Psychological Verbs and Psychological Adjectives[*]
Bożena Rozwadowska

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1. Introduction

Psychological predicates (often referred to as psych verbs or as Experiencer predicates) are standardly illustrated for English with verbs such as *to fear* (Subject Experiencer, SE, class I), *to frighten* (Object Experiencer, OE, class II), and *to please* (Dative Experiencer, DE, class III). Landau (2010: 4n2) defines a psych verb as "any verb that carries psychological entailments with respect to one of its arguments (the Experiencer). A psychological entailment involves an individual being in a certain mental state". Psychological predicates provide a serious challenge in all areas of linguistic analysis, because cross-linguistically and systematically they defy numerous predictions formulated on the basis of action predicates. Since they exhibit special properties, i.e., they "misbehave" in numerous respects, they have stimulated the development of various approaches to the lexicon–syntax interface. Therefore, their analysis is important for the architecture of grammar, in particular for the division of labour between the lexicon and syntax. Building on the rich evidence developed over the years by numerous scholars, Landau (2010) emphasizes that Experiencers are "grammatically" special.

Psych verbs were recognized as a special semantic class as early as in the 70s. The term *psychological predicates* dates back to Postal (1971, Chapter 6), who notes their unexpected behavior in the context of reflexivization, illustrated after Jackendoff (1972: 146) in (1-4):
(1)   a. I regard myself as pompous.
          b. ? I strike myself as pompous.
(2)   a. I like myself.
          b. ? I please myself.
(3)   a. I smelled myself.
          b. ? I smelled funny to myself.

(4)   a. I am amused with myself.
        b.? I am amusing to myself.

Verbs such as *strike, please,* or *amuse* illustrated above (belonging to the OE class) violate syntactic generalizations of various kinds, the latter usually formulated for prototypical transitive Agent–Patient verbs. Postal postulates a rule of *psych movement*, which derives the bad sentences in (1b) – (4b) from the underlying forms in which the positions of the subject and object are the opposite of their surface forms.

Violations of syntactic generalizations by psych verbs gave rise to the development of more semantically oriented theories of the lexicon–syntax interface, such as various systems of thematic relations and thematic hierarchies. In contrast to Postal's syntactic account, Jackendoff (1972: 147), assuming the Extended Lexical Hypothesis, argues that the sentences such as those in (1b) – (4b) are not the output of a movement rule, and proposes a thematic hierarchy quoted in (5), which he uses to formulate the conditions on passives and reflexives, as in (6). Lack of passivization with *strike* and *impress* is also explained in terms of thematic hierarchy.

(5)   Thematic Hierarchy:
       1. Agent
       2. Location, Source, Goal
       3. Theme

(6) a. A reflexive may not be higher on the Thematic Hierarchy than its antecedent.
   b. The passive by-phrase must be higher on the Thematic Hierarchy than the
      derived subject.

Thus, already in the 1970s, there were two opposing approaches to the explanation of the special behavior of psych predicates: syntactically motivated (involving syntactic movement) and semantically based (appealing to thematic relations). These two types of approaches and their extensions or combinations have coexisted until today.

The problems posed by psych verbs which are most prominently addressed in the literature include mapping/ linking of psych verbs' arguments to syntactic positions on one hand and their morpho-syntactic (behavioral) properties of various kinds on the other hand. Generally it is claimed that SE verbs are not different from other transitive stative verbs (e.g., *know*). As a consequence, little has been said about SE psych verbs. OE and DE verbs, on the other hand, have received a lot of attention in the literature and are subject to controversy.

2. Belletti and Rizzi's theory

Psych verbs constitute a problem for Baker's (1988) *Uniformity of Theta Assignment Hypothesis* (UTAH), widely assumed in generative grammar, or its Relational Grammar kin, *Universal Alignment Hypothesis* (UAH), proposed by Perlmutter and Postal (1984). According to such thematically based theories of the lexical semantics–syntax interface, there is one-to-one correspondence between thematic roles and syntactic positions (or grammatical relations), which is part of *Universal Grammar* (UG). Object Experiencer (OE) verbs and Subject Experiencer (SE) verbs seem to

realize the same roles (i.e., Theme and Experiencer) in different syntactic positions (or grammatical relations), as illustrated for English in (7) – (9).

(7)   a. John (*Experiencer*) fears ghosts (*Theme*)
         b. Ghosts (*Theme*) frighten John (*Experiencer*).
(8)   a. Mary (*Experiencer*) worries about the ozone layer (*Theme*).
         b. The ozone layer (*Theme*) worries Mary (*Experiencer*).
(9)   a. John (*Experiencer*) likes long novels (*Theme*).
         b. Long novels (*Theme*) please John (*Experiencer*).

Assuming the identical thematic grid for both verbs, this is a clear counterexample to Baker's (1988) UTAH or Perlmutter and Postal's (1984) UAH, quoted in (10) and (11) respectively:

(10)   *Uniformity of Theta Assignment Hypothesis (UTAH)*
        Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.
        (Baker 1988: 46)
(11)   *Universal Alignment Hypothesis* (*UAH*)
        There exist principles of UG which predict the initial relation borne by each argument in a given clause from the meaning of the clause.
        (Perlmutter and Postal 1984: 97)

As Baker (1997) notes, within the Chomskian framework, the distribution of arguments of psych verbs can be interpreted in three ways: (i) the U(T)AH is false, and different predicates require different linking patterns as an idiosyncratic lexical property; (ii) the (a) and (b) sentences in (7)–(9) have similar underlying configurations and are related derivationally; or (iii) the thematic roles in the (b) sentences are different from those in the (a) sentences. U(T)AH has been widely recognized and assumed in generative grammar and has a strong grounding in language acquisition. If the relationship between semantics and syntax is systematic, it facilitates the acquisition of the linking properties of verbs. Possessing the rules of mapping, a child acquiring a language can hypothesize the realization properties of a verb's arguments from its meaning. Therefore, option (i) is rather unlikely to be adopted but then the linking of psych verbs' arguments poses a serious challenge for those who assume some version of U(T)AH. To save U(TAH), Belletti and Rizzi (1988) developed an unaccusative approach to OE verbs involving movement.

Since Belletti and Rizzi (1988), not only two (SE and OE verbs) but three subclasses of psych verbs have been recognized: *temere* (SE) verbs, *preoccupare* (OE) verbs and *piacere* (Dative Experiencer) verbs. They are listed in (12) below and illustrated for Italian in (13–15):

(12)   a. Class I: Nominative Experiencer, accusative Theme (*temere* 'fear' class):
        b. Class II: Nominative Theme, accusative Experiencer (*preoccupare* 'worry' class)
        c. Class III: Nominative Theme, dative Experiencer (*piacere* 'please' class)

(13)   Gianni teme questo.
        'Gianni fears this.'
(14)   Questo preoccupa Gianni.
        'This worries Gianni.'

(15)   a. A   Gianni piace   questo.
           to   Gianni pleases this
        b. Questo   piace   a Gianni.
           this   pleases to Gianni

The division into the above classes is attested cross-linguistically: for Dutch see Bennis (2000), Drijkoningen (2000), Broekhuis and Corver (to appear); for Greek Anagnostopoulou (1999, 2008); for French Ruwet (1972, 1993), Legendre (1989, 1993), Bouchard (1992, 1995), Herschensohn (1992, 1999); for Hebrew Arad (1998a,b, 1999, 2000), Reinhart (2002), Anagnostopolou (2008), Landau (2010) and numerous references therein; for German Haiden (2005), Marelj (2013), and the references there; for Icelandic Barðdal (1999, 2001); for Italian Belletti and Rizzi (1988), Cresti (1990); for Polish Biały (2005), Rozwadowska (2005, 2007), Żychliński (2013); for Spanish (Franco 1999), Marin and McNally (2011); for Norwegian Ãfarli and Lutnaes (2002); some scholars postulate even more fine-grained divisions of psych verbs (e.g., Broekhuis and Corver to appear for Dutch). For detailed references to other relevant descriptive works in a variety of languages of the world see Landau (2010). It is usually assumed that cross-linguistically, all class III verbs are stative, most class II verbs are ambiguous between stative and eventive readings, class I verbs are also taken to be stative.

In addition to the linking problem, Belletti and Rizzi (1988) aim to explain other syntactic facts related to Italian psych verbs, including the well-known backward binding peculiarities (Akatsuka 1976, Giorgi 1984, Park 1992, Pesetsky 1987, 1995, Cançada & Franchi 1999 and the references there), illustrated in (16) below. They also rely on anaphoric cliticization, the distribution of arbitrary *pro*, the causative construction, infinitival VPs with *fare*, and passivization, which they use as evidence supporting the unaccusative analysis of OE verbs.

(16) a. Questi Questi pettegolezzi su di sé$_i$ preoccupano Gianni$_i$ piú di ogni altra cosa.
         'These rumours about himself$_i$ worry Gianni$_i$ more than anything else.'
     b. I propri$_i$ sostenitori preoccupano Gianni$_i$.
         'Each other's supporters worried Freud and Jung.'
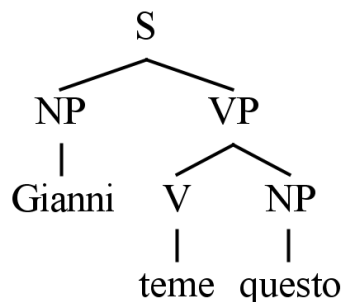   c. Each other$_i$'s remarks annoyed John and Mary.

Belletti and Rizzi claim that all classes of psych verbs differ in a minimal way: they have identical theta grids whose deep structure mapping preserves intrinsic thematic prominence; the three verb classes differ only in the specification of case-grid, which determines different derivations from deep to surface structure. Belletti and Rizzi postulate a set of mapping principles from verbal entries to syntactic representations where the Experiencer is projected to a higher position than the Theme, and where 'higher' means 'asymmetrically c-commanding'. OE verbs select inherent case (either inherent accusative or inherent dative) idiosyncratically, which is linked to a specific slot in the Θ-grid. The lexical representations for the three classes are presented in (17):

(17)   a. *temere*:   Θ-grid   [Experiencer, Theme]
                            Case-grid   [–   , –   ]
        b. *preoccupare*:   Θ-grid   [Experiencer, Theme]
                            Case-grid   [Acc   , –   ]

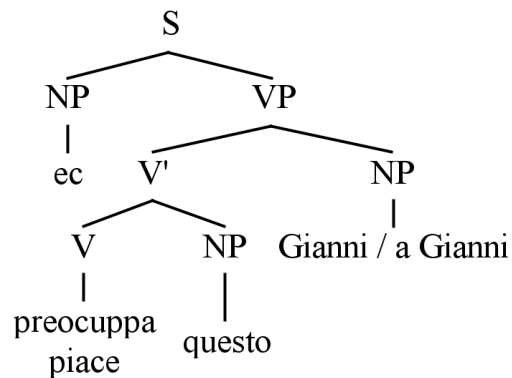   c. *piacere*:   Θ-grid   [Experiencer, Theme]
                            Case-grid   [Dat   , –   ]

Temere selects the Experiencer as the external Θ-role and assigns structural case to the internal argument, which results in the uncontroversial transitive structure, as in (18), whereas *preoccupare* and *piacere* have an unaccusative structure (no external Θ-role) as in (19), where the Experiencer is linked to an inherent case – accusative and dative – respectively. The Theme, not being assigned case in its original position, has to move to the subject position to be assigned structural nominative case there, satisfying the EPP at the same time.

(18):

```
              S
           ／    ＼
         NP       VP
         |      ／    ＼
       Gianni   V      NP
                |      |
               teme  questo
```

(19):

```
                 S
              ／     ＼
            NP        VP
            |      ／      ＼
            ec    V'         NP
               ／    ＼       |
              V      NP    Gianni / a Gianni
              |      |
          preocuppa questo
            piace
```

Baker (1997) describes Belletti and Rizzi's approach as "the most impressive use of RUTAH (relativized UTAH)", because Experiencer is always higher than Theme. The different surface realization of arguments is an outcome of a-movement of Theme into the subject position with OE verbs. Belletti and Rizzi's paper raised a lot of controversy and inspired further research in the area of psych verbs. The spirit of the purely syntactic, unaccusative, movement-based approach was adopted, modified and further extended in various directions by some scholars (e.g., Bennis (2000, 2004), Drijkoningen (2000), Broekhuis and Corver (to appear) for Dutch), and challenged by others (see Legendre 1989, Stowell 1991, Grimshaw 1990, Zubizarreta 1992, Iwata 1995, Pesetsky 1995, Cançada & Franchi 1999, McGinnis 2000, 2001, Reinhart 2001, 2002, Żychliński 2013, Marelj 2013, and the references there, among others).

Interestingly, binding properties of psych verbs, which were highlighted in the early

stages of the investigations into psych verbs as important evidence for their special grammar, turned out not to be limited only to this class of verbs and over the years received other explanations in the literature, none of them fully satisfactory. Cançada and Franchi (1999) critically evaluate not only the unaccusative theory of Beletti and Rizzi but also the proposal advocated in Giorgi (1984) and Lebeaux (1985), where backward binding such as that illustrated in (16) is analyzed as resulting from a long-distance anaphor operation, not sensitive to pure syntactic configurationality but rather to other prominence judgments about the antecedent. Cançada and Franchi show that in Brazilian Portuguese the exceptional binding of anaphors, considered to be a typical phenomenon of psych or causative verbs, encompasses other verb classes as well. This fact leads to rejecting the hypothesis that backward binding is associated with a specific syntactic configuration of these particular verbs. At the same time, they also question the unaccusative character of the *preocupar* verb class in Brazilian Portuguese on the basis of the causative alternation which all *preocupar* psych verbs allow and where the intransitive use is marked by an ergative *se*, as illustrated in (20):

(20) a. As not´õ cias preocuparam/acalmaram/assustaram Maria/-a
      'The news worried/calmed/frightened Maria/her.'
   b. Maria/Ela se preocupou/acalmou/assustou.
      'Maria/she became worried/calmed/frightened.'

Cançada and Franchi note that most of the explanations of Romance ergative *se* make use of the descriptive generalization that this structure occurs only in contexts where an external thematic role is assigned, as a morphological reflex of the "loss" of the subject thematic role (Belletti 1980, Burzio 1981, Everett 1985, Cinque 1988). They observe that in light of the sentences in (20), all psych verbs must have an external argument and consequently must be structural Case assigners. As a result, there is no justification for proposing an unaccusative structure.

In the following sections various non-movement approaches to psych-verbs are presented.

3. Pesetsky's approach

An alternative approach to save U(T)AH is developed by Pesetsky (1995), who proposes a finer-grained semantic solution to the U(T)AH problem by claiming that the subject of OE verbs has a distinct role from the object of SE verbs, the former bearing always the role *Causer*, the latter – always one of the two roles *Target of Emotion* or *Subject Matter of Emotion* (often lumped together under the term *Object of Emotion*). The linking of particular arguments to syntactic positions is predictable from a thematic hierarchy in (21):
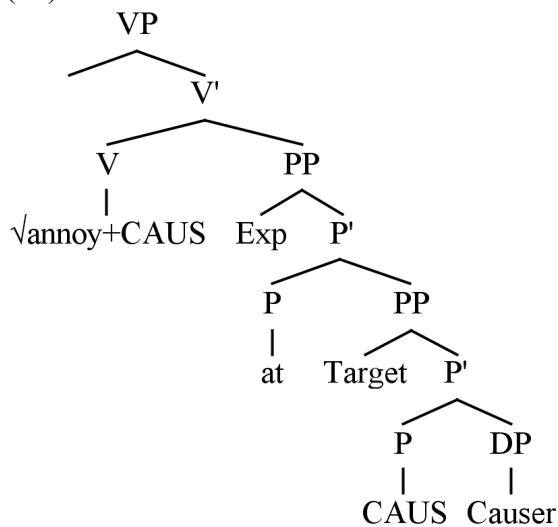(21) Causer > Experiencer > Target/Subject Matter

Pesetsky's (1995) analysis eliminated the U(T)AH problem, but faced the so called T/SM restriction, i.e., the impossibility of the co-occurrence of Cause and Target/ Subject Matter with the same predicate, as illustrated in (22):

(22)   a. *The article in the Times angered Bill at the government.
       b. *The Chinese dinner satisfied Bill with his trip to Beijing.
       c. *The problem of lexical entries bores John with his life as a linguist.

d. *The distant rumbling frightened Mary of another tornado.

To account for the T/SM restriction Pesetsky introduces a revision of phrasal organization in the form of the so called cascade syntax and postulates (on the basis of nominalization facts, among others) that OE predicates are morphologically complex and consist of a phonologically zero causative morpheme *CAUS* and a bound root, e.g., √*annoy*, √*amuse*, √*surprise*, etc. This machinery allows him to account for the T/SM restriction as an instance of the Head Movement Constraint. In the structure in (23) the preposition introducing T/SM argument is nonaffixal and blocks the rising of *CAUS* to √*annoy*.

(23)

```
        VP
        |
        V'
       /  \
      V    PP
      |   /  \
√annoy+CAUS Exp  P'
              /  \
             P    PP
             |   /  \
             at Target P'
                      /  \
                     P    DP
                     |    |
                   CAUS  Causer
```

Pesetsky's machinery also allows him to explain the binding and nominalization facts. The causative analysis is applied to class II verbs. Verbs such as *appeal to* (DE, Class III, including other members such as *escape, elude, matter to, occur to*) are truly unaccusative (Italian *piacere*), without a causer argument, whereas *please* is a causative. Zubizarreta (1992) observes that in English, *frighten* verbs do not participate in the causative/ anticausative alternation, while other causative change of state verbs (such as *break, widen, etc.*) in general do. According to her, this fact is problematic for Pesetsky's account of the *frighten* class verbs, in which they are regular causative change of state verbs with no distinguishing properties. However, it turns out that in other languages (e.g., Romance, Greek, and Slavic), OE verbs regularly appear in the reflexive variant, which may be treated as an instantiation of the causative/inchoative alternation, as noted in, e.g., Cançada & Franchi (1999), Rozwadowska (2007), Alexiadou and Iordăchioaia (to appear). McGinnis (2000, 2001) elaborates further on the T/SM restriction. She distinguishes between root-external and category-external causatives, which corresponds to a split between mono-clausal and bi-clausal constructions respectively. McGinnis maintains that this distinction has overt morphological manifestation and that only root-external causatives feature the T/SM restriction, which is attributed to the impossibility of recursive selection of various functional projections within the VP in the case of root-internal causatives. Her account is compatible with Pesetsky's approach, though it introduces a more elaborate structure of the VP.

4. Multidimensional approaches to psych-verbs

Belletti and Rizzi's and Pesetsky's theories represent two possible solutions to the Experiencer problem in view of U(T)AH, the former being an example of a finer-grained syntactic approach, whereas the latter – an example of a finer-grained semantic solution. Both of them can be treated as one-dimensional approaches. Belletti and Rizzi reduce the problem to the deep syntactic representation, whereas Pesetsky identifies two different roles for non-Experiencer arguments, Target/Subject Matter vs. Causer. As extensively demonstrated in Pesetsky (1995), and followed by many other scholars, the concept of causation is responsible for widely recognized ambiguities in this semantic class and plays an essential role in accounting for psych verbs' behavior. On Pesetsky's account, causation is represented in the atomic thematic label Causer and the zero morpheme *CAUS*. The importance of causation is also noted in other approaches based on hierarchies and relative prominence of arguments, the latter being crucial for the mapping algorithms. Those other approaches can be treated as multi-dimensional, because the semantic component of causation is either viewed as belonging to a dimension which is distinct from that of sentience or agentivity (sometimes referred to as mental involvement) or is part of some kind of semantic decomposition. It is worth emphasizing that the two semantic components, i.e., causation and mental involvement, reappear in one form or another in various frameworks, as will be reported below. In other words, psych properties of OE verbs, according to various scholars, are not unlike those of other causative predicates, at the same time sharing properties of predicates which select for sentient participants.

Thus, many researchers argue that psych verbs are essentially similar to other well-known verb classes (see Pesetsky 1995, Arad 1999, Rothmayr 2004, Alexiadou and Iordăchioaia to appear, among others), but that their special property is that they are usually ambiguous between several regular patterns.

What is crucial and what was repeatedly emphasized in the literature is that psych effects obtain only in non-agentive contexts. Most OE verbs are 3-way ambiguous between stative, causative-eventive, and agentive interpretations. In agentive contexts Experiencer verbs behave like standard transitive Agent–Patient verbs, where the Experiencer behaves like the Patient and where the Agent is more prominent. Special properties appear only on non-agentive eventive (i.e., causative) or on stative interpretations. The important distinction is thus between the agentive and non-agentive causer. The non-agentive causer is often inanimate and thus less prominent than the Experiencer according to older, one-dimensional hierarchies or scales. To capture the conflict between the prominence of mental/ sentient control and the prominence of cause, various two-dimensional solutions have been proposed. Grimshaw postulates two hierarchies (thematic and aspectual) and attributes the variable linking to the conflict in prominence in both hierarchies. Rozwadowska (1988, 1989, 1992,) and Reinhart (2002) hide the two dimensions under two distinct thematic features, Dowty (1989, 1991) defines two Proto-roles; in all these approaches causality appears as a relevant concept. The importance of causation is acknowledged in the majority of psych verbs' analyses, yet its status varies. Some scholars treat it as a thematic notion, others as an aspectual one. Irrespective of this, Cause(r) counts as a concept relevant for mapping to the subject position, or alternatively (on constructivist views), if the "Experiencee" appears in the subject position it is interpreted as Cause(r). The conflict in prominence between the two dimensions (causation and
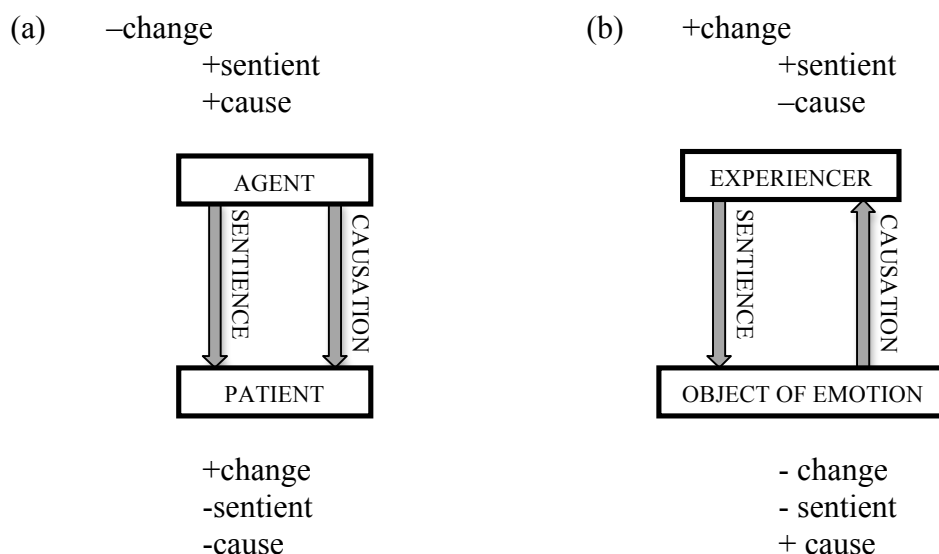
mental involvement) is what makes OE verbs special: the non-sentient causer (even if human) is mapped to the subject position, whereas the sentient Experiencer is mapped to the object position. There is no such conflict in standard Agent–Patient transitive predicates, where the prominent, sentient Agent is a Cause /Causer at the same time. The recognition of this conflict or competition for prominence between the two arguments of psych-verbs has led to the development of two-dimensional, seemingly different theories, which, on closer scrutiny, capture similar intuitions and are based on similar evidence. They are presented in the sections below.

4.1. Thematic features and proto roles approaches

On the basis of nominalization facts in English and Polish (link to Chapter on derived nominals), Polish impersonal constructions and reflexive verb alternations, Rozwadowska (1988, 1989, 1992) points out that there is a systematic overlap in traditional atomic thematic roles. This overlap is particularly clear in psych predicates. In nominalizations, subjects of SE verbs and objects of OE verbs (i.e., Experiencers) behave alike with respect to argument distribution and are similar to Patients (i.e., affected Themes, link to chapter on affectedness). In other constructions, they often pattern like Agents. Such overlap invites some decomposition of atomic thematic labels into smaller components. One possibility is to decompose atomic thematic relations (or theta roles) into a small number of features, which is the line taken in Rozwadowska (1988, 1989, 1992) and Reinhart (1996, 2001, 2002).

The motivation for Rozwadowska's (1988, 1989, 1992) thematic features approach is that different aspects of participants' involvement in a situation or action are relevant to different grammatical processes. She identifies three features as linguistically relevant: [+/-change], [+/-sentient], [+/-cause]. The aspect of change describes affected participants, i.e., Patients of agentive verbs (link to chapter on affectedness). Human involvement is captured by the feature [+/-sentient] and entails at least a certain degree of conscious participation. The third linguistically relevant feature is causation [+/-cause]. Rozwadowska claims that these three features can capture the essence of two dimensions (i.e., causation and sentient control) along which we can analyze the relational involvement of participants in real world situations. Rozwadowska (1989) compares the emotional situation to a prototypical physical action as in (24):

(24)

(a)	−change	(b)	+change
	+sentient		+sentient
	+cause		−cause

(a) AGENT — SENTIENCE, CAUSATION → PATIENT
+change
-sentient
-cause

(b) EXPERIENCER — SENTIENCE, CAUSATION → OBJECT OF EMOTION
- change
- sentient
+ cause

In the physical interaction, diagramed in (24a), both the dimension of sentience and the dimension of causation have the same direction: Agent is in full control of the action as well as the cause of the change in the Patient, while the change itself is in the Patient. The emotional situation in (24b) is different: it can be viewed as an object-directed emotion whose source is the Experiencer, a sentient being conscious of his/her feelings, or it can be viewed as an instance of causation going from the Object/Cause of emotion (i.e., the role Neutral in Rozwadowska's terminology) towards the affected Experiencer. The decomposition of atomic thematic roles into features is presented in (25)[†]:

(25)a. Affected Agent (e.g., Agents of monotransitive verbs who undergo some change; traditionally referred to as Agents and Themes at the same time: *John rolled down the hill*)
[+sentient] [+cause] [+change]

b. Agent (Agents of prototypical Agent–Patient verbs: *destroy, beat, kill, hit, write* etc.)
[+sentient] [+cause] [-change]

c. Experiencer, possibly Recipient and Possessor
[+sentient] [-cause] [+change]

d. Instrument
[-sentient] [+cause] [-change]

e. Object/Cause of Emotion (i.e., Neutral, Rappaport's (1983) Experienced, Jackendoff's (1987) Percept)
[-sentient] [+cause] [-change]

f. Patient
[-sentient] [-cause] [+change]

g. Neutral viewed as a mere object rather than a cause; also object of the verb *enter* (in *John entered the room*)
[-sentient] [-cause] [-change]

(Rozwadowska 1992: 128)

Rozwadowska uses thematic features to account for psych effects in linking and verb alternations. She formulates thematic constraints on argument distribution in derived nominals (link to chapter on derived nominals), Polish impersonal constructions, and reflexive verb alternations. Moreover, she uses thematic rather than syntactic prominence to explain the backward binding phenomena (for a similar approach see Engdahl 1999).

Reinhart (2002) also suggests abandoning atomic thematic (or theta) roles in favor of role features. She identifies two features (+/-c = *cause-change*) and (+/-m =

[†] The translation of feature clusters into traditional atomic concepts is not without problems; e.g., in (25) Instrument and Object/Cause of emotion end up being the same, which is not a welcome result, but after all not unreasonable, given their similar morphosyntactic realization. Also, as noted by the reviewer, it is not clear how the polysemy of verbs such as e.g., *roll* is handled in the feature approach. This, however, is an independent problem faced by all endocentric theories of the lexicon-syntax interface, where the polysemy of verbs amounts to multiple entries in the lexicon. For the purposes of this chapter, the most important insight of the feature approach is the overlap of Experiencer's semantic components with other thematic roles, such as Agent and Patient.

mental-state), which can be used to identify eight feature clusters that correspond to commonly assumed theta-roles, as presented in (26):

(26)   a. [+c+m] - Agent
       b. [+c-m] - Instrument (...)
       c. [-c+m] - Experiencer
       d. [-c-m] - Theme / Patient
       e. [+c] - Cause
       f. [+m] - Sentient (?)
       g. [-m] - Subject Matter / locative Source (Typically Oblique)
       h. [-c] - Goal / Benefactor(Typically Dative (or PP))
       i. [ ] - Arb(itrary)

Reinhart (2002) claims that, apart from being relevant to the computational system (i.e., syntax), these features code the basic causal relations expressed by the verb-concept. She postulates that causality (unlike entailment) is not a logical relation, but that it is a relation imposed by human perception of the world. A [+c] feature is associated with a role perceived as a sufficient condition for the event. The crucial question in identifying the theta-role (cluster) of an argument is whether it could serve as a cause (i.e., be a sufficient condition, or a member of a set of such conditions). There is an obvious overlap between the role Cause and Agent (if an argument is an agent of some change of state, it is also a cause for this change). Mental state is associated with volition and intention, and it also entails animacy. Since features represent linguistically relevant aspects of meaning, S-selection selects features rather than roles. Again, features allow us to state more general rules with respect to argument realization and identify natural classes of verbs, i.e., verbs that behave in the same way in given syntactic environments. Reinhart uses her inventory of features mainly to capture the restrictions on the process of role reduction. She states that a role with a specified feature [+m] cannot be reduced, only [+c] arguments can. Reinhart (2002: 25) maintains that intransitive *worry* (SE entry) is derived by reduction from transitive *worry* but that its syntax (contra Pesetsky) is nevertheless unergative, in contrast to the unaccusative syntax of intransitive entries such as *open.* This is another instance of the mapping problem. As she says, the questions that it poses for her framework are: what distinguishes reduced unaccusatives from reduced experiencing verbs, and next, what enables the same Experiencer argument to merge both internally and externally.

Reinhart (2002) claims that the correspondence of the clusters in (26) to theta-roles is not one to one, and some of them have varying contextual interpretations. Moreover, not all clusters presented in (26) are of equal ranking. (26a-d) are fully specified, with a value for both features. The all plus cluster (26a) bears a fixed theta-role interpretation as Agent. On the other hand, the all minus cluster (26d) bears an invariant theta-role interpretation of Theme or Patient. The underspecified clusters in (26e-h) have quite a lot of interpretative freedom. For example, a verb selecting a [+c] (Cause) cluster allows also an Agent or Instrument interpretation of this argument. The underspecified minus clusters (26g-h) allow the widest range of thematic realizations, always merge as internal arguments, and require a preposition or the dative case for their thematic specification. The syntactic consequence is that a DP realizing such clusters cannot check accusative case. In interpreting the two underspecified clusters [-], the crucial question is whether the argument can be viewed as a sufficient condition

for the event (i.e., a Cause). For example, a [-m] argument, due to the underspecification of the other feature [+/-c], can be viewed as such sufficient condition. Since the [c] feature is not specified, its value can be either '+' or '−'.

The feature /+m, particularly relevant for psych verbs, is labeled Sentient in the Theta System (and corresponds to the feature [sentient] in Rozwadowska's system). It is interpreted as volitional/intentional in the presence of /+c, namely in the cluster [+c+m], and as a more verb-specific mental state, in the case of Experiencers [-c+m] and Sentients [+m]. The feature cluster [-m], unlike [-c-m] (Theme), can, but does not have to, be interpreted as causing the event. This represents the ambiguity/polysemy of OE verbs. For instance, as noted in Everaert, Marelj, and Siloni (2012: 7), the argument *her health* in *Lucie worries about her health* is a [-m] argument; it can, but does not have to, represent also the cause of the worry. Its interpretation depends on the context. This context dependent interpretation of underspecified feature clusters is useful in capturing the ambiguity of psych verbs.

The two systems described above analyze thematic relations in terms of features and are used to capture the behavior of Experiencer verbs. The inventory of features in the two systems is very similar. Rozwadowska uses three features (sentient, cause, change), whereas Reinhart makes use of two features (cause-change, mental-state) to describe all thematic relations. The features themselves have a lot in common. We can compare Rozwadowska's (1992) feature [+/-sentient] with Reinhart's (2002) [+/-mental-state]. Reinhart's system differs from Rozwadowska's system in conflating cause and change into one feature, in allowing underspecification and in a detailed mapping algorithm. Marelj (2013) demonstrates how Reinharts's system (Reinhart 2000, 2002) tackles the linking issues for Experiencer verbs successfully, particularly in German. She also notes that this system does not seem to be burdened with the problem of overgeneration (in contrast to constructivist approaches).

Another way to decompose traditional atomic roles is proposed by Dowty (1989, 1991), who views thematic roles as lexical entailments on arguments of verbs. He introduces the roles Proto-Agent and Proto-Patient and claims that arguments can be Agent- or Patient-like to a bigger or lesser degree depending on the number of entailments they possess. Experiencer's entailments and the entailments of Object/Cause of emotion fall into both sets, which, according to Dowty, is the reason of their peculiar properties.

4.2. Grimshaw's argument structure analysis

Grimshaw (1990) postulates an argument-structure representation that mediates between the lexicon and syntax and is construed as a result of the competition between two different dimensions: thematic and aspectual. Thematic dimension involves standard thematic relations ordered in a hierarchy quoted in (27a). Cause, which is a crucial property for the mapping of an argument to subject position, is taken by Grimshaw as an aspectual rather than a thematic property. Thus the second dimension is as in (27b):

(27) a. (Agent (Experiencer (Goal/Source/Location (Theme))))
    b. (Cause (other (…))) (p.24)

According to Grimshaw, the peculiar properties of the non-agentive *frighten* class have its source in a conflict between the two hierarchies, which results in their lacking an external argument (which is a different notion than a d-structure subject). External argument is defined as the most prominent argument in both hierarchies. In Grimshaw's prominence theory the notion of an external argument is an a-structure theoretic concept, different from Williams' (1981) approach, who equates an external argument with a d-structure subject. The critical difference between the *frighten* class and the *fear* class is that they belong to different aspectual subclasses. Similarly as Pesetsky, Grimshaw states that verbs in the *frighten* class are causative and not stative. Those in the *fear* class, on the other hand, are always stative and never have an event reading. For Agent-Patient verbs, the Agent is a Cause at the same time; thus it is most prominent in both hierarchies and qualifies as an external argument mapped to the subject position; it is the aspectual hierarchy that determines which argument gets realized as the subject. Causes are always associated with subject position. According to this account the subject of *frighten* verbs is a theta-position (also Zubizarreta 1992, among others, provides evidence from French that it must be a theta position). This is in contrast to Hermon's (1985) and Belletti and Rizzi's (1988) analyses, who postulate that subjects of OE psychological predicates are derived by movement.

The above approaches to the relationship between the lexicon and syntax in general and to the mapping problem of psych verbs in particular were followed and developed further for various languages (but see Anagnostopoulou 2008 for a review of the problems which each of them has to face). Belletti and Rizzi's movement approach to psych verbs, combined with the insight related to the importance of the causative factor is modified in Bennis (2000, 2004) and Drijkoningen (2000). Anagnostopoulou (1999) demonstrates that the properties of Greek OE verbs strongly support the two-dimensional view advocated in Grimshaw (1990). In situations where thematic prominence is in conflict with aspectual prominence both dimensions play a significant role. The realization of bare DP arguments is determined by the aspectual dimension; on the other hand, there is a close connection between oblique argument realization and thematic prominence.

As already mentioned above, it is also widely recognized that the peculiar psych properties of OE verbs occur only on their non-agentive readings. The sensitivity of psych effects to the presence/ absence of agentive interpretation has been repeatedly emphasized in all the works reviewed above. OE verbs are multiply ambiguous between: stative, causative eventive (non-agentive) and agentive readings. Quite often the difference between eventive and agentive readings is not crystal clear. When interpreted agentively, psych verbs behave as all other transitive Agent–Patient predicates. Thus in the domain of psych verbs, the relevance of event types for the lexicon–syntax interface is especially visible. Since Grimshaw's two-dimensional theory is intended to capture the relation between argument structure and the complexity of events, it opened another line of research at the lexicon–syntax interface relying on the typology of events and their syntactic representations. The immediate conclusion is that agentivity, which is closely related to dynamic events, must be absent in emotional eventualities (the term *eventuality*, covering both events and states, is due to Bach 1986). As a result, event structure, side by side with aspectual considerations, has become central in explaining the relationship between meaning and form and thus relevant for the explanation of the psych phenomenon.

5. Event-based approaches to the psych phenomenon

Rozwadowska (1997) distinguishes between external eventualities (events located in the external world) and internal eventualities (located in the internal world of the Experiencer participant). She demonstrates that Experiencer predicates, when nominalized, pattern like intransitive activity predicates with respect to argument expression (link to chapter on derived nominals), even though they select two arguments. Rozwadowska suggests that at the level of event structure, mental/ emotional events have a unique identifier of that event, which is the Experiencer, no matter whether it is the subject or the object of the verb. This ingredient of the event structure can be related to the spatial (as opposed to temporal) event structure proposed by van Voorst (1988, 1993), where he distinguishes between the begin point and the end point of an event. In the case of psych eventualities, those two points are located in the same participant (the Experiencer). Thus, if Experiencer predicates are simple events, like intransitive activities, identified through one participant only (the Experiencer), then the argument realization patterns in derived nominals can be taken as another behavioral property sensitive to event type distinctions. This view is similar to Levin and Rappaport Hovav's (1999) event-based approach to the lexicon-syntax interface, where the number of structure participants is related to the complexity of an event template. Rozwadowska's event identifier can be compared to the concept of structure participant. The differences among event participants are further discussed in Rozwadowska (2005). Furthermore, in Rozwadowska (2003) it is suggested that psych-predicates denote initial-boundary events, i.e., a culmination followed by a state, and are a mirror image of telic action predicates, i.e., a process followed by a culmination.

Arad (1998a,b), Pylkkänen (2000a,b), and Biały (2005) also follow a fine-grained event-based analysis of psych predicates, looking closer at the complexity of their event structure. According to these accounts, SE predicates are stative and are simple events (as are intransitive activities), whereas OE predicates are varied and can be either stative or eventive. Arad (1999) extensively argues that psych verbs (in particular, OE verbs) can assume either eventive or stative reading. The eventive reading, equated by Arad with the agentive reading, has an intentional Agent and a change of state in the Experiencer, whereas the stative reading has neither an Agent nor a change of mental state in the object. She discusses the classic examples of OE psych verbs quoted in (28):

(28)   a. This problem concerned Laura.
        b. Anna / Anna's behavior frightens Laura.
        c. Blood sausage disgusts Laura.

Arad claims that with stative psych verbs, there is no change of state that would take place at a single point in time, but rather a "spell" of emotion, for instance in (28a), a spell of concern that Laura experiences. Crucially, she argues that "the stative reading only asserts that the Experiencer is at a specific mental state as long as she perceives the stimulus (or has it on her mind)". The stimulus, according to Arad, has to co-occur simultaneously with the mental state in order for it to hold. It is thus an inherent part of the event of mental state. On the agentive reading, the Agent only brings about the resulting state, which holds independently, and is not part of the event of mental state, as in prototypical causative actions. The agentive reading is illustrated after Arad (1999) in (29):

(29) Anna frightened Laura deliberately / in order to make her go away.

Arad states that both readings are causative (the evidence for that comes from verb morphology in Finnish or Hebrew), but only active causation involves an action of Agent/Causer, which brings about a change of state.

Pylkkänen (2000a) also argues that stative psychological OE verbs have a causative semantics. Their causative morphology introduces a causing eventuality which is interpreted as the perception of the Theme of the caused mental state by its Experiencer. Causative predicates are stative when the causally related eventualities described by them are both interpreted as states. The result is a complex state decomposable into two "sub-states". She argues that stative psych causatives and non-stative psych causatives differ semantically in ways independent of aspect. Specifically, the participant in the subject position of stative psych causatives is the Target of the caused mental state while the participant in the subject position of non-stative psych causatives is a participant of the causing transitions. Stative psych causatives have a derived subject while non-stative ones do not.

Biały (2005) relates Arad's and Pylkkänen's ideas to the approach developed by Levin and Rappaport Hovav (1999) for derived accomplishments and concludes that the relationship between the causing perception eventuality and the unfolding psych state could be described as temporal coexistence, or, in other words, temporal dependence of two sub-events. This reasoning leads him to the conclusion that the sub-events' coexistence amounts to their co-identification, which in turn is represented by one event variable in the event structure. On the basis of the entailment properties, Biały assumes that OE verbs fall into two classes: stative and non-stative. Only the former have the special properties and involve temporal coexistence of their subevents. The non-stative OE verbs behave like standard accomplishments. Rozwadowska (2012) argues that not only stative Experiencer predicates but also eventive Experiencer predicates are unlike telic predicates (on the traditional understanding of telicity and according to standard telicity tests). In Polish, Experiencer predicates come in aspectual pairs as imperfective and perfective. The imperfective form has the properties of atelic predicates. The perfective form, however, does not satisfy standard telicity tests either. In fact, in view of the entailments, the non-stative causative OE predicates are more similar to stative OE predicates than to accomplishments. The only difference between the stative and the non-stative OE verbs concerns the strength of the inference that the resulting state holds. In the case of the stative psych verbs the entailment seems to be necessary whereas in the case of the non-stative psych verbs it is possible but not necessary. This is compatible with the analysis of Spanish reflexive psych verbs developed in Marin and McNally (2011).

Marin and McNally (2011) make several important observations. They note that reflexive morphology is often associated with both inchoativity and change of state. They point out that in the relevant literature inchoative predicates are generally assumed to be telic or at least to admit a telic interpretation. However, they challenge this perspective. Their analysis of Spanish reflexive psychological verbs (SRPVs) confirms that inchoativity is logically distinct from telicity. They also demonstrate the need to distinguish predicates that truly refer to changes of state from those that simply

entail that a change has taken place. In addition, as they claim, their results support the view defended in Mittwoch (1991) and Piñón (1997) that change of state predicates must be modeled differently from other verbs that are typically assigned to the achievement class of predicates. Marin and McNally argue that all SRPVs refer to the onset of the state they are associated with, without referring to the change that produces the state. In this sense they argue that SRPVs are inchoative without being telic. According to Marin and McNally (2011: 521) a predicate is inchoative if its reference necessarily includes the onset of some eventuality.

Marin and McNally divide SRPVs into two classes: *aburrirse* 'to be/become bored' and *enfadarse* 'to become angry', the former including reference to the state in question, the latter being punctual. They also argue that both classes are distinct from degree achievement verbs. In other words, they allow two subclasses of inchoative predicates: the predicate may refer only to the onset (*enfadarse* type verbs) or it may refer to the onset plus some portion of the eventuality in question (*aburrirse* type verbs). As Marin and McNally claim, on the basis of the evidence that *enfadarse* verbs are not telic, which is extensively demonstrated in their paper, it follows by process of elimination that they must denote an onset. They also provide evidence that SRPVs are not dynamic. To be more specific, they argue that *aburrirse* verbs are nondynamic because they are stative, while *enfadarse* verbs are nondynamic because they are punctual (2011: 516). A representative list of each class is quoted in (30):

(30) a. **Nonpunctual** *aburrirse* class: *agobiarse* 'to get/feel overwhelmed,' *angustiarse*, 'to get/be distressed,' *avergonzarse* 'to get/feel ashamed,' *confundirse* 'to get/be confused,' *distraerse* 'to get/be distracted,' *entretenerse* 'to get/be entertained,' *interesarse* 'to get/be interested in,' *molestarse* 'to get/be bothered,' *obsesionarse* 'to get/be obsessed,' *preocuparse* 'to get/be worried'

b. **Punctual** *enfadarse* class: *asombrarse* 'to be amazed,' *asustarse* 'to get frightened,' *cabrearse* 'to get really mad,' *enfurecerse* 'to get furious,' *enojarse* 'to get annoyed,' *excitarse* 'to get excited,' *indignarse* 'to become indignant,' *mosquearse* 'to get irritated,' *ofenderse* 'to get offended,' *sorprenderse* 'to be surprised'

It is interesting to observe that Marin and McNally's division of SPRVs seems to correlate with Biały's (2005) classification of Polish OE verbs into stative and non-stative ones. Namely, Polish stative OE verbs are similar to Spanish non-punctual psych verbs, whereas Polish eventive OE verbs correspond to Spanish punctual psych verbs. These two independently postulated classifications have similar motivation reflected even in similar labels: *non-punctuality/stativity* vs. *punctuality/ non-stativity*. The juxtaposition of these two approaches provides also a solution to the controversial claim that eventive (non-stative) OE verbs are like accomplishments and that they are telic. Instead of treating non-stative OE verbs as describing telic complex events it can be postulated that they are punctual non-telic events, covering only the onset of the psych eventuality, whereas the lexical span of stative OE verbs covers both the onset and the resulting state, i.e., they are non-punctual. The lexical span of both types necessarily includes the onset of some eventuality. Hence, they both satisfy Marin and McNally's (2011) definition of inchoativity, which is different from telicity. Rozwadowska (2012) suggests that the crucial difference between OE verbs and accomplishments (telic predicates) lies in the absence vs. presence of the development part of the complex event. This is related to the absence vs. presence of the feature of dynamicity used by Marin and McNally (2011) in their discussion of SRPVs.

The event-based approaches discussed above all assume some kind of event complexity and event decomposition. Of particular importance in this decomposition is a causing event. In contrast to decompositional approaches, Neeleman and van de Koot (2012) argue that the linguistic representation of causation does not include a causing event, although causing events are present in the mental model that people construct to understand the world. Instead they argue that natural language approximates causation by representing culmination of events and a crucial contributing factor (CCF) realized as an external argument. CCF is comparable to Reinhart's [+c] cluster and related to the notions of accountability and intentionality. Interestingly, Neeleman and van de Koot argue "that the components that make up the lexical semantic representation of causative predicates are motivated independently […] and are found – in different constellations – in the lexical semantics of verbs that are not causative." (Neeleman and van de Koot 2012: 38). The authors identify at least one further type of eventuality in the mental model that can motivate the presence of a CCF, namely the so called relation of 'maintenance', which is a relation between two eventualities: a maintaining state or event and a maintained state. Maintenance is a relation in which the continuation of a particular state of affairs is dependent on the continuation of an activity or a second state of affairs. This seems to be similar to the view on stative OE verbs developed by Arad (1998a,b, 1999) and Biały (2005), where the state of the Experiencer is dependent on the perception of the stimulus and holds as long as the stimulus is present. Hence, the perception of the stimulus can be viewed as a maintaining state. Among the examples provided by Neeleman and van de Koot there is an OE verb *to annoy*, as quoted in (31):

(31) The government's position on immigration annoys Mary.

Neeleman and van de Koot observe that maintenance verbs (which include a variety of stative predicates, including psych verbs, such as *annoy,* and verbs belonging to other classes, such as *obstruct*, *show*, *endanger*, *protect*, etc.) allow two readings: a causative reading in which some state initially does not hold, but comes into existence as a culmination of the macro event, and a static reading, in which the resultant state is maintained as a consequence of some other state of affairs. On one hand, this is compatible with the findings related to psych verbs reported above, and on the other hand, it suggests that psych verbs are similar to other classes of verbs. Worth emphasizing is also the ambiguity of maintenance verbs, a property that is typical of psych verbs.

6. Landau's localist approach

Building on previous insights coming from various directions, Landau (2010) develops still another approach to the Experiencer puzzle. He attempts to synthesize certain ideas into a coherent syntactic story according to which Experiencers are mental locations, that is, locatives. He is particularly concerned with OE psych verbs. Following Pesetsky (1995) and Iwata (1995), Landau assumes that class II verbs are transitive, projecting a light v and an external argument, the Causer. Crucially, he argues that the Experiencer is introduced by the null preposition $Ø_\psi$. Landau provides an extensive review of syntactic properties of OE verbs in different languages of the world and reassesses their status from a variety of perspectives. On this basis he argues

that Experiencers behave like locatives. He divides psych properties into core and peripheral ones as in (32):

(32) A classification of Psych Properties
      (I) Core Properties
      (a) *All Class II Verbs (Nonagentive)*
      1. Overt obliqueness of Experiencer (Navajo, Irish, Scottish Gaelic)
      2. Accusative/Dative alternations (Italian, Spanish)
      3. Islandhood of Experiencer (Italian, English)
      4. PP-behavior in *wh*-islands (English, Hebrew)
      5. No synthetic compounds (English)
      6. No Heavy NP Shift (English)
      7. No Genitive of Negation (Russian)
      8. Obligatory clitic-doubling (Greek)
      9. Obligatory resumption in relative clauses (Greek, Hebrew)
      10. No *si/se*-reflexivization (Italian, French)
      11. No periphrastic causatives (Italian, French)
      12. No verbal passive in type B languages (Italian, French, Hebrew)
      (b) *Class III and Stative Class II (Unaccusatives)*
      1. No verbal passive (English, Dutch, Finnish)
      2. No periphrastic causatives (French, Italian dialects)
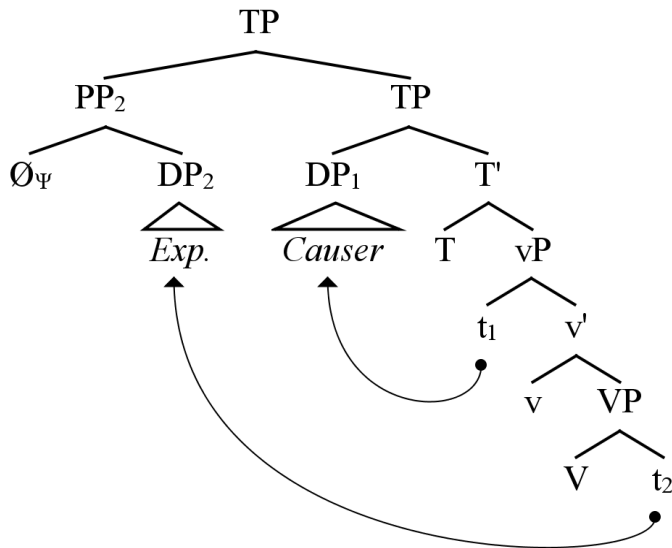   3. No forward binding
      (II) Peripheral Properties
      1. The T/SM restriction
      2. No causative nominalizations
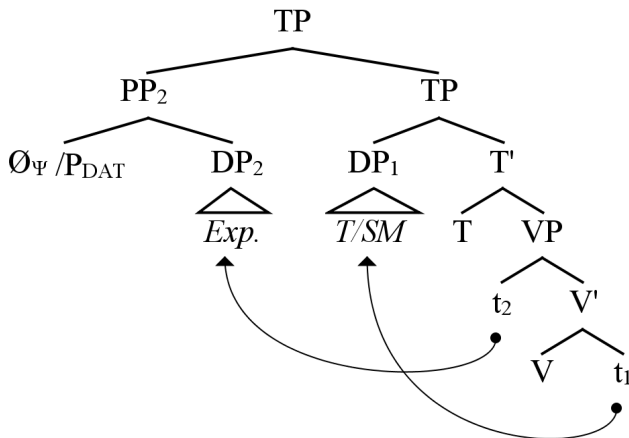   3. Backward binding

In Landau's theory, the special psych properties are linked to the presence of a (possibly null) locative preposition, equipped with a [loc] feature, which governs the object Experiencer. Raising of Experiencer objects in class II verbs to the subject position is an instance of (possibly covert) locative inversion. According to Landau, all Experiencers end up as LF-subjects, namely they occupy [Spec, TP]. This is represented in (33 a-b) for eventive and stative psych verbs respectively.

(33)
      a. Eventive Psych Verbs: LF

TP
├─ PP₂
│   ├─ Ø_Ψ
│   └─ DP₂
│   Exp.
└─ TP
    ├─ DP₁
    │   Causer
    └─ T'
        ├─ T
        └─ vP
            ├─ t₁
            └─ v'
                ├─ v
                └─ VP
                    ├─ V
                    └─ t₂

b. Stative psych verbs: LF

TP
├─ PP₂
│   ├─ Ø_Ψ /P_DAT
│   └─ DP₂
│   Exp.
└─ TP
    ├─ DP₁
    │   T/SM
    └─ T'
        ├─ T
        └─ VP
            ├─ t₂
            └─ V'
                ├─ V
                └─ t₁

Locative inversion resists change-of state verbs, a discourse-independent property—which is hence applicable to covert locative inversion. Landau assumes, like many other scholars, that OE verbs on the agentive interpretation are change of state verbs and therefore, Experiencer objects of agentive class II verbs cannot raise to the subject position. Nonagentive class II verbs are states or achievements. This is consistent with Marin and McNally's (2011) approach and an earlier analysis of psych verbs proposed by van Voorst (1992), who argues that they are achievements. According to Landau (2010) the aspectual differences between various interpretations of OE verbs are of crucial importance for their syntactic representations. In particular, Landau assumes with others that OE verbs come in two varieties—stative-causative and eventive-causative (the latter being accomplishments). He also agrees that eventive nonagentive class II verbs are not accomplishments, while agentive ones are: agentive class II verbs involve a change of state, whereas nonagentive ones do not. Landau notes that the correlations between aspectual contrasts and their syntax can be captured either from the lexicalist approach, which posits aspectual contrasts among various guises of the same lexical verb, and the constructional approach, which assumes that aspectual information is encoded in the syntax in the form of functional heads. He remains

neutral with respect to the choice between those options.

7. Psychological adjectives

Not much has been written on psychological adjectives. Bennis (2000) argues that adjectives can take arguments in the same way as verbs do and provides argument structure configurations for various subclasses of adjectives. Following Cinque's (1990) division of adjectives into ergative and unergative ones for Italian and German, Bennis motivates a similar distinction for Dutch and extends it further to include the third type, namely complex ergative adjectives. The three types are illustrated in (34):

(34) a. unergative adjectives: *Jan is aardig* 'John is nice.'
    b. simplex ergative adjectives: *Dat is duidelijk* 'That is clear.'
    c. complex ergative adjectives: *Dat is aardig (van Henk)* 'That is nice of Henk.'

Bennis opts for a structural parallelism between A- and V- projections and assumes that the structure of unergative adjectives has an adjectival light shell *a*P on top of the bare AP in contrast to simplex ergative adjectives, which have only a bare AP. Complex ergative adjectives have an *a*-layer with no external argument generated in the specifier of *a*. Bennis accommodates the class of Mental Property adjectives (MP adjectives) in this division. MP-adjectives assign an essential property to the mind or character of a sentient individual (Possessor), as in (34a), or to an action performed by this individual (eventive Theme) (34c). Bennis accommodates this classification to psych-adjectives, i.e., adjectives that denote emotions and are often derivationally related to Experiencer verbs. According to Bennis, psych adjectives, like MP-adjectives, form basically two classes: either the Experiencer is expressed as the subject of the adjectival predicate or the Experiencer is realized in a PP. Bennis suggests that SE-adjectives are unergative, whereas OE-adjectives are complex ergative adjectives stripped of their external argument. Bennis (2004) extends this analysis to psych verbs. Klimek and Rozwadowska (2004) modify this approach and suggest a splitting mechanism (rather than stripping) for complex ergative psych constructions in the spirit of possessor-raising (from the complement of V to [Spec, *v*]).

Landau (1999) studies complementation patterns of adjectives and notes a difference between psychological adjectives and non-psychological adjectives. In the frame [DP is Adj [INF e to VP]] the infinitive is an argument of an adjective if the latter is psychological, a modifier otherwise. Correspondingly, the null subject of the infinitive is PRO in the first case and an A-bar variable in the second one. Landau argues that the level at which this distinction is established is the level of semantic selection: psych adjectives denote a relation between an individual (Experiencer) and a proposition (Target/ Subject Matter) whereas non-psych adjectives denote properties of individuals (Themes).

8. Conclusion

To conclude this overview, we can say that the debate on psych verbs and adjectives is not settled. The most widely discussed and the most controversial are OE (class II) verbs, which are multiply ambiguous. This ambiguity has inspired different approaches to the lexicon-syntax interface in general. Recent works put a lot of emphasis on

aspectual and event-structure distinctions that correspond to various interpretations of psych constructions. There remains a question as to which level is the most appropriate for capturing the difference between psych predicates and non-psych predicates. While the majority of scholars agree that Experiencers and psych predicates are grammatically special, there are voices (e.g., Bouchard 1995, Żychliński 2013, Grafmiller 2013) that their syntax is not different and that they behave like other transitive predicates. Bouchard argues that productivity of psych constructions, which are not limited to Experiencer verbs but are attested with "regular" verbs easily entering psych uses, makes any structural analysis unlikely and argues against any analysis that treats it as special or marked, be it attributed to its syntactic, aspectual or thematic structure. Therefore psychological verbs and psychological adjectives invite further research into the source of their peculiar behavior.

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Cross-references to other SynCom chapters:
Chapter on derived nominals
Chapter on affectedness