henriëtte de Swart suggests that progress can be made if we start using the wealth of digitized language data that has become available to uncover the semantics of the *PERFECT* through its contextual usages across languages.

Ewa Willim in her contribution entitled *On inchoative states. Evidence from modification of Polish perfective verb by degree quantifiers* tackles the intricate question of the so-called initial boundary eventuality. As has been pointed out above, Bożena Rozwadowska argues that psych verbs do not denote a change of state. Rather they are assumed to be punctual eventuality denoting an onset to an associated state. While the arguments presented by Rozwadowska (2003, 2012) for Polish Subject- and Object-Experiencer psych verbs and Marín and McNally (2011) for Spanish reflexive SE verbs in support of this observation are based mainly on standard telicity diagnostics testing for the temporal properties of verbal predications, Ewa Willim offers additional evidence based on data from degree quantification. The distribution of the degree quantifier *jeszcze bardziej* ‘even more’ in sentences with psych verbs in the perfective aspect is taken as an argument in favour of the claim that “a perfective psych predication does not describe a transition from the Experiencer not being in the emotional state lexicalized in the verb/root to being in that state”. Rather, it is argued that in the context of a degree quantifier “a perfective predicate denotes an onset of a state whose degree of intensity exceeds the comparative standard” (being an arbitrary degree). It is further claimed that what *jeszcze bardziej* lexicalizes is a difference value function. The Author points out that the fact that perfective psych verbs can appear in comparative constructions suggests that “the scales associated with the states described by psych verbs are upper open and that psych predications are atelic rather than telic.”

Jacek Witkoś in his paper A brief note on undermerge and case overwriting discusses another topic strongly present in numerous works of Bożena Rozwadowska, i.e., case, in particular the Genitive of Quantification. In the article, Jacek Witkoś critically deals with David Pesetsky’s *Russian case morphology and the syntactic categories* (2013), a new monograph proposing an entirely new program of research into the grammar of case and analyzes two areas: the derivation of the Genitive of Quantification and overt evidence for case overwriting in Russian (and Polish) in more detail. In the former case the procedure of undermerge is put under scrutiny and in the latter a crucial morphological formative is argued to be of a derivational rather than inflectional nature.

Bożena Cetnarowska in her contribution *Group adjectives, possessives and single-participant derived nominals in Polish* considers the occurrence of relational group adjectives as thematic satellites in event nominals in Polish, another important aspect of Bożena Rozwadowska’s work. Bożena Cetnarowska focuses on intransitive nominals and makes a strong use of the Possessor Principle, proposed on the basis of Polish by Rozwadowska (1997) and interpreted as valid cross-linguistically by Rozwadowska (2006). Bożena Cetnarowska shows that while some Polish intransitive nominals accompanied by possessive or by group adjectives are recognized as referential nominals, other intransitive nominals with such adjectival satellites are argument-supporting nominals. The association with the agentive reading (i.e., external argument interpretation) is argued to be characteristic, but not obligatory, with thematic group adjectives.

Antonio Fábregas and Ángel L. Jiménez-Fernández’s article *Extraction out of adjectival secondary predicates in English and Spanish* explores the adjectival conditions under which *prima facie* adjectival adjuncts projected as de dictive modifiers inside verbal phrases allow extraction. The researchers show that the conditions under which these adjectival adjuncts allow extraction are identical to those relevant for gerund clauses and propose that de dictive adjectival secondary predicates (DASPs) are syntactically defined as *PathPs* which become part of the verbal complex whenever extraction is possible. This conclusion is desirable since it explains two properties that had to be stipulated or simply described in other proposals: DASPs always receive a stage level interpretation, and cannot combine with pure stative verbs.

Wrocław, November 2016

Joanna Blaszczak
on behalf of the editorial board
References


English psych verbs and the causative alternation: A case study in the history of English

Artemis Alexiadou

ABSTRACT This paper discusses the absence of the causative alternation with psych predicates in English from a comparative perspective. It argues that English lacks the psych causative alternation due to a combination of factors that have been pointed out independently in the literature, but not discussed in the context of the literature on the causative alternation in the non-psych domain: i) several object experiencer predicates got reanalyzed as subject experiencer verbs, ii) English borrowed new object experiencer predicates from verb classes that do not participate in the causative alternation, and iii) the v as well as the Voice layer of English that participated in the building of these verbs were also affected by changes in their properties.

Keywords: causative alternation, object experiencer verbs, subject experiencer verbs, externally caused predicates, Middle Voice

1 Introduction

There is a considerable amount of literature on psych verbs dealing with their different argument realization properties. Moreover, in the literature on English historical syntax, a lot of work has been devoted to describe and explain the changes that affected psych verbs. According to Roberts (2007), these changes cover a long period of time and constitute the best example of a lexical change: the lexical entries of these verbs were affected, and this might be correlated with a parametric change in the status of functional categories, however, the two changes are independent of one another. In this paper, I will indirectly deal with the latter issue, however, the bulk of my discussion will be devoted to the reorganization of lexical entries that affected psych verbs. I believe that both of these factors are important to understand what happened to this particular verb class, and thankfully they have been relatively well described in the literature.

The point of departure for this paper is the following observation: it has been proposed in the literature that object experiencer verbs are lexical causative verbs; see Grimshaw (1990), Croft (1991), Iwata (1995), Pesetsky (1995), Arad (1998), Reinhart (2002), Rozwadowska (2005), Bialy (2005), Alexiadou and Iordachioaia (2014), and others, but cf. Belletti and Rizzi (1998), Landau (2010), Anagnostopoulou (1999). However, unlike other lexical causative verbs, object experiencer predicates in English do not enter the causative alternation. The issue I will try to deal with is why this is the case. In order to answer this question, however, one needs to revisit in detail the changes that affected this particular verb class in the history of English.

The answer I will provide is that we are dealing with a change that was caused by a conspiracy of various factors, which have been recently discussed in the literature. Two main factors seem to be the reanalysis of object experiencer predicates to subject experiencer ones and the borrowing of new object experiencer predicates from verb classes that do not participate in the causative alternation. A third factor relates to changes in functional heads, v and Voice in particular.

The paper is structured as follows. In section 2, I will discuss some general and well-known properties of the causative alternation in the non-psych domain. I will then turn to the psych causative alternation as this has been identified for languages such as Greek, Romanian, and Polish. I will then show that English lacks the psych causative alternation. In section 3, I will revisit the diachrony of English psych verbs and propose my analysis. In section 4, I will conclude.

2 The causative alternation

2.1 Alternating non-psych predicates

As is well known, in the causative alternation, illustrated in (1)-(2), the intransitive variant (which, following Alexiadou, Anagnostopoulou and Schäfer 2006, 2015. I will label, anticausative) describes an eventuality in which the theme, in this case the window, undergoes a change of state. The transitive variant (causative), however, is taken to describe the causation of a change-of-state; see Levin (1993), Schäfer (2009).

(1) John broke the window. causative
(2) The window broke. anticausative

In English, this alternation is extremely productive. Levin (1993) and more recently Rappaport Hovav (2014) state that well over 200 verbs participate in the alternation, and new verbs that enter the language participate in the alternation as well.

According to Levin and Rappaport Hovav (1995), and Reinhart (2002), change-of-state verbs alternate if the external argument of the transitive variant is thematically underspecified and can occur as an agent, an instrument or a causer; see (3) from Alexiadou, Anagnostopoulou and Schäfer (2015, p. 58):

(3) Unserspecified external argument condition (UEAC)
Those transitive verbs that cannot form anticausatives restrict their subjects to agents or agents and instruments and disallow causes.

Although this condition has been critically discussed in Alexiadou, Anagnostopoulou and Schäfer (2015), it makes the prediction that if a predicate can take a variety of external arguments, then it should alternate. This explains why the verb break alternates in English, while other verbs such as cut do not; see the examples in (4) and (5) from Alexiadou, Anagnostopoulou and Schäfer (2015, p. 7):

(4) John cut the window. causative
(5) The window was cut. anticausative
verbs have SE alternates similarly marked, (8), his (80) and (81): similar to Polish anticausatives which are marked by reflexive morphology (7), Polish OE and Jurth (2016) makes the same claim for a particular OE class in Hungarian. The following alternation discussed in 2.1. Bialy (2005) shows that OE predicates alternate in Polish as well, with verbs that involve a change of state in Greek and Romanian is a subcase of the causative here). Alexiadou and Iordachioaia (2014) argued in great detail that the OE-SE alternation alternate, i.e., they have a subject experiencer alternate (I will call this the OE-SE alternation (9) for Greek, and see Bialy (2005) for Polish anticausatives derived from OE verbs.

Landau (2010) argues that agentive object experiencer predicates are actually not psych verbs. The question, however, posed by the data in (6), leaving the stative interpretation of this class aside, is the following: psych verbs allow both causer and agentive subjects in their eventive readings. Thus, one would expect them to obey the underspecified external argument condition in (3), and undergo the causative alternation, as does the verb break. In fact, in languages such as Greek, Romanian, and Polish object experiencer psych verbs do alternate, i.e., they have a subject experiencer alternate (I will call this the OE-SE alternation here). Alexiadou and Iordachioaia (2014) argued in great detail that the OE-SE alternation with verbs that involve a change of state in Greek and Romanian is a subcase of the causative alternation discussed in 2.1. Bialy (2005) shows that OE predicates alternate in Polish as well, and Jurth (2016) makes the same claim for a particular OE class in Hungarian. The following pieces of evidence point to this conclusion: OE psych verbs in these languages show the same morphological pattern found in the causative alternation, they combine with causer PPs, and finally their intransitive variants are equally aspectually complex, in the sense that both contain a causative component, i.e., an event leading to a result state.

In what follows I will illustrate the first property. Bialy (2005, pp. 70-71) observes that similar to Polish anticausatives which are marked by reflexive morphology (7), Polish OE verbs have SE alternates similarly marked, (8), his (80) and (81):

| a. | The baker cut the bread. |
| b. | The lightning cut the clothesline. |
| c. | The bread cut. |

2.2 Object experiencer predicates

The condition given in (3) is precisely the reason why object experiencer predicates are so intriguing. As is well known, the class of object experiencer predicates has been controversially discussed in the literature; see Landau (2010) for a recent overview. Here I will follow Arad’s (1998) classification. According to Arad, object experiencer verbs have three different interpretations, illustrated in (6): an agentive reading where there is both an agent and a change of state in the experiencer; an eventive reading implying that something unintentionally caused a change of mental state in the experiencer; a stative reading where there is no agent nor any change of mental state.

| a. | Anna frightened Laura deliberately. |
| b. | Nina frightened Laura unintentionally. |
| c. | The noise frightened Laura. |
| d. | Anna’s behavior frightens Laura. |

As discussed in detail in Alexiadou, Anagnostopoulou and Schäfer (2015), Greek usually employs non-active morphology on anticausatives and realizes causers with the preposition µ. As Alexiadou and Iordachioaia show, this happens also with psych verbs. Note that morphologically unmarked anticausatives exist both in the OE-SE and the causative alternation; see (9) for Greek, and see Bialy (2005) for Polish anticausatives derived from OE verbs.

| a. | Piotr zamknął drzwi. |
| b. | Drzwi zameknięły się |
| c. | Zachowanie uczniów zdenerwował nauczycielka. |
| d. | Nauczyciel zmejłowala się teacher.nom anger.3sg.pst refl |
| e. | Wiadomość podeksytowała Piotra. |
| f. | Piotr podeksytował się |

As discussed in detail in Alexiadou, Anagnostopoulou and Schäfer (2015), Greek usually employs non-active morphology on anticausatives and realizes causers with the preposition µ. As Alexiadou and Iordachioaia show, this happens also with psych verbs. Note that morphologically unmarked anticausatives exist both in the OE-SE and the causative alternation; see (9) for Greek, and see Bialy (2005) for Polish anticausatives derived from OE verbs.

| a. | O Janis thimose me ta nea. |
| b. | Ta ruhu steegosan me ton ilio. |

On the basis of the resemblance between the OE-SE alternation and the (anti)causative alternation, Alexiadou and Iordachioaia (2014) propose to treat the former as a subcase of the latter. In view of the fact that these authors provided evidence that both the SE and the OE variant are equally semantically complex, it seems natural to assign the same analysis to both alternations. Bialy (2005) and Roczewska (2005) make similar observations as far as the event complexity of Polish OE verbs and their SE alternates are concerned, and Jurth (2016) observes a similar behavior for those OE Hungarian predicates that combine with a verbal particle.
2.3 English lacks the causative psych alternation

Crucially, however, English lacks the psych causative alternation. This was discussed in detail in Alexiadou and Iordachioaia (2014) and here I will briefly summarize their discussion. As mentioned in the introduction, several researchers have argued that OE verbs are causative. Since causative verbs have anticausative variants, one should in principle expect OE verbs to also alternate. Pesetsky (1995) discusses a relatively small number of alternating psych verbs in English; see (10)-(11), a subset thereof. As shown in these examples, these verbs are compatible with for adverbials but incompatible with in adverbials.

(10) a. John worried about the television set for *in an hour.
   b. The television set worried John for *in an hour.

(11) a. We puzzled over Sue’s remarks for *in an hour.
   b. Sue’s remarks puzzled us for *in an hour.

The incompatibility with in-adverbials clearly indicates that they cannot be viewed as instantiating the causative alternation. Clearly, they lack a change-of-state reading, and they can be analyzed as states or activities.

Consider now (12) from Pesetsky (1995, pp. 56-57):

(12) a. Bill was very angry at the article in the Times.
   b. The article in the Times angered/enraged Bill.

As Pesetsky argues, (12b) has a causative subject, while in (12a) the PP introduces the object of the subject’s emotion. Alexiadou and Iordachioaia tested the aspectual value of the OE verbs in (12) and showed that while (12a) is stative, (12b) is ambiguous between stative and change-of-state eventive readings.

First of all, as we see in (13), (12b) is compatible with manner adverbs and with event-selecting predicates like take place, while this is not the case with (12a):

(13) a. Bill was angry at the article in the Times (*quickly).
   b. The article in the Times angered/enraged Bill quickly.
   ((This took place yesterday.)

Second, the compatibility of these verbs with in-adverbials indicates that they are also telic, that is, they may express a change of state in a causative reading.

(14) a. The article in the Times angered/enraged Bill in ten minutes.
   b. The Chinese dinner satisfied Bill in ten minutes.

The article in the Times angered/enraged Bill in ten minutes.

On the basis of tests of this type, Alexiadou and Iordachioaia (2014) conclude that Pesetsky’s observation can be explained if we assume that OE verbs as in (12b) are ambiguous between change-of-state and pure stative readings. In the former case, their subject is a causer, in the latter, however, it is an object of emotion like the PP-object of psych adjectives. However, in English psych verbs that are known to exhibit an OE-SE alternation (like (10) and (11)) do not have change-of-state readings, that is, English does not have the psych causative alternation. Consequently, minimal pairs of alternating verbs cannot be constructed to test the ambiguity of their subjects and PP-objects as the authors did for Greek and Romanian.

One could argue then that the reason why English lacks the causative alternation in the psych domain is an accidental gap. However, if one looks at the diachrony of this verb class, the gap no longer seems accidental.

3 The diachrony of English psych verbs

It has been argued that English used to have the causative alternation at earlier stages of its history. This puzzle was mentioned also in Alexiadou and Iordachioaia (2014), who, however, did not offer a solution to it. Guidi (2011) and van Gelderen (2014) report a systematic alternation between OE and SE verbs in Old English just like the one Alexiadou and Iordachioaia report for Greek and Romanian. Guidi (2011, p. 39) observes that the SE forms either have no special morphology (as in (15a)) or are marked reflexively (as in (15b)), a marking that is subsequently lost in Old English. This is what we find in Greek, Romanian, Hungarian, and Polish.

(15) a. yrsode se casere for his ingange. angled him for his entrance.
   b. he gebealh hine
      he angered him,ACC
      ‘He angered himself.’

Van Gelderen (2014) and Waltz (1997) show that OE verbs in Old English were causative verbs, and most importantly alternated like other causative verbs. Let us consider the arguments they present in some detail. To begin with, Garcia Garcia (2012) lists several causative psych-verbs verbs in Old English and they are all object experiencer verbs: *a-hwænan ‘vex, afflict’, gremman ‘enrage’, a-bygian ‘anger’, swencan ‘harrass’, a-frytan ‘weary’, wargan ‘vex’, and wyrdan ‘annoym’. Second, as van Gelderen stresses (2014, p. 107), “a verb with the meaning ‘to frighten’ has an inherent causative meaning. According to the OED, the Old English verb færjan ‘fear’ has its origin in a causative form *færjan, a weak verb ‘to terrify’ that derives from the noun fær.” This verb form contains the affix -j-, a productive causativizing affix used in general in Older Germanic languages and Old English. This affix was visible in, e.g., Gothic, but by the time of Old English it was no longer transparent. Van Gelderen (2011, 2014) and Ottoson (2009) argue that -j- causativization was still somehow productive in Old English, and I will agree with them. Importantly, however, when this evidence disappears, alternating verbs become increasingly labile in English (Old English is reported to have had 80 labile verbs; by contrast Modern English has ca. 800; see McMillion, 2006, and van Gelderen, 2014). I will come back to this issue. Thus we seem to have at least morphological evidence of the type discussed in the recent literature, for other languages that psych verbs were causative.

In addition, as Gelderen and Waltz show, we find psych verbs in contexts that favor a change-of-state meaning. Consider the following examples, (16) is from Waltz (1997, p. 337), her (1), and (17) from van Gelderen (2014, p. 106) (her (9f)):
The following are in order. With respect to anger, its meaning in Old Norse was 'grieve and akin to stronge; see below. With respect to the internal borrowing, van Gelderen (2014, pp. 115-117), building on Haspelmath (2001), observes the following. There is a class of verbs that changes from concrete to abstract meanings, for instance the verbs fascinate and sun originally mean 'to bewitch' and 'to deprive of consciousness or of power of motion by a blow', respectively. Other verbs that had a similar change are worry, thrill, astonish, and grieve. The verb worry meant 'to kill by strangling/constriction, the heart' in Old and Middle English. The verb thrill meant 'to pierce'. The verb astonish meant something like 'to strike'. The verb grieve was borrowed from French with the meaning of 'to burden, harass'. As van Gelderen (2014) further observes, the changes were really gradual. ‘For instance, uses of worry and grieve with the meanings of 'strangle' and 'do bodily harm', respectively, occur till the 19th century’ (ibid., p. 116).

Two remarks are in order here. First, the verbs that were reanalyzed as psyche verbs are verbs of hitting and killing. These verbs take physically affected objects, which as van Gelderen, and references therein, notes, could also be seen as mentally affected too.

Second, and crucially for my discussion here, hitting and killing verbs do not undergo the causative alternation in English, even though they take both agent and causer subjects. These verbs are change-of-state, but the change-of-state event forces the presence of a direct causer that brings about the event. As Alexiadou, Anagnostopoulou, and Schäfer (2015) note, these events are conceptualized as involving a change of state that is brought about by some identifiable cause, and thus this must be introduced in the structure; see Rappaport Hovav (2014). From this perspective then, English psyche verbs behave similar to other change-of-state predicates in the language that encodes a change of state that is necessarily brought about by an external argument.

The question that arises then is why Greek, Romanian, Hungarian, and Polish differ in this respect. Alexiadou, Anagnostopoulou, and Schäfer (2015) give a very detailed discussion of the properties that allow transitive change-of-state verbs to undergo the causative alternation. They point out that predicates that seem to belong to identical semantic classes across languages are not actually translation equivalents, a fact that should be taken into consideration.

Moreover, there is one important difference between these other languages and English, and a further one specifically between Greek and English: anticausative variants of causative verbs are marked, via reflexive morphology in Romanian and Polish, and non-active morphology in Greek. Alexiadou (2010) argues in detail that in languages such as Greek, where hit and kill verbs participate in the causative alternation, the anticausative alternates thereof always surface with special morphology. Alexiadou attributes this to the fact that there is a correlation between the ability of externally caused predicates to alternate in a language and the presence of special morphology on anticausative variants. Since English lacks this type of morphology, an intransitive variant of these predicates is not available. This type of morphology is associated with a Voice head labeled middle, and following Alexiadou and Doron (2012), it basically ‘takes away’ the requirement to project an external argument.
As stated specifically in Alexiadou (2014), English does not have a middle Voice head, and basically there is no other de-transitivization process in English other than the passive formation. Alexiadou (2014) further argues that even dispositional middles in English are formed on the basis of an active Voice head, basically following the analysis of these structures as unergatives.

Greek differs from Romanian/Polish in that several of its object experiencer verbs are alternating without the presence of special morphology. In fact, as Alexiadou (in press) observes, several psych verbs cannot combine with non-active morphology; see (19)-(20).

19. a. o Janis thimose ti Maria.
the John angered the Mary

‘John angered Mary.’

b. *ti Maria thimothike (apo to Jani).
the Mary was.angered by the John

‘Mary was angered by John.’

20. *ponethike ‘feel pain.NACT.3SG’
*tromakhtike ‘terrify.NACT.3SG’
*aidiastike ‘disgust.NACT.3SG’

These verbs are built on the basis of special verbalizing morphology, e.g., -az- or -om. These Greek affixes are very productive and are used to verbalize a root/adjective (see Giannakidou and Merchant 1999; Alexiadou 2001, 2009; Anagnostopoulou and Samioti 2014; Alexiadou and Lohndal in press for further references). Some examples from the non-psych domain are given in (22).


22. a. aspiriz-az-o kathariz-az-o
‘whiten’ ‘cleaned’

b. pag-on-o ler-on-o
‘freeze’ ‘dirty’

c. diaplat-en-o arost-en-o
‘widen’ ‘become sick’

d. sten-ev-o bered-ev-o
‘tighten’ ‘confuse’

e. diaz-az-o miraz-az-o
‘read’ ‘split, share’

f. pul-a-o zal-a-o
‘sell’ ‘destroy’

(Anagnostopoulos and Samioti, 2014, p. 96)

These affixes are taken to realize v, and bring about event implications, i.e., they instantiate a change-of-state structure; see Alexiadou and Lohndal (in press) for further discussion. If van Gelderen (2014) is correct in her explanation about valency changes in the history of English, according to which English lost this particular causativizing structure, we have a further piece to understand the complex issue of the lack of the causative alternation in English.

From this perspective then, the reasons that led to the present day situation can be summarized as follows. First, several OE verbs change to SE verbs, without an OE alternate. These new SE verbs are stative predicates, as van Gelderen (2014) states, i.e., a reanalysis of little v has taken place. Second, new OE verbs enter the language but from verb classes that do not participate in the causative alternation to begin with. Third, English does not morphologically mark its alternating verbs. If Alexiadou’s (2010) generalization is right that externally caused change-of-state verbs alternate in languages with Voice morphology, then English simply is not that type of language. Finally, Greek has productive causativizing morphology, used in the formation of psych verbs, which, according to van Gelderen (2014), English lost. All these factors thus conspire so that English OE verbs no longer alternate.

Let us then see how especially the third and the fourth reason contributed to this change. (23) below represents the structure assumed for change-of-state verbs in Alexiadou, Anagnostopoulou, and Schäfer (2015):

(23) VoiceP

\[ \begin{array}{c}
\text{Result State} \\
\end{array} \]

In (23), v introduces event implications, and the combination of v and the result state component leads to a causative interpretation (see also Ramchand, 2008). The result state component could be either a small clause or simply a root. It is this causative component that is present in both causatives and anticausatives and licenses causer PPs.

The productive Greek affixes that are considered v heads precisely realize v. Van Gelderen’s proposal is that in the context of psych verbs of the fear type eventive v, realized as -j-, got reanalyzed as a stative v in the case of the reanalysis of object experiencer verbs. Thus for this group of predicates, the structure in (23) is no longer available.

With respect to the borrowed verbs, either from other languages or other verb classes, though (23) might in principle be available for the transitive verb, an intransitive variant is no longer available because of the following reasons: anticausatives with special morphology in languages that have them, e.g., Greek, Romanian, and Polish are possible because these employ Middle Voice, a special Voice head that does not project an external argument and basically carries special morphology which is a morphological spell-out of the structure that lacks an external argument. As English lost reflexive marking and developed reflexive pronouns that cannot really be analyzed as reflexes of ‘Middle’ morphology, an alternation is not available. The structure assumed for Greek, Romanian and Polish, and presumably also Hungarian, Middle Voice is represented in (24):

(24) Middle VoiceP

\[ \begin{array}{c}
\text{Result State} \\
\end{array} \]

Greek has productive eventive affixes, thus the evidence for eventive v is very visible in the language. Those Greek OE predicates that do not take special morphology in the intransitive variant basically do so, because for them Voice is never projected in the intransitive variant, i.e., only the vP and result state components are present in the structure. The smaller structure that can give a causative interpretation, in the sense of containing a causative component is the one without Voice. This is exactly how anticausative predicates from the de-adjectival domain behave in Greek as well.

Crucially then, the vP-result state component is an important building block in the context of the causative alternation. Support that this component is crucial for change-of-state verbs to alternate comes from Hungarian, as described by Jurth (2016), who studies OE-SE alternations in Hungarian that come in two types. In both the SE variant bears morphology associated also with anticausative predicates. According to Jurth, the first type includes...
predicates that contain a verbal particle, while the second one includes predicates that lack a verbal particle. Only the former have a complex event structure and allow the causer to be expressed in the ablative in the SE form; the latter group lacks a complex event structure, and although the SE variant bears special morphology, they show an atelic behavior, i.e., they are not change-of-state verbs. This clearly shows how properties of the lower structure in (23) are relevant to understand the causative alternation in both the psych and the non-psych domain.

4 Conclusions

As mentioned in the introduction to this paper, the changes that affected the English psych verbs constitute the best example of a lexical change, which presumably happened independently of functional changes, though it seems to be related to at least two of those. The first one relates to the changes affecting little v, and the second one relates to the changes in the Voice system of English. Nevertheless, a major reason that contributed to the unique properties of the English system relates to borrowing from verb classes that do not participate in the Voice system of English. Nevertheless, a major reason that contributed to the unique properties of the English system relates to borrowing from verb classes that do not participate in the alternation. As a result of these two factors, a lexical and a functional one, English psych verbs do not behave similarly to their cognates in other languages.

The behavior of English psych verbs shows how synchronic properties can be better understood from a diachronic perspective. While diachronic changes are often rather complex, they do follow certain non-arbitrary paths.

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What can psycholinguistic research on word class ambiguities tell us about categories?
Joanna Błaszczyk and Dorota Klimek-Jankowska

ABSTRACT This paper is a contribution to a long-standing debate between constructionist, lexicalist, and emergentist schools of thought related to the question of what determines the category of lexically ambiguous words whose meanings belong to different syntactic categories (e.g., *duck, walk*). In the lexicalist view part-of-speech information is stored in the mental lexicon. According to the syntax-first (or constructionist) view, the ambiguous word is assigned to the syntactic category NOUN or VERB solely on the basis of the morphosyntactic frame in which it occurs irrespective of its meaning. In contrast, the emergentist view assumes an interaction of many constraints (semantic and syntactic) whereby semantic constraints are weaker than syntactic constraints in the resolution of word class ambiguities because while semantic context only favors one of the meanings of ambiguous words but does not exclude the competitors, syntactic context supports one meaning of an ambiguous word by ruling out its alternative interpretation. We intend to provide an overview of recent psycholinguistic studies focusing on the processing of word-class ambiguities in order to show that the syntax-first approach is too restrictive while the emergentist view is too permissive. What seems to be at issue is that when grammatical category-ambiguous words are processed, it is not that all constraints are available at the same time and they compete but rather different sources of information can be predicted to affect the process of lexical disambiguation at different stages during processing.

Keywords: lexical categories, noun, verb, ambiguities, processing, emergentist view, syntax-first view

1 Introduction

There are many important questions linguists ask in relation to the nature of the distinction between nouns and verbs. Typologists strive to find out whether this distinction is universal. Theoreticians want to sort out whether this distinction is lexical or morphosyntactic in nature. Psycholinguists are interested in the question of how nouns and verbs are represented in the mind. These two notions *noun* and *verb* attract a lot of attention as they are the best candidates for being cross-linguistically universal. Recent findings in neurolinguistics show that distinct cortical regions are activated in response to concepts of objects and actions: visual object-centered and action-related words fron-to-central motor areas (see Moseley, Pulvermüller, and Shtyrov, 2013 for the most recent evidence based on high-density MEG-EEG recordings in combination with individual MRI images). This means that speakers in all languages should have minimal grammatical means to express these two types of concepts and the best linguistic categories for expressing this cognitive distinction are nouns and verbs. The current picture of the debate on the nature of the noun and verb distinction could be compared to the parable of the blind men who each felt a separate part of an elephant but were unable to perceive the animal in its entirety.

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compete with each other. Rather different sources of information affect the mechanism of lexical disambiguation at different stages during processing.

2 Psycholinguistic studies on the processing of word class ambiguities

2.1 Melinger and Koenig (2007)

An important piece of evidence in favor of the claim that verbs and nouns are categorized as such already in the lexicon comes from a priming study by Melinger and Koenig (2007) (see Blaszczak and Klimek-Jankowska, 2015, pp. 86-88 for a more extensive version of this section embedded into a more general discussion of psycho- and neurolinguistic research related to the question of the organization of knowledge about nouns and verbs in the mind). Melinger and Koenig (2007) investigate whether grammatical category information influences the lexical selection of single words or whether such information is determined on the fly while inserting single words into larger syntactic units. Many studies provide evidence that phonological and semantic information influence lexical selection of single words (see, for example, Meyer and Schvaneveldt, 1971; Underwood, 1976; Fischler, 1977; Neely, 1977; Rosinski, 1977; Lupker, 1979, 1982, 1988; Tanenhaus, Flanigan, and Seidenberg, 1980; Briggs and Underwood, 1982; Glaser and Dungelhoff, 1984; Underwood and Briggs, 1984; Rayner and Springer, 1986; La Heij, 1988; Neely, 1991; Shelton and Martin, 1992; Kroll and Stewart, 1994; McRae and Boisvert, 1998). To explain this, it is assumed that words are organized in the mental lexicon in the form of a network consisting of phonologically and semantically related nodes. This means that when one word is retrieved (activated) in this network, the activation spreads to the closest phonologically and semantically related nodes. What about the third component of lexical knowledge—the grammatical category (noun or verb)? Does it also influence lexical access or lexical selection? That this might indeed be the case is supported by the evidence coming from speech errors which are subject to grammatical category constraints. This means that in word substitutions or exchanges the interacting words commonly come from the same syntactic category: nouns exchange nouns and verbs exchange verbs, but seemingly this influence of the grammatical category on lexical selection is only present when a given lexical candidate is to saturate some slot in the unfolding syntactic derivation. Given these observations, there is an inclination in the experimental studies related to lexical selection to assume that syntactic information has a different status from semantic and phonological information within the mental lexicon. Unlike in the case of phonological and semantic activation of words, in the syntax-driven lexical selection, activation spreads from the active slots within a syntactic tree which is currently under construction to the lexicon (see Fromkin, 1971; Garrett, 1975; Marx, 1999; Ferreira and Humphreys, 2001; Vigliocco et al., 2004, and further references cited in Melinger and Koenig, 2007).

Melinger and Koenig (2007) put forward another explanation. They assume that grammatical category information is available whenever needed irrespective of whether a single word, a phrase or a whole sentence is produced. This leads to a prediction that the effect of word class should be observable even when we access single words which are not to saturate any slots in the syntactic derivation created on-line. The evidence for this assumption comes from three experiments reported by Melinger and Koenig (2007). In the first of them they used a part-of-speech priming task in which the target word was a syntactically ambiguous word which could be a noun or a verb depending on stress placement (e.g., REcord vs. reCORD) and it was preceded by a prime which was either a syntactically unambiguous verb, or a letter (baseline control); see (1) for illustration (Melinger and Koenig, 2007, p. 476).

(1) a. THORN – RECORD (noun prime)  
b. SEND – RECORD (verb prime)  
c. D – RECORD (letter control prime)

The dependent measure was not the reaction time but the type of utterance: (i) the stress placement typical of nouns or (ii) the stress placement typical of verbs. The primes were controlled for orthographic, phonological and semantic relatedness to the target words. The main finding was that targets preceded by noun primes were produced as nouns more often than when preceded by verb or letter primes. Similarly targets preceded by verb primes were produced more often as verbs than as nouns. More specifically, when preceded by verb primes, targets were produced less often with noun pronunciations than when preceded by letter primes. On the basis of these findings, Melinger and Koenig (2007) conclude that grammatical category information can influence lexical selection without syntactic context.

However, the results could still be interpreted in terms of semantic priming in the sense that it is not the grammatical category that does the priming but rather that the semantics of nouns (objects) and verbs (events) is relevant. To exclude such an interpretation, Melinger and Koenig (2007) conducted a second experiment in which they manipulated the primes by choosing semantically non-prototypical nouns (such as abstract nouns) instead of concrete nouns. If the observed effects are due to semantic priming, it must be priming at a very general semantic level: ‘thing’ rather than ‘object’ (ibid., p. 478).1 And accordingly, if semantic priming is crucial, it should be present independently of the grammatical category also in the case of state-denoting adjectives (used as primes) and verbs (used as targets) as they share a very general semantics of eventuality. Examples of prime-target pairs are shown in (2) (Melinger and Koenig, 2007, p. 479).

(2) a. TRUTH – CONFLICT (abstract noun prime)  
b. BRIGHT – CONFLICT (adjective prime)  
c. D – CONFLICT (letter control prime)

The prediction was that if it was not the grammatical category but semantics that caused priming effects in the first experiment, abstract nouns should bias speakers to produce nouns since, as the researchers assume, abstract nouns have common, albeit at a very general level, semantics with the target nouns (see footnote 1), and state-denoting adjectives should bias speakers to produce verbs, since they are—just like verbs—eventuality-denoting concepts. However, the results of this experiment show that while speakers are significantly more likely to produce ambiguous target words following noun primes with noun pronunciations (as compared to the letter control condition), state-denoting adjectives failed to bias speakers to produce verbs. More specifically, targets preceded by adjective primes were produced more often with noun pronunciations than when preceded by letter primes. In fact, adjective primes biased speakers to produce nouns as often as noun primes did themselves (Melinger and

1 According to Melinger and Koenig (2007), the difference between abstract and concrete nouns is that the former “do not activate the ‘object’ feature most type-frequently associated with noun semantics” (p. 478). However, abstract and concrete nouns are assumed to share extremely abstract semantic features, such as a general notion of ‘thing’ (p. 480).
Koenig, 2007, p. 480). This latter result is interpreted by the authors as reflecting a syntagmatic rather than a paradigmatic effect.

Finally, to completely exclude any effect of semantic priming, Melinger and Koenig (2007) conducted a third experiment in which abstract nouns and stative verbs were used as primes. Examples of prime-target pairs used in this experiment are provided in (3) (Melinger and Koenig, 2007, p. 481).

(3) a. FACT – REBEL (abstract noun prime)
   b. SEE – REBEL (stative verb prime)
   c. D – REBEL (letter control prime)

The researchers found out that targets preceded by abstract noun primes were produced with noun pronunciations more often than when preceded by stative verb primes. In the case of stative verbs used as primes, ambiguous targets preceded by them were produced with noun pronunciations marginally less often as compared to the letter control condition. This latter finding shows that stative verbs despite their semantic similarity with the stative adjectives used in the previous experiment described above behave differently. (Recall that in the second experiment conducted by Melinger and Koenig, 2007 targets preceded by adjective primes were produced more often with noun pronunciations as compared to the letter control condition.) Melinger and Koenig (2007, p. 481) take this to be further evidence against a semantic locus of the priming effect observed in their first experiment. Rather, it is common syntactic features that underlie the observed effects. Part-of-speech information can influence lexical selection processes even when they are not part of larger syntactic integration processes. As shown above, speakers’ pronunciation preferences (corresponding to either nouns or verbs) were sensitive to the part-of-speech of prime words: both concrete and abstract nouns biased speakers to produce other nouns, and accordingly, both eventive and stative verbs biased speakers to produce other verbs. These three experiments thus provide evidence that syntactic features such as the grammatical category are encoded in words stored in the mental lexicon and as such they can influence lexical selection in the absence of syntactic combinatory processes.

2.2 Tanenhaus, Leiman, and Seidenberg (1979)

Another study related to the processing of class-ambiguous words was presented proposed by Tanenhaus, Leiman, and Seidenberg (1979). They focused on the processing of noun-verb ambiguous words such as, for example, *watch* used in either nominal or verbal morpho-syntactic frames. They used a variable delay naming task in which participants heard sentences with class-ambiguous words presented at the end. They were followed by semantically related targets. Each sentence set was paired with a target related to one of the meanings of an ambiguous word. Half of the targets were related to the verbal meaning, as shown in (4a) and (4b) and the other half of the targets were related to the nominal meaning of the ambiguous words, as illustrated in (5a) and (5b). Experimental sentences were paired with control sentences presented in (4c) and (5c). Target words were presented 0, 200 and 600 ms after the offset of the word-final ambiguous words. The task was to name target words aloud.

(4) a. They held the rose.   FLOWER
   b. They all rose.   FLOWER
   c. They all touch.   FLOWER

(5) a. They needed a new sink.   SWIM
   b. They began to sink.   SWIM
   c. They needed a new joke.   SWIM

There were two possible predictions: if a particular meaning of an ambiguous word is accessed first, the time of naming a target word related to that meaning should be shorter relative to the time of naming targets in the unrelated control condition. If listeners only accessed the contextually-appropriate meaning, then shorter naming times should occur only for the target related to the accessed meaning. Latencies to the target related to the irrelevant meaning should be longer and equivalent to those for unambiguous controls. If, however, listeners access both meanings of the ambiguous word, there should be equivalent facilitation to both related targets. These outcomes should differ depending on the time of presentation of the target word. In particular, subjects may access multiple meanings short after the presentation of the critical word but select a single meaning at later time intervals. Consequently, there may be facilitation to both related targets at an early time window, but facilitation to a single related target at a later time window. Conversely, listeners may access a single meaning initially, but activate a second meaning at longer latencies. Finally, if listeners access only a single meaning, then equal facilitation should be seen at all stimulus onset asynchronies for the target related to that meaning.

At the 0 ms stimulus onset asynchrony, facilitation was obtained for target words related to both the contextually appropriate and inappropriate readings. This may mean that listeners automatically access both meanings of class-ambiguous words even if one of the meanings is syntactically inappropriate. At 200 ms, however, facilitation obtained only when the target word was related to the contextually appropriate meaning of the ambiguous word. These results provide strong support for the autonomy of lexical access.

2.3 Folk and Morris (2003)

In contrast to the first two studies discussed in the preceding sections, the eye-tracking study by Folk and Morris (2003), to be presented in this section, emphasizes the importance of syntactic context in the process of disambiguation of class-ambiguous words. More precisely, the aim of their eye-movement study, consisting of two experiments, was to examine the effect of syntactic-category assignment on meaning resolution in unambiguously verbal or nominal syntactic contexts. To this aim, Folk and Morris (2003) compared the processing of three types of items: (i) lexically ambiguous words whose meanings share a single syntactic category, to be precise, always the noun category (e.g., bank), (ii) lexically ambiguous words whose meanings belong to different syntactic categories, one meaning is in the noun category and one is in the verb category (e.g., duck), and (iii) unambiguous control words. All these items were used in sentence context. That is, in order to comprehend the sentences, participants had to analyze sentence structure and resolve the semantic ambiguity of a single word. This experimental setting allowed Folk and Morris (2003) to examine the interaction between syntactic and semantic processing during on-line reading. In the first experiment, prior context was semantically consistent with the subordinate interpretation of a biased ambiguous word, while in the second experiment prior context was semantically neutral as to
the intended interpretation of a balanced ambiguous word. The main finding of Folk and Morris (2003) study is that fixed ambiguous words whose meanings belong to a single syntactic category than on unambiguous controls. By contrast, fixation times on class-ambiguous words were not longer than on unambiguous controls. The same results were obtained in both experiments. In other words, prior context, independently of whether it was semantically consistent with the subordinate interpretation of a biased ambiguous word or whether it was semantically neutral as to the intended interpretation of a balanced ambiguous word, did not make any significant difference in the selection of one of the meanings of class-ambiguous words. It was syntax which played a crucial role in the process of disambiguation of class-ambiguous words. Folk and Morris (2003) take these results to indicate that syntactic-category information mediates the semantic-resolution process. It seems that prior syntactic context is sufficient to override any competition from the contextually inappropriate interpretation when lexical-semantic ambiguity crosses syntactic categories (p. 94). They account for their results by referring to a constraint satisfaction model due to MacDonald, Pearlmuter, and Seidenberg (1994), according to which semantic and syntactic contextual information participate in the interpretation of an ambiguous word but syntactic context is more constraining than semantic context. Semantic context only provides bias in favor of one meaning but does not exclude the competing meaning whereas syntactic context entirely rules out the incompatible interpretation.

### 2.4 Federmeier, Segal, Lombazo, and Kutas (2000)

In the last study presented in this paper, Federmeier et al. (2000) show that the word class is neither encoded in lexical items nor is it determined by the syntactic frame in which a given word is used. They provide new evidence to show that the word class is an outcome of an interaction of semantic and syntactic clues and it is determined on-line. As such it is also not attributable to any specific neural region but rather arises from an interaction of information stored in different neural regions. Federmeier et al. (2000) use the ERP (Event-Related Potentials) technique, to investigate the neural processing of word category ambiguities presented in sentence contexts. Three types of stimuli were used in the experiment: (i) word class-ambiguous items, i.e., words that can be used as nouns or verbs depending on context (e.g., *drink*); (ii) word class-unambiguous items, i.e., words that are unambiguously nouns (e.g., *beer*) or words that are unambiguously verbs (e.g., *eat*), and (iii) pseudowords. The stimuli were used within two types of sentence contexts: 1. noun-predicting contexts (e.g., “John wanted THE [target] but ...”) and 2. verb-predicting contexts (e.g., “John wanted TO [target] but ...”). The main finding of Federmeier et al.’s (2000) study is the observation that “the pattern of neural activity observed in response to lexical items depends on their general probability of being a verb or a noun and on the particular role they are playing in any given sentence” (p. 2552). In general, the response to word class-ambiguous items differed from the response to word class-unambiguous items in that it was more negative in the former case. More specifically, even when the role of word class-ambiguous items was completely specified by context, their neural processing differed from the processing of unambiguous items over frontal regions by ~150 ms. In the case of pseudowords the researchers found increased N400 and P600 responses as compared to real (ambiguous) words. The latter ERP patterns were similar to those obtained in the case of unambiguous items when they were embedded in inappropriate (word class-mismatching) contexts. What is interesting is the fact that Federmeier et al. (2000) found effects of word class (noun vs. verb) for all stimuli types, but crucially the nature of this effect varied with the type of stimulus. Beginning with pseudowords, when they were used as verbs they engendered greater N400 responses than when they were used as nouns. This seems to suggest, as Federmeier et al. (2000) point out, that a novel item is more difficult to process semantically when it is inserted in a verbal sentence position than when it is used as a noun (p. 2653), which is additionally supported by the fact that there are more cases of coinage of new nouns than of new verbs. This is understandable in view of the fact that verbs have a more complicated semantics and syntax. The ERP pattern obtained for ambiguous items was quite the opposite to that found for pseudowords as they caused greater frontocentral negativity between ~200 and ~450 ms when they were used as nouns than when they were used as verbs. As far as responses elicited by unambiguous items are concerned, also in this case a contrast between nouns and verbs can be observed. More specifically, unambiguous nouns triggered more negative responses over centro-parietal sites between 250 and 450 ms (N400) as compared to unambiguous verbs. Unambiguous verbs, but none of the other types of stimuli used in Federmeier et al.’s (2000) experiment, elicited a left-lateralized frontal positivity (~200 ms) (P200-like). What must be stressed however is the fact that this positivity was found only when unambiguous verbs were used in a verb-predicting context. In other words, only when unambiguous verbs were actually used as verbs a P200 was observed. In contrast, unambiguous verbs inserted in a noun-predicting context, just like unambiguous nouns inserted in a verb-predicting context, engendered an increased N400 which was followed by a P600. This ERP pattern can suggest that unambiguous items used in word class-inappropriate contexts cause trouble for the parser in terms of semantic and syntactic processing. However, the fact that the inappropriate use of a noun in a verb-predicting context triggered a larger N400 effect as compared to the opposite situation, i.e., when a verb was used in a noun-predicting context, seems to suggest it is more difficult for the parser to “to semantically ‘fill in’ for the inappropriate or missing verb information than to do so for inappropriate or missing noun information” (Federmeier et al., 2000, p. 2564).

On the basis of the findings mentioned above, Federmeier et al. (2000) conclude that there is no single neural marker of the word class: “Experience, as well as context during on-line language processing, clearly shapes the neural representations of nouns and verbs” (p. 2552). Thus there is an on-line interaction between representation and processing, as evidenced by the fact that unambiguous verbs when used in verb contexts elicited the left frontal positivity but the same verbs used in a nominal position in the sentence did not show this effect. It seems thus that context – from an early point – directly influences the processing in that it directs the search for word class-related information. As a consequence, even in the case of an unambiguous verb, when it appears in a nominal position in the sentence, it is not processed as such, i.e., as a verb. Given that a lexical item when it appears in a verb position in the sentence is processed differently depending on whether it is an unambiguous verb or whether it is an item that can also be used as a noun (in appropriate syntactic context), Federmeier et al. (2000) conclude that “[w]ord class, therefore, does not appear to be an inherent, immutable property of lexical items or of particular positions in the sentence structure” and that “word class does not ‘reside’ in a neural representation, but rather emerges – in real time – from an interaction of semantic and syntactic properties at both the single-word and the discourse level” (p. 2565).

### 3 Discussion and conclusion

The findings of experimental studies discussed in the previous section of this paper can shed a new light on an important debate in theoretical research related to the division of labor between our mental lexicon and grammar in determining a word class (grammatical category) of a given lexical item. There are two prominent views on this issue: the lexicalist view and...
the constructionist view. The lexicalist view is assumed in most linguistic theories and it proposes that representation is determined by the grammatical category. Among these properties are, for example, argument structure, lexical aspect, thematic roles, and word class information. The central assumption of the lexicalist view is that there are two separate systems of grammar: (i) the system that stores and assembles words (mental lexicon) and (ii) the system that assembles phrases out of words (mental grammar). This assumption was initially captured by Chomsky’s (1970) Lexicalist Hypothesis and it is still one of the foundational hypotheses driving linguistic research in the generative tradition. A non-lexicalist view also referred to as a constructionist view arose in the 1980s and in its most radical form it assumes that a model of grammar does not consist of two separate systems (word system and phrasal system) but rather consists of one generative component, which is in charge of both word formation processes and phrasal syntax and which determines the meaning of words, which are intrinsically polisemous (see Rozwadowska, 2012 for a recent overview). In the remainder of this section, we intend to confront these two competing views with subsequent psycholinguistic studies presented in section 2 of this paper. In Tanenhaus, Leiman, and Seidenberg (1979) it is shown that both meanings of ambiguous words with two meanings belonging to different categories (noun or verb) such as, for instance, watch, duck, stone, drink are automatically activated irrespective of whether they are presented in the nominal or verbal syntactic frame. Syntactic context determines the selection of one of the meanings of such words with a 200 ms delay. Similarly, in a later study by Melinger and Koenig (2007) there is experimental evidence pointing to the fact that grammatical category information can influence lexical selection without syntactic context. The results of these two studies seem to be incompatible with the constructionist view, according to which the category of a given lexical item is determined by its morphosyntactic embedding. By contrast, the eye-tracking study by Folk and Morris (2003) points to a strong role of syntactic context in the process of disambiguation of class-ambiguous words. They account for their results by referring to two alternative specific approaches: (i) the syntactic satisfaction model and (ii) the constraint-satisfaction model. The syntax-first approach is most compatible with the assumptions of the constructionist camp in theoretical linguistic literature in that it claims that for the semantic-resolution of word class ambiguity to be completed, a rudimentary syntactic analysis must first occur (see O’Scaighluha, 1997). In other words, syntactic processing precedes semantic processing in this approach. According to this account, the ambiguous word class-ambiguous word category NOUN independently of the analysis of word meaning. However, Folk and Morris (2003) state that this interpretation of their results would be incompatible with the earlier study by Tanenhaus, Leiman, and Seidenberg (1979), which shows that both meanings of class-ambiguous words are automatically activated before syntactic context comes into play. For this reason, they are more inclined to assume a constraint-satisfaction model postulated by MacDonald, Pearlmuttner, and Seidenberg (1994), Truewell and Tanenhaus (1994), Tabor and Tanenhaus (1999). According to the constraint-based interactive-activation account, ambiguity resolution is a constraint-satisfaction problem in which all available information is used to constrain the semantic resolution process. Under this approach, it is possible to assume that both meanings of class-ambiguous words are activated first and then syntactic context and semantic context converge during the selection of the actual meaning. This view seems to reconcile both lexicalist and constructionist approaches by pointing to a strong role of both lexical information and syntactic framework in determining the category of a given word. What seems to be the case is that both approaches are right to some extent but thanks to psycholinguistic methods we are able to observe the timing of lexical and syntactic processes which determine a category of a given word. The picture that has emerged so far is compatible with the results of the ERP study by Federmeier et al. (2000) presented towards the end of section 2 of this paper. They point out that no single neural marker of word class can be identified. The neural representations of nouns and verbs are shaped by experience, as well as context during on-line processing. That there are on-line interactions between representation and processing is evidenced by the fact that whereas unambiguous verbs when used in verb contexts elicited the left frontal positivity, the same verbs used in a nominal position in the sentence did not show this effect. This leads to the conclusion that context – from an early point – directly influences the processing in that it directs the search for word class-related information. Consequently, even an unambiguous verb, when it appears in a nominal position in the sentence, it is not processed as such, i.e., as a verb. Word class cannot be “an inherent, immutable property of lexical items or of particular positions in the sentence structure” (Federmeier et al., 2000, p. 2565) if one takes into consideration the fact that a lexical item when it appears in a verb position in the sentence is processed differently depending on whether it is an unambiguous verb or whether it is an item that can also be used as a noun (in appropriate syntactic context). Rather what seems to be the case is that “word class does not ‘reside’ in a neural representation, but rather emerges – in real time – from an interaction of semantic and syntactic properties at both the single-word and the discourse level” (ibid.). This means that we cannot limit ourselves to either the lexicalist view or to the constructionist view in accounting for the recent findings of psycholinguistic research related to word-class ambiguities. It also means that we cannot take recent psycholinguistic reports and say that one of these competing views is right. The most plausible explanation of how grammatical class information arises is postulated by Federmeier et al. (2000), who formulate yet another approach to the question of category formation, namely the emergentist approach, according to which word class arises on-line as an outcome of the interaction of lexical as well as semantic and syntactic contextual factors. What is crucial however is convincingly proven in the seminal work by Tanenhaus, Leiman, and Seidenberg (1979): namely that these different factors do not interact simultaneously but rather lexical word category information is automatically activated very early and it is independent of syntactic and semantic context and these latter two sources of information participate in the later selection of the relevant word category of a word, where syntactic context is prevailing, as shown in Folk and Morris (2003). This picture is also compatible with the assumptions of another important view on language, namely the modularity view postulated by Fodor (1983). According to this view, processes happening in different subsystems (modules) of our linguistic system are accessed during on-line processing. That class-ambiguous words are automatically activated in the lexicon and only then syntactic information selects one of them shows that these two modules act subsequently allowing for one module to operate first and the second module steps in when the first module has done its job.

References


Group adjectives, possessives and single-participant derived nominals in Polish
Bożena Cetnarowska

ABSTRACT
The article compares the occurrence of pronominal possessive adjectives and denominal group adjectives in Polish event nominals. It is demonstrated that while in other Slavonic languages (e.g., in Russian) relational adjectives clearly contrast with possessive adjectives (both pronominal and lexical ones), in Polish relational group adjectives, such as przydymki ‘presidential’, ministeryjny ‘ministerial’, or urzędnicy ‘clerk.ADJ’, resemble possessive pronouns in functioning as elements which can satisfy the argument structure of event nominals. The focus is laid on intransitive nominals, in view of the Possessor Principle proposed for Polish by Rozwadowska (1997). While some Polish intransitive nominals accompanied by possessives or by group adjectives are recognized as referential nominals (as is predicted by the analysis of Greek and Romanian group adjectives presented by Alexiadou and Stavrou, 2011, and Moreno, 2015), other intransitive nominals with such adjectival satellites are argued to be argument-supporting nominals. The association with the agitative reading (i.e., external argument interpretation) is shown to be characteristic, but not obligatory, with thematic group adjectives.

Keywords: derived nominals, argument-supporting nominals, thematic group adjectives, possessive adjectives

1 Introduction
This article investigates the usage of pronominal possessive adjectives and thematic group adjectives in intransitive Polish nominals.

Lexical possessive adjectives in Slavonic languages are denominal adjectives derived from kinship terms, titles, names of professions and given names by means of the suffix -ov, -ow, -ny, as is shown for Russian by Babyonyshhev (1997) and for all Slavonic languages by Corbett (1987). In present-day Polish possessive -in or -ow adjectives are used mainly as an indication of a non-standard (rural) dialect, e.g., kuzia Michalowa ‘Michał’s smithy’, grób Wojciechowy ‘Wojciech’s grave’, Zosina krzywda ‘Zosia’s harm, i.e., harm to Zosia’, Hynczyma dusza ‘Hanka’s soul’.

Group adjectives are relational adjectives derived from nouns denoting professions, countries, or titles (see Grzymaš, 1990, for English group adjectives; Marchis, 2010, for Romanian and Spanish ones). They can be derived in Polish by means of various suffixes (see Kallas, 1984; Szymańek, 2010), including -skiej, -chikij, -owy, -ny, as in lekarzki ‘physician.ADJ’, studencki ‘student.ADJ’, wojskowy ‘military’, and parlamentarny ‘parliamentary’. Some nominal adjectives contain the zero suffix -Φ, i.e., the paradigmatic formative, e.g., robotniczy ‘worker.ADJ’, urzędnicy ‘clerk.ADJ’.

Possessive (genitival) adjectives in Slavonic languages show noun-like behaviour. In Upper Sorbian they can control relative pronouns, act as antecedents for personal pronouns and for reflexive possessives. Thus, they are regarded by some researchers as parts of the nominal paradigm, i.e., as inflectional forms of nouns (see Corbett, 1987 and Spencer 2013, p. 379).

It will be argued in this paper that relational group adjectives in Polish can be treated as saturating theta-roles of event nominals. Section 2 argues that the split of nominal adjectives into relational adjectives and possessive (genitival) adjectives is not so sharp in Polish as in other Slavonic languages. Section 3 examines the occurrence of thematic adjectives in intransitive nominals and in syntactically transitive single-participant nominals derived from psychological predicates. Section 4 considers the question whether Polish event nominals containing thematic group adjectives can be regarded as argument-supporting nominals.

2 Possessive adjectives vs. relational group adjectives
Trugman (2004, p. 82), following Babyonyshhev (1997), mentions the following differences between possessive (genitival) adjectives and relational adjectives in Russian.

1) a. Possessives are individual-denoting elements, whereas referential adjectives are property-denoting.

b. Possessives are referential elements, while adjectives are non-referential (…) hence only the former can act as antecedents of pronouns and reflexives.

c. Possessives can bear theta-roles, while adjectives cannot.” (Trugman 2004, p. 82)

When discussing Russian relational adjectives such as roditel’skij ‘parental’, ženskij ‘woman.ADJ’ and sosedskij ‘neighbour.ADJ’, Trugman (2004, pp. 82–83) argues that they are non-referential and that they specify a property or a type of an entity. She observes that the Russian phrase ženskaja samocž (lit. ‘woman.ADJ handbag’) denotes a type of a handbag, i.e., a woman’s handbag. It does not refer to a specific unique woman who would be the owner of the handbag. Due to their non-referentiality, relational adjectives (RAs) in Russian cannot act as antecedents for the reflexive pronoun svoix ‘self’s’, as is shown for the adjective sosedskij ‘neighbour.ADJ’ in (2b). They differ in this respect from possessive -in/-ow adjectives (PAs), such as sosedkin ‘neighbour.ADJ’ in (2a).

2) a. sosedskij, rasskaz o svoix problems

b. sosedskij, rasskaz o svoix problems

It can be shown that the generalization (concerning the differences between relational and possessive adjectives) proposed for Russian does not hold for Polish. Relational adjectives do not need to be property-denoting in Polish. The group adjectives in (3) have an argumental (or
argument-like) behaviour. They call for an agential interpretation, thus they can be regarded as being the theta-role of Agent.

(3) a. żołierskie wzięty soldier.\textit{adj} visits ‘visits by soldiers’
b. profesorskie debaty professional debates ‘professional debates, debates by professors’
c. papieskie podróże papal journeys ‘papal journeys’
d. urzędnicze spory clerical disputes ‘clerical workers’ disputes’

Relational adjectives occurring in (3) show the default mass/unbounded reading (Moreno, 2015), i.e., they imply some indefinite group of soldiers, professors, popes, or clerks. This is not the only possible reading of group adjectives, though. The relational adjectives in (4) can be interpreted as having definite specific reference, pointing to a particular president, pope or prince.\footnote{The sentences in (4) come from the National Corpus of Polish (see \url{http://www.nkj.mp.pl}).}

(4) a. to prezydencka porażka, o której prezydent this presidential defeat.\textit{nom} about which president.\textit{nom} w komisjnym bilansie „zapomnial” wspomnieć in monthly balance ‘forgot’ mention.inf ‘This is a presidential defeat which the president “forgot” to mention in his monthly balance.’
b. przedostatnia wzięta papieska w kraju rodzinnym penultimate visit.\textit{nom} papal in country family.\textit{adj} ‘the penultimate visit by the pope in (his) homeland’
c. w przychylnej atmosferze księżica oraz najbardziej obyczaje i learned.\textit{inf} language.\textit{acc} customs.\textit{acc} and the most influential mieszkańców kraju her future husband.\textit{gen} ‘ (...) in a friendly atmosphere, the prince’s fiancée could learn the language, customs and the most influential inhabitants of her future husband’s country.’
d. Prezydencka córka spodziewa się też dziecka. presidential daughter.\textit{nom} expect.\textit{3sg} also child.\textit{gen} ‘The president’s daughter is also expecting a baby.’

The difference between relational group adjectives and lexical possessive adjectives is blurred in Polish. It is common among Polish morphologists to neglect the distinction between -in-\textit{ow} adjectives and other types of denominal adjectives. Grzegorzykowa (1982, p. 68) mentions adjectives terminating in the suffixes -in(y), -ow(y), -ski/-ck(i), -p, as examples of possessive adjectives. A similar position is taken by Nagórkó (1987, p. 145), who regards the following noun-adjective strings as examples of the possessive construction, although only the first of them contains the genitival adjective (i.e., mateczny ‘mother.PA’): mateczna chustka (lit. ‘mother.\textit{adj} kerchief’) ‘mother’s kerchief’, dom ojcowski (lit. ‘house father.\textit{adj}’) ‘father’s house’, skarbic sultaniski (lit. ‘treasury sultan.\textit{adj}’) ‘sultan’s treasury’ and fundusz zakładowe (lit. ‘company.\textit{adj}’ funds) ‘the company’s funds’. Szymanek (2010, pp. 92-87) treats the possessive function as one of the possible meanings of relational adjectives in Polish.

3 Possessives and group adjectives in Polish single-participant derived nominals

When discussing the argument realization in intransitive nominals in Polish, Rozwadowska (1997) shows that the single argument cannot be expressed by an agential adjunct \textit{przez+PP ‘by PP}, as is the case with the external argument of the transitive nominal in (5a).

(5) a. pobicie studentów przez policjantów beating.\textit{nom} students.\textit{gen} by policemen.\textit{gen} ‘the beating of (the) students by (the) policemen’
b. "pobicie studentów policjantów beating.\textit{nom} students.\textit{gen} policemen.\textit{gen} Intended reading: ‘the beating of (the) students by (the) policemen’

In intransitive nominals, as illustrated in (6) and (7) below, a possessive pronoun or an adnominal genitive must be employed as a syntactic realization of the single argument.

(6) a. swój placz your cry.\textit{nom} ‘your cry’
b. placz dziecka cry.\textit{nom} child.\textit{gen} ‘a child’s cry’
c. "placz ciebie you.\textit{nom} you.\textit{gen} Intended reading: ‘your cry’
d. "placz przez ciebie you.\textit{nom} by you.\textit{acc} Intended reading: ‘the/a cry by you’
e. "placz przez dziecko you.\textit{nom} by child.\textit{acc} Intended reading: ‘the/a cry by the/a child’

(7) a. w ogrodzie po parku your Sg running.\textit{nom} around park.\textit{loc} ‘your running around the park’
b. biega\tiec\_dzieci\_po\_parku
running\_NOM children\_GEN around\_park\_LOC
‘children’s running around the park’

Intended reading: ‘your running around the park’

A classificatory (i.e., non-thematic) usage of group adjectives is illustrated in (9). The examples in (8)-(12) are culled from the National Corpus of Polish (NKJP).

Let us observe that the adnominal genitive or the possessive pronoun in (6) and (7) can be replaced by a group adjective, as in (8). \(^3\)

(8) a. aby Kronos nie słyszał dziecięcego płaczu
so\_that Kronos\_NOM not\_heard\_3SG child\_ADJ cry\_GEN
‘so that Cronus couldn’t hear a child crying’

b. wtorkowe studenckie bieganie
Tuesday\_ADJ student\_LAT running\_NOM
‘Tuesday student jogging’

The group adjectives in (8) are thematic (Bosque and Piccallo, 1996), i.e., they can be treated as saturating the theta-role of agent.

A classificatory (i.e., non-thematic) usage of group adjectives is illustrated in (9). The adjectives dziecięcy ‘child\_ADJ’ and studencki ‘student\_ADJ’ are interpreted in (9) as denoting types of crying and types of running (jogging), since there are other syntactic realizations of the external argument in the sentences in question, i.e., the possessive pronoun jego ‘his’ in (9a) and mój ‘my’ in (9b).

(9) a. Konturke przerywa \_jego\_studenckiego\_bieganie.
injuries\_NOM stopped\_PL his\_student\_LAT running\_ACC
‘Injuries halted his student jogging.’

b. Mój rozpaczywy dziecięcy płacz nie przeszkałał im.
my\_piteous\_child\_ADJ cry\_GEN not\_bothered\_3SG them\_DAT
‘My piteous childish crying did not bother them.’

Another illustration of the contrast between the thematic and the classificatory usage of a relational adjective is provided in (10). The presence of the adnominal genitive forces the classificatory reading of the adjective prezysnecy ‘presidential’ in (10b).

(10) a. Prezydencka wizyta do ostatniej chwili okryta
presidential visit\_visit\_NOM until\_last moment\_GEN covered\_PPART
‘The president’s visit remained a secret until the last moment.’

b. dogłębnie przeanalizować zasadność prezysnecy
profoundly\_analys\_INF reasonableness\_ACC presidential
‘to analyse profoundly the justifiedness of Lech Kaczyński’s presidential visit in Georgia’

Let us, however, consider the Polish intransitive nominals in (12), which are derived from unaccusative verbs, such as *la salida real del palacio ‘the royal leaving from the palace’, and *la desaparición yugoslava del mapa político mundial ‘the Yugoslav disappearance from the political map’. A similar observation is made by Alexiadou and Stavrou (2011), who point to the ill-formedness of group adjectives assigned the Patient/Theme role in nominalisations of unaccusative verbs, such as *la salida real del palacio ‘the royal leaving from the palace’, and *la desaparición yugoslava del mapa político mundial ‘the Yugoslav disappearance from the political map’. The agente reading of relational adjectives is recognized as obligatory for thematic adjectives in English by Kayne (1984, p. 139), who notes the difference between the acceptability of the phrase the Russian (Agent) bombardment of Iran and the ill-formedness of the Austrian (Theme) bombardment of Russia. With respect to Spanish, Bosque and Piccallo (1996, p. 355) and Brito (2008, p. 16) notice the ungrammaticality of relational adjectives assigned the Patient/Theme role in nominalisations of unaccusative verbs, such as *the Austro-Hungarian disappearance from the political scene.

The thematic role attributable to the adjective prezysnecy ‘presidential’ in (10a) is that of the Agent, as in the case of dziecięcy ‘child\_ADJ’ in (8a) and studencki ‘student\_ADJ’ in (8b). The same is true of the relational group adjectives which accompany the nominalisations of the unergative verbs in (11).
d. Królewski przyjazd i odjazd był odtrąbniony
royal arrival.NOM and leaving.NOM was.3SG trumpeted.PPART
z wieży mariackiej,
from tower Mary.INDJ
‘A trumpet was blown from the tower of St. Mary’s Basilica to signal the royal
coming and leaving.’

The possibility of expressing the Patient/Theme argument by relational adjectives follows
indirectly from the Possessor Principle, proposed on the basis of Polish by Rozwadowska
(1997) and interpreted as valid cross-linguistically by Rozwadowska (2006).

(13) “Possessive phrase can accommodate only a single event participant.” (Rozwadowska
1997, p. 55)

Single participants of unaccusative verbs can be realized syntactically by possessive pronouns
and adnominal genitives, as is shown in (14).

(14) a. powrót papieża do zdrowia
return pope.gen to health
‘Pope’s return’

b. jego powrót do zdrowia
his return to health
‘his recovery’

c. umieranie papieża
dying.ipfv.NOM pope.gen
‘Pope’s dying’

d. jego umieranie
his dying.ipfv.NOM
‘his dying’

If relational group adjectives are able to replace possessive adjectives in Polish, they are
expected to occur in nominals derived from unaccusative verbs, as shown in (12).

Rozwadowska (1997, p. 100) argues that some transitive verbs should be treated as denoting
single-participant events. She postulates that syntactically transitive “psych-eventualities”,
such as interesować ‘to interest’, zaskoczyć ‘surprise’, przerazić ‘frighten’, are intransitive
at the level of event structure. Consequently, the Experiencer argument, which is treated by
Rozwadowska (1997, 2006) as a single participant of such eventualities, is syntactically
realized as a possessive adjective (i.e., possessive pronoun) or an adnominal genitive.

(15) a. Marek zaskoczył nas wszystkich nagłym płaczem.
Marek.nom surprised.3SG us.all ACC sudden cry.ins
‘Mark surprised us all with his sudden cry.’

b. zaskoczenie nas wszystkich nagłym płaczem
surprising.nom us.all gen sudden cry.ins
przez Mareka
by Marek.ACC
Intended meaning: ‘our surprise at Mark’s sudden cry’
Alexiadou and Stavrou (2011), when discussing Greek ethnic adjectives, which constitute a subgroup of relational adjectives, argue that relational adjectives cannot modify argument-supporting nominals. The same position is taken by Moreno (2015), who discusses relational adjectives in Romanian and finds them to be unacceptable with complex event nominals.

The Polish nominals in (17) can be regarded as names of results, e.g., wypowiedź ‘utterance, i.e., what has been uttered’, zakaz ‘ban; what has been banned’, podpis ‘signature’.

(17) a. papieski zakaz; ‘papal ban’
   b. profesarzka wypowiedź ‘professorial utterance’, i.e., ‘the professor’s utterance’
   c. prezydencki podpis ‘presidential signature’
   d. prokuratorski nakaz ‘prosecutor’s warrant’
   e. górnicze żądania ‘miners’ demands’

The nouns in (18) denote events, as they can be followed by verbs such as trwać ‘to continue, to last’. However, they can be regarded as names of simple events. They have no verbal bases (since they are borrowings), so they lack underlying verbal projections.

(18) a. czat prezydencki ‘presidential chat’
   b. prokuratorski blamać ‘prosecutors’ disgracing themselves’
   c. prezydencki konflikt ‘presidential conflict’
   d. urzędniczy ping-pong ‘clerical ping-pong’

Let us now consider event nouns which have corresponding verbal bases. In the case of Polish derived nominals, there is a split between deverbal nominals and verbal nominals (see Puzynina, 1969; Rozwadowska, 1997; Bloch-Trojnar, 2013). Verbal nominals are headed by gerundive nouns terminating in the suffix -niecie. Deverbal nominals are headed by deverbal nouns (“substantiva deverbalia”) which terminate in other (less productive) overt nominalizing suffixes or in a zero suffix. The noun phrases in (19) are headed by deverbal event nouns, while those in (20) by verbal nouns.

(19) a. dyrektorska narada ‘managerial meeting’
   b. robotniczy protest ‘workers’ protest’
   c. papieskie przyjazdy ‘papal arrivals’
   d. królewski ożenek ‘royal marriage’
   e. prezydencki skok przez plot ‘presidential jump over the fence’
   f. policyjna walka z marihuana ‘police battle against marijuana’
   g. policyjne przejazdka czołgiem ‘police rides in a tank’

(20) a. urzędnicze głędzenie ‘white-collar workers’ prattle’
   b. polske narzekanie na media ‘PM’s complaining about the mass media’
   c. poselskie oszczędzanie ‘parliamentary thrift’
   d. cale to urzędnicze majstrowanie przy działalności człowieka all this clerical tinkering.NOM with activity.LOC man.GEN ‘all this clerical tinkering with human activity’ [NKJP]

Deverbal nominals in (19) can be pluralized, as is shown in (21).

(21) a. dyrektorskie narady ‘managerial meetings’
   b. robotnicze protesty ‘workers’ protests’
   c. papieskie przyjazdy ‘papal arrivals’
   d. królewskie ożenki ‘royal marriages’
   e. prezydenckie skoki przez plot ‘presidential jumps over the fence’
   f. policyjne walki ‘police battles’
   g. policyjne przejazdki czołgami ‘police rides in a tank’

According to Grimshaw (1990) and Alexiadou and Grimshaw (2008), complex event nominals must be uncountable. However, Alexiadou, Iordachioaia and Soare (2010) argue that argument-supporting nominals can pluralize if they contribute bounded events. Such a position can be taken with respect to the event nominals listed in (21).

As is demonstrated by Rozwadowska (1997) and Bloch-Trojnar (2013), both nominals headed by verbal and deverbal nouns can have the status of argument-supporting event nominals (i.e., complex event nominals) if they exhibit the appropriate verb-like behaviour. When they are transitive argument-taking nominalisations, they can occur with internal arguments and adjunctive adjuncts, e.g., krąże samochodzie przez podejrzanego ‘the theft of a/the car by the suspect’.

For intransitive deverbal nominals it is more difficult to show that they are argument-supporting nominals. They can occur with nominal complements in the oblique case (or with prepositional complements), e.g., walka z marihuana ‘battle against marijuana’ in (19f), przejazdka czołgami ‘a ride in a tank’ in (19g), or narzekanie na media ‘complaining about the mass media’ in (20b). However, Grimshaw (1990) regards such (optional) complements as projected on the basis of the lexical conceptual structure (and not argument structure) of corresponding verbs.

Nominalisations of unaccusative verbs are more obvious candidates for argument-taking nominals when they occur with internal arguments, e.g., papieskie umieranie ‘papal dying’ and other nominals in (12).

Intransitive verbal nominals with thematic adjectives can be identified as argument-supporting ones when they exhibit verbal characteristics, such as the presence of aspectual markers, the occurrence with adverbal modifiers and aspectual modifiers, the ability to occur with the reflexive clitic, and negation by the particle nie—see Bloch-Trojnar, 2013, pp. 192-202). Such examples are unattested or rare in the National Corpus of Polish, yet they can either be constructed (e.g., by modifying sentences from the NKJP corpus) or found via Google searches. The nominals in (22) contain aspectual temporal adverbials, as is expected of names of complex events.

(22) a. papieskie umieranie przez wiele tygodni papal dying,fpv.nom for many weeks ‘the pope’s dying for many weeks’
   b. królewski przyjazd za dwa dni royal arrival,NOM in two days ‘the king’s arrival in two days’
c. robotnicze protesty przez ostatnie pół roku
\*workers’ protests for the past half year\*.

The presence of the reflexive clitic and the negative particle in intransitive verbal nominals (with thematic adjectives) is illustrated in (23).

(23) a. poselskie niereagowanie na potrzeby wyborców
parliamentary not.reacting.IPV,NOM on needs.ACC voters.GEN

b. papieskie nieangażowanie się w konflikty polityczne
papal not.involving.IPV,NOM refl in political conflicts.ACC

c. prezydenckie płatanie się w zeznaniach
presidential confusing.IPV,NOM refl in testimonies.LOC

The verbal nouns occurring in (23a-c) contain markers of the imperfective grammatical aspect, whereas the verbal noun in (23d) is derived from a perfective verb. The verbal nouns płatanie się ‘getting confused’ and zapłatanie się ‘having become confused’ form an aspectual pair, which can be regarded as an indication of their status as argument-supporting nominals.

5 Conclusion

The aim of this paper was to consider the occurrence of relational group adjectives as thematic satellites in event nominals in Polish.

It was argued that Polish group adjectives behave in some respects like possessive pronouns, since they can function as syntactic realizations of single-participants in intransitive event nominals derived from unergative verbs, such as dyrektorska narada ‘managerial meeting’, studenckie bieganie ‘student jogging’, or nominals derived from unaccusative verbs, e.g. papieskie umieranie ‘papal dying’, królewski przyjazd ‘royal arrival’. Furthermore, group adjectives can appear as the syntactic expression of the single participant of syntactically transitive psych-eventualities, such as urzędnicze zdziwienie ‘clerical surprise’, or poselskie oburzenie ‘parliamentary indignation’.

Consequently, while the most common theta-role associated with group adjectives in Polish is the role of Agent (as observed for English by Kayne, 1984, or for Greek by Alexiadou and Stavrou, 2011), such adjectives can also carry the role of Theme/Patient (in unaccusative nominals) or the role of Experiencer (in nominalisations of psychological predicates).

Some of the data discussed in this paper seem to confirm the observation that thematic adjectives are expected to occur with referential nominals (as argued by Alexiadou and Stavrou, 2011, and Moreno, 2015). Such adjectives often accompany result nouns and names of simple events.

However, it cannot be claimed that Polish group adjectives are illicit with names of complex events. Polish event nominals, in particular those which are headed by -nie/-cie nominals, exhibit properties of argument-supporting nominals. Even when accompanied by thematic group adjectives, such event nominals show aspectual contrasts, can occur with the reflexive clitic się and with the negative particle nie.-

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Extraction out of adjectival secondary predicates in English and Spanish: A nanosyntactic account*

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ABSTRACT In this article, we explore the conditions under which prima facie adjectival adjuncts projected as depictive modifiers inside verbal phrases allow extraction. Building on the analysis of gerund clauses proposed in Fábregas and Jiménez-Fernández (in press), we argue that their empirical behaviour shows that, whenever these adjectival constituents license extraction, they are projections of PathPs that form a verbal complex with the verb inside a single syntactic domain. This forces the conclusion that adjunct adjectives must be projected as pure stative verbs.

Keywords: secondary predicates, Aktionsart, adjuncts, extraction, nanosyntax

1 Introduction: the problem

Since Ross (1967) one of the main research topics in generative grammar has been to identify the principles that make movement (un)available from specific constituents. In the course of these debates, a generalisation that seemed to be extremely solid emerged: adjunct constituents act as closed islands for the purposes of extraction (Huang’s, 1982, Condition on Extraction Domains; Stepanov, 2007; Chomsky, 2008; Jiménez-Fernández, 2009, 2012b; Haegeman, Jiménez-Fernández and Radford, 2014), as the following contrast shows:

(1)  a. *What would John get very angry [if Mary had read what]?
   b. *What would John get very angry [if Mary had read what]?

However, there is a variety of cases where it has been argued that extraction out of an adjunct has taken place. One of such cases is illustrated in (2). Example (2) involves what seems to be a non-selected adjectival constituent where the PP complement of the adjective has been extracted (see Demonte, 1987/1988, where these structures are noted for the first time; see also Borgonovo, 1994, 1996; Borgonovo and Neeleman, 2000; Truswell, 2007). These constructions are known in traditional Spanish grammar as predicados secundarios adjetivales, adjectival secondary predicates. Pace preposition stranding, Spanish and English behave in the same way with respect to these structures.

(2)  a. ¿Con quién llegó [enfadado con quién] María?
   with whom arrived angry María
   b. Whom did Mary arrive [angry with whom]?
   c. ¿A quién volvió [adicto Juan a quién]?
   to whom came addicted Juan
   d. What did John come back [addicted to whom]?

(cf. Borgonovo and Neeleman, 2000, for English)

In Fábregas and Jiménez-Fernández (in press), we analysed other prima facie adjunct structures allowing extraction: gerund clauses such as What did he arrive whistling? The main goal of this article is to show that the analysis proposed there for gerunds can be extended to depictive adjectival secondary predicates (henceforth DASPs). In fact, we will argue, extending the analysis in Fábregas and Jiménez-Fernández (in press) to these cases has the immediate consequence that we can explain several independent properties of DASPs in Spanish and English, for instance that they must be Stage-Level predicates.

In the analysis of the extraction, we will also see that the proposal entails that what descriptively has been called a single lexical verb has to correspond to a complex verbal unit in syntax, that is, a complex syntactic constituent with more than one XP.

(3)  Lexical Verb = XP
     (exponent)
     X  YP
     |  Y
     |  Z...

Within the syntactic space in (3), there is more than one head where lexical material can be introduced. The syntactic complexity of a single verb depends on its Aktionsart (Ramchand, 2008), because the heads that a verbal exponent lexicalises contain features defined by lexical or inner aspect. With this background, we analyse DASPs as forming a complex predicate by combining with the lexical verb in the syntax: within the space in (3), the verb lexicalises X and Y, while the DASP lexicalises Z. From the perspective of syntax we have only one predicate and extraction is equally possible if the argument is introduced as part of XP or as part of ZP.

2 Is there any syntax in Aktionsart?

Before we introduce the empirical and technical details of this proposal, let us say a bit more about the theoretical background underlying our analysis. When it comes to how Aktionsart has been treated in the literature, two very different views have emerged: the lexical view accepts that Aktionsart may be complex at a lexical or lexico-semantic level, where ‘complex’ means that it is built by combining smaller primitives in a configuration; however, in syntax it behaves as atomic: all the features and their internal complexity are ignored, and the unit expressing aspect contributes a single head X. This is particularly clear in approaches like Pustejovsky (1991), but also Jackendoff (1990) and Levin and Rappaport-Hovav (1995).

This view contrasts with the Neo-constructionist perspective, where Aktionsart is complex both at the semantic level and at the syntactic level, but never at the lexical level. The Narrow
Lexicon contains only heads, each carrying a single feature which defines the specific aspect which they convey. To combine the primitives that define Aktionsart into a predicate, syntax is necessary; all the aspectual interpretation emerges from syntactic operations, particularly selection and head-complement structures (cf. Kempchinsky, 2000; Ramchand, 2008).

In this work, we develop ideas put forth in Fábregas and Jiménez-Fernández (in press) by providing an argument in favour of a Neo-constructionist analysis of Aktionsart. Our argument follows this reasoning:

(a) The extraction from what seems to be an adjunct is possible under certain specific circumstances, involving a particular Aktionsart class of main predicates.
(b) Clearly, dealing with these objects as adjuncts violates restrictions which are independently established and motivated within Generative Grammar.
(c) One plausible way to resolve the tension consists in treating the ‘adjunct’ as part of the predicate. The DASP is not a genuine adjunct, but the spell-out of a syntactic constituent that together with the main verb forms a verbal complex in a relatively fine-grained decomposition of the verbal area. Thus, verbs must be built in the syntax, not in the lexicon.

If we adopt the lexical approach to Aktionsart, we are confronted with 2 problems that prevent any solution to the tension: (i) as the DASP cannot be treated as an adjunct, we are forced to stipulate operations of Reanalysis – Demonte (1987/1988, 1991), Zwart (1993), Stowell (1995) – to explain how the two predicates are fused into a single one in order to allow extraction and (ii) in doing so, we lose generalizations concerning aspect, locality and the extraction conditions under which something may be moved out of the fake ‘adjunct’.

3 Empirical restrictions to extraction out of DASPs

Not any verb + DASP combination allows extraction in Spanish. In this section, we are going to review the conditions under which extraction out of DASP is possible. In the course of this discussion we will compare them to gerund clauses in order to show that their restrictions are strictly parallel and, therefore, that the analysis proposed for gerunds in Fábregas and Jiménez-Fernández (in press) can be plausibly extended to DASPs.

3.1 Adjacency

When a gerund clause in Spanish licenses extraction, the gerund has to be adjacent to the main verb, as (4) shows:

(4) a. ¿Qué llegó María [siblando qué]? Gerunds
  with what arrived María whistling
b. ¿Qué llegó [siblando qué]? María?
  what arrived whistling María
  ‘What did Mary arrive whistling?’

In the case of DASPs, adjacency is also an important component inside the conditions that license extraction. Example (5a), where the subject is between the adjective and the verb, is deemed ungrammatical, in contrast to (5b).

(5) a. ¿Con quién volvió María [enfadada con quién]? DASPs
  with whom came María angry
b. Con quién volvió [enfadada con quién] María?
  with whom came angry María?
  ‘Whom did Mary return angry with?’

In Fábregas and Jiménez-Fernández (in press), we argued that this property naturally follows if the prima facie adjunct is actually the spell-out of heads that form a head-complement sequence with the main verb, as in (6):

(6) Syntax: [XP X [YP Y [ZP Z [HP H]]]] Spell out: [ main verb ] [ gerund ]

Under these conditions, we expect XP and ZP to move as a syntactic constituent when extraction is allowed; the subject is expected not to be able to appear between Y and Z on the standard assumption that its lowest position will be above XP. For the subject to intervene between the two constituents, ZP should be able to move in the absence of X-Y, followed by remnant movement of XP to an even higher position. Depending on the nature of ZP, this movement should be blocked.

3.2 The secondary predicate must refer to an internal argument

Demonte (1987/1988), Borgonovo and Neeleman (2000) and Truswell (2007), among others, have noted that both gerunds and DASPs allow subextraction only to the extent that they modify the internal argument. Consequently, there is a contrast between unaccusatives and unergatives with respect to the possibility of extracting from a gerund clause:

(7) a. *What did Mary dance whistling?
  b. What did Mary arrive whistling?
(8) a. *What did John dance dressed as? (Borgonovo and Neeleman, 2000, ex. (1b))
  b. What did John arrive dressed as?

1 Harley (1995), Hale and Keyser (2002), Mateu (2002) and other works can be considered as in between the two poles: they propose different flavours of the light verb (v) so v receives its aspectual reading in the Lexicon. However, for some authors there are distinct v’s which combine together to get the interpretation (Rothmayer, 2009).
This restriction extends to DASPs:

(9) a. *¿Con quién bailó [enfadada con quién] María?  
    “Who did Mary dance angry with?”

   b. ¿Con quién llegó [enfadada con quién] María?  
    “Who did Mary arrive angry with?”

If we look at transitive verbs, we find a similar restriction: when the DASP refers to the internal argument, extraction might be possible (if the other conditions are met), but when it refers to the subject, even if the other conditions are in place, the extraction is ungrammatical:

(10) IA-oriented DASP

   a. Perdí llena de fotos la cartera que me regalaste.  
      “I lost the wallet you gave full of photos”

   b. ¿De qué perdiste [llena de qué] la cartera que te regalé?  
      “What did you lose the wallet full of?”

(11) EA-oriented DASP

   a. Perdí llena de pena la cartera que me regalaste.  
      “I lost the wallet you gave full of sorrow”

   b. *¿De qué perdiste [llena de qué] la cartera que te regalé?  
      “What did you lose the wallet full of?”

Example (10b) can be the equivalent of (10a), where the DASP full of photos refers to the wallet; in contrast, (11b) is an ungrammatical interrogative version of (11a), where full of sorrow refers to the person that lost the wallet.

3.3 Aspectual constraints

As with gerund clauses, it can be shown that extraction is only possible when the main verb is an achievement. All the previous grammatical examples have achievements as their verbs; in (12) it can be seen that when the verb is an accomplishment the extraction is ungrammatical even when the rest of the conditions are in place.

(12) a. *¿Qué adelgazó [comiendo qué] tres kilos Juan?  
      “What did Juan slimmed eating three kilos”

   b. Juan adelgazó tres kilos comiendo arroz blanco.  
      “Juan slimmed three kilos eating rice white”

Activities also yield ungrammatical results:

(13) a. *¿Qué rodaba [perdiendo qué] el tonel?  
      “What rolled losing the barrel”

   b. El tonel rodaba por el monte perdiendo aceite.  
      “The barrel rolled down the mountain losing oil.”

Finally, with stative verbs, the results (to the extent that gerund clauses can combine with statives, which is not general) are also ungrammatical.

(14) a. *¿Qué descansaba leyendo María?  
      “What was Mary resting reading?”

   b. María descansaba leyendo el Quijote.  
      “Mary was resting reading the Quixote.”

Exactly the very same restrictions apply to DASPs:

(15) a. *¿Con quién contestó enfadada María?  
      “Who did Mary answer angry with?”

   b. María contestó enfadada con su profesor.  
      “Mary answered angry with her teacher.”

(16) a. *¿De quién buscó harta Juan a María?  
      “Who did John look for Mary fed up with”

   b. Juan buscó a María harta de tantas dietas.  
      “John looked for Mary fed up with so many diets.”

(17) a. *¿De quién esperaba harta María?  
      “Who was Mary was waiting fed up with”

   b. María esperaba harta de su hermano.  
      “Mary was waiting fed up of her brother.”

Before going on with the analysis, let us say a bit more about the combination between DASPs and stative verbs; the non-dynamic verbs that allow them – esperar ‘wait’, descansar ‘rest’, dormir ‘sleep’ – can be argued to be so-called Davidsonian states (Maienborn, 2003), which are eventive even though they do not involve dynamicity. When we consider pure stative verbs (Kimian states in Maienborn, 2005), the generalisation noted in the literature (cf. Demonte and Masullo, 1999, for instance) is that these verbs normally do not allow secondary predicates.
(18) **Juana odia las acelgas** (*harta*).
Juana hates the chards fed up
‘Juana hates the chards fed up.’

The explanation of this restriction is unclear, but as we will argue in the next section, our analysis can derive it elegantly from the independent requisites imposed on DASPs.

What stative verbs allow are selected small-clause complements, such as those in (19):

(19) **Juan encuentra a María harta de la vida.**
Juan finds ACC María fed-up of the life
‘Juan finds / considers María fed up with life’

These have never been treated as adjuncts, since their omission results in a semantically incomplete predicate. Being arguments, and specifically internal arguments of the verb, the fact that they allow extraction, like in (20), is unsurprising; we leave these argument small clauses out of the discussion, given that they are not properly DASPs and their analysis in traditional terms has always been unproblematic from the perspective of movement.

(20) **¿De qué encontró Juan [harta de qué] a María?**
of what found Juan fed-up ACC María
‘What did Juan find María fed up with?’

4 A nanosyntactic analysis

Our proposal’s cornerstone is that extraction out of a DASP is possible only when the DASP lexicalises heads inside the *vP* phase, in such a way that verb and DASP belong to the same sequence of heads in the same syntactic domain. This implies that the subeventive heads lexicalised by the verb must (i) be in a sequence with those lexicalised by the DASP and (ii) be distinct, so that the presence of one does not compete with the presence of the other. Ramchand (2008, pp. 38 and ff.) argues that the *vP* phase is internally composed of at least three heads, corresponding to the three traditionally identified basic subevents (Dowty, 1979; Pustejovsky, 1991; Jiménez-Fernández and Tubino, 2014, inter alia):

a) **Initiation:** the head which encodes the ingredient of Cause when it is part of an event.

b) **Process:** the head which provides the verb with its eventive part.

c) **Result:** the head which conveys the state that follows a telic event when the latter arrives at its ending-point.

The head Process defines an event, but it does not determine the properties of such an event on its own. For instance, it does not give information on whether the event will describe a change or not (Fábregas and Marín, 2012, in press). Only if a change across a dimension is denoted, will an additional head be added, namely PathP – an ordered sequence of points that can be used to measure an event by one-to-one isomorphism (Ramchand, 2008, p. 51). Consider, as an illustration, (21).

(21) a. **John ran into the forest.**

   b. **InitP**

   John

   **Init**

   **ProcP**

   John

   **Proc**

   **PathP**

   John

   **Path**

   run

   to

   **ResP**

   to

   John

   **Res**

   in the forest

   PP

   This reads as follows: there is a dynamic event (Proc) involving John; that event has a causative part, controlled by John (Init), and is defined as an incremental change across a spatial path defined as a set of points in a trajectory (Path, to). That incremental change culminates in a result state (Res) which is the situation where John is in the forest.

With this background in mind, remember the properties that allow extraction out of DASPs:

(i) the DASP and the verb are adjacent
(ii) the DASP must take the verb’s internal argument as its subject
(iii) the verb must be an achievement.

Let us start from the last one: the crucial property of achievements is that their denotation does not involve a PathP, precisely because they denote transitions which do not occupy an extended period of time (cf. Piñón, 1997, where they are defined as boundaries of change without associated processes). In a Ramchandian perspective, this means that achievements define events (thus, ProcP), but do not involve a PathP: as the event does not take as its complement an ordered series of points, the event cannot be defined as an incremental change across a dimension, and thus lacks extension. Example (22) illustrates this case.
a. John jumped in the lake.

What is the consequence of this distinction for extraction out of prima facie adjuncts? In Fábregas and Jiménez-Fernández (in press) it was extensively argued that the extraction is only possible when both gerund and main verb share the four syntactic heads in the first phase: Init, Proc, Path and Res. Specifically, we argued, the main verb identified Init, Proc, and possibly Res, while the gerund was a projection of PathP. Gerunds were analysed, essentially, as infinitival forms headed by a Path preposition (cf. also Gallego, 2010).

(23) *(InitP)

Given this situation, what we expected was that achievements should be the only Aktionsart class that allowed extraction from gerund clauses, precisely because it is the only Aktionsart class which contains Proc in its structure but does not occupy Path with an element that gives the event temporal extension. Stative verbs lack ProcP, because they are not eventive; without ProcP, no PathP can be projected, as the ungrammaticality of (24) shows, where we plug a path preposition to a stative verb.

(24) *John is to the bridge.

As for activities and accomplishments, their events have temporal extension, so PathP has to be associated with their ProcP, or, in other words, has to be isomorphically identified with their ProcP. This makes the PathP unavailable for the gerund.

The claim that the gerund clauses allowing extraction project as PathPs in the spine of the tree has two immediate consequences: the first one is that the verb and the gerund are expected to be adjacent, because they are the spell-out of adjacent heads in a head-complement relation. Extraction will only be allowed when the configuration still is head-complement. The second consequence is that, by pure Relativised Minimality, we expect the projection of the gerund as a PathP to allow it just to take an internal argument as subject. Let us see why.

Within the Nanosyntactic system, being an internal argument means that the relevant constituent must occupy the specifier of ProcP (independently of whether the very same element is ultimately moved to spec-InitP too). On the other hand, being an external argument means that it is base-generated in InitP, and it has not been merged in spec-ProcP before.

Given this structural configuration, the reason why gerunds must take the internal argument as subject follows from an intervention effect. As PathP is lower than ProcP, the specifier of PathP can become the specifier of ProcP by movement. From there it can further move to spec-InitP or not.

(26) *(InitP)

What is impossible, however, is that spec-PathP moves directly to spec-InitP without landing first in spec-ProcP. If ProcP and PathP have different specifiers, then the one in spec-ProcP will land in InitP, since that movement is more local.
Given that the properties of extraction out of gerunds are identical to those restricting the extraction out of DASPs, the unavoidable conclusion is that DASP, when they allow extraction, must be also a projection of PathP inside the spine of the tree. Specifically, we propose the structure in (28) for extraction-allowing DASPs; while our contention is that all secondary adjectival predicates will be headed by Path, we restrict the claim that they are merged as complements to Proc to just the cases where the extraction is allowed; we remain neutral with respect to whether they also integrate in the verbal complex in cases where there is no extraction, as under those conditions they could also be merged as adjuncts. This possibility explains the integration in the case of achievements and their plausible non-integration in the case of other aspectual classes.

Let us go step by step. DASPs allowing extraction are adjectives, and in contrast with gerunds (which contain verbal structure inside them), it has been extensively argued that adjectives do not introduce their subjects lexically inside the AP projection (Hale and Keyser, 2002; Baker, 2003). The role of the head δ in the structure is, in line with Hale and Keyser (2002, p. 219), a stative predicative head which turns the adjective into a predicate, so that it licenses a specifier which acts as subject of the predication (see also Bowers’, 2000, proposal of PredP, that is however extended in principle also to verbs, something that Baker, 2003, argues against; cf. also Brucart, 2010; Jiménez-Fernández, 2012a). This projection, then, introduces the subject that ultimately will raise to PathP and become the subject of the whole subevent integrated in the spine of the tree.

The difference between a normal adjectival construal and a DASP projected as part of a verbal complex is that PathP is a compulsory projection in the second case, but not in the first. When the adjective is used as a DASP, since δ is not one of the heads belonging to the verbal domain, its presence is not enough to make the constituent integrate inside the same verbal space as the verb. That is why PathP must dominate the whole structure, and as a projection of Path, the whole constituent can integrate in the verbal sequence in the same way as gerunds do.

In the following sections we will argue that this is not only technically possible, but in fact can explain different independent properties of DASPs.

### 4.2 DASPs must be stage level predicates

Our claim that DASPs must project as PathPs is supported by a solid empirical generalisation: DASPs must always be interpreted as Stage-Level Predicates (Carlson, 1977; Kratzer, 1995):

\[\begin{align*}
(29) & \quad \text{Juan volvió de la fiesta enfermo / inteligente} \\
& \quad \text{Juan returned from the party sick / intelligent}
\end{align*}\]

\[\begin{align*}
& \quad \text{Juan se bebió el café frío / *descafeinado} \\
& \quad \text{Juan SE drank the coffee cold / *decaffeinated}
\end{align*}\]

\[\begin{align*}
& \quad \text{Juan llegó harto / *Cristiano} \\
& \quad \text{Juan arrived fed up / Christian}
\end{align*}\]

Adjectives can, of course, also be individual level predicates:

\[\begin{align*}
(30) & \quad \text{Juan es / está tall} \\
& \quad \text{Juan is / is tall}
\end{align*}\]

However, when projected as DASPs, they must be interpreted as Stage Level:

\[\begin{align*}
(31) & \quad \text{Mi hijo volvió alto del campamento} \\
& \quad \text{my son returned tall from the camp}
\end{align*}\]

Sentence (31) must mean that my son, after the time he spent in the camp, became taller; it cannot mean that my son, who is characteristically tall, returned from the camp. Thus, whenever an adjective is projected as a DASP, it must be interpreted as an SL predicate. This follows automatically from our claim that DASPs integrate in the spine of the tree by the intermediation of PathP. PathP defines, as we have said, a sequence of points which can have a final culmination point. In fact, Hale (1986) defined the path reading of prepositions as Terminal Coincidence Relations, which, in his proposal, were underspecified with respect to whether they applied to temporal, spatial or even modal domains. Terminal Coincidence
relations define contact with another entity, while Central Coincidence relations are generally associated with inclusion, and thus with static locations as opposed to paths.

This Terminal Coincidence relation has been explicitly used as an aspectual constituent in Mateu (2002), among other authors: it is associated for instance with perfective readings of predicates, in opposition to the imperfective readings of the same predicates, which are defined by Central Coincidence relations.

Even more directly relevant to our own purposes, the Terminal Coincidence relation has been used in previous work to define stage level adjectival predicates in opposition to individual level adjectival predicates. As far as we know, the first to propose this was Brucart (2010), who codified the stage level copula in Spanish, estar, as a verb that combines with Terminal Coincidence-marked predication phrases because of its need to value case (see also Camacho, 2012):

![Terminal Coincidence Relation Diagram]

Pace the labels used, our structure is equivalent to this: PathP corresponds in this system to Terminal Coincidence (TC) relations, given that it defines trajectories as opposed to static locations, and δ stands for the predication phrase. If stage level predicates are those that are headed by Path, then our proposal that DASPs must integrate with the spine of the verb as PathPs derives why DASPs are restricted to stage level interpretations: an individual level reading is excluded because it is not dominated by PathP, and therefore cannot become a verbal complex with the main verb.

4.3 Stative verbs do not admit DASPs

The second immediate consequence of suggesting that DASPs are PathPs is that we derive, rather than stipulate, why pure stative verbs cannot accept DASPs. If DASPs are PathPs, their ungrammaticality with pure stative verbs follows from the proposal that stative verbs lack ProcP, and the role of PathP is precisely to define properties of the event variable contained in ProcP.

![Stative Verbs Diagram]

The impossibility of having, then, a sentence like (34) follows from the same category-mismatch that makes *John is to the bridge ungrammatical.

5 Conclusions

In this short contribution, we have shown that the conditions under which prima facie adjectival adjuncts admit extraction are identical to those exhibited by gerund clauses. Building on the gerund clause analysis in Fábregas and Jiménez-Fernández (in press), we have reached the conclusion that this set of properties, as in the case of gerunds, implies that DASPs are syntactically defined as PathPs which become part of the verbal complex whenever extraction is possible. We have furthermore argued that the conclusion that DASPs are PathPs is independently desirable, given that this allows us to explain two properties that, to the best of our knowledge, had to be stipulated or simply described in other proposals.

First, DASPs must be stage level predicates, something that in our proposal follows naturally from their being headed by a PathP whenever they have to integrate with the verb. Second, if DASPs are PathPs, the fact that they cannot combine with pure stative verbs is explained by the lack of ProcP in the internal structure of these predicates.

Once DASPs have been shown to allow extraction only under the precise conditions expected if they are integrated as projections of PathP, the extraction facts do not constitute an argument against the generalisation that adjuncts behave like islands, essentially because DASPs are, in that configuration, the spell-out of heads inside the head-complement sequence defined as the verbal domain. This also makes reanalysis or other procedures unnecessary to accommodate these facts in our current theoretical universe, where adjuncts are in principle closed domains.

References


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55


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Perfect usage across languages
Henriëtte de Swart

ABSTRACT The PERFECT constitutes a puzzling category for typologists, historical linguists and formal semanticists alike. Is it a tense? Is it an aspect? Which grammatical forms qualify as PERFECTs? What is the core of the PERFECT meaning? This short paper suggests that progress can be made if we start using the wealth of digitized language data that has become available to uncover the semantics of the PERFECT through its contextual usages across languages.

Keywords: tense, aspect, perfect, cross-linguistic semantics

1 Language data and linguistic theory
An unparalleled amount of language data has become available over the past decade, but it is no easy matter to approach this material with appropriate linguistic research questions. If we learn to mine these data, we can develop linguistic theories that account for the ways in which the meanings encoded in language structure arise from language use in communication. This paper presents the beginning of a data driven case study in cross-linguistic semantics, namely the communicative usage of forms that look like PERFECTs.

2 Features of the Present Perfect
It is well known that the PERFECT displays rich cross-linguistic variation to the point that it has been characterized as a synchronically and diachronically unstable category (Lindstedt, 2000). The semantic core of the English Present Perfect is reference to an event that took place at some indefinite time in the past, the experience of which (1a) or the result state of which (1b) has current relevance (Portner, 2003; Ritz, 2012):

(1) a. Mary has visited Paris. (her visit to Paris is relevant now) [experiential perfect]
   b. Mary has moved to Paris. (she currently lives in Paris) [resultative perfect]

The characterization of the perfect as conveying a past event with current relevance also underlies its typological definition in Dahl and Velupillai (2013). According to Reichenbach (1947), the Simple Past and the Present Perfect both locate an event in the past, but differ in the perspective on the past event. The Present Perfect views the past event from the speech time, whereas the Simple Past shifts back to the past, and locates the reference time at the event time. This explains why the (British) English Present Perfect is incompatible with time adverbials with past time reference, as in (2a), and requires the use of the Simple Past, as in (2b):

(2) a. *Susan has left yesterday. Present Perfect
   b. Susan left yesterday. Simple Past
   c. *Mary ha llegado ayer. Pretérito Perfecto (Spanish)

We find the same restriction on time adverbials in a language like Spanish (2c) (Schaden, 2009), but the examples in (3) illustrate that counterparts to the Present Perfect and the Simple Past both combine with time adverbials in Dutch (Boogaart, 1999; de Swart, 2007):

(3) a. Susan is om zes uur vertrokken. (Dutch)
   Susan is at six o’clock left ‘Susan has left at six o’clock.’
   (Voltoooid Tegenwoordige Tijd)
   b. Susan vertrok om zes uur. Susan left at six o’clock
   (Onvoltoooid Verleden Tijd)

We use small caps PAST, PRESENT and PERFECT to refer to the abstract form, independently of the language at hand. Along with variation in the distributional patterns of time adverbials, we find variation in PERFECT meaning. Example (4) illustrates the continuative reading of the Perfect:

(4) Mary has lived in London for five years now.

Example (4) conveys that Mary moved to London five years ago, and is still living there now. The continuative reading is not always available in other languages. Linguistic variation in perfect meaning extends to the discourse level:

(5) a. Als ich sie gestern getroffen habe, hat sie mich groß angesehen. (German)
   b. When I met *have met her yesterday, she looked !*has looked at me in a condescending way.

As observed by Löbner (2002) and de Swart (2007), German and French PERFECTs can be used to convey narrative progress, and indicate a sequence of events in configurations like (5a). In line with Reichenbach’s characterization of the PERFECT, the English Present Perfect is not used for narration (5b). Accordingly, it is not an anaphoric tense-aspect form, unlike the Simple Past (Partee, 1984). There is surprisingly little literature dealing with the discourse function of non-narrative, non-anaphoric tenses. Nishiyama and Koenig (2010) use Switchboard examples like (6) to argue that the English Present Perfect can be used to introduce a new topic:

(6) A: Have you seen ‘Dancing with wolves’?
   B: Yeah, I’ve seen that, that was a really good movie.

The corpus example (6) shows how we can obtain new insights from naturalistic data. If we want to do that in a cross-linguistic perspective, we need to control the context to make sure PERFECT usage can be compared across languages. Translations constitute one possible strategy.
3 The perfect in translation

In a good translation, the information from the source text is clearly and completely rendered in the target language. In de Swart (2007), I used Dutch, English and German translations of the French novel *l’Étranger* by Albert Camus, to investigate the translation problems raised by his choice to write the novel in an alternation of the Passé Composé (the French Present Perfect) and the Imparfait (the imperfective SIMPLE PAST). The translations confirm that French perfects are felicitous with locative time adverbials in the past, but the English translator renders them in the Simple Past:

(7) (...) ce n’est pas de ma faute si on a enterré maman hier au lieu d’aujourd’hui. But for one thing, it isn’t my fault if they buried mother yesterday instead of today. (...) (Camus, The Stranger)

We also observe that the narrative structure of sequences of French sentences in the Passé Composé leads to Simple Past in the English and Dutch translations:

(8) Il est sorti, est revenu, a disposé des chaises. Sur l’une d’elles, il a empli des tasces autour d’une cafetière. He went in and out, arranging chairs. On one of them he stacked (PC) some cups around a coffee-pot. (Camus, The Stranger)

So, the study of translations reveals important insights about cross-linguistic variation. It provides a way to empirically test claims that have been made in the theoretical literature on distributional patterns and restrictions on interpretations. It also reveals the distribution of labour between PRESENT PERFECT, SIMPLE PAST and SIMPLE PRESENT, as translators will switch to different forms to convey the meaning of the source language in the target language. So this means we don’t need to study the perfect in isolation, but can study it in contrast to other tense-aspect forms that are available in the grammar. The competition-based approach is even more attractive when we place it in a multilingual setting.

4 A plea for multilingual datasets

From the examples in (7) and (8), we might infer that the English Present Perfect has a narrower distribution than its French counterpart. But (9) illustrates that the English Present Perfect has a wider distribution in other contexts:

(9) a. *Rien ne bouge.* (French) *(No et moi, Delphine de Vigan, 2007)*
    b. *Nothing has moved.* (English) *(No and me, translation, 2010)*
    c. *Niets beweegt.* (Dutch) *(No en ik, translation, 2007)*

So far, we used translation data to compare perfects in the source language, and check their translation in the target language. The triplet in (9) is the outcome of a different strategy whereby we search for perfects in any language (source or translation) in a multilingual corpus. The English continuative perfect appears in the translation (9b), even though the French source text uses a SIMPLE PRESENT (9a), which the Dutch translator maintains in (9c). The comparison of multiple languages gives us a broader perspective on the competition between different tense-aspect forms, so there is a clear advantage to using multilingual datasets.

This strategy may lead us to stumble upon data that we weren’t specifically looking for. For instance, we know that the resultative meaning constitutes the core of the perfect (cf. (1b)). But the example in (10) shows that it can also be conveyed by the English Simple Past:

(10) a. *In case you hadn’t noticed, we just got a confession.* (English original)
    b. *Falls es ihnen entging, er hat gestanden.* (German)
    c. *Si vous ne l’avez pas remarqué, on a des aveux.* (French)

The triplet in (10a-c) appears in a multilingual corpus consisting of subtitles of television programmes and movies. It illustrates that the same temporal configuration can be conveyed by the SIMPLE PAST (10a), the PRESENT PERFECT (10b), or the SIMPLE PRESENT (10c). We classify (10b) as an instance of the resultative perfect, which is confirmed by the French translation that picks up on the result state only by using a SIMPLE PRESENT.

It may come as a surprise that the English Simple Past conveys a result in (10a), because this has been viewed as the core meaning of the Present Perfect (cf. (1b)). A formal criterion supporting the resultative flavor of the English Simple Past is its compatibility with the adverb already in example (11a) (from the internet):

(11) a. *So I already bought my wedding dress. It’s a Melissa Sweet Valentina.*
    
    *I bought it at only the second store I visited.*

b. *One in 10 single British women have already chosen their wedding dress (and one in 4 have already bought one).*

There is an extensive literature on already, but in its temporal use, there is consensus that it is an aspectual operator that scopes over an imperfective sentence, that is, a state or an ongoing activity (Löbner, 1989; Mittwoch, 1993; Van der Auwera, 1993; Michaelis, 1996; Smessaert and ter Meulen, 2004). Under this analysis, de Swart (2013) argues that we expect English event denoting verb phrases to be compatible with already in the Past Progressive or the Present Perfect (as illustrated in (11b)), but not the Simple Past (11a). Such patterns are easily found, though, and confirm that the analysis of the PERFECT implies a many-to-many mapping between forms and meanings. That is, the same form (e.g., the English Present Perfect) can have different meanings, and the same meaning (e.g., result) can be conveyed by different forms.

5 Conclusion

In this short paper, I aimed to show that cross-linguistic semantics can benefit from taking into account naturalistic data that have become available on a large scale. More tools are becoming available for linguistics to search monolingual, parallel and multilingual corpora, and compositional semantics can benefit from these new developments to account for the negotiation of meaning in communicative contexts. Such an enterprise would suit Bożena Rozwadowska very well, I think. I greatly admire her work for its fine-grained empirical
observations (especially on Polish) and their implications for linguistic theory. I hope these new data oriented approaches will help us to produce results that live up to her standards!

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On inchoative states. Evidence from modification of Polish perfective psych verbs by degree quantifiers

Ewa Willim

ABSTRACT The special properties that psychological verbs manifest cross-linguistically have given rise to on-going debates in syntactic and semantic theorizing. Regarding their lexical aspect classification, while verbal psych predicates with the Experiencer argument mapped onto the subject (SE psych predicates) have generally been analyzed as stative, there is little agreement on what kinds of eventualities object (OE) psych predicates describe. On the stative reading, OE psych predicates have been classified as atelic causative states. On the (non-agentive) eventive reading, they have been widely analyzed as telic change of state predicates and classified as achievements or as accomplishments. Based on Polish, Rozwadowska (2003, 2012) argues that non-agentive eventive OE psych predicates in the perfective aspect denote an onset of a state and that they are atelic rather than telic. This paper offers further support for the view that Polish perfective psych verbs do not denote a change of state, i.e., a transition from a to ¬a. The evidence is drawn from verbal comparison and the distribution of the comparative degree quantifier jeszcze bardziej ‘even more’ in perfective psych predicates. It is argued here that in contexts including jeszcze bardziej ‘even more’, the perfective predication denotes an onset of a state whose degree of intensity exceeds the comparative standard. While a degree quantifier attached to the VP in the syntax contributes a differential measure function that returns a (vaguely) value representing the degree of a state whose degree of intensity exceeds the comparative standard. While a degree quantifier attached to the perfective predication denotes an onset of a state, i.e., a transition from a to ¬a. This evidence is drawn from verbal comparisons and the distribution of the comparative degree quantifier jeszcze bardziej ‘even more’ in perfective psych predicates. It is argued here that in contexts including jeszcze bardziej ‘even more’, the perfective predication denotes an onset of a state whose degree of intensity exceeds the comparative standard. While a degree quantifier attached to the VP in the syntax contributes a differential measure function that returns a (vaguely) value representing the degree of a state whose degree of intensity exceeds the comparative standard. While a degree quantifier attached to the VP in the syntax contributes a differential measure function that returns a value representing the degree of a state whose degree of intensity exceeds the comparative standard.

Keywords: psych verbs, Experiencer, inchoativity, verbal comparatives, degree quantifiers, (a)telicity

1 Introduction

Taken to be verbs with psychological entailments with respect to the Experiencer argument, where “a psychological entailment involves an individual being in a certain mental state” (Laudau, 2010, p. 4), psychological verbs have a number of puzzling properties cross-linguistically (see, among others, Pesetsky, 1995; Laudau, 2010). The property that has received most attention in both generative and cognitive linguistics literature is the variability of their argument realization patterns. If the two arguments of a two-place psych verb are the Experiencer and the Stimulus, respectively (see among others, Jackendoff, 2009; Croft, 2012), the variation in argument realization in the domain of psych verbs demonstrated in (1) and (2) contradicts the assumption that there is a direct and uniform association between thematic (or lexical semantic) structure and morphosyntactic expression. The most striking examples are pairs of near-synonymous verbs like fear and frighten, and like and appeal to (Levin and Rappaport Hovav, 2005; Levin and Graffmüller, 2013). While the Experiencer of what seems to be the same emotional state is mapped onto the subject with one of the members of the minimal pair, as in (1a) and (2a), it is mapped onto the direct (accusative) object in (1b) or onto a dative/oblique object, as in (2b), with the other member of the minimal pair. At the same time, the Stimulus is the object in (1a) and (2a), but it is the subject in (1b) and in (2b), thus challenging the linking principle:

1. Indiana Jones feared the snakes. Subject Experiencer (SE)
2. The snakes frightened Indiana Jones. Object Experiencer (OE)
3. a. I like this rug. Subject Experiencer (SE)
4. b. This rug appeals to me. Dative Object Experiencer (DE)

Differences in argument realization patterns of psych verbs further correlate with differences in the causative and aspectual readings of psych predications. While SE and OE psych predications are stative, OE predicates are multiply ambiguous between stative, eventive (non-agentive) and agentive readings. According to Arad (1999), on the agentive reading illustrated in (3), the Agent acts intentionally to bring about a change of state in the Experiencer. The agentive reading is an eventive reading, as the Experiencer undergoes a change of state, but it can be distinguished from a non-agentive eventive reading illustrated in (4), in which there is no intentional Agent, but there is a change of state in the Experiencer. A stative reading, illustrated in (5), has neither an Agent nor a change of the mental state of the Experiencer. Rather, the Experiencer is in a given mental state as long as she perceives the Stimulus or it is on her mind. However, not all psych verbs can have all or some of the readings in question in a language. For example, in English the OE verbs worry and concern trigger only the stative reading, surprise receives only the eventive interpretation, while

QUESTIONS AND ANSWERS IN LINGUISTICS, VOLUME 3, ISSUE 2, 2016, PAGES: 63-80

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frighten is multiply ambiguous between the stative, agentive as well as non-agentive eventive interpretations.

(3) Nina frightened Laura deliberately to make her go away.

(4) a. Nina frightened Laura unintentionally / accidentally.
   b. The explosion / the noise / the thunderstorm frightened Laura.

(5) a. This problem concerned Nina.
   b. Blood sausage disgusts Nina.

To account for the interpretive differences, psyb verbs have been argued to be associated with distinct event structures as well as syntactic structures (Grimshaw, 1990; Pesetsky, 1995; Arad, 1999; Rothmayr, 2009; Landau, 2010). Restricting attention to aspectual classification, on the agentive reading, psyb predicates have been analyzed as accomplishments denoting a process leading up to a change of state (Grimshaw, 1990; Landau, 2010). As events of change described with OE verbs like frenten (cf. (4)) are not extended in time, on their non-agentive eventive readings, OE psych verbs have been classified as (telic) achievement or search, than an approach on which psych predicates in the perfective are taken to denote form in Polish in a comparative construction like (7), a headline from a random internet search, than an approach on which a psych predicate like pokochać jeszce bardziej ‘start to love even more’ is true must be minimal, it cannot make reference to the final instant at which the Experiencer is not in the state lexicalized by the psyb verb. If the perfective predicate pokochać ‘start to love’ illustrated in (7) and (8) denoted a non-extended event of change from a state in which the Experiencer is not in love to a state in which the Experiencer is in love, the degree of the intensity of the Experiencer’s emotional state could not be measured against the degree provided by the comparative standard and return a difference value, positive when exceeding the comparative standard degree and zero otherwise, as required by the comparative degree quantifier in the approach to comparatives advocated by, among others, Kennedy and McNally (2005), Kennedy (2007), and Kennedy and Levin (2008). On the other hand, if the perfective predicate pokochać ‘start to love’ denotes an onset of the state lexicalized by the verb, the Experiencer is in this state at the initial instant in which the predicate is true, making possible measurement and comparison of the degree of the intensity of the state of the Experiencer at the reference moment for the event with the degree of the same state holding at a distinct temporal moment at which that

(7) 5 rzeczy, za które twój facet cię jeszcze bardziej po-kocha!
       even more INC-love.PF.3SG.PRES
       ‘5 things for which your man will start to love you even more!’

(8) 6 powodów, dla których po-kochaesz kapustę
       INC-love.PF.3SG.PRES cabbage.ACC
       ‘6 reasons for which you will start to love cabbage’

To summarise, the syntactic context illustrated in (7) involves a comparative degree quantifier adjoined to the VP in the syntax. Although a minimal change of the degree of the intensity of an emotional state of the Experiencer can satisfy the requirements of the comparative predicate bardziej ‘more’, even if at the interval at which a predicate like pokochać jeszcze bardziej ‘start to love even more’ is true must be minimal, it cannot make reference to the final instant at which the Experiencer is not in the state lexicalized by the psyb verb. If the perfective predicate pokochać ‘start to love’ illustrated in (7) and (8) denoted a non-extended event of change from a state in which the Experiencer is not in love to a state in which the Experiencer is in love, the degree of the intensity of the Experiencer’s emotional state could not be measured against the degree provided by the comparative standard and return a difference value, positive when exceeding the comparative standard degree and zero otherwise, as required by the comparative degree quantifier in the approach to comparatives advocated by, among others, Kennedy and McNally (2005), Kennedy (2007), and Kennedy and Levin (2008). On the other hand, if the perfective predicate pokochać ‘start to love’ denotes an onset of the state lexicalized by the verb, the Experiencer is in this state at the initial instant in which the predicate is true, making possible measurement and comparison of the degree of the intensity of the state of the Experiencer at the reference moment for the event with the degree of the same state holding at a distinct temporal moment at which that

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6 While psychological phenomena raise general questions about their measurement criteria, that a comparative statement about the intensity of an emotional state is possible even when the difference in the compared values is the smallest possible value is demonstrated with the example in (i) from an internet article:

(i) 1. choć mnie zobaczyłeś minimalnie bardziej
   though me DAT personally more
   minimalniej pomalował się kolory do aparatury.
   minimal more
   like IMPF.3PL.PRES RF colours.OM from camera GEN
   ‘although camera-made colors appeal to me personally minimally more.’
   http://viedoddrz.pl/panasonic-ag-dvxc200-test/
imperfective and perfective verbs or verb forms. However, not all psych verbs come in pairs. Examples include bać się ‘fear’ and podziwiać ‘admire’, which are imperfective and perfective. The infinitival variants of the verbs given above that have both forms are provided in (12):

(12) a. kochać ‘love.IMPF’ pokochać ‘love.PF’ SE
b. niepokoić ‘bother.IMPF’ zaniepokoić ‘bother.PF’ OE
c. podobać się ‘appeal_to.IMPF’ spodobać się ‘appeal_to.PF’ DE
d. nieznawdzić ‘hate.IMPF’ znienawidzić ‘hate.PF’ SE
e. lubić ‘like.IMPF’ polubić ‘like.PF’ SE
f. cieszyć się ‘rejoice.IMPF’ ucieszyć się ‘rejoice.PF’ SE
g. wściekać się ‘rage.IMPF’ wściecić się ‘rage.PF’ SE
h. ciekawić ‘interest.IMPF’ zaciekawić ‘interest.PF’ OE
i. znęcaćć ‘disfavour.IMPF’ znęcićć ‘disfavour.PF’ DE
j. rozczarowywać ‘disillusion.IMPF’ rozczarować ‘disillusion.PF’ OE
k. przeszkadzać ‘annoy.IMPF’ przeszkodzić ‘annoy.PF’ DE
l. imponować ‘impress.IMPF’ zaimponować ‘impress.PF’ DE

Most perfect psych verbs are marked with a prefix, like most other verbs in the perfective aspect in Polish. As observed by Rozwadowska (2003), most if not all psych verbs lack secondary imperfective forms. As the prefixes found in the perfective psych verbs encode temporal notions and specifically, the onset of a state, following Ramchand (2004), they can be analyzed as superlexical. As shown in (14), the Polish inceptive/inchoative prefix za-, also found in the perfective verbs in (12b) and (12l) above, picks the onset of a dynamic activity of playing music, similarly to the Russian prefix za-, which also picks the onset of a dynamic process, as shown in (13) from Ramchand (2004, p. 341). In Ramchand’s (2004, p. 351) classification, a superlexical prefix can pick a different definite temporal moment in the event’s running time: an onset, which is not a telic point, an arbitrary final moment which does not correspond to a culmination (‘a terminal point’), as well as a final moment which is a transition to a result state (‘a set terminal point’). Only the latter is a telic moment.

(13) Kompjuter za-rabotał, computer.NOM inc-worked.PF
‘The computer started working.’

(14) Orkiestra za-grała i wszyscy ryszyli do tanica, band.NOM inc-played.PF and all rushed.PF to dance.GEN
‘The band started playing and everybody rushed to dance.’

7. Perfective and imperfective are categories of grammatical or viewpoint aspect. The perfective is used in reference to complete, but not necessarily completed situations. Perfective morphology involves singular events. There is no single marker of the perfective aspect in all the Slavic languages, including Polish, but most perfective verbs have a prefix. The imperfective is used in reference to incomplete or not necessarily complete situations. Imperfectivity is marked productively with aspectual suffixes attaching to prefixed perfective stems in verb forms generally referred to as secondary imperfectives, although not all perfective prefixed verbs have secondary imperfective forms, e.g., pisać ‘write.IMPF’, przypisać ‘copy.IMPF’, przypisywać ‘copy.PF’, budować ‘build.IMPF’, zbudować ‘build.PF’, zbudować ‘(intended meaning) build.IMPF’. Imperfective morphology is ambiguous and correlates both with a habitual and a progressive aspectual meaning. Progressive aspect involves singular events and the habitual refers to a plurality of events.
2.2 The temporal properties of perfective psych predicates in Polish: Rozwadowska (2003, 2012)\(^8\)

Based on standard (atelic) tests, Rozwadowska (2003, 2012) argues that Polish imperfective psych verbs denote (emotional or mental) states while their perfective partners refer to their onsets. In addition, although perfective psych predicates pattern with achievements with respect to several (atelic) tests, they are not telic, but atelic. By contrast, typical accomplishment verbs in the perfective (e.g., napisać ‘write.PF’) pass all the standard telicity tests while their imperfective partners pattern with activities under the standard telicity tests. Her conclusions are based on the availability of temporal adverbials illustrated in (15) and (16) and the time-related entailments shown in (17)-(19), which are summarized in (20):\(^9\)

(15) Film zainteresował Marię w godzinę t. *godzinę.
film.NOM interested.PF Mary,ACC in hour t. hour
‘The film started to interest Mary in an hour/or an hour.’

(16) Film interesował Marię w t. *godzinę.
film.NOM interested.IMPF Mary,ACC in hour t. hour
‘The film interested Mary in an hour/or an hour.’

(17) Film zainteresował Marię w t. *DOES NOT ENTAIL Film interesował Marię przed t.
‘The film started to interest Mary at t. *DOES NOT ENTAIL. ‘The film interested Mary before t.’

(18) Film interesował Marię w t. ENTAILS Film zainteresował Marię przed t.
‘The film interested Mary at t. ENTAILS ‘The film started to interest Mary before t.’

(19) Film zainteresował Marię w t. ENTAILS Film interesował Marię po t.
‘The film started to interest Mary at t. ENTAILS ‘The film interested Mary after t.’

(20) a. PERFECTIVE at t DOES NOT ENTAIL PERFECTIVE before t.
b. IMPERFECTIVE at t DOES NOT ENTAIL PERFECTIVE before t.
c. PERFECTIVE at t ENTAILS IMPERFECTIVE after t.

\(^8\) Imperfective SE psych predicates pass the standard stativity tests in Polish: they are compatible with durative temporal adverbials like (przez) 2 lata (‘for 2 years’), they cannot be interpreted progressively in contexts inducing the on-going dynamic reading in the absence of a shift such as the adverbial coraz bardziej ‘more and more’, and they receive non-habitable interpretation in the present tense. In addition, incompatibility with temporal event-related adverbials suggests that they are not Davidsonian states. I do not provide a detailed discussion of the temporal properties of imperative SE verbs for reasons of space limitations and address the reader to Bialy (2005, who provides a detailed analysis of both SE and OE psych verbs in Polish. Based on a battery of tests diagnosing the temporal constitution of the eventualities denoted by OE verbs, including availability of temporal (punctually locating, time-span, time-frame) and counting adverbials with OE verbs, their (un)availability in imperative structures, progressive and habitual readings, Bialy (2005, p. 76) divides Polish OE verbs into stative and non-stative. The stative class includes być zainteresowany ‘be interested.PF’, być zszokowany ‘be shocked.PF’, być zuszpity ‘be surprised.PF’, and być zniechęcony ‘be discouraged.PF’. The non-stative class includes być zainteresowany ‘be interested.IMPF’, być zszokowany ‘be shocked.IMPF’, być zuszpity ‘be surprised.IMPF’, and być zniechęcony ‘be discouraged.IMPF’. The stative OE verbs include two temporally coextensive events: the causing event and the emotional state (but see Rozwadowska (2012) for a critique). In the non-stative OE psych predicates, the two events are temporally independent.

\(^9\) Rozwadowska (2003, p. 6, also Rozwadowska, 2012, p. 538) illustrates the distribution of time-frame and time-span adverbials in predictions with psych verbs with the verb(s) rezygnować ‘resign.PF’ and zrozumieć ‘understand.IMPF’ and zrozumieć ‘understand.IMPF’. I provide a verb of emotion here, as the focus is on emotion eventualities. Examples (15)-(19) are modelled on Rozwadowska (2012, p. 339).

Crucially, the temporal entailments of inceptive psych predicates are reverse to the entailments that activity and accomplishment predicates generate:

(21) a. IMPERFECTIVE at t DOES NOT ENTAIL PERFECTIVE before t.
b. PERFECTIVE at t ENTAILS IMPERFECTIVE before t.

In addition, Rozwadowska points out that the adverb prawie ‘almost’ does not invoke the counterfactual/scalar ambiguity combined with perfective psych predicates and it is impossible with their imperfective partners. This is in contrast to perfective accomplishment predicates, where prawie gives rise to the reading that the eventuality in question did not occur or that it was not completed. The imperfective partner of an accomplishment predicate is not inconsistent with prawie, but the only available reading is the counterfactual one.

Another important property of psych predicates is that they do not provide evidence of a process leading up to the onset of a psych state.\(^10\) This is illustrated in (22) from Rozwadowska (2012, p. 541):

(22) *On go niswanać, niswanać, aż go he.NOM he,ACC hated.PF hated.PF until him,ACC

\(^10\) The strength of this argument depends on whether the verb niswanać ‘hate’ has a process reading and whether its denotation can be coerced to a dynamic process, i.e., an activity.

\(^11\) Notice that only imperfective verbs can co-occur with the phasal verbs przejść ‘stop’ and skończyć ‘finish’.
events, she falls back on Piñón (1997), who proposes to analyze punctual events as the boundaries of 'thick events' or happenings in their vicinity. Predicates like win the game pick the right boundary of the playing-the-game event. Predicates like begin to run pick the left/initial boundary of the thick event/happening of running in their vicinity. What is crucial in Piñón’s (1997) approach is that a boundary happening is an eventuality of some sort and the happening it bounds cannot be immediately preceded by an eventuality of exactly the same sort. Otherwise, the happenings could always be summed up into a single eventuality. In this scenario, the unavailability of (22) follows straightforwardly, as a hating eventuality immediately precedes an onset of an eventuality which is also a hating eventuality, i.e., a state (see fn. 10). Also Marín and McNally (2011) advocate the left boundary approach to the event structure of Spanish reflexive psych predicates, which they also divide into two kinds: a punctual eventuality picking only an onset of an associated state, and a left-boundary state, i.e., a state including also its onset. 15 If all punctual Spanish reflexive psych predicates refer to an onset of an associated state without referring to the change that produces that state, inchoativity is logically distinct from change of state. Marín and McNally (2011, p. 471) explain the difference between predicates denoting a change of state and those that do not as follows:

Imagine that a predicate is lexically specified to refer to the true initial interval of a state, but not to any interval prior to the onset of that state. If the predicate entails reference to this initial interval, it will have to be the case that prior to that interval, the state did not hold. From this fact it will be possible to infer that a change has taken place immediately prior to the onset of the state being referred to. Thus, though such a predicate would qualify as inchoative in the same sense as BECOME, it would not qualify as a change of state predicate in the same sense.

Importantly, in the analysis that Marín and McNally (2011, pp. 491-492) offer, an inchoative predicate is “any predicate which describes an eventuality which necessarily is or includes the beginning of some happening.” Inchoative predicates are atelic, because unlike telic predicates, which crucially include the right boundary of a happening which is a telic (finishing) endpoint, atelic predicates do not describe eventualities with right boundaries. Not being events of change of state, inchoative eventualities are also non-dynamic, contradicting the common assumption that punctuality correlates with dynamicity.

The insights offered into the logical differences between events of change of state and inception or inchoative eventualities offered by Piñón (1997), Rozwadowska (2003, 2012), and Marín and McNally (2011) are an important contribution to the typology of eventualities described with verbal predicates in natural language. In the next section, I consider the relevance of modifying perfective psych predicates with the comparative degree quantifier jeszcze bardziej ‘even more’, illustrated in (7) and repeated below for convenience in (26), for the analysis of the event structure of perfective psych verbs. The example illustrating the unmodified psych predicate is repeated in (27). The main question is whether the distribution of a comparative adverb jeszcze bardziej can tease apart the analysis on which perfective psych predicates make reference to a single temporal moment or to a minimal interval with two time instants, the last instant at which the emotional state does not hold and the initial instant at which it holds.

15 I refer the reader to Marín and McNally’s (2011) article for the discussion of the Spanish data and the concept of boundary events as well as a formal semantic analysis.
Formalization issues aside, the question that arises in the context of structures like (26) in Polish is what kind or kinds of eventualities denoted in context to its imperfective partner *kochać* ‘love.PPF’, and in particular, whether a perfective psych verb lexicalizes BECOME in its event structure.

If the imperfect prefix po- asserts a temporal moment at the onset of a state lexicalized in the base verb, as argued by Ramchand (2004), a perfective predicate like po-*kochać* ‘INC-love.PPF’ cannot lexicalize BECOME on standard assumptions, as change requires some duration to take place (see Pihlén, 1997). If po-*kochać* in (26) lexicalizes a change of state modelled with BECOME, it must be true of a minimal interval with two adjacent moments, \( t_2 \), the final moment in which the Experiencer is not in a state of love and \( t_1 \), the initial instant in which the Experiencer is in the state of love in a situation described with the sentence in (26).

However, the most natural interpretation that (26) has is that the perfective psych predicate asserts a single moment which is the beginning of the state the Experiencer is in at the reference time for the perfective event, but the Experiencer is in that state also at a time instant or instants (immediately) prior to the moment picked by the perfective operator. The contexts in (30)-(32) below are naturally-occurring examples demonstrating that the Experiencer is in the emotional state described by the perfective psych verb at the time of event described by the perfective predicate modified by *jeszcze bardziej* ‘even more’ and also that this state is not entailed to cease or to have ceased prior to the event referred to with the perfective verb. The contexts involving *jeszcze bardziej* ‘even more’ illustrated in (30)-(32) involve different types of psych verbs. The psych verb in (30) is a non-reflexive SE verb. In (31), the SE verb is reflexive. Reflexive verbs are marked with *się* in Polish, similarly to many other languages (see Alexiadou and Iordache, 2014). The verb in (32) is an OE verb. As the larger linguistic contexts in which the perfective psych predicates occur make clear, pragmatic inferencing favors the interpretations on which the Experiencer of the eventualities described with the perfective psych predicates shown above is in the given emotional state immediately prior to the occurrence of the perfective event. For example, it is highly unlikely that in the situation described in (31), Victoria’s father is upset entering the church as can be inferred from his upset voice, calms down before he notices his daughter, and on seeing her is upset again. Rather, what the perfective psych predicate modified by the degree quantifier *jeszcze bardziej* ‘even more’ refers to in (31) is an increase in the extent of Victoria’s father’s upset feeling that is measured at a single moment in time relative to an arbitrary degree, probably interpreted in context as the degree of his upset feeling at the moment he enters the church. The opening sentence in (30) refers to the speaker’s disposition and to the extent that mental attitudes are time-persistent, i.e., that they hold of all the temporal slices of the Experiencer, the speaker can be expected to have a loving attitude with respect to the Ikea store in the temporal stage referred to with the perfective verb in (30) as well as in all other temporal stages. A change of state interpretation, on which immediately prior to the event described with the perfective predicate in (30), the speaker does not like Ikea, is at best counterintuitive. Also the context illustrated in (32) makes clear that Facebook users are in general disaffected with Facebook’s Messenger communicator and that their emotional attitude holds immediately prior to the event described with the OE perfective predicate modified with *jeszcze bardziej* ‘even more’. What the comparative degree quantifier contributes is a degree of the intensity of the emotional state at the onset of the state, which is some vague degree exceeding the degree of the intensity of the same state at a distinct interval and a distinct temporal stage of the referent of the Experiencer’s state over the time of the event denoted by the perfective predicate and the time instant corresponding to the onset and the time instant in the comparative standard are not the final and the initial moments of a single event of change of degree on the scale of intensity, respectively. If perfective psych predicates modified by a comparative degree quantifier denoted events of change extended over the interval including the two instants involved in comparison, we could expect that interval to be accessed by a modifier like *coraz bardziej* ‘more and more’, but the ungrammaticality of (33) rules this possibility out. As (34) demonstrates, the imperfective predicate *kochać* ‘love.PPF’ is consistent with the gradual degree adverb *coraz bardziej* ‘more and more’, providing evidence that the state it denotes can be graded with respect to

(30) Uwielbiałam sklep IKEA. Od kąd znam to mamę adore.IPF.1SG.PRES store.ACC Ikea since became.1SG mother.INSTR po-blużałam ją jeszcze bardziej, INC-loved.PF.1SG her.ACC even more ‘I adore the IKEA shop… Since I became a mother, I have started to like it even more.’

(31) Gdzie się podiewałeś? – od wężicy słyszę się odd.4SG.pres from entrance.GEN się 4SG.PRES do IKEA. Where are you hiding? – The angry voice of Victoria’s father was heard already at the door.

(32) Nie znam osoby, która nie narzekała na to, jak działa komunikator Facebooka. IEA 4SG.PRES person.GEN WORK.CASE decir.4SG.PRES 3SG.COM on advoc.IPF Facebook. GEN ‘I probably do not know a person who would not complain how Facebook’s communicator works.’

Tymczasem Mark Zuckerberg zdaje się robić wszystko, still Mark Zuckerberg seem.IMPF.3SG.PRES RF do Messenger to even more discourage.PF.3SG.INF US.ACC to Messenger.GEN ‘Still Mark Zuckerberg seems to be doing everything to discourage us even more from the Messenger.’

intensity over an interval (see Piñón, 2000). Nevertheless, *coraz bardziej* ‘more and more’ is not compatible with a perfective psych predicate:15

(33) *Po-kochalam cię coraz bardziej, inC-loved.PF.1SG you.ACC each_time more
   ‘I started to love you more and more’.

(34) Z każdym dniem kocham cię coraz bardziej, inF-love.IMPF.1SG.PRES you.ACC each_time
   ‘Every day, I am loving you more and more.’

Thus, the degree returned by the difference function contributed by degree morphology in a comparative construction is the degree of intensity to which the state holds at the moment of its onset, which is greater than at a distinct time instant or interval. Modulo the relation to a distinct instant or interval in the comparative standard, the function of a comparative degree quantifier is similar to the function that other degree quantifiers perform with respect to the denotation of the VP that they modify. For example, in (35), the adverb *bardzo* ‘a lot’ specifies that the degree of the intensity of the farmer’s love of his animals is a high degree at the reference time picked by the perfective operator. In (36), the degree of discouragement is a low degree:

(35) Ten rolnik bardzo po-kochal svoje zwierzęta, this.M.NOM very inC-loved.PF.3SG his.ACC animals.ACC
   ‘This farmer started to love his animals a lot.’

http://lapsuchara.pl/obrazek/19176/

(36) Trochę niechcącło mnie, że oni a little discouraged.PF.3SGN me.ACCacc that they.M.NOM
często codziennie po 12 godzin. exercised.IMPF.3PL.M everyday 12 hours:GEN
   ‘It put me off a little that they practiced for 12 hours every day.’

http://www.mariusz.skylhost.pl/music.html

In contrast to a perfective predicate modified by a degree quantifier, an unmodified perfective psych predicate triggers the entailment that no amount of the eventuality it holds immediately prior to it. For example, (27) asserts that you will start to love cabbage, and it entails that you do not love cabbage now. I suggest that this difference reflects the requirement built into the theory of boundary events by Piñón (1997). If a happening is to be a boundary of a thick event in its vicinity, the thick eventuality cannot be predicted by an identical eventuality, as the two eventualities could be summed up into a ‘bigger’ eventuality. That the left boundary of the state in (27) cannot be preceded by the same state follows from the logic of beginnings, specifically, from the impossibility of interpreting an event as an onset of a state if the same state precedes that state. Events of starting to love someone in the denotation of the sentence in (26) do not entail absence of the love state in their vicinity, unlike in (27). The predicate *love* and the predicate *love more* do not have the same truth conditions and as they cannot be summed up into a ‘bigger’ eventuality, the eventuality denoted by predicate *love* can in fact occur in the vicinity of *love some more* in (26), in contrast to (27).

To wrap up, the distribution of the comparative degree quantifier *jeszcze bardziej* ‘even more’ provides evidence that the predicate it modifies does not denote a change of state. The eventuality described in the lexical structure of the verb or the root denotes an onset or beginning of an emotional state that provides a gradable dimension along which it can be ‘measured’, i.e., intensity. A degree quantifier combined with a VP built on a psych verb does not change its event structure, but modifies it by specifying the degree corresponding to the difference on the intensity scale with respect to the comparative standard, similarly to a degree modifier such as *bardzo* ‘very’ and *trochę* ‘a bit’, as illustrated in (35) and (36).

To the extent that a vague comparative degree quantifier like *jeszcze bardziej* ‘even more’ can combine with a perfective psych verb, it provides evidence that the scale it quantifies over lacks the maximum degree. That psych verbs have lower closed scales is further suggested by their comparative entailment pattern, which is analogous to the entailment generated by an adjective with a scalar minimum, but not with a scalar maximum in comparative statements.15

As shown in (37), *x is more than y* entails that *x is P* in lower closed adjectives such as *open*, that *y is not P* in adjectives with a scalar maximum such as *closed*, and neither in relative adjectives (see Doetjes, 2008; Katz, 2008; Toledo and Sassoon, 2011). That psych predicates pattern with lower closed adjectives like *open*, and not with upper closed adjectives like *long* is shown in (38) and (39). Crucially, (38a) entails (38b) and (39a) entails (39b):16

(37) a. The door is more open than the window. ENTAILS The window is open.
   b. The door is more closed than the window. ENTAILS The window is not closed.
   c. Rod A is longer than Rod B. DOES NOT ENTAIL Rod A is long / Rod B is not long.

(38) a. Film zdemyslował mnie bardziej, film.SG.M.NOMupset.PF.3SG.PAST me.ACCacc more
   niż książka, than book.SG.F.NOM
   ‘The film upset me more than the book.’

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15 Whether all Polish psych verbs have the entailment patterns demonstrated in (38) and (39) in both the imperfective and the perfective aspect needs to be verified against a larger body of data, but this task is beyond the scope of this paper.

16 What this means is that in unmodified contexts, when an emotional state holds of the Experiencer argument, the degree of its intensity is a minimal degree that is necessary for the verbal property to be manifested in the event. In modified contexts, as in the context of *trochę* ‘a bit’, *bardzo* ‘a lot or *jeszcze bardziej* ‘even more’, this degree is raised to some degree above the scalar minimum, to some high degree or to some degree higher than the arbitrary degree introduced by the comparative standard respectively. I assume here that the scalar minimum in tandem with the semantics of beginnings imposes an increasing relation on the degrees on the intensity scale.
b. Książka mnie zdenerwowała.

(The book upset me (a bit).)

(39) a. Jan mnie martwi bardziej niż Maria.

‘John worries me more than Mary.’

b. Maria mnie martwi.

‘Mary worries me.’

4 Conclusion

Predicates like fall in love and frighten have often been analyzed as events of change of state which takes place over a two-point interval consisting of the instant in which α is true adjacent to the instant at which α is true. Punctual events of change of state have traditionally also been treated as dynamic and telic. This traditional wisdom has recently been challenged by Rozwadowska (2003, 2012) in reference to Polish psych SE and OE verbs and by Marín and Pancheva (2012) based on an investigation into the temporal or spatial extents of events, and that psych predicates are atelic rather than telic. Being atelic, Polish perfective psych verbs do not provide counterevidence to the generalization advanced in Wellwood, Hacquard, and Pancheva (2012), Levin, and McNally (2013). Do you always fear what frightens you? In T. H. King and V. de Paiva (Eds.), From quirky case to representing space: Papers in honor of Anne Zaenen (pp. 21–32). Stanford, CA: CSLI Online Publications.


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A brief note on undermerge and case overwriting

Jacek Witkoś

ABSTRACT This brief contribution constitutes a critical reference to David Pesetsky’s Russian case morphology and the syntactic categories (2013), a new monograph proposing an entirely new program of research into the grammar of case. After an introduction of the new theory the paper focuses on two areas for a more critical analysis: the derivation of the Genitive of Quantification and overt evidence for case overwriting in Russian (and Polish). In the former case the procedure of undermerge is put under scrutiny and in the latter a crucial morphological formative is argued to be of a derivational rather than inflectional nature.

Keywords: syntax, Russian case, case theory, merge, case overwriting

1 Introduction

In his Russian case morphology and the syntactic categories, David Pesetsky (2013) addresses core questions of Case Theory and proposes an entirely new program of research into the grammar of case (the New Program for Case Theory, NPCT [J.W.]). The key components of this approach include the notions of case as a signature property of a given grammatical category, rather than its descriptive feature and case realization through morphological means, frequently manifested through case stacking. In the process of forming his novel approach, Pesetsky was able to cover numerous major topics in the grammar of Russian and solved a number of outstanding problems, including those of the Pauk Genitive and the Genitive of Quantification. In this brief contribution I shall focus on the notions of case stacking and undermerge; the former drawing a close comparison between certain case forms in Russian (and Polish) and Lardil and the latter constituting a challenge to the minimalist notion of structure extension.1

2 Core assumptions of Pesetsky (2013)

The core assumptions of the radical system in Pesetsky (2013) is that particular grammatical categories bear certain cases as their signature property:2

These categories assign their case feature to all dependents they subcategorize for and merge with in line with the following principle3 of Feature Assignment (Pesetsky, 2013, p. 99):4

(2) a. Copying: when α merges with β, forming [a α β], if α has satisfied its complementation requirements and α is designated as a feature assigner for β, its prototype α* is immediately merged with β, forming [a α [α* β]].
b. Realization: A prototype x* is realized adjacent to the smallest element dominated by its sister.

In the oblique case environment, the relevant structure and history of derivation look as follows:

(3) o pjati xorońix devuńkaš about five.LOC good.LOC girls.LOC
(4) a. [NP gen Q gen − D nom] [NP gen Q gen − AP gen [NP gen]]
   b. [DP nom [Q gen − D nom] [NP gen Q gen − AP gen [NP gen]]]
   c. P obl − [DP obl [Q obl − D obl] [NP obl AP obl [NP obl]]]

In examples (3)-(4) locative is a concrete spell-out of the more general oblique case and it applies to the entire nominal sister constituent to P. It overwrites previous cases resulting from both internal and external merge: nominative on D (cf. (4b)) and genitive on NP (cf. (4a)), in the process. The case on every constituent that was merged in earlier is overwritten by subsequent applications of Feature Assignment unless a given constituent undergoes Spell-out and is transferred out of the narrow syntax.

Part (b) of the definition in (2) is particularly inspiring and elegant, as it captures the extent to which case morphology spreads over the complement domain to the feature assigning head. The morphological realization of case is subject to parametric conditions of PF set differently in individual grammars. Thus in French and English the realization stops at the XP level of complement introduction by ‘of’ or ‘de’ for genitive, whereas in Russian (and Polish) the realization of case consists in spreading it across the entire nominal dependent down to the phase boundary.

Russian Case Morphology and the Syntactic Categories endorses the notion of the derivational phase as a constituent within which particular features have been checked and valued, so that this constituent can be transferred out of ‘narrow syntax’ to the interfaces. The author recognizes the fact that the point of Spell-out is flexible (Pesetsky, 2013, pp. 88-89):

1 I use the term ‘assign a case feature’ in a theory neutral manner (so it stands for check the feature, value the feature and assign case).
2 Pesetsky points to a close affinity between his proposal and Joe Emonds’ concept of alternative realization (cf. Emonds, 2006).
(5) Timing of operations relevant to Spell-out of a phase Φ
   Step 1: the syntax constructs Φ.
   Step 2: merge (α, Φ).
   Step 3: Spell-out applies to Φ (freezing it for further applications of FA).

This approach stresses the functional aspect of the phase: a constituent of a given category does not undergo transfer unless all relevant features within it have been checked and valued, which certainly depends on a wider syntactic context in which this constituent is placed. Pesetsky (2013, p. 89) defines the phase as follows:

(6) DP undergoes Spell-out only after it is Vergnaud-licensed [case-marked, J.W.].

Pesetsky (2013, p. 89) allows for a delay in the application of Spell-out, which does not have to set in immediately, as soon as an appropriate configuration is formed. For instance, in the following construction involving a small clause, its DP-subject needs to wait to receive case for a quite few derivational steps:

(7) Ja sčitaju [etu lampu] krasivom.
   I consider this.F.ACC.NOM lamp.ACC.NOM beautiful.F.INS

‘I consider this lamp beautiful.’

Definitions in (5)-(6) of the application of operation Spell-out which recognize its arbitrary point of execution are similar in spirit to the one in Svenonius (2004) and quite distinct from the rigid definition of the application of Spell-out in Chomsky (2000, 2001, 2008, 2013, 2014).5

(8) A straightforward assumption is that a phase is spelled out when all uninterpretable features on its head are checked (Svenonius, 2004, p. 264).

In fact, Pesetsky’s system must be even more liberal than (8), as here the transfer does not apply as soon as the case features are checked/valued, as case overwriting implies multiple case feature satisfaction. The transfer cannot apply either too soon or too late, as examples (9)-(10) show:

(9) a pjati xoroshi devaškax
   about five.LOC good.LOC girls.LOC

(10) P-os → [sr-os Q-as [sr-as AP-as [NP-as]]]

In this construction both genitive on the NP-complement and the nominative on the DP are overwriten by an oblique case (here locative) despite the fact that these domains have already been licensed for case(s). If Spell-out were to apply to the NP or DP earlier, the oblique case could not spread over these domains. On the other hand Spell-out must apply relatively early in the case of adnominal genitive constructions:

3 Alleged overt case overwriting in Russian (Polish)

Both examples (3)-(4) and (9)-(11) show case overwriting, a phenomenon which constitutes one of the pillars of NPCT. As it is easy to guess if all languages involve intra-derivational case overwriting they must differ with respect to the spell-out of case suffixes stacked during the derivation. While some languages overtly show all the stacked suffixes (Lardili), others show only the outermost one (Russian). This spell-out optionality is captured by the following postulate:

   [np moleodego aktr[a]]] young.M.GEN.SG actor.M.GEN.SG
   ‘to the young actor’s beautiful table’

If it had not applied, the adnominal genitive should have been overwritten by the case signature of an external category the containing DP is merged with, contrary to fact.

I shall now touch upon two aspects of NPCT: one dealing with case overwriting and the other with the internal syntax of constructions showing Genitive of Quantification (GoQ). First, I present the view consistent with NPCT and next articulate a number of reservations, though without proposing any obvious and consistent alternatives.

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5 The Phase-Impenetrability Condition: (i) The domain of H is not accessible to operations at ZP (with ZP the smallest strong phase), only H and its edge are accessible to such operations. (ii) [z0 Zp z1 z2 Φ] [H YP]] with ZP and HP as strong phases (Chomsky, 2001, p. 14). Interpretation/evaluation of phase Φ takes place uniformly at the next higher phase, i.e., Φn is interpreted/evaluated at the next relevant phase Φn+1 (Chomsky, 2001, p. 13).
productive, at least in closely related Polish, where the example below sounds quite archaic, rural or marked:

(14) Cioci-n-a  

spadla  

ze  

stoi  

aunt.GEN-suffix-NOM  

bag.F.NOM  

fell.F.SG.  

from table

‘Aunt’s bag fell of the table.’

The traditional analysis holds that -n- is (among others) an adjectivizer and attaches to the genitive form of the noun to turn it into an adjective (morphological derivation), which subsequently agrees in case with the noun when used attributively (morphological inflection):

(15) a. [cioci[GEN N]] + -n-  

Æ  

-> [cioci-i-n-a]

b. [cioc-i-n-a]  

+ -nAM  

Æ  

-> [cioc-i-n-a i-nam]

Thus the form [cioc-i-n-a i-nam] in the traditional analysis is not a case stack but shows a single case suffix attached to a demonstral adjective. The traditional analysis receives some support from the observation that -n- as an adjectivizer is also appended to verbs to turn them into adjectives/participles (cf. (16)). In fact, the -n- formative has a few applications, which are generally characterized as a marker of (sub)category change in derivational processes (cf. (17)):

(16) postawić  

postawione

stand.INF  

stood.PRT

cząć  

czytany

read.INF  

read.PRT

błady  

błędnący

pale.ADJ  

blanche.INF

czarne  

czarny

black.ADJ  

blackien.INF

Yet, the analysis of the -(a)n- morpheme in Pesetksy (2013) would rather treat it as an inflectional morpheme. I feel inclined to share the more traditional view of the function of the e/a/n formative, though the phrasal use thereof in Upper Sorbian is an interesting detail that favors the case stacking analysis. In conclusion, the more conservative morphological analysis of (13) and (14) does not require case stacking, as the nominative inflectional suffix is attached to an adjectival stem, which in turn, has previously attached to a (genitive) nominal stem during morphological derivation.

4 Genitive of Quantification

It must be admitted that the concept of case overwriting shown in (3)-(4) and (9)-(11) produces a very welcome consequence in the form of a relatively equal treatment of higher numerals. Descriptively speaking a key property of declension paradigms for these numerals is that they behave like adjectives in oblique case contexts and like nominals in structural case contexts (by forcing genitive on their NP complements, cf. Table 1). Consider the declension paradigm for low and high numerals in Polish and an exemplary structural representation from (Boskovic, 2006, pp. 102f.) in (18) below:

Table 1: The declension paradigm for numerals in Polish

<table>
<thead>
<tr>
<th>Case</th>
<th>Low numeral</th>
<th>High numeral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom</td>
<td>trzy tancerki three dancers</td>
<td>pięć tancerzy five dancers</td>
</tr>
<tr>
<td>Genitive</td>
<td>trzech tancerków</td>
<td>pięciu tancerzy</td>
</tr>
<tr>
<td>Dative</td>
<td>trzym tancerkom</td>
<td>pięciu tancerkom</td>
</tr>
<tr>
<td>Accusative</td>
<td>trzy tancerki</td>
<td>pięć tancerzy</td>
</tr>
<tr>
<td>Instrumental</td>
<td>trzema tancerkami</td>
<td>pięciami tancerkami</td>
</tr>
<tr>
<td>Locative</td>
<td>trzech tancerków</td>
<td>pięciu tancerków</td>
</tr>
</tbody>
</table>

(18) a. [FP [F ] [AP[N S N]][NP]]

b. [FP [F NP]]

In the literature this dichotomy was typically captured via structural means, namely low numerals were conveniently treated as A(djectives) (cf. (18a)) and high numerals – as Q/N (cf. (18b)). The dichotomy was, however, problematic for the minimalist taste, as it smacks of considerable ‘look-ahead’: the internal structure of the nominal projection (formed early on) matches the case it is about to receive later in the derivation. This issue becomes even more acute form the point of view of the run of the derivation in the current phase theory, where backtracking is strictly prohibited and label/structure changing in the middle of the derivation violates the No Tampering condition (cf. Chomsky, 2000, 2001; Stepanov, 2001, 2007). The overwriting option avoids this complication, as all higher numerals behave alike. In every derivation they pass through the stage of behaving like Q/N, receiving structural case (nominative from D under NPTC) and forcing genitive on the NP complement (leaving it in the primeval genitive in Pesetksy’s terms) and then, potentially, have their case and the case of the NP complement overwritten by the subsequent feature assignment operation(s).3

The key strength of NPCT shows in the extensive discussion of the puzzling pattern of case marking showing in the nominal constructions with the paucal numerals and higher numerals (five and above). As Polish does not show the paucal, I shall concentrate on the Genitive of Quantification: the NP complement to the numeral in the structural case context appears in genitive plural, rather than the expected nominative/accusative. Here the procedure of case feature assignment is somewhat more complex, as initially D and NP merge but D bears a feature forcing the movement of Q to re-merge with it. Thus Q\textsubscript{\textsc{quant}} moves from within NP and merges with D to satisfy this requirement. This form of movement is called undergoer. So Q\textsubscript{\textsc{quant}} merges with D and satisfies its complementation requirements on the strength of (2), which results in feature copying. The numeral receives nominative, the signature property of D, while the (former complement) NP remains in its primary case (genitive) because upon merger with D it did not satisfy the D’s complementation requirements and so feature copying did not apply.

3 Higher numerals do not show nominative form in Polish, this function is taken over by accusative, the difference between the two is indicated by the form of the demonstrative pronoun.

4 See Pesetksy (1982), Babby (1987), Franks (1994, 1995), Boskovic (2006), etc. Bailyn (2004) is a notable exception, as here the higher numerals are uniformly treated as Qs, though they either occupy the head (oblique cases) or the specifier position (structural cases) of QP.

5 A common element for all analyses of GoQ and paucals is that both Num\textsc{two} ‘two’ and Q\textsc{quant pusti ‘five’ must be able to absorb case and thus satisfy some property of the case licenser. In minimalist terms they must be equipped with a full set of φ-features ([_person], [_number], [_gender]). There is little discussion of this point in Pesetksy (2013).
(19) Q\textsubscript{ANT}-to-D movement:  
\[ \text{DP} \]  
\[ \text{D} \]  
\[ \text{Q\textsubscript{ANT}} \]  
\[ \text{A} \]  
\[ \text{NP} \]  
\[ \text{N} \]  

D selects for an NP complement but this does not satisfy its selection requirements (cf. (20a)) and it attracts a higher numeral (Q\textsubscript{ANT}) to (under)merge with it (cf. (20b)):

(20) a. [DP D [NP A Q\textsubscript{ANT} N]]

b. [DP [D D Q\textsubscript{ANT} ] [NP A Q\textsubscript{ANT} N]]

As a result, Feature Assignment affects Q\textsubscript{ANT} and returns nominative, as this is the ‘decisive’ complement, while the NP complement is left on its own in primary genitive.

It must be observed straight away that undermerge shows peculiar transfer-like consequences. The complex structure resulting from the movement of Q\textsubscript{ANT} to D poses the following question. A technical consequence of forming the complex object \([D \ D Q\textsubscript{ANT}]\) is to place the first-merged constituent (NP) in a limbo, out of the reach of Feature Application of D without spelling it out, though for all intents and purposes it is as if spelled-out and beyond the reach of D. But it is certainly not spelled-out in the standard sense, as ex. (3)-(4) and (9)-(11) above show; Feature Application from a source of an oblique case does indeed access both D and its NP-complement and overwrites the previous genitive case as oblique (here locative). We are then looking at a fairly uncommon syntactic context, where a given domain becomes opaque (island-like) with respect to a closer, more minimal Probe (NP is opaque to the complex \([D \ D Q\textsubscript{ANT} \text{N}\text{BB}]\)) but opens up and becomes transparent to a more distant one (here P\textsubscript{BBFL}):

(21) a. \textit{dziat\textsubscript{X} xoro\textsubscript{X} deva\textsubscript{X}k\textsubscript{X}}

b. P\textsubscript{BY} → [DP\textsubscript{BY} Q\textsubscript{BY} [NP\textsubscript{BY} AP\textsubscript{BY} [NP\textsubscript{BY}]]]

Pesetsky observes that his proposal has the advantage of ultimately explaining the workings of the adnominal genitive. As NPs do naturally come with genitive and are born with it, there is no adnominal genitive to assign. It comes out naturally as a result of Feature Assignment in (2), as genitive should overwrite other cases visible on nominal complements (probably nominative if the complement is a DP and D = NOM).

However, there are bare nominal complements to nominals that do not appear in the expected genitive, though here it could be possible to devise a silent adnominal preposition:

(23) a. \textit{zagro\textsubscript{Z}enie\textsubscript{Z} pozare\textsubscript{Z}em}

b. obr\textsubscript{R} et\textsubscript{R} akrwami

\textsubscript{circulation} \textsubscript{assets.INST.PL}

’a circulation of assets’

This preposition should, however, demarcate a spell-out domain, just like genitive-marked complements, which remain impervious to further applications of case overwriting; cf. Rozwadowska (1997):

(24) o \textit{obracie} akrwami

\textsubscript{about} \textsubscript{circulation.LOC} \textsubscript{assets.INST.PL}

‘about the circulation of assets’

The addition of the preposition to the syntactic object in (23b) causes the overwriting of the case of the head noun but does not affect the case of the complement, which, presumably, constitutes a separate Spell-out domain.

5 Concluding remarks

This is only a briefest of primers into the New Program for Case Theory. I believe that the general idea of case as a grammatical category signature and generalized case overwriting is captivating and set in a truly reductionist spirit. I have drawn the readers’ attention to two aspects of the NPCT: the consequences of undermerge from the perspective of the Multiple Spell-out derivation and the morphological evidence for overt case overwriting. In the former case the following question emerges: how to keep a domain closed off to more local grammatical relations but let it open up to more distant ones. In concrete terms, in (20)-(21) the NP domain is beyond the reach of a local and minimally c-commanding D as the nominative case licensor but it finds itself in the domain of the more distant P as the source of the oblique case in (22). The other issue concerns overt evidence for case overwriting in Russian and Polish in adjectival possessive constructions. It crucially relies on the analysis of the -\textit{en} morpheme as inflectional, though, at least in contemporary Polish, there is more evidence pointing towards its status as derivational. Following this thread of thought, one should treat the alleged case stack in (13) and (14)-(15) as single case suffix appended to a derivational morpheme. Pesetsky’s NPCT is a bold move ahead in the study of case; its programmatic nature implies that its straightforward application to many grammatical phenomena in Russian and closely related languages (e.g., Polish) still requires clarification and further advancement.\footnote{\textsuperscript{30} For further empirical challenges facing Pesetsky’s (2013) NPCT, see Witko\v{s} and Dziub\l a-Szew\j\browska (2015, 2016).}

References


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