Lexical Economy and Case Selection of Psych-Verbs in German[*]

Katarina Klein
Sprachwissenschaftliches Institut
Ruhr-Universität Bochum
44780 Bochum
klein@linguistics.ruhr-uni-bochum.de

Silvia Kutscher
Institut für deutsche Sprache und Literatur
Universität zu Köln
50923 Köln
silvia.kutscher@uni-koeln.de

Psych-verbs, exhibiting a wide range of construction types, challenge the assumption that verbs sharing the same theta-grid and event structure select the same case patterns. Consequently, previous research has tried to trace back the constructional variants of these verbs to differences in deep syntactic or semantic (event- or causal) structure. However, in German a construction type may exhibit semantically distinct subclasses, and a semantic subclass may have different syntactic realizations. Thus, it is difficult to find general linking patterns of psych-verbs. On the other hand, it is characteristic of psych-verbs to have non-psych-readings as well. We argue that these readings determine case selection. In the centre of our argumentation is the principle of Lexical Economy according to which entries in the mental lexicon are as simple as possible. The case frame must be compatible with all readings of the verb. Thus, the reading with the strongest thematic distinctiveness of each argument is crucial for case selection, typically a reading with a volitional agent and a strongly affected patient. Such readings impose stronger restrictions on case selection than psych-readings. The linking theory of our approach is based on Dowty's theory of proto-roles (1991) and its modification and implementation in Optimality Theory in Primus (2002).

1   Introduction

Cross-linguistically and within languages, psych-verbs exhibit a wide range of construction types. This challenges the assumption that verbs sharing the same theta-grid and event structure select the same case patterns. Consequently, previous research has tried to show that the constructional variants of these verbs trace back to differences in deep syntactic or semantic (event- or causal) structure.

The thematic roles of psych-verbs are usually referred to as experiencer and stimulus, with one-place-predicates allowing for an experiencer only. Following Dowty (1991), an experiencer (Exp) is a verbal

argument whose corresponding participant in the situation named by the verb has a sensation, an emotion, a perception, a mental attitude or state with respect to this situation. Dowty subsumes these entailments under sentience, a type of entailment that falls under proto-agent (cf. section 3.1).

A stimulus (Stim) is the entity the experiencer is sentient of; whether the stimulus causes the mental state of the experiencer is subject to debate; this issue will be taken up in section 3.2 below.

Psych-verbs can further be sub-classified semantically. The most prominent subclass of psych-verbs comprises verbs denoting emotions (*love*, *frighten*, etc.). Accordingly, the term 'psych-verbs' is often used in a narrower sense to design this subclass. The broader definition of psych-verbs also includes perception verbs (*see*, *taste*, etc.), cognitive verbs (*think*, *assume*, *muse*, etc.), and evaluating verbs (*respect*, *appreciate*, etc.) (cf. Bossong 1998).

From a morphosyntactic perspective, German psych-verbs exhibit a wide range of constructional types. Table (1) gives a survey of the constructions of German psych-verbs which are to be debated in this article. In addition to these there are Experiencer/PP, Stimulus/PP, reflexive and compound verb constructions.[1]

---

[1] The experiencer (Ia) as well as the stimulus (Ib) may be marked by a PP. Both constructional variants can be motivated by the physical reading of the predicate, e.g the particle verb *aufsteigen* 'climb up, rise' in (Ia) is a motion verb and *hadern* in (Ib) in its original old high German meaning 'to fight with' is an action verb selecting a comitative-PP.

(I) a. In   mir   steigt   Wut   auf.
         in   1s:DAT   rise:PRS:3s   rage   up
         'Rage rises up in me'

     b. Ich   hadere   mit   dir.
         1s:NOM   quarrel:PRS:1s PREP   2s:DAT
         'I quarrel with you.'

The Exp/NOM may also be accompanied by a dative (IIa) or accusative (IIb) reflexive pronoun. ACC reflexive-constructions can be divided into two subgroups: constructions which cannot take a stimulus-PP, as in (IIb), and constructions to which a stimulus may be added via PP (cf. IId). In both subgroups these verbs have non-reflexive two-place constructional variants with a theme or an experiencer in the accusative (cf. IIc, IIe) in a remarkably amount of cases.

(II) a. Ich   erhoffe   mir   einen schönen Urlaub.
         1s:NOM   hope:PRS:1s   1s:REFL:DAT   a nice vacation:ACC
         'I hope for a nice vacation.'

     b. Ich   fange   mich.
         1s:NOM   catch:PRS:1s   REFL
         'I recover my poise.'

     c. Ich   fange   den Hund.
         1s:NOM   catch:1s:PRS   the dog:ACC
         'I catch the dog.'

     d. Ich   ärgere   mich   (über den Hund).
         1s:NOM   be.angry:PRS:1s   REFL   over   the dog:ACC
         'I am angry (at the dog).'

     e. Ich   ärgere   den Hund.
         1s:NOM   make.angry:PRS:1s   the dog:ACC
         'I make the dog angry.'

For motivation of the specific case selection in reflexive psych verb constructions, see Schwamb (2003). Another strategy in forming psych-readings is by using an identifying expression as one argument-NP with predicates that otherwise would have a physical reading. German allows for this strategy for presumably any verb with a physical reading. Depending on the argument structure of the predicate, this strategy yields any constructional type, namely Exp/NOM (cf. IIIa), Exp/ACC (cf. IIIb), Exp/DAT (cf. IIIc) and even Exp/PP (cf. Ia).

(III) a. Ich   glühe   vor   Verlangen.
          1s:NOM   glow:PRS:1s   from   desire
          'I feel passionate.'

      b. Die Wut   packt   mich.
          the anger:NOM   seize:PRS:3s   1s:ACC
          'I am furious.'

(1)   Table of psych-verb constructions[2]

Stim \ Exp	NOM	ACC	DAT
–	*ich staune* (2a) *ich friere* (3a)	*mich friert* (3b)	*mir ist (es) schlecht* (4, 56b)
NOM		*er begeistert mich* (9)	*sie gefällt mir* (10)
ACC	*ich mag ihn* (2b) *ich erhoffe mir das* (fn. 1, IIa)		
DAT	*ich traue dir* (7)		
GEN	*ich gedenke seiner* (8)		*mir ermangelt (es) der Ruhe* (11)
3-place	*ich gönne dir den Erfolg* (2d))		

Of all types of psych-verbs in German, verbs of perception and, with some minor exceptions (e.g. *dünken*), verbs of cognition show a strong affinity to the Exp/NOM[3] construction. Verbs of sensation, emotion and evaluation on the other hand are distributed over different types of constructions. This is in line with the findings of Haspelmath (2001: 63), who, using the data collected in Bossong (1998), shows that this phenomenon holds for 40 European languages regardless of their genetic or areal affinities. For our further outline we thus turn our attention to the latter subclasses of psych-verbs in particular, though nevertheless all of the classes are considered in our approach.

First of all we find 1, 2 and 3-place predicates as in (2).

(2)   a.   Ich   staune.
               1s:NOM   be.astonished:PRS:1s
               'I am astonished.'

        b.   Ich   mag   ihn.
               1s:NOM   like:PRS:1s   3s:ACC
               'I like him.'

        c.   Ich   schenke   ihm   Gehör.
               1s:NOM   give:PRS:1s   3s:DAT   hearing:ACC
               'I listen to him.'

        d.   Ich   gönne   ihm   den Erfolg.
               1s:NOM   not.grudge:PRS:1s   3s:DAT   the success:ACC
               'I am happy for his success.'

One-place-predicates only relate to an experiencer, but not to a stimulus. The experiencer usually appears in the nominative (cf. 2), but also accusative and dative markings are possible, as will be dealt with further below. Three place predicates are either idiomatic compound verbs (2c) or result from valence increase (2d). For a small class of one-place psych-verbs, the coding of the experiencer is not restricted to one case but may vary between nominative or accusative marking (e.g. *frieren* 'to be cold', *hungern* 'to be hungry') or between accusative and dative marking (*dünken* 'to seem/think', *grausen* 'to be horrified'), as illustrated in (3).

---

        c.   Er   schenkt   mir   Gehör.
               3s:NOM   give:PRS:3s   1s:DAT   ears:ACC
               'He listens to me.'
     For case selection in these complex predicate constructions see García García (2001).
[2]   The numbers behind the examples refer to the examples below, where glosses and translations are given. For the sake of lucidity we do not provide any glosses in the table.
[3]   We use the notation semantic role/CASE to represent that an argument is coded in the given case.

(3) a. Ich   friere.
         1s:NOM   be.cold:PRS:1s
         'I am cold.'

     b. Mich   friert.
         1s:ACC be.cold:PRS:3s
         'I am cold.'

     c. Mich   dünkt,   dass (…)
         1s:ACC seem/think:PRS:3s COMP
         'It seems to me, I think, that…'

     d. Mir   dünkt,   dass (…)
         1s:DAT   seem/think:PRS:3s COMP
         'It seems to me, I think that…'

In all constructions without a nominative, the predicate shows a 3rd person singular agreement (cf. 3b-d). In most cases, speakers of German do accept or even regularly use an expletive subject-NP *es* 'it', as shown in (4).

(4)   Mir   ist   schlecht.   vs.   Es   ist   mir   schlecht.
         1s:DAT   COP   bad   EXPL   COP   1s:DAT   bad
         'I feel sick.'

According to Greule (1999: 135), the Exp/NOM-Exp/ACC-doublets are found from the oldest German data on as illustrated in (5a), in which the experiencer subject of the verb *hungern* 'to be hungry' is encoded in NOM, and in (5b), in which the experiencer NP is encoded in ACC.[4]

(5) a. Bithiu uuanta   ír   hungeret.
         because   2p:NOM   be.hungry:PRS:2p
         'Because you are hungry.' (Tatian 23,2)

     b. After thiu hungirita   inan.
         after that be.hungry:PAST:3s 3s:ACC
         'After that he was hungry.' (Tatian 15,2)

With two-place predicates we also find several different case frames in German. Examples (6) to (8) show constructions in which the experiencer selects the nominative, while the case of the stimulus varies (ACC, DAT, GEN):

(6)   Exp/NOM & Stim/ACC
         Ich   mag   dich.
         1s:NOM   like:PRS:1s 2s:ACC
         'I like you.'

(7)   Exp/NOM & Stim/DAT
         Ich   traue   dir.
         1s:NOM   trust:PRS:1s 2s:DAT
         'I trust you.'

(8)   Exp/NOM & Stim/GEN
         Ich   gedenke   seiner.
         1s:NOM   commemorate:PRS:1s 3s:GEN
         'I commemorate him.'

---

[4] The examples in (5) provide evidence for variability since they accrue from the same manuscript, namely Tatian, a bilingual Latin – Old High German gospel harmony of the 9th century.

But the experiencer may also select the accusative or dative. In this case, either the stimulus is in nominative case (examples 9 and 10), or an optional expletive may appear (examples 11 and 12). There are only some psych-verbs without an – at least optional – nominative. These verbs are rather antiquated like *dünken* 'to seem' in (13) and *schwanen* 'to suspect' in (14).

(9)   Exp/Acc & Stim/Nom

Er	begeistert	mich.
3s:NOM	inspire:PRS:3s	1s:ACC

'He inspires me.'

(10)   Exp/Dat & Stim/Nom

Sie	gefällt	mir.
3s:NOM	appeal:PRS:3s	1s:DAT

'She appeals to me.'

(11)   Exp/Dat & Stim/Gen (& expletive)

Mir	ermangelt	(es)	der Ruhe.
1s:DAT	lack:PRS:3s	EXPL	the calmness:GEN

'I lack calmness.'

(12)   Exp/Dat & Stim/PP (& expletive)

Mir	graut	(es)	vor	morgen.
1s:DAT	be.afraid:PRS:3s	EXPL	PREP	tomorrow

'I am afraid of tomorrow.'

(13)   Exp/Acc & Stim/CP

Ihn	dünkt,	dass	dies	förderlich	wäre.
3s:ACC	seem:PRS:3s	that	this:NOM	conducive	be:KONJ2:3s

'It seems to him that this would be conducive.'

(14)   Exp/Dat & Stim/CP

Mir	schwant,	dass	das	so	nicht	gehen wird.
1s:DAT	suspect:PRS:3s	that	this	that way	not	work:FUT:3s

'I suspect that this won't work that way.'

In the reminder of our paper, we will motivate this great constructional variety of German psych-verbs and give a comprehensive model of the argument linking in psych-verbs for German. We start with a brief outline on the state of the art in research on psych-verbs in section 2. In section 3 the main principles of proto-role-driven case selection, as developed by Primus (2002, 2004), are delineated. In section 4 we explain the importance of the principle of Lexical Economy and how this principle can take account of the case selection of psych-verbs. The paper is completed by a summary including an outline of open problems in section 5.

2   The State of the Art

Basically there are two fundamentally different approaches to the question of how lexical information and syntactic realisation of arguments are linked. On the one hand, there are syntactic approaches which try to trace back the constructional variation in psych-verb case frames to different deep structures and to movement rules (unaccusativity hypothesis). On the other hand, there are several semantic approaches to argument linking that try to explain the variation by the event or causal structure of the verbs themselves. In the following, we give an overview of the results of both types of approaches to psych-verbs.

2.1   No external argument

Postal (1971) for English and Belletti/Rizzi (1988) for Italian claim that only one constructional subclass of psych-verbs, namely the Exp/NOM-verbs exhibit an external argument, while Exp/ACC-verbs and

Exp/DAT-verbs do not have an external argument. Case assignment of both Exp/ACC-verbs and Exp/DAT-verbs is seen as lexical Belletti/Rizzi (1988: 332f)). This syntactic approach has been criticised by Bouchard (1995) for the Italian data, and by Iwata (1995) and Pesetsky (1995, chap. 2) for English.

This approach reduces the constructional variation of psych-verbs in Italian to an ideosyncrasy with no semantic basis and ignores the fact that similar variation occurs crosslinguistically. But also theory-internal counterarguments can be adduced for German. Belletti/Rizzi (1988: 334) state that their analysis of Exp/ACC-verbs as verbs with no external argument raises a problem concerning auxiliary selection. According to Burzio (1986) such verbs select the auxiliary 'be'. Since in Italian all Exp/ACC-verbs select *avere* 'have', Belletti/Rizzi (1988: 334) have to revise Burzio. They state that "assignment of *essere* cannot be an automatic reflex of the lack of an external argument" (Belletti/Rizzi 1988: 333) and postulate that if a verb takes *avere* it automatically assigns ACC-case, while Exp/DAT-verbs select the auxiliary *essere* 'be'.

The following examples show that the class uniformity in auxiliary selection stated by Belletti/Rizzi (1988) does not hold for German. As demonstrated in (15), the verbs of the Exp/DAT classes do not uniformly select *sein* 'be', the equivalent to Italian *essere*.

(15)　a.　　hat　　　　　mich　　　　beeindruckt/geängstigt/gewundert/erbost
　　　　　　　have-AUX:3s　　1s:ACC　　impress/frighten/surprise/annoy:PPERF

　　　b.　　hat　　　　　mir　　　　　gefallen
　　　　　　　have-AUX:3s　　1s:DAT　　please:PPERF

　　　c.　　[?] ist/hat　　　mir　　　　　eingeleuchtet
　　　　　　　be/have-AUX:3s　1s:DAT　　make.sense.to:PPERF

　　　d.　　ist　　　　　　mir　　　　　bekommen/nahegegangen
　　　　　　　be-AUX:3s　　　1s:DAT　　agree.with/affect:PPERF

A consequence of Belletti/Rizzi's analysis of Exp/ACC-verbs as verbs with no external argument is that they do not undergo passivization. Most psych-verbs in German share this behaviour, but some Exp/ACC verbs break ranks. For a significant number of native speakers of German from the northern part of the country, a subclass of the Exp/ACC-verbs allows for passivisation. We tested the verbs given in (16) with 50 native speakers of the northern part of Germany of which 40% considered the passivisation of the Exp/ACC-verbs *beeindrucken*, *beunruhigen*, *trösten* and *nerven* with non-controlling stimuli as grammatical.[5]

(16)　　Hans　　　　wurde　　　　　　　von der Nachricht
　　　　　Hans:NOM　　AUX:PASS:PAST:3s　by the news

　　　　　beeindruckt/beunruhigt/getröstet/genervt.
　　　　　impress/worry/console/annoy:PPERF
　　　　　'Hans was impressed/worried/consoled/annoyed by the news.'

Grimshaw (1990) combines this syntactic argumentation with event structure findings. She follows Belletti/Rizzi (1988) in arguing for Stim/NOM-verbs not having an external argument. In contrast to Belletti/Rizzi, she regards the status of external argument as a consequence of the complex event structure of this subclass of psych-verbs. According to Grimshaw (1990), Exp/NOM- and Exp/ACC-verbs do not differ with respect to the postulated thematic hierarchy Agent > Experiencer > Theme. Exp/ACC-verbs are seen as causative verbs with the stimulus argument only being part of the first subevent of the verb. She then postulates that arguments which are part of the first subevent are aspectually more prominent than arguments of the second subevent, and, consequently, in Exp/ACC-verbs the stimulus is realised as the subject. For the stimulus (i.e. the theme on the thematic hierarchy) there is then a mismatch between the argument structure (i.e. thematic hierarchy) and the aspectual structure. Therefore, the stimulus is not an external argument and

---

5　The same test done with speakers from the southern part of the country showed quite different results in that all speakers from the south considered passivisation as ungrammatical with these verbs.

thus exhibits the syntactic peculiarities shown in Belletti/Rizzi (1988). Hence, the counter arguments to the findings of Belletti/Rizzi (1988) as adduced in (16) do also hold against the analysis of Grimshaw (1990).

In the next section, we discuss semantic approaches. They either focus on the semantic differences in the event or causal structure alone (Croft 1991, 1993, 1998; Dowty 1991; Härtl 2001), or explain the constructional variation in psych-verbs by assuming different theta roles for the stimulus (cf. Pesetsky 1995, chap 2).

2.2   *Change of State and Causal Structure*

Various event structure approaches (Grimshaw 1990; Dowty 1991; Van Valin/LaPolla 1997; Härtl 2001) state that Exp/NOM-verbs differ from Exp/ACC-verbs in that the former are states while the latter are of an inhomogeneous event structure; i.e., they denote inchoative events consisting of two subevents. Exp/DAT-verbs are not taken into consideration in these approaches. The examples in (17) give a short illustration of the basic assumptions of this kind of analysis.

(17)   a.   The birthday party is surprising/pleasing Mary.

      b.   * Mary is liking the birthday party.

      c.   What happened to Mary was that the birthday party surprised/pleased her.

      d.   * What happened to Mary was that she liked the birthday party.

While Exp/NOM-verbs are states and thus cannot be combined with progressive (cf. 17b) and used in a pseudo-cleft sentence which focuses on the change of state within the event denoted by the verb (cf. 17d), Exp/ACC-verbs can be used in both kinds of constructions (cf. 17a and 17c); i.e., they exhibit a complex event structure consisting of two subevents, a transgression and a following state.

According to this argumentation all verbs of a constructional class are expected to exhibit a uniform behaviour as related to their event structure. This prediction is refuted by German Exp/ACC-verbs, as will be illustrated in the exmples (18) and (19). As to the compatibility with a progressive form we are restricted to test native speakers of the northern part of the Rhine valley, where the 'Rheinische Verlaufsform' is used for progressive constructions. As (18) illustrates, not all verbs of the Exp/ACC can be used with the progressive in this variety of German; while the Exp/ACC-verb *überraschen* shows the same behaviour as the subject experiencer verbs in English (cf. 18a and 18c), the Exp/ACC-verb *nerven* exhibits a different behaviour, since it can be used in the progressive (cf. 18b), though not in the pseudo-cleft construction (cf. 18d).

(18)   a.   * Die Feier war Hans am überraschen.
            'The party was surprising Hans.'

      b.   Die Feier war Hans am nerven.
            'The party was annoying Hans.'

      c.   Was Hans passierte war, dass die Feier ihn überraschte.
            'What happened to Hans was that the party surprised him.'

      d.   * Was Hans passierte war, dass die Feier ihn nervte.
            'What happened to Hans was that the party annoyed him.'

A similar diversification in the aspectual behaviour of German Exp/ACC-verbs holds for other event structure tests like the combination with durative (*for an hour*) and tense frame adverbials (*within an hour*), as (19) shows.

(19)   a.   * Das Fest beeindruckte/überraschte/erboste ihn eine Stunde lang.
            'The party impressed/surprised/annoyed him for an hour.'

      b.   * Das Fest beeindruckte/überraschte/erboste ihn innerhalb einer Stunde.
            'The party impressed/surprised/annoyed him within an hour.'

c.   Das Fest ängstigte/ärgerte/baute auf/reizte ihn eine Stunde lang.
        'The party frightened/made angry/encouraged/tempted him for an hour.'

d.   Das Fest baute ihn innerhalb einer Stunde auf.
        'The party encouraged him within an hour.'

e.   * Das Fest ängstigte/ärgerte/reizte ihn innerhalb einer Stunde.
        'The party frightened/made angry/tempted him within an hour.'

Some Exp/ACC-verbs (e.g. *beeindrucken*, *überraschen*, *erbosen*) cannot be combined with either of the two types of adverbials (cf. 19a and 19b), which puts them in line with achievements[6]. Other Exp/ACC-verbs (e.g. *ängstigen*, *ärgern*, *reizen*) can be combined with durative adverbials (cf. 19c) though not with time frame adverbials (cf. 19e), a characteristic of activities (cf. Dowty 1979:56). Some Exp/ACC-verbs (e.g. *aufbauen*) can be combined with both types of adverbials (cf. 19c and 19d), a characteristic of a subclass of accomplishments, which apart from the accomplishment reading also allow for an activity-interpretation (cf. Dowty 1979:56). In sum, (18) and (19) show that a subclass of German Exp/ACC-verbs are of the aspectual class 'activity' and do not exhibit a bi-eventive aspectual structure.

According to other proposals case selection in psych-verbs is due to causal structure (Croft 1991, 1993; Iwata 1995; Pesetsky 1995). Causal structure is either seen as a basic physical concept (transmission of force) that expands to the mental domain (e.g. Croft 1991, 1993, 1998) or as a logical relation between cause and effect (e.g. Pesetsky 1995; Iwata 1995). Both views agree in assuming that there are (at least) two classes of psych-verbs, namely causative non-stative ones and non-causative stative ones. With the exception of Croft (s. below), all of these approaches link the causative vs. non-causative causal structure of psych-verbs directly to the syntactic structure of a verb: subject experiencer verbs are stated to be non-causative verbs, while causative verbs are object experiencer verbs.

In addition, Pesetsky (1995) argues that there are two different theta-roles for what is otherwise called the stimulus. A 'Causer(-stimulus)' is associated with object experiencer verbs, an 'Target of Emotion(-stimulus)' is associated with subject experiencer verbs. The two theta-roles differ with respect to the semantic relation to the experiencer: Whereas the Causer is the bearer of the emotion, the Target of Emotion is its object (cf. 3.2 below). Thus, Causer constructions should allow the addition of a second stimulus-NP denoting the Target of Emotion. But as Pesetsky shows, this does not hold for simplex psych-verbs. Only a subgroup of particle verb constructions meets this criterion. To solve this problem, he supposes a zero causative morpheme CAUS that is attached to roots of psych-verbs yielding object experiencer verbs. Since Pesetsky puts himself in the tradition of Generative Semantics, we may conclude that CAUS in Pesetsky's model implies a cause-effect relation between events. Thus, a causer is seen as an initiator of an event causing a change-of-state in the experiencer.

Approaches which define cause as a logical relation (e.g. Pesetzky 1995; Iwata 1995; Grimshaw 1990) all have in common that they ascribe a uniform causal structure to object experiencer verbs. The causer-stimulus of these verbs envokes the change of the mental state in the experiencer and, thus, is the subject of the clause, selecting the nominative.

As demonstrated in Croft (1991, 1993), this uniformity in causal structure does not hold, since object experiencer verbs can either be causative or non-causative (cf. (20)). Croft argues that since non-stative psych-verbs describe processes, they in contrast to stative verbs generally allow for a means-clause extension, which describes a subpart of the causal process. As (20) illustrates, in German we find exactly this variation stated by Croft's approach: some object experiencer verbs (in our terminology Exp/ACC-verbs) allow for an extension by a means-clause (cf. 20a), but others do not (cf. 20b):

---

[6] Cf. Van Voorst 1992, who tries to show that all psychological verbs in English are of the same aspectual type, namely achievements.

(20) a.   Der Artikel   beeindruckt   mich   durch seinen guten Stil.
            the article:NOM   impress:PRS:3s   1s:ACC   by means of its good style
            'The article impresses me by means of its good style.'

      b.   * Das wundert   /interessiert   mich   durch X.
             this surprise:PRS:3s   /interest:PRS:3s   1s:ACC   by.means.of X

In sum, although a subclass of Exp/ACC verbs in German exhibit characteristics covered by the causal structure approaches, a small but identifiable class of Exp/ACC-verbs does not fit (cf. 20). This does also hold for a larger section of psych-verbs in German that neither have Exp/NOM nor Exp/ACC but Exp/DAT. These verbs are accounted for neither in Härtl (2001) for German nor in the above-mentioned approaches to argument linking in psych-verbs. Since in this argumentation only two case frames are to be expected and therefore considered, Exp/DAT-verbs do not fit to the assumption that case assignment in psych-verbs is controlled solely by the event or the causal structure of verbal semantics.

Croft's (1991, 1993) approach differs from the above-mentioned approaches. He does not specify any difference in causation in mental state verbs and causative mental verbs. Experiencer and stimulus are connected by two subevents. In both verb types, the stimulus causes a mental state in the experiencer, represented by a "cause"-arc from stimulus to experiencer. In mental state verbs, a second arc from experiencer to stimulus represents another subevent, which are called "direct attention to" by Croft (1993: 64). Thus, there is some sort of stimulus-causation in non-causative psych-verbs as well.
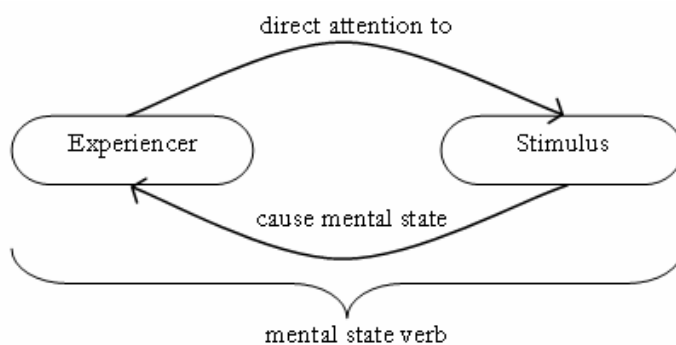

figure 1: causal chain of mental state verbs (Croft 1993)

Evicence for this view can be drawn from psychological research (for a comprehensive overview cf. Rudolph/Försterling 1997). Results of psychological tests for psych-verbs show that from the speaker's psychological point of view, the stimulus is seen as the causal factor of the mental situation independent from the linguistic construction. In other words, for both constructional types tested (namely Stim/NOM and Stim/ACC) the majority of the probands voted for the stimulus as the causal factor (cf. Härtl 2001 for causal attribution test in German).

Case selection of mental state verbs is underspecified. Mental state verbs are bidirectionally causal. Their causal chain does not have a fixed starting or end point. Therefore, Croft predicts case variation in stative psych-verbs (Croft 1991: 219, 1993: 63-70). As we already saw, this prediction is correct.

Figure 2 shows Croft's analysis of causative mental verbs. In contrast to mental state verbs they do not include a "direct attention to"-arc but an arc labelling the specific experience (1993:61). Verbs denote only a segment of the causal chain, called "the verbal segment" (1991, 1993) which is indicated here by a brace. Note that the "experience"-arc is excluded from the meaning of the causative mental verb.
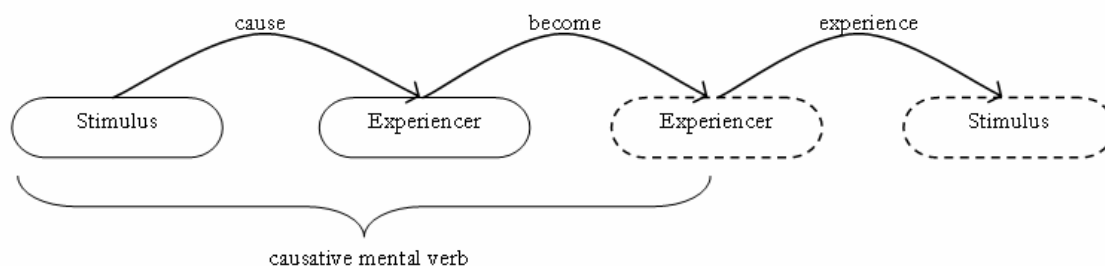
figure 2: causal chain of causative mental verbs (Croft 1993)

In contrast to the assumptions of Croft, the ranking-test with *but* (suggested by Bendix 1966) reveals that the "direct attention to"-arc is a relevant subevent of causative mental verbs and can not be excluded from the core meaning of the verb.

(21)   a.   * He frightened the children, but they didn't notice him.
        b.   * He frightened the children, but they did notice him.

These findings lead us to conclude that, as in mental state verbs, the "attention"-arc must have at least the same priority in the causal chain as the "cause"-arc: The stimulus can only cause a mental state in the experiencer if the latter is paying some sort of attention to it. If we add the appropriate arc to the representation above, we obtain a bidirectional causal structure, as in figure 3[7].
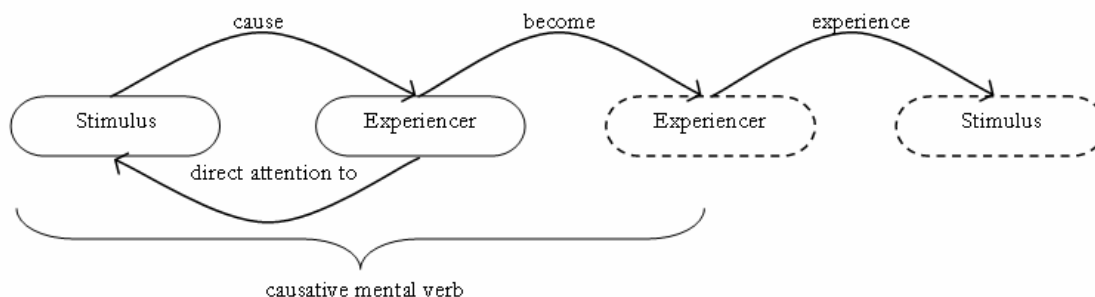

figure 3: causal chain of causative mental verbs

Thus, the main difference between mental state verbs and causative mental verbs is the inchoative character of the latter. It prevents the "experience"-arc and the "cause"-arc to be transformed into a bidirectional representation. In particular, the experiencer is seen as the endpoint of the causal chain.

In sum Croft sees object-experiencers as affected entities which by his aspectual-causal semantic approach are linked to object position. With respect to mental state verbs he can neither predict which case frame a stative mental verb has nor which syntactic position the experiencer of a mental state verb is linked to.

Though the specific case pattern of a stative mental verb cannot be predicted, it has some influence on the interpretation, as Croft shows. Object experiencers can never be understood as controlling agents, while subject experiencers may in many contexts be interpreted as controlling their emotions. In German, *hungern* is an example for this observation, see section 4.1.

2.3   Polysemy and semantic change

While many approaches on constructional variation in psych-verbs mention that many psych-verbs have their origin in metaphoric shifts from concrete action readings to more abstract psych-verb readings, most approaches do not investigate this characteristic systematically. An exception is Wegener (1998, 1999, 2001). She investigates the semantic shift of German action verbs resulting in psych-verbs. By illustrating newly-

---

[7]   Croft gives no independent evidence for the exclusion of the experience of the verbal segmentation. We leave the issue aside at this point, since it does not affect the conclusion.

coined psych-verbs emerging in the language of young speakers and by documenting the etymology of standard psych-verbs, Wegener shows that these metaphoric shifts are recurrent in German and in other European languages. Wegener, however, does not exploit this cognizance with respect to case selection. She argues that the argument linking of psych-verbs follow linking principles based on proto-roles (Dowty 1991/Primus 1999). According to Wegener (e.g. 2001: 228), Exp/ACC-verbs have the semantic structure CAUSE(x, (EXPER (x,y))) and an inchoative aspectual structure implying a change of state in the experiencer. Exp/DAT-constructions are explained by Wegener as being plausible because of the hybrid nature of the experiencer role, exhibiting proto-agent as well as proto-patient properties.

Since not all Exp/ACC-verbs in German are causative psych-verbs – as has been argued by Croft and demonstrated for German in our example (20) – this line of argumentation is problematic. Wegener does not draw a direct relation between the etymology of German psych-verbs and their case selection. But, as we will argue in the following sections 3 and 4, the characteristic polysemy and etymology of psych-verbs is at the heart of the explanation for their case selectional variation in German.

2.4 Summary

In sum, the existing linking approaches leave the following problems unsolved. First, all but Belletti/Rizzi (1988), Croft (1991, 1993) and Wegener (1998, 1999, 2001) deal with only two of the three formal subclasses of psych-verbs found in German and the Romanic languages. Secondly, all approaches except Croft's try to cope with the constructional variation within psych-verbs by showing that all Exp/ACC-verbs have the same theta-grid or the same event or causal structure; i.e., all approaches assume a general uniformity between the constructional type and the semantics of psych-verbs. But, as illustrated in the discussion above, this assumption does neither hold for Exp/ACC nor for Exp/DAT-verbs in German. The constructional type Exp/ACC exhibits at least two semantically distinct subclasses as shown in (19) and (20), and the constructional type Exp/DAT does not behave uniformly with respect to auxiliary selection (cf. 15b vs. 15d). With respect to auxiliary selection, we find a similar selectional behaviour across two constructional types (cf. 15a vs. 15b). Croft's (1993) approach does explain the case selection of causative mental verbs as well as the variability of case selection in stative mental verbs. Further, Croft shows that a given case frame leads to restrictions on interpretation. Still, his theory of object-experiencers as affected entities which by his semantic causal-aspectual approach are linked to object position can neither predict which case frame a stative mental verb has nor which syntactic position the experiencer of a mental state verb is linked to.

In the remainder of this paper, we will look at the case selection of psych-verbs from a different angle. We give evidence that most psych-verbs in German are synchronically or diachronically polysemous. With the exception of Wegener (1998, 1999, 2001), this lexical-semantic variability of one and the same verb has not been considered in any approach on the constructional variation in psych-verbs. We will argue that basically all psych-verbs have developed and still develop from non-psych-verbs and thus, according to a principle of Lexical Economy, case selection does not depend on the psych-verb reading. It depends on the diachronically elder and logically stronger (cf. 46) physical reading of the verbs in question. Case selection itself follows straightforward linking principles which will be demonstrated in section 3 on the basis of Dowty's Argument Selection Principle (1991) and its adaptation for German by Primus (1999, 2002). Accordingly, case selection can be predicted not only for causative-inchoative psych-verbs but also for non-causative-stative psych-verbs.

The mapping mechanism of psych-verbs needs further investigation. Such a study goes beyond the scope of this article. Communicational/discourse-pragmatic factors such as perspectivation seem to play a major role next to metaphorical processes. For a tentative idea of the principles in force, consult Wegener (1999, 2001).

3 Proto-Roles and Case Selection

3.1 Proto-Roles

In this section we present evidence for our claim that it is the non-psych-reading of psych-verbs which determines the case selection of the verb in either reading[8].

We will illustrate the linking mechanisms of selected verbs using the linking theory of Dowty (1991) and some recent modifications by Primus (1999, 2002). This approach manages with two thematic role types, namely proto-agent and proto-patient, which are defined by prototypical properties. Depending on their properties, verbal arguments are to a greater or lesser extent agents (A) and patients (P). That means not only that agentivity and patientivity are a matter of degree, but also that an argument may have agentive and patientive properties at the same time.

(22) presents the inventory of thematic relations which characterise the proto-roles according to Dowty and Primus as well as our notations for these relations:

(22)　　　　Let s be the situation (or event) denoted by the verb and let x, y be variables for participants[9] involved in this situation (or event). Then the thematic relations which characterise the proto-roles are

$ctrl(x,s)$　　　　　　　　(control/volition)
$caus(x,s)$　　　　　　　　(enabling condition)
$phys(x,y)$　　$phys(x)$　　(physical involvement)
$exp(x,y)$　　　　　　　　(experience)
$poss(x,y)$　　　　　　　　(possession)

A proto-agent involves some of the following properties: control, causation, physical involvement, experience, and possession. The patientive counterparts to the agentive properties characterise a prototypical patient. These are: being controlled, caused, physically influenced or even changed, receiving attention, or being possessed.

Agentive and patientive properties are differentiated as follows:

(23)　　　　If two verbal arguments x and y bear a thematic relation $f(x,y)$ to each other, f is called an agentive property of x and a patientive property of y. The one-place-properties $phys(x)$ and $exp(x)$ are agentive properties of x.

The more agentive properties an argument accumulates, the more agentive it is. An argument that accumulates several agentive properties is called a maximal agent (A^{max}), and an argument that accumulates several patientive properties a maximal patient (P^{max}), respectively. Control is crucial to agentivity: An argument with agentive control is always an A^{max} since control always implies sentience and causation. Vice versa, an argument that accumulates only one agentive property is called a minimal agent (A^{min}), whereby an argument that accumulates only one patientive property is called a minimal patient (P^{min}). As mentioned before, an argument may be characterised by some agentive and some patientive properties at the same time. It is then a minimal agent and a minimal patient at the same time ($A^{min}\backslash P^{min}$). Recipients are a good example for such hybrid role-takers.

---

[8]　Note that we are not of the opinion that the mechanisms of case selection we show for German can be considered as universal principles. To the contrary, we believe that other languages follow different principles. Baltic-Finnic languages are cases at hand, since they allow for non-nominative constructions in existentials and alternation of cases (ACC/GEN vs partitive) in the direct object (Fromm 1982, Tauli 1983). Active languages like Tsova-Tush (Holisky 1987) and Acenehse (Durie 1985) allow alternation of cross-referencing (i.e. the equivalent to case selection in languages with nominal case) in a verb.

[9]　A participant may also be a situation or event itself, cf. *Er hoffte auf schnelle Hilfe.* ('He hoped for quick help.')

Thus, experiencers are "sentient participants that have no other agentive properties in the traditional use of the term" (Primus 2002). External agents, i. e. agents that are presupposed by the situation denoted by the verb, but that are not agents with respect to the situation denoted by the verb itself, are always minimal agents with respect to the verb in question (e. g. *x is helping y*, where y is engaged in a presupposed action).

3.2   Analysing Thematic Structure

In this section, we briefly characterize the thematic relations in (24).

Control

We follow Brennenstuhl's (1982) definition of control which is strongly connected with the notion of agent. An agent controls a certain event "if he is *able* to bring it about or to refrain from bringing it about in case he intends to do the one or the other. This amounts to saying that a person has something under control when he is free to do or not to do it at will" (1982: 25). Primus (1999, 2002) points out that such a conception of control covers both volition and intention. Particularly, it includes that a controlling participant x may be able to change a potentially existing patientive participant y or some aspect of y. The notational variants ctrl(x,s[y]) or, simplifying, ctrl(x,y) are meant to capture the agentive and patientive control-properties of x, y and s. As mentioned above, control is sufficient for maximal agentivity, and maximal roles are more decisive for case selection than minimal roles (cf. section 3.3).

To determine whether a verb allows for a control-reading or not, we used some common semantic tests for control. As Talmy (1976: 87) and Roeper (1987) suggest, one can test verbs by adding several expressions of intention and to check the acceptability of the outcoming expressions. We chose the sentential adverb *absichtlich* 'intentionally', the purposive infinitive construction *um…zu*, and the intentional cognitive verbs *beschließen* 'conclude' and *versuchen* 'attempt' and checked the acceptability of some problematic cases with some native speakers. We also checked in the Mannheim Corpus[10] for expressions similar to these.

The following examples illustrate these tests. Only verbs that allow for controlling agents can be combined with the above-mentioned expressions (cf. 24), while other verbs lead to unacceptable or semantic abnormal expressions (cf. 25).

(24)   a.   Er beschloss, ihn mit einem neuen Hemd zu überraschen.
                    'He decided to surprise him with a new shirt.'

          b.   Er nahm sich Zeit, um alle Speisen abzuschmecken.
                    'He took his time to taste all the dishes.'

(25)   a.   * Er beschloss, vom Baum zu fallen.
                     'He decided to fall out of the tree.'

          b.   * Er ging hin, um ihn anzukotzen.
                     'He went there to tick him off.'

Pragmatic repairs act as indicators for semantically abnormal expressions. For instance, the more typical reading of *ankotzen* is the psych-reading ('to tick so. off'), but we tend to interpret (25b) in a rather occasional, non-psych-reading in order to achieve an acceptable reading ('to puke all over so.') since only this reading allows for a controlling agent. Our statements always pertain to the core semantics of one single reading of a verb. The acceptability of a sentence or the semantic vs. pragmatic status of the inacceptability is not in all cases equally decidable; confer the following examples.

(26)   a.   * Ekle deine Großmutter nicht an!
                     'Don't disgust your grandmother!'

---

[10] The Mannheim Corpus COSMAS (Corpus Storage, Maintenance and Access System) is a corpus of German texts prepared and annotated by the IDS (Institut für Deutsche Sprache). It is accessible via internet (URL: http://www.ids-mannheim.de/kt/cosmas.shtml).

b.   ?? Er versuchte, ihn anzuekeln.
     'He tried to disgust him.'

c.   ? Er benahm sich wirklich widerlich, um seinen Nachbarn anzuekeln.
     'He really behaved awfully in order to gross his neighbour out.'

If, as taken for granted, all verbs with a controlling subject allow imperative constructions, *anekeln* cannot be a controller-verb according to (26a). This is confirmed by (26b). On the other hand, only controller-verbs should be acceptable in a construction like (26c), which is only slightly irritating to most test persons. It seems that some verbs allow a certain degree of controllability if it is sufficiently licensed by the context. Also, not all expressions pass all tests equally well, as shown in (26). It is important to notice that imperative constructions alone do not give sufficient evidence for control, since these constructions may also express the desire of the speaker (e.g. *Fürchte dich nicht!* 'Don't be afraid!'). In reverse, we assume all controller-verbs to allow imperative constructions. Therefore a verb that does not allow for an imperative construction will not be considered a controller-verb.

Physical Involvement

The term 'physical involvement' denotes the independent movement of a participant. Physical manipulation of a second participant is not necessary but possible. If present, this is a patientive property of the second participant. Physical manipulation is meant in a broad sense; i.e., it is meant to include dependent movement without any further change of state.

It is important to remember that the meaning of a verb only entails a thematic property or relation if this property holds with respect to the situation named by the verb (denoted by the variable s). In the verbal construction (27) for instance, the verb entails no property phys(x), since the presupposed movement of the argument x does not correspond to the meaning of *break*.

(27)   mir   zerbricht   die Vase
         1s:DAT   burst:PRS:3s   the vase:NOM
         'I broke the vase unintentionally.'

Causation

Causation is by far the most controversial and challenging thematic relation. A fairly strong concept of causation is suggested by Primus (2002). She defines thematic causation as physical, mechanical causation; i.e. one (agentive) participant that moves independently from the second participant causes a physical manipulation (e.g. a change in location) in the second participant. Whenever a predicate entails physical causation (cause(x,y)), it entails physical involvement (phys(x,y)) as well.

The shared property of all causations is that a situation or a participant is taken to be the reason (cause) for a second situation (effect) to take place. Unfortunately, it remains unclear what this means. The weakest definition of cause one can imagine is that a cause is an enabling condition. Thus, a cause is something without which an effect would not have taken place (cf. Lewis 1973). But this does not help to discriminate agents and patients: without anything to give away, an event of giving would never have taken place.

Talmy's (1976) conception of semantic causation is neither as restricted as Primus' physical causation nor as weak as Lewis' enabling condition. He distinguishes several types of causation and describes how they may be expressed in language by linear, functional, lexical and paraphrasal means. Conceptual causation may be specified along different dimensions, among those the identity of the initially appearing element in the causative construction (1976: 45). This might be a volitional agent, an unintentionally acting author, an inanimate instrument, a causing-event or the resulting-event. Furthermore, Talmy distinguishes agent causation from inducive causation and purpose situations. Inducive causation is marked by "the presence of self-directedness in mid causal chain" (1976: 46-47); i.e. one animated agent induces another animated agent to act. In purpose situations the actor has no knowledge of the outcome of its act. This trichotomy is

illustrated in (28). We leave aside the remaining dimensions of causation, which relate mainly to more complex event structure relations.

(28)   a.   agent causation
                I threw him downstairs.

           b.   inducive causation [caused agency]
                I sent him downstairs.

           c.   purpose situation
                I pushed him in order to send him downstairs.

The distinctions of Talmy can easily be implemented in Dowty's approach. Dowty's thematic relations cover the main aspects of Talmy's description. The difference between agent and author causation is captured by control.[11] Prototypical physical causation is captured by physical involvement. Instrument causation differs from agent causation in the lack of experience. Causing events lack not only experience, but also physical involvement. In purpose situations the effect does not belong to the core semantics of the verb, thus, patientive properties are reduced.

Further, Talmy points out that not only physical events can be taken as caused, but also mental events such as cognizing or experiencing. Mental events may be caused by causing-events or instruments, as in (29a), or by agents as in (29b) (1976: 102-112, example taken from p. 107, fn. 44). Inducive causation also implies caused mental events.

(29)   a.   A knife (flying at him) scared the spy.

           b.   John scared the spy by throwing a knife at him.

The definition that is suited to grasp this conception of causation characterises a cause as something without which an effect would not have taken place (cf. Lewis 1973). Every salient necessary condition for the occurrence (or non-occurrence) of some change of state is a potential causer. However, Talmy relates expression and semantic causation only loosely. Particularly, no syntactic function is reserved to arguments expressing causing or caused entities.

Psychological tests show that from a speaker's psychological point of view the stimulus is always seen as the causal factor of the mental situation (cf. Rudolph/Försterling 1997). Croft (1993) captures this fact by allowing causation in stative verbs (cf. section 2.2). The stimulus of a stative mental verb does not relate to any salient change of state. It is the existence of the state itself (without any change) that is causally ascribed to some property of the stimulus. This sort of causal attribution is obviously not restricted to stimuli.

While prototypical causation plays a significant role in linking, the relevance of causal attribution must be questioned. Depending on the context, every argument can be assigned a causing quality. Prototypical causation is effectively captured by physical involvement, which includes active manipulation of agents as in acts of convincing etc. This resembles to a large extend the idea of coercion presented in Talmy (1976, 2000) and Croft (1991). Here, causal attribution is treated as a case of coercion in prototypical cause-chains.

Attributed causation is not accounted for in terms of thematic relations, since it depends as well on cotext as on context. Consequently, we will omit pure causation from our decompositional analysis.

Experience

As noted above, an experience is meant to include a sensation, an emotion, a perception, and/or a mental attitude or state. An experiencer is thus an argument for which the verb entails that the corresponding

---

[11] This is well in line with Talmy. Talmy points out that the difference between situations with or without volitional agency is not causational in nature: "intention" is "understood as a concomitant and independent mental event (state) with no causal effect in the chain of events initiated by the volitional act" (1976:85). That is, the agent must want to act in terms of the predicate in question.

participant in the situation named by the verb has a sensation, an emotion, a perception, a mental attitude or state with respect to this situation.

It is worth to reflect the definition of a stimulus at this point. It is quite difficult to provide a precise definition of what a stimulus is. Of course, the stimulus must be in the attention of an experiencer in one way or another. Experiencers as well as stimuli are enabling conditions to experiencing situations denoted by psych-verbs. Without an individual capable of experience and without something to be experienced no experience is possible.

Most psych-verbs involve a stimulus in addition to an experiencer, but there are psych-one-place-predicates without a stimulus, such as *hungern* 'be hungry' or *frieren* 'feel cold'. In these cases the stimulus is more or less obvious; i.e. standardised (e.g. lack of food for being hungry is, coldness for freezing, etc.). If the speaker wants to stress the stimulus or to point to an unexpected stimulus, the stimulus may be added (*er friert vor Kälte*, lit. 'he freezes of coldness', *er fror vor Müdigkeit*, lit. 'he froze of tiredness'). Therefore, we suggest that experience is strictly a two-place relation, even with verbs which are syntactically monovalent.[12]

The semantic function of the stimulus can differ considerably: Although the typical stimulus is an object with respect to which the experiencer feels something (e.g. he might evaluate it), a stimulus can also function purely as a trigger for a feeling with respect to something else. Thus, it is possible to distinguish between both types of stimuli, like Pesetsky does: He introduces the distinction between Target of Emotion and Causer of Emotion. According to Pesetsky (1995: 56-60), a stimulus is a Causer that allows for a reading in which it only evokes an experience, while something else constitutes the Target of Emotion. A stimulus that is necessarily (i.e. in all readings) a Target of Emotion is not a Causer. For example, *the article* in (30) is not a Causer, but a Target of Emotion, while in (31) it is a Causer.

(30)   Bill was very angry at the article in the Times.

(31)   The article in the Times angered/enraged Bill.

Pesetsky argues as follows: While from 'x is angry at y' follows that 'y angered x', by 'y angered x' we cannot conclude that 'x is angry at y'. It is possible that y only provoked x being angry at z (in example (31) z might be the newest governmental publication). Pesetsky's concept of causation remains inexplicit.

3.3   Case Selection and Proto-Roles

According to Primus (1999, 2002, 2004), the two proto-roles are encoded by the two most prominent cases of a language; i.e. the two least marked cases of the Case Markedness Hierarchy of that language. In non-ergative languages the proto-agent is linked to nominative, and the proto-patient is linked to accusative, while in ergative languages the proto-patient is linked to absolutive, and the proto-agent is linked to ergative. Thus, the more basic relations a participant accumulates, the more it tends to be realised in the appropriate case. This is called the Thematic Case Selection Principle by Primus (2002).[13]

The resulting constraints for German may best be represented in the following schema (34) (cf. Primus 2002, 2004).

(32)   Constraint Schema for Thematic Case Selection in German:

a. A^{max}/NOM $\gg$ $*(A^{max}/\text{NOM})$ b. P^{max}/ACC $\gg$ $*(P^{max}/\text{ACC})$

$\Downarrow$ $\Uparrow$ $\Downarrow$ $\Uparrow$

A^{min}/NOM $*(A^{min}/\text{NOM})$ P^{min}/ACC $*(P^{min}/\text{ACC})$

---

[12] In constructions with situation-identifying arguments (e.g. *ich habe Hunger* 'I have hunger', *das Verlangen packt mich* 'I start to feel desire' or *du machst mir Angst* 'you frighten me', cf. García García 2001), the emotion itself is made explicit. In other psych-verbs, the emotion is incorporated.

[13] By "Principle" we denote linguistic regularities which signify families of constraints and their fixed ranking (cf. Primus 2002).

(32) states that in German the constraint linking an argument with a high number of agentive properties to the nominative (A^{max}/NOM) dominates the constraint banning maximal agents from nominative case, resp. for A^{min}. A^{max}/NOM dominates as well the constraint linking a less agentive argument to the nominative (A^{min}/NOM), resp. for patientive arguments and the accusative. From the Constraint Schema follows also that A^{min} is more likely to be coded in a non-nominative than A^{max}. Psych-readings have arguments that do not accumulate a high number of proto-properties. The thematic case selection constraints for such readings are lower in rank with no fixed ranking between the relevant competitors (see bottom line in 32).

Another thematic constraint that is relevant for psych-verbs is the Dative Constraint (33). It restricts datives to minimal agents. It is an abbreviation, grouping together the constraints banning dative from patients and maximal agents (cf. Primus 1999).

(33)   Dative Constraint
            $*(\neg A^{min}$/DAT$)$

Further relevant constraints follow from the assumption of a Case Markedness Hierarchy.

(34)   Case Markedness (CASEM)

            $*nC \gg *mC$ $(n > m \geq 1)$

            i.e. $*$GEN $\gg *$DAT $\gg *$ACC $\gg *$NOM,

            (alternatively as imperatives: NOM! $\gg$ ACC! $\gg$ DAT! $\gg$ GEN!)

CASEM, specifically the nominative requirement NOM!, competes with $*(A^{max}$/NOM$)$ in ergative languages and with $*(A^{min}$/NOM$)$ in accusative languages.

CASEM has two specific constraints that are relevant for psych-verbs: NOM! and $*$GEN. The first constraint requires a nominative for each verbal syntactic argument, the second constraint blocks the adverbal use of the most marked case in German. Both constraints are higher ranked than their immediate competitors; i.e. NOM! is the highest constraint among the imperative variants, $*$GEN is above all other prohibitive variants. The choice of these variants is dictated by practical reasons as it reduces the steps of the evaluation. It is equivalent to an evaluation with a set of only restrictive or only imperative constraints.

Some, but very few verbs violate the constraints. They select a GEN-Stimulus. They are highly marked exceptions: Speakers judge them to be old-fashioned, their use is restricted to high level language style-dependent and their case frame is – if at all – learned later than other case frames. At least in colloquial speech, most of these verbs can be used alternatively with regular case frames (*gedenken* with DAT-Stim, *achten* with ACC-Stim)[14]. Primus (2002) suggest to capture these irregularities by a parochial lexical constraint as in (35) (following Hammond 1995). This constraint exempts idiosyncratic lexemes. Alternatively the exceptions may be marked in the lexicon.

(35)   Lexical Parochial Constraint

            LEX-P^{min}/GEN (*gedenken*, *achten*, …)   ($\gg *$GEN)

While principles of economy result in forms which are as simple as possible, the Principle of Functional Expressivity (36) assures that relevant semantic differences are still distinguishable in form. With respect to linking, the expressivity constraint of Case Distinctness (37) makes sure that thematically distinct arguments of a predicate are distinguishable by their case marking (cf. Plank 1987, Primus 2004).

(36)   Principle of Functional Expressivity
            Different [semantic] functions are represented by different forms.

---

[14] These alternations are judged as bad style by other speakers. That the use of genitive case is a question of style and none of grammaticality is underlined by the creation of slogans such as "Der Genitiv ist dem Dativ sein Tod" (roughtly translated: 'Genitive case is the death of Dative Case') and the foundation of societies as the "Gesellschaft zur Stärkung der Verben" (http://www.soviseau.de/) which aims at the rescue of irregular verbs such as *gedenken*.

(37)   Case Distinctness (Dɪsᴛ)
        No identical cases within the case frame of a predicate.

We conclude with some remarks on the ranking of the constraints mentioned above. The ranking of the lexical parochial constraints and the competing constraints is specified as in (35). The ranking of the thematic constraints which assign alternative forms to the same semantic structures follows directly from (32). The competition between Nᴏᴍ! and P^{max}/Aᴄᴄ is relevant e. g. in passive constructions. In German, a maximal patient takes nominative in passive constructions, as is shown in (38). This supports the assumption that Nᴏᴍ! is ranked higher than P^{max}/Aᴄᴄ (cf. 39a) and not conversely (cf. 39b).

(38)   a.   Er   wird   gefunden.
                3s:Nᴏᴍ   ᴀᴜx:Pᴀss:3s   find:PPᴇʀꜰ

        b.   * Ihn   wird   gefunden.
                3s:Aᴄᴄ   ᴀᴜx:Pᴀss:3s   find:PPᴇʀꜰ

(39)   Table: Ranking of P^{max}/Aᴄᴄ and Nᴏᴍ!

    a.   Nᴏᴍ! $\gg$ P^{max}/Aᴄᴄ

	P^{max}	Nᴏᴍ!	*Gᴇɴ	P^{max}/Aᴄᴄ
☞ N				*
A		*		
D		*		*
G		*	*	*

    b. P^{max}/Aᴄᴄ $\gg$ Nᴏᴍ!

	P^{max}	P^{max}/Aᴄᴄ	Nᴏᴍ!	*Gᴇɴ
N		*		
☞ A			*	
D		*	*	
G		*	*	*

Dɪsᴛ and *Gᴇɴ as well as *Gᴇɴ and Nᴏᴍ! are compatible, thus their ranking is irrelevant. Nonetheless Dɪsᴛ is obviously ranked higher than Nᴏᴍ!. Therefore, we pair *Gᴇɴ and Nᴏᴍ!, though other solutions are possible. The same problem appears for other constraints which compete with selected other constraints only. Since it is essential to OT that all constraints are ranked (though they can be equally ranked in specific cases), we suggest for the time being the ranking in (40), considering the structural alikeness of the role-based constraints. If a ranking is not specified it is not crucial for our purposes. The Dative Constraint *($\neg A^{min}$/Dᴀᴛ) does not compete with any other constraint and is here grouped with A^{max}/Nᴏᴍ, P^{max}/Aᴄᴄ. Note that this again is only one of several alternatives. The constraints *(A^{max}/Nᴏᴍ), *(P^{max}/Aᴄᴄ) are not listed in (40), since they are bled by the much higher ranked constraints A^{max}/Nᴏᴍ, P^{max}/Aᴄᴄ. Any candidate which violates the latter ones is eliminated from further evaluation, while any candidate which passes must necessarily violate *(A^{max}/Nᴏᴍ) and *(P^{max}/Aᴄᴄ).

(40)   Lᴇx-Constraints

        $\gg$ Dɪsᴛ

        $\gg$ Nᴏᴍ!, *Gᴇɴ

        $\gg$ A^{max}/Nᴏᴍ, P^{max}/Aᴄᴄ, *($\neg A^{min}$/Dᴀᴛ)

        $\gg$ [A^{min}/Nᴏᴍ $\lll$ *(A^{min}/Nᴏᴍ)],   [P^{min}/Aᴄᴄ $\lll$ *(P^{min}/Aᴄᴄ)]

As noted in (40), A^{min}/Nᴏᴍ and *(A^{min}/Nᴏᴍ) do compete but are tied ($\lll$). Thus, they cancel out each other and will be omitted in the presentation. The same holds analogically for P^{min}. We demonstrate this on the basis of the psych-reading of *aufbauen* (41). The ranking of both groups is irrelevant, since they do not compete.

(41)   aufbau'(x,y)

psych-reading ([*seine Worte*]$_x$ *bauen* [*mich*]$_y$ *auf* 'His words encourage me')

(neither x nor y controls the situation, and there is no physical involvement)

exp(y,x)

$\Rightarrow$ x is an P^{min} and y is a A^{min}

	x	y	DIST	NOM!	*GEN	*($\neg$A^{min}/DAT)	A^{min}/NOM $\ll\gg$ *(A^{min}/NOM)		P^{min}/ACC $\ll\gg$ *(P^{min}/ACC)	
	N	N	*!					*	*	
	A	A	*!	**			*			*
	D	D	*!	**		*	*		*	
	G	G	*!	**	**		*		*	
☞	N	A		*			*		*	
☞	N	D		*			*		*	
☞	A	N		*				*		*
	A	D		**!			*			*
	D	N		*		*		*	*!	
	D	A		**!		*	*		*	
	G	…		*(*!)	*!	*	(*)	(*)	*	
	…	G		*(*!)	*!	(*)	*		(*)	(*)

(42) evaluates the physical reading of *aufbauen* 'to build up'. All candidates which crucially violate constraints in (41) are omitted since their evaluation does not change.

(42)   aufbau'(x,y)

physical reading ([*ich*]$_x$ *baue* [*das Zelt*]$_y$ *auf* 'I pitch the tent.')

ctrl(x,s) $\wedge$ phys(x,y) $\wedge$ exp(x,y) $\Rightarrow$ x is an A^{max} and y is a P^{max}

	x	y	NOM!	A^{max}/NOM	P^{max}/ACC	*($\neg$A^{min}/DAT)
☞	N	A	*			
	N	D	*		*	*!
	A	N	*	*	*!	
	D	N	*	*	*!	*

As we see, the psych-reading allows for three case frames: NOM^x & ACC^y, NOM^x & DAT^y, and ACC^x & NOM^y. These are case frames which do indeed appear in psych-verb constructions, but only one of them is selected by *aufbauen*. The physical reading allows only a subset of those case frames which are compatible with the psych-reading of *aufbauen*, namely the case frame NOM^x & ACC^y that is actually selected by this verb. This leads us to our essential assumption that the non-psych-reading determines the case selection (see section 4).

To summarise the results of this section, let us have a look at table (1) again, which is given in a modified version in (43). The constraints NOM! (34) and DIST (35) explain why several case frames do not occur at all.

(43)   Table of psych-verb constructions supplemented by constraints

Exp \ Stim	NOM	ACC	DAT	GEN
–	*ich staune*	*mich friert* LEX-A^{min}/ACC $\gg$ NOM!	*mir ist (es) kalt* (cf. 4.2.3)	*GEN
NOM	DIST	*er begeistert mich*	*sie gefällt mir*	*GEN
ACC	*ich mag ihn*	DIST, NOM!	NOM!	*GEN, NOM!
DAT	*ich traue dir* (cf. 4.3.4)	NOM!	DIST, NOM!	*GEN, NOM!
GEN	*ich gedenke seiner* LEX-P^{min}/GEN $\gg$ *GEN	NOM!, *GEN	*mir ermangelt …* LEX-P^{min}/GEN $\gg$ *GEN, NOM!	DIST, *GEN, NOM!

4 Psych-Verbs and Lexical Economy

4.1 The Principle of Lexical Economy

As shown in section 3, the OT-constraints introduced so far confine the range of case patterns compatible to verbs with psych-readings. The remaining case patterns match those that are attested in German. But this does not answer the question, why psych-verbs do not select all one and the same case pattern. Which of the compatible case patterns makes the race, and why? We start from the observation that the case selection of non-psych-verbs is much more restricted. Most psych-verbs have yet another, non-psych-reading (e.g. as *aufbauen* in section 3 above), but only one case frame for all readings. We claim that this is due to Lexical Economy (44) and its implications for case frames (45).

(44)   Principle of Lexical Economy
            Lexical entries are as simple as possible.

(45)   The Principle of Lexical Economy applied to case frames:
            Each verbal lexeme has only one case frame. This case frame holds for each possible reading
            of the lexeme and must therefore be compatible to all of its readings.

The question now to be answered is: Which reading is decisive for case selection in psych-verbs? If we can answer this, we will also find an answer to the question which psych-verb selects which of the possible case frames. This leads us to the core assumption of our approach: Case selection of psych-verbs does not depend on their psych-reading at all.

From (45) follows that the reading which puts the strongest restrictions on case selection is decisive for case selection. We characterise this reading as the "strongest" reading (cf. 46).

(46)   For each verbal lexeme exists one reading which is decisive for the selection of its case frame.
            It is the reading putting the strongest restrictions on the selection of the case frame. This
            reading is called the "strongest reading" of a verb. Any case frame that is compatible with the
            strongest reading of a verb is compatible with any other reading, too.

(46) also states that there are never two different strongest readings of one and the same lexeme thereby imposing incompatible restrictions on the case frame. Such readings would force the expression to occur in two different case frames, with such cases then usually being considered as belonging to two distinct lexemes – not only because their formal representation differs, but also because their semantic content diverges considerably.

The principle of Lexical Economy including the term "strongest reading" predicts that if a new strongest reading emerges which is incompatible with the given case frame, e.g. if a verb undergoes a semantic shift that involves an accumulation of basic proto-roles, the verb will change its case frame. As our corpus of data show, the case of semantic strenghthening is a rather marginal phenomenon for the class of psych-verbs in general. The verb *hungern* (47) is the only case in our corpus, with (47b) allowing for a [+ctrl]-reading. The different constructions with *hungern* in (47a) and (47b) are usually traced back to the same lexeme, while (47c) is considered to belong to a different lexeme.

(47) a.   mich   hungert   (es)
            1s:ACC   be.hungry:PRS:3s   EXPL
            'I am hungry.'

      b.   ich   hungere
            1s:NOM   starve:PRS:1s
            'I am starving.' / 'I am fasting.'

      c.   ich   habe   Hunger
            1s:NOM   have:PRS:1s   hunger:ACC
            'I am hungry.'

(47a) is considered to be the eldest construction. It is rather old-fashioned and out of use, whereas both (47b) and (47c) are common expressions. (47a) to (47c) differ in meaning. Only (47b) may be used as controlling verb ('I am fasting', 'I am dieting'). The construction in (47c) focuses on an uncontrollable sensation of the experiencer, namely hunger. (47a) *mich hungert* has no controlling experiencer either. The (47a) variant of *hungern* is not compatible with a controlling agent, since controllers must bear nominative case. The variant in (47b) may have emerged to express this reading. No compatible development occurred with *dürsten* ('thirst'), which cannot be used with a controlling agent, either. Probably there is no need to express that some agent deliberately renounces to drink (there is no lexeme as *thirst strike*, either, though hunger strikes may include the refusion of drinking). On the other hand, the psych-reading of *hungern* is compatible to the case frame of (47b) as well. Thus, the new lexeme was used to express both readings and the elder case frame became obsolete. Even so, it is not completely extinct, but a semantic differentiation of (47a) and (47b) took place. (47a) *mich hungert (es)* focuses in New High German on a lasting situation; i.e. it bears a durative component, as the DWb (IV/II co. 1947) states: "doch wird in der neuern sprache diesz persönliche *hungern* [(47b)], gegenüber der unpersönlichen fügung [(47a)], immer mehr durativ verwendet". (47a) got a durative meaning 'to lack food', whereas (47b) means either 'to dispense (willingly or unwillingly) with food' or 'to feel hunger'. The latter exactly corresponds to the meaning of the constructional variant (47c), which is nowadays much more frequently used to denote the experience than (47a). By contrast, the meaning 'to lack food' is more frequently expressed by (47b) than (47a) (e.g. *Die Kinder in Afghanistan hungern.* 'The children of Afghanistan are starving.'), so that (47a) might get completely replaced by (47b) and (47c) one day.

The Lexical Economy approach and especially the inclusion of the "strongest reading" provides a precisely formulated basis for a metaphorical extension approach of psych-verbs. It cannot only motivate the conservation of the case frame but more importantly it predicts whether a case frame of a verb that semantically changes will change or not. A case frame will only change under very restricted circumstances, namely semantic strengthening or accumulation of semantic base roles, respectively (cf. the case of *hungern* in (47a, b)).

In the following sections, we will illustrate the case selection of psych-verbs with some examples. We will divide the psych-verbs in subclasses related to their experiencer case and a deduction of a typical representative of each class will be given (section 4.2). Subsequently, we will turn to less obvious or problematic cases, in which we give a diachronic explanation for the case frames (section 4.3).

4.2   Case Selection in Psych-Verbs

In this section, we will deal with the case selection for those verbs that in contemporary German are polysemous between a physical and a psych-reading. The verbs are divided into subclasses according to their case frame; for each construction type the two readings and the semantic components relevant to the case selection are illustrated. Section 4.2.1 deals with Exp/NOM-verbs and section 4.2.2 with Exp/ACC-verbs. Both case selections we regard as due mainly to the principle of Lexical Economy.

As section 4.2.3 shows, the motivation for DAT-selection in verbs with psych-reading is different, since DAT is the default case for valence increase in German.

4.2.1   Exp/NOM

(48) lists intransitive predicates (cf. 48a) and transitive predicates (cf. 48b) that synchronically alternate between a concrete and a psych-reading. In case of intransitive predicates, the concrete reading denotes a physical activity or state (e.g. positional verbs); i.e., the basic verbal semantics contains the thematic relations ctrl(x,s) and/or phys (x). In case of transitive predicates, the thematic relations ctrl(x,s) and/or phys(x,y) are included in the semantics of the verb. [15]

---

[15] Translations of both the physical and the psych-verb reading are given in brackets. Please note that translations of psych-verbs can only be rough equivalents, since emotion terms are culturally specific (cf. Wierzbicka 1999).

(48)   a.   *abfahren* ('depart', 'be crazy about'), *fliegen* ('depart', 'be crazy about'), *ausklinken* ('release towline', 'be upset'), *ausrasten* ('lock off', 'be upset'), *durchdrehen* ('spin', 'panic'), *durchhängen* ('sag', 'be depressed'), *durchknallen* ('crack', 'become crazy'), *einschnappen* ('snap in', 'feel offended'), *fliegen* ('fly', 'be fan'), *hängen* ('hang on/ be sticked to', 'be fond of'), *platzen* ('explode', 'be angry'), *stehen* ('stand', 'be fan'), *(d)rüber stehen* ('stand above', 'be above that'), …

      b.   *fühlen* ('sense', 'feel'), *annehmen* ('receive', 'assume'), *ableiten* ('lead off', 'derive'), …

Some of the intransitive predicates can be extended to transitive predicates (*eine Strecke abfahren* 'to cover a route') when the verb has the concrete physical reading, and in some cases they are particle verb derivations of these lexemes (*drüberstehen* 'to be above sth.'). On the first glance, two lexemes in our corpus – *fliegen* and *abfahren* – seem to select different prepositional phrases in the physical and psych-reading (*ich fliege NACH England* 'I fly to England' vs. *Ich fliege voll AUF Vollmilchschokolade* 'I am crazy about milk chocolate'. As one of our reviewers pointed out, these verbs could be a challenge to our theory of case selection according to lexical economy since in this case the case selection seems to be dependent on the psych-verb reading and not on the physical reading of the verb. In the case of *fliegen*, however, the verb in its physical reading either selects the preposition *nach* + N or *auf* +DET N, depending on the syntactic structure of the governed NP (compare *ich fliege AUF die Kanaren* 'I fly to the Canary Islands'). In case of *abfahren* in its physical reading the *von*-PP relates to the starting point of the movement expressed in the verb (hence the source preposition *von*). This is the most frequent use of the verb in its physical reading. It is, however, also possible to use the verb in a physical reading expressing the movement towards a goal (*Ich fahre jetzt ab auf die Kanaren* 'I will now start to the Canary Islands').

Another prepositional psych-verb shows case variation but no change in preposition, namely the verb *stehen*. This verb may, in fact, be a challenge to our theory since in its physical reading, the prepositon marks a locative adjunct and selects DAT, in its psych-verb reading it marks the stimulus complement and selects ACC. This verb is, however, the only one we have found in our corpus with this kind of selectional particularities. We consider it, therefore, as an exceptional case. Its peculiar behaviour might be an instance of analogical change (note that the polysemous motion verbs (*abfahren, fliegen*) select *auf* + ACC according to general morphosyntactic principles of German; i.e. the default directional case is ACC).

We illustrate the case evaluation of the intransitive predicates with *durchdrehen*. In the psych-reading, *durchdrehen* means 'to crack up', 'to panic'; in the physical reading it means 'to spin' (e.g. wheels). (49a) demonstrates the thematic structure of the psych-reading; (49b) analyses the thematic structure of the physical reading. Since for both readings the argument is a minimal agent, we get the same evaluation table in both cases.

(49)   durchdreh'(x)

    a.   psych-reading

Ich	drehe	gleich	durch.
1s:NOM	spin:PRS:1s	in a moment	PFX

'I am at panic stations.'

$exp(x) \Rightarrow x = A^{min}$

    b.   physical reading

Die Räder	drehen	durch.
the wheel:Pl:NOM	spin:3p:PRS	PFX

'The wheels spin.'

$phys(x) \Rightarrow x = A^{min}$

	X	NOM!	*GEN
☞	N		
	A	*	
	D	*	
	G	*	*

The evaluation of both readings of *durchdrehen*, the psych-reading as well as the physical reading, results in only one optimal case frame, namely NOM^x. This is the actual case frame of the lexeme. The high ranked Nominative Requirement (NOM!) decides the case selection of intransitive predicates in German; verbs that violate this constraint are rather rare (but consider the systematic counterexamples *mir ist kalt/schlecht* and *mich friert/hungert/dürstet*, where nominative selection is outranked by parochial constraints). More interesting is the evaluation of transitive predicates (cf. 48b), as is demonstrated with the verb *fühlen* 'feel' in (50). These verbs have different thematic roles in their psych-reading (50a) and physical reading (50b). Here, the psych-reading has three optimal candidates, while the physical reading has only one. While the physical reading only allows for NOM^x & ACC^y (cf. 42) the psych-reading is compatible with two further case frames, namely ACC^x & NOM^y and DAT^x & NOM^y, (cf. 41). Because of Lexical Economy only the first case frame – NOM^x & ACC^y – is optimal for the lexeme: it is the only case frame compatible with all readings of *fühlen*.

(50)   fühl'(x,y)

    a.   psych-reading ([*ich*]$_x$ *fühle* [*Scham*]$_y$ 'I am ashamed')

           $\text{exp}(x,y) \Rightarrow x$ is an A^{min} and y is a P^{min}

    b.   physical reading ([*ich*]$_x$ *fühle* [*deinen Puls*]$_y$ 'I take your pulse.')

           $\text{ctrl}(x,s) \wedge \text{phys}(x) \wedge \text{phys}(x,y) \wedge \text{exp}(x,y) \Rightarrow x$ is an A^{max} and y is a P^{max}

4.2.2 Exp/Acc

Of all Exp/ACC-verbs in our corpus, the verbs listed in (51) synchronically have a sense alternation between a concrete controlling or physical reading (ctrl(x,s), phys(x,y)) and a psych-reading.

(51)   *abstoßen* ('push off the shore', 'disgust'), *ankotzen* ('vomit', 'be repelled'), *anmachen* ('ignite', 'turn on, temper'), *ansprechen* ('address', 'appeal'), *anziehen* ('attract, dress', 'appeal'), *anregen* ('activate', 'stimulate, suggest'), *aufbauen* ('build', 'encourage'), *aufrichten* ('errect', 'encourage'), *belasten* ('load', 'burden, stress'), *berühren* ('contact, touch', 'affect'), *bewegen* ('move', 'affect'), *erdrücken* ('crush', 'stress, depress'), *ergreifen* ('seize', 'affect'), *erregen* ('activate, stimulate', 'be angry'), *erschüttern* ('quake', 'shock'), *jucken* ('itch', 'bother'), *kratzen* ('scrape', 'bother'), *packen* ('seize', 'affect'), *peinigen* ('torture', 'stress'), *quälen* ('torture', 'stress'), *reizen* ('cauterize', 'appeal, tempt, tease'), *rühren* ('stir', 'affect'), *schaffen* ('create, cope with', 'exhaust'), *scheren* ('shear', 'bother'), *treffen* ('meet', 'affect'), *um-hauen/-schmeißen/-stoßen/-werfen* ('knock.over', 'upset'), *verletzen* ('hurt', 'affect'), *verstimmen* ('put out of tune', 'annoy'), *zwicken* ('pinch', 'bother'), …

Therefore, we can find at least one physical reading with a controller subject (ctrl(x,s)). According to the principle of Lexical Economy and the relevant case selection constraints, case assignment for these verbs is regular. The controller subject is an A^{max} in its physical reading and takes NOM, the controlled object is a P^{max} in its physical reading and takes ACC[16].

The evaluation of the Exp/ACC-verb *aufbauen* has been demonstrated in section 3.3.

4.2.3 Exp/Dat

Due to Case Markedness, specifically the high rank of *DAT, it is necessary to explain dative selection by the intervention of other constraints. In three-place predicates the dative is selected due to Syntagmatic Distinctness, DIST (cf. Primus 2002). With respect to two-place-predicates the question arises why many predicates, including psych-verbs with Exp/DAT, have a case-frame NOM & DAT in spite of Case Markedness, which favours NOM & ACC. The DAT-argument is the result of an extension of the argument structure of the basic verb, yielding a psych-reading to the new, extended construction. DAT is considered

---

[16] Note that the metaphorisation of concrete action verbs as expressions of mental processes or states leads to a gradual process of lexicalisation. Thus, some verbs exhibit a grade of ambiguity between concrete and psych-reading on a larger scale than others, cf. *Peter zieht mich an/spricht mich an/schmeißt mich um/haut mich um*, while for others only the psych-reading exists any longer. This gradual lexicalisation of psych-readings can be shown to have existed in the whole lifespan of the German language, e.g. *schrecken*, *entrüsten*, which in older varieties of German had physical readings (cf. section 4.3).

here a case of valence increase. If an intransitive predicate is extended by an additional non-core argument with A^{min}-properties, this argument will select dative case as predicted by the Dative-Constraint (concerning typical valence increases by dative cf. Wegener 1985: chap. 3, esp. 3.6).

Predicates with an experiencer-NP in DAT are somewhat problematic with respect to the specification of their semantic and syntactic valence. In contrast to prototypical transitive verbs with argument NPs in the NOM and ACC case, so-called DAT-subject predicates show some syntactic peculiarities with respect to e.g. passivisation, reflexivisation or implicit subjects of complement clauses (cf. for details Haspelmath 2001: 68-75). It is for these observations that DAT-psych-verbs in some approaches are analysed either as transitive predicates with non-canonical marking of the subject (cf. Onishi 2001) or as extended intransitive predicates; i.e. intransitive predicates with an additional non-core argument (cf. Dixon 1994: 122ff; Van Valin/La Polla 1997; Shibatani 2002). Given these uncertainties with respect to the argument status of the DAT-NP, we join Jacobs (1994) in arguing that valence is best understood as a cluster of features which may vary depending on the criteria used in individual definitions. With respect to psych-verbs we thus base our use of the term valence increase on the following phenomenon: for most of the DAT-verbs in question we can show that the psych-verb reading is triggered by the addition of the DAT-NP, while the intransitive base verb denotes a concrete physical activity or state (cf. 52 below); i.e., ctrl(x,s), phys (x) holds. According to the valence features of Jacobs (1994), the DAT-NP in German thus fulfils at least two valence conditions: it is obligatory for the meaning and the grammatical usage of the predicate (Jacobs 1994: 14 terms this feature "Notwendigkeit" 'obligatoriness'), and it introduces a new participant (either experiencer or stimulus) to the event denoted by the verb (Jacobs 1994: 15 terms this feature "Beteiligtheit" 'participation'). This view (DAT-NPs as arguments in German) is also supported by Wegener (1985).

In German two subtypes of DAT-psych-verbs can be found: those where the DAT-NP refers to the experiencer and those where the DAT-NP refers to the stimulus of the mental event or state. Since the latter class is a rather marginal one in German (cf. dative constraint), in this section we will focus on the Exp/DAT-verbs. But see section 4.3.4 for a short notice on Stim/DAT-verbs and the etymology of *trauern* 'mourn'.

The verbs listed in (52) can be used both as one-place predicates as well as with an additional DAT-argument.

(52)   *aufstoßen* ('belch', 'annoy'), *dämmern* ('dawn', 'realize'), *erscheinen* ('appear', 'seem, turn out'), *einfallen* ('foray, dip', 'remember'), *entfallen* ('not take place', 'escape the mind'), *leicht/schwer fallen* ('fall with ease /fall heavy (to the ground)', 'find easy/difficult'), *langen* ('seize, reach' , 'be fed up'), *passen* ('fit, match', 'suit fine'), *reichen* ('seize, reach' , 'be fed up'), *schmecken* ('taste', 'suit fine'), *stinken* ('stink', 'disgust'), *vorkommen* ('appear', 'seem, turn out'), …

With the exception of *entfallen*[17], in one-place predicate use these verbs denote concrete physical processes or states (cf. 53a); i.e., ctrl(x,s) and/or phys (x) holds. With an additional DAT-NP, the construction has a psych-verb reading with the DAT-NP taking the experiencer role (cf. 53b).

(53)   a.   Der Morgen   dämmerte   langsam.
             the morning:NOM   dawn:PAST:3s   slowly
             'Dawn was breaking slowly.'

       b.   Es   dämmerte   mir   langsam.
             EXPL   dawn:PAST:3s 1s:DAT   slowly

             / Es   dämmerte   mir,   dass …
             / EXPL   dawn:PAST:3s   1s:DAT   COMP
             'It slowly came to my attention.' / 'It came to my attention, that …'

---

[17] Although *entfallen* cannot be used in a physical reading, the original physical sense is quite transparent for contemporary speakers as a derivation of the motion verb *fallen* 'fall' with the verbprefix *ent-* 'apart' (Fleischer/Barz 1995: 322).

The addition of the DAT-NP is crucial for the psych-verb reading with these verbs. If deleted, the verb can only be interpreted in its concrete physical sense (cf. 54a) and vice versa the DAT-NP-construction only allows for a psych-verb reading (cf. 54b). [18]

(54)　a.　　Es　　dämmerte　　langsam.
　　　　　　　EXPL　dawn:PAST:3s　slowly
　　　　　　　'It dawned slowly.'

　　　b.　　* Der Morgen　　dämmerte　　mir.
　　　　　　　　the morning:NOM　dawn:PAST:3s　1s:DAT
　　　　　　　　'Dawn was breaking for me.'

Note that for *dämmern* the change in semantics also leads to a change in construction in so far as it does not allow for a subject-NP denoting a stimulus (*Seine Lüge dämmerte mir* 'His lie came to my attention'). *Dämmern* can only take an expletive subject or a sentential stimulus (cf. second example in 53b). Yet, for all other verbs in (52), the psych-verb reading allows for a subject-NP denoting a stimulus.

In German the DAT is the case form which is predestined for arguments that are added to the semantic valence of a base verb; cf. the DAT-marking of the possessor in external possessor constructions, where Jacobs' (1994) valence feature of participation holds (cf. 55).

(55)　　　Ich　　　　wasche　　　(ihr)　　　　die Haare.
　　　　　　1s:NOM　　wash:PRS:1s　(3s:DAT)　　the hair:ACC
　　　　　　'I wash her hair.'

Thus, the case frame of the verbs mentioned so far is well motivated by the case constraints of German introduced in section 3. In the contemporary language, NOM is the optimal case form that marks argument NPs of one-place predicates (see the evaluation of *durchdrehen* in (49)). DAT is the case for valence increase. In contrast to intransitive Exp/NOM verbs (cf. section 4.2.1), verbs of this class do not evoke a metonymical or metaphorical expression of a mental state of its single argument in their concrete physical reading $ctrl(x,s)$, $phys(x)$. Thus, when the psych-reading evolves, an additional argument is needed to introduce an experiencer or evaluator of the process or state denoted by the verb. Similar cases are psych-verbs consisting of the general action verb *tun* 'to do' and an evaluating adjective. This construction is derived from compound verb constructions such as *etwas Gutes tun* 'to do sth. good', *ein Leid tun* 'to do harm to' (cf. 56a) and can be shown to have already been used in expressing psych-states in Middle High German (cf. 56b). Both examples are taken from the DWb.

(56)　a.　　si　　　tâten　　da　　vil　　leide　　　den　　heiden　　　ûf des meres îs
　　　　　　　3p:NOM　did　　there　much　harm:ACC　the　　pagans:DAT　on the sea's ice
　　　　　　　'They did a lot of harm to the pagans on the frozen sea.' (livl. Chronik 7932, DWb, col. 654)

　　　b.　　daz　　tuot　　mir　　　leid　　unde　wê　　z'allen stunden
　　　　　　　that　　does　　1s:DAT　harm　and　　pain　to-all hours
　　　　　　　'This does me harm and hurts all the time.' (minnesang 1, 282, DwbVI, col. 653)

For this type of psych-verb construction, the referent of the subject NP is the only referent which may be a sensitive being and thus a possible experiencer. But the subject-NP denotes the agent (x) of a physical manipulation $(ctrl(x,s), phys(x,y))$. A psych-reading may emerge only by adding a new participant to the construction who is the evaluator/experiencer of the situation expressed by the predicate.

---

[18] Processes of physical body perceptions like *schmecken* 'taste' are included here, which, as one may argue, denote a mental state of an experiencer. But the history of this construction shows (cf. Willems/van Pottelberge 1998 and DWb IX, col. 961ff) that up to early modern German *schmecken* was polysemous. As the DWb IX points out, *schmecken* in the sense of 'giving scent' has been the starting point for the psych-verb reading (*Die Blumen schmecken hier so lieblich* 'the flowers smell so lovely here' DWb IX, col. 965). *Schmecken* has a parallel in the emotive reading of *stinken* 'stink' in *Das stinkt mir* 'I'm fed up with it'.

Another type of Exp/DAT-verbs is the adjective + copula construction. In contemporary German it is a very productive strategy for expanding the psych-verb lexicon. It behaves similarly to psych-verbs with valence increase. The referent of the DAT-NP is the newly added evaluator of the situation, and thus the psych-reading is evoked by valence increase, cf. 57.

(57)   Die Konferenz   ist   mir   wichtig.
         the conference:NOM   COP   1s:DAT   important
         'The conference is important to me.'

In general, an adjective + copula construction can only have a psych-reading if the adjective allows for an evaluation of the situation expressed. Thus, adjectives in the psych-verb constructions denote physical perceivable properties like temperature (*kalt* 'cold', *warm* 'warm') or are evaluative adjectives from the start (*schlecht* 'bad', *egal* 'indifferent', *wichtig* 'important'). Other types of adjectives can only evoke psych-verb readings if they are turned into evaluative expressions, e.g. by adding the comparative particle *zu*, or evaluatative adverbs such as *genug* 'enough'[19], as in (58b).

(58) a.   Der Schuh   ist   (*mir)   groß.
           the shoe:NOM   COP   (1s:DAT)   large
           'The shoe is large (*for me).'

      b.   Der Schuh   ist   mir   *zu*   groß / groß   *genug*.
           The shoe: NOM   COP   1s:DAT   too   large / large enough
           'The shoe is too large / large enough for me.'

In this respect, the adjective + copula construction differs from the constructional type with verbs that undergo valence increase. Although for both types of constructions the psych-reading is evoked by adding a DAT-argument, the adjective + copula construction itself already expresses an evaluation, while the base constructions DAT-verbs do not[20].

4.3   Psych-Verbs in Etymological Perspective

As demonstrated in the previous section, for verbs which are polysemous between a psych-reading and a physical reading in contemporary German case selection can easily be motivated by the principles of Lexical Economy. However, there are many verbs which in contemporary German only have a psych-reading. In the following sections we show that the vast majority of these verbs originated in verbs with physical readings and went through a stage of polysemy when the psych-verb reading emerged. Case selection for these verbs can thus be understood from an etymological perspective, motivated by the principle of Lexical Economy in the same way as was shown for polysemous verbs in contemporary German. In other words, when the verbs got polysemous, the case selection of the verb was still triggered by the strongest reading; i.e., the physical one. After loss of the physical reading the case frame of the remaining psych-verb was well established and its preservation well motivated. In section 4.3.1 we examine Exp/NOM-verbs and give a etymological analysis for the verbs *sinnen* 'to muse', *trauern* 'to mourn', *vergessen* 'to forget', and *(er)leiden* 'to suffer'. In section 4.3.2 we investigate the etymology of the verbs *(er)schrecken* 'to scare', *ängstigen* 'to frighten', *erbosen* 'to annoy sb.' and *wundern* 'to surprise sb.' in order to demonstrate the regular case selection for these Exp/ACC-verbs. In

---

[19] We thank one of our anonymous reviewers for pointing out this possibility.

[20] In some cases, the adj + copula construction seems to be a one-place construction with no subject (cf. (IV.a). All expressions of this construction type, however, allow for an expletive (cf. IVb) without a change in meaning (cf. e.g. Pütz 1986, Hentschel 2003) and, therefore, are also to be classified as two-place predicates with the DAT-argument and the psych-reading resulting from valence increase.

  (IV) a.   Mir   ist   kalt/schlecht /angst und bange.
            1s:DAT   COP:3S   cold/bad/afraid
            'I feel cold/sick/afraid.'
       b.   Mir   ist   es   kalt/schlecht /angst und bange.
            1s:DAT   COP:3S   EXPL   cold/bad/afraid
            'I feel cold/sick/afraid.'

section 4.3.3 we take a diachronic perspective on DAT valence increase for the verbs *gefallen* 'to enjoy', *schmeicheln* 'to flatter sb.' and *nutzen* 'to be useful to sb.'. We end section 4.3 by looking at the rather marginal class of Stim/DAT-verbs with a diachronic analysis of the Stim/DAT-verb *trauen* 'to trust sb.' in section 4.3.4.

4.3.1   Exp/NOM

For the verbs in (59a) we can show that they originated in physical activity verbs; i.e., ctrl(x,s), phys(x) for intransitive predicates and ctrl(x,s), phys(x,y) for transitive predicates holds in older varieties of German (for details, cf. appendix I). We will give the etymology of some exemplary verbs below. The verbs listed in (59b) have been psych-verbs as long as they can be traced back diachronically. However, they include a component of intentionality (i.e. ctrl(x,s)) at least in one of their readings (e.g. *eifern* 'to strive' in contemporary German and *achten* originating in the Old High German intentional perception verb *ahtôn* 'to observe').

(59)   a.   intransitive:

denken 'think', *erschrecken* 'get frightened', *grübeln* 'muse', *hadern* 'quarrel', *hoffen* 'hope', *schwelgen* 'wallow', *sinnen* 'muse', *streben* 'strive', *stutzen* 'be surprised', *trachten* 'aspire', *trauern* 'mourn', *wüten* 'rage', …

transitive:

beneiden 'envy', *betrauern* 'bemoan', *empfinden* 'sense', *erleiden* 'suffer', *genießen* 'enjoy', *hassen* 'hate', *merken* 'notice', *schließen* 'conclude', *spüren* 'sense', *verabscheuen* 'disgust', *vergessen* 'forget', *wagen* 'dare, risk', …

b.   *achten* 'esteem', *beachten* 'mind', *verachten* 'despise', *begehren* 'desire', *(be)staunen* 'gaze, be astonished', *eifern* 'agitate, strive', *gewahren* 'become aware', *wollen* 'want', *wünschen* 'wish', …

Reflexive Exp/NOM-verbs such as *sich ekeln* 'be disgusted', *sich schämen* 'be ashamed', *sich sehnen* 'long for', *sich erinnern* 'remember', *sich sorgen* 'worry', *sich freuen* 'be glad', are not considered here. They are secondary constructions originating in Exp/ACC-verbs (e.g. *jemanden* (ACC) *erinnern* 'to remind sb.') or from transitive physical manipulation verbs (e.g. *sich sehnen* 'to long for sb.' originates in a verb meaning 'to strip a body off its nerves, to weaken a body' (cf. DWb X/I), thus being a parallel to the lexicalisation pattern of the psych-verb *(ent)nerven* 'to annoy sb.'). See section 4.3.2 for a general argumentation on some of those Exp/ACC-verbs.

For the verbs listed in (60), sense alternations could be found neither diachronically nor synchronically; neither do they have a reading of intentionality.

(60)   *lieben* 'love'[21], *hassen* 'hate'[22], *fürchten* 'be afraid'[23], *kennen* 'know', *können* 'be able', *bedauern* 'regret'

---

[21] *Lieben* 'love' in contemporary German has developed a physical reading 'to make love'. This reading, however, did not exist in earlier stages of the language. The origin of the physical reading may be initiated by the Exp/NOM case frame that is compatible with control readings.

[22] According to DWb (IV/II, col. 546) and Pfeifer (1993), *hassen* 'to hate' originated in an intentional motion verb meaning to 'chase sb. due to hostile feelings' (Note that the physical manipulation verb (ctrl(x,s), phys(x,y)) *hetzen* 'to race sb.' is the causative derivation of *hassen*.). While the change in semantics from a physical action verb to a verb denoting a mental state took place before the 9th century, the original physical action verb reading was used up to Middle High German (cf. Va) and early modern German (cf. Vb).

(V)   a.   (ein teil sich dô ze lange der künec und sine man)

versûmten,   daz   dô   Herwic   des hazzes   hie   began
miss:PAST:3p   that   then   H.   the fight:GEN   here   start:PAST:3s
'The king's men failed to realise for far to long that Herwic already had started the fight.'

b.   (sêlig sit ir,)

wan   ûch   di lûte (…)   werden   hazzin
when   2p:ACC   the men:NOM   AUX:FUT:3p   hate
'Blessed are ye, when men shall revile you, and persecute you.' (Luther, DWb IV/II, col. 547)

The example in (Va) is taken from the Middle High German epos Gudrun. In the verses before the one cited in (Va) King Hettel, the father of Gudrun, denies Herwic to marry his daughter. Herwic leaves king Hettel's palace fiercely and in verse 638 returns with his men to start a fight for Gudrun. The verbal noun

In the following sections, we illustrate details in the semantic change of some verbs which in contemporary German only exhibit a psych-reading. We chose the cognitive verb *sinnen* 'to muse' and the emotive verb *trauern* 'to mourn' as examples for intransitive predicates and the cognitive verb *vergessen* 'to forget' and the emotive verb *hassen* 'to hate' as examples for transitive predicates. The exposition on the psych-verb *(er)leiden* 'to suffer' is provided to show that the process of semantic change is sometimes multidimensional in that it may not only be induced by semantic processes but also by phonological similarities.

sinnen 'to muse'

The etymological origin of *sinnen* 'to muse' is subject to some debate. According to the DWb (X/I, col. 1156-1167), Seeboldt (1970: 394f), and Pfeifer (1993), modern German *sinnen* 'to muse' descends from Westgermanic **sinnan* < grm. **sinþan* 'go, make a journey', which is also the base for the causative derivation in *senden* 'to send' and the collective noun *Gesinde* 'farmhand (collective)' ('"those which are sent to work"' DWb (X/I, col. 1156). The DWb (X/I, col. 1156) emphasises that the verb *sinnen* has a long tradition in Germanic languages and that the verb *sinnen* is not a denominal derivation of *Sinn* 'sense' but a genuine motion verb going back to the Ie. verbal root **sentno-* and is related to Ie. **sentos* 'path'. For the DWb, the motion verb reading is still active in Middle and Early High German, as the example from the Middle High German *Kaiserchronik* (61) illustrates.

(61)   war   sol   ich   sinnen /   nâch   mînen lieben kinden
        Whereto   shall   1s:NOM   go:INF /   to   my beloved children
        'Where shall I go (to find) my beloved children?'

As the DWb argues, the cognitive reading 'to muse' can already be found in the Old High German particle derivation *gesinnan*. The local reference point of *gisinnun* in (62) is 'heaven' (*himil*); i.e. a place where only thoughts, but not the actual protagonists of the text can go to.

(62)   thó   sie   thes   bigunnun,   zi himile   gisinnun
        then   3p:NOM   that:GEN   start:PAST:3p to heaven   go:PAST:3p
        'Then they started to send their thoughts to heaven (lit.: they went to heaven).' (ad Hartm 69, DWb X/I, col. 1158)

According to the DWb (X/I, col. 1158), the cognitive reading emerges from the Middle High German stages onwards (cf. 63).

(63)   wand   er   heim   sinnete   in sînes oeheimes hûs
        when   3s:NOM   home   go:PAST:3s   in his uncle's house
        'When he sent his thoughts towards home, (being) in the house of his uncle (lit.: he went home).' (Lanzelet 5572, DWb X/I, col. 1158)

As the examples in (62) and (63) illustrate, the semantic change of *sinnan* from a motion verb to a cognitive verb can best be explained as a metaphoric transfer with the sense 'to virtually go towards a specific direction' as a starting point. Thereby, the New High German psych-verb may still have a reading of a controlled

---

hazzes 'hate:GEN' denotes the fighting that is started by Herwig's army. The example sentence in (Vb) is taken from Martin Luthers translation of the verse Matthew 5, 11 of the New Testament. The verb *hassen* is used to translate the Latin expression *cum (…) persecuti vos fuerint* 'they would have pursued you'.
Contemporary Indoeuropeanists, however, do not accept the etymology of the DWb any longer. To their opinion, the verb traces back to the Ie. root **keh₂d-* 'be upset'; i.e. the verb has a psych-reading throughout its history.

[23] *fürchten* originates in a denominal derivation of *Furcht*. According to the DWb (IV/I,1 col. 683), the noun *Furcht* is seen as a *t*-derivation of the got. adjective *faúrhts* 'be frightened', based on the noun 'furrow'. *Furcht* then originally had the meaning 'to be digged up (emotionally)' ("eindringlich aufgewühlt" DWb col 683). This, we would expect, should result in an Exp/ACC-verb, with the P^{max} argument of the original physical manipulation verb becoming the experiencer in the psych-reading. Thus, although a relation to an original physical reading may be argued for *fürchten*, the argument linking for this verb is obscure.

cognitive action, as in (64). When *sinnen* is used in this sense, the stimulus may be a locative expression, cf. *darauf* 'onto' in (64).

(64) der geist der kaufmannschaft   sinnt   auf den erwerb der reichtümer
      the mind:NOM of:the merchants   muse:PRS:3s   on the accumulation of wealth
      'The mind of the merchants is directed to the accumulation of wealths.' (Adelung, DWb X/I, col. 1159)

In New High German, the psych-verb may also be used to express a mere cognitive action, which is not directed to a specific target. This is illustrated in (65) where *sinnen* 'muse' is co-ordinated with *brüten* 'ponder', which is nearly a synonym to the mere cognitive reading of *sinnen*.

(65) nicht zeit   ist's   mehr   zu   brüten und   zu   sinnen
      not time   is:it   more   to   ponder and   to   muse
      'There's no time left to ponder and to muse.' (Schiller, Wallenstein's Tod 1,1, DWb X/I, col.1162)

In contrast to the view supported by the DWb, Seeboldt (1970), and Pfeiffer (1993), Eichmann (1973) argues for the Old High German verb *sinnan* originating in a Grm. root **sinn-* 'care for, strive at' going back to the Ie. Verb root **sinh₂* 'acquire, get hold of'. According to Eichmann, the motion verb reading of *sinnan* is secondary due to phonological synchretism in Old High German of the verb Grm. **sinn-* 'care for, strive at' with the motion verb Grm. **sinþan* 'go, make a journey'. The LIV follows Eichmann's etymological analysis.

In sum, however, for our argumentation, both views are suitable. The origin of *sinnen* in a motion verb as well as in a verb originally meaning 'acquire, get hold of' underlines our argumentation that the psych-reading of *sinnen* can be traced back to a concrete physical meaning; i.e. ctrl(x,s), phys(x) in case of the motion verb origin or ctrl(x,s), phys(x,y) in case of the origin in the physical manipulation verb.

trauern 'to mourn'

According to J. Grimm, *trauern* 'to mourn' originated in the Old High German *trūren*, which as a starting point denoted the act of 'lowering one's eyes or head', probably in reflection of the mourning process. Pfeifer (1993) and Kluge (2002) agree with this etymological analysis, while the DWb lists Grimm's etymology as a special interpretation of the data. The DWb (XI/I,1, col. 1382) adduces, however, a reading of *trauern* as 'giving public signs of mourning' ("äuszere bezeugung der totentrauer"), 'wearing mourning clothes', and thus agrees to J. Grimm's analysis of *trauern* as denoting a public statement of mourning by a physical action. This reading of *trauern* then, apart from J. Grimm's etymology as mentioned above, would also explain the Exp/NOM, since even in New High German *trauern* in its strongest reading has ctrl(x,s) and phys(x) components.

vergessen 'to forget'

According to the DWb (XII/I, col. 415), in all stages of German, *vergessen* 'to forget' had only a psych-verb reading of "unintentionally losing information out of one's memory" ("vergessen ist seit seinem frühesten auftreten im germanischen nur als geistige thätigkeit nachweisbar, bedeutet also ein absichtsloses verlieren aus dem sinne"). As the DWb, Kluge (2002), and Pfeifer (1993) point out, however, the verb root of *vergessen* originates in Old High German *gezzan* 'to get' and is cognate to old Norse *getan* and middle English *geten*. It originates in the Grm. strong verb **get-a-* 'get'. It can be traced back to Ie. **gʰed-* 'touch, seize' (cf. lat. *prehendo* 'seize'). According to the DWb, the prefix *ver-* (Old High German *fir-*) is used to reverse the semantic content of the verb base, resulting in the derived verb form Old High German *firgessan*, contemporary German *vergessen*. Thus, the meaning of Old High German *firgessan* by the authors of the DWb is seen as originally denoting a process of 'letting go of sth.', or of 'not holding sth. any longer'. Considering the original meaning of the verb root *gess-* 'get' (i.e. a verb with ctrl(x,s), phys(x,y) components), the reading 'intentionally not holding sth. any longer in one's memory' of the derived verbform *vergessen*, is well motivated.

(er)leiden 'to suffer'

According to Pfeifer (1993) and Kluge (2002), *leiden* 'to suffer' originated in Old High German *lîdan*, a cognate to Old Saxon *lîdan*, both going back to Grm. **leiÞ-a-* 'go away'. Due to the phonetic similarity to the noun *Leid* 'suffering'[24], a semantic blend had taken place before the 9th century, which gave way to the change in semantics.

The DWb (VI, col. 658) also states that the psych-verb *leiden* originated in the Grm. motion verb **leiÞ-a-* 'go away', but in contrast to Pfeifer (1993) and Kluge (2002), the author of the DWb is of the opinion that the psych-reading emerged from the motion verb directly and did not result from a blend with the noun *Leid*. The DWb shows that from the 2nd half of the 9th century, the Old High German *lîdan* was polysemous and used as motion verb as well as a psych-verb, while in some other Germanic languages the psych-reading did not emerge. In the case of *lîdan*, the DWb (VI, col. 658) argues for a semantic change induced by conversational implicature[25], insofar as 'making a journey'; i.e. living in a foreign surrounding, leads to bad feelings of fear, homesickness or endangerment. Here the DWb (VI, col. 658) sees a parallel in the semantic change of the noun *Elend* 'misery', which originally only meant 'living abroad' and then its meaning changed into 'unhappiness' or 'bad luck'.

4.3.2   Exp/ACC

For the verbs adduced in (66), we can show that diachronically they had a concrete reading of physical manipulation (ctrl(x,s), phys(x,y)) or physical action (ctrl(x,s), phys(x)) in older varieties of German, and some time had been polysemous (for details cf. appendix II). Thus, case assignment followed the same constraints as stated for the verbs in (51). When the concrete reading was lost and the semantic change from physical reading to psych-reading was lexicalised to the psych-reading only, the case frame of the verb was well established. We illustrate the etymology of some verbs listed in (66) in the following paragraphs.

(66)   *anöden* 'be boring', *anstinken* 'annoy', *anwidern* 'disgust', *ärgern* 'anger', *(be)ängstigen* 'frighten', *bedrücken* 'depress', *beeindrucken* 'impress', *begeistern* 'enthusiast', *bestechen* 'impress', *bestürzen* 'upset', *betrüben* 'aggrieve', *demütigen* 'humilate', *empören* 'outrage', *(ent)nerven* 'unnerve', *entrüsten* 'be indignant', *enttäuschen* 'disappoint', *erbosen* 'annoy', *(er)freuen* 'rejoice', *ergötzen* 'amuse', *erinnern* 'remind', *(er)schrecken* 'frighten', *erstaunen* 'surprise', *erzürnen* 'enrange', *grausen* 'horrify', *gruseln* 'give the creeps', *langweilen* 'bore', *stören* 'disturb', *trösten* 'comfort', *überraschen* 'surprise', *verbittern* 'embitter', *verdrießen* 'chagrin', *verdutzen* 'disconcert', *verwirren* 'confuse', *(ver)wundern* 'amaze', *verzücken* 'extacise', …

For a small amount of psych-verbs with Exp/ACC in our corpus we could find no data. They can be divided into two groups. The first group comprises genuine German psych-verbs such as physical sentience verbs (*frieren* 'to be cold', *hungern* 'to be hungry', *dürsten* 'to be thirsty')[26], *ekeln* 'to disgust' and *gelüsten* 'to long for', which may be cognate to the verbum dicendi *lustōn* 'demand', although Greule (1999) does not mention this possibility. Paul (¹⁰2002: 745), however, states that both *lustôn* and *lusten* are used as translations of Latin verbs for 'demanding' in the Old High German glosses. Hence, for *gelüsten* an original ctrl(x,s) component can be assumed.

The second group of problematic cases are loan words from Latin/French or English (*amüsieren* 'amuse', *demoralisieren* 'demoralise', *deprimieren* 'depress', *desillusionieren* 'disillusionate', *faszinieren* 'fascinate', *inspirieren*

---

[24] While Kluge (2002) emphasises that the noun *Leid* and the verb *leiden* are not cognate, Pfeifer (1993) shows a possible connection between these two. In his view, the noun *Leid* goes back to a substantivation of the Germanic adjective **laitha* 'damaging', originating in the Indo-European verb root i.e. *leit-* 'to detest, to commit sacrilege', which he considers as cognate also to the verb *leiden*.

[25] The term conversational implicature is used in the sense of Traugott/Dasher (2002).

[26] These verbs, however, show case variation between ACC and NOM even in the oldest texts of Old High German (cf. 5).

'inspire', *irritieren* 'irritate', *provozieren* 'provoke', *schockieren* 'shock', *stimulieren* 'stimulate'), for which it can be argued that they are taken from the giver language along with their case frames[27].

Unclear cases are for instance *aufmuntern* 'to jolly', *befremden* 'to alienate', *befriedigen* 'to satisfy', *beglücken* 'to make happy', *beruhigen* 'to disquiet', *einlullen* 'to lull', *erheitern* 'to exhilarate', *stören* 'disturb', for which at least one can say that they all are process verbs allowing controller stimuli – i.e., ctrl(x,s) holds – and thus, according to the NOM-Requirement and the thematic case selection constraints would result synchronically in a nominative case assignment for the stimulus.

To illustrate the semantic change in a physical manipulation verb that evoked a psych-reading, we chose the verbs *schrecken* 'to scare sb.' and *ängstigen* 'to frighten sb.' as a model for verbs which in contemporary German can be used as a psych-verb with a controlling stimulus. The etymological development of *erschüttern* 'to shock sb.', *erbosen* 'to annoy sb.' and *wundern* 'to surprise sb.' as given below illustrates the emergence of a psych-reading with a non-controlling stimulus.

(er)schrecken 'to scare sb.'

According to the DWb, Kluge (2002), and Pfeifer (1993), the psych-verb *(er)schrecken* 'to scare sb.' originates in the Old High German verb *screcchen* 'to make sb. jump', which is a causative derivation of the intransitive physical action verb *scricchen* 'to jump'; i.e., for the transitive *(er)schrecken*, ctrl(x,s), phys(x) holds. As the DWb (IX, col. 1668) points out, the physical reading was active in Middle High German up to the 18th century, and, for example, was used to denote the inciting of horses or the rousing of animals, as can be seen from a German – Italian dictionary of 1702, where the author gives the sentence in (67) as an illustration of the meaning of *schrecken*.

(67)   die   vögel   schrecken
            the   birds:ACC   rouse:INF
            'to rouse birds' (Kramer, dt-ital. dict. 2 , DWb IX, col. 1669)

The original physical reading becomes also obvious with the base verb combined with several locative particles such as *auf* 'up', *entgegen* 'towards', *empor* 'up', *zurück* 'back', *zusammen* 'together', which even for psych-readings yield a directional sense (cf. 68).

(68)   (sprich böser Vorbedeutung wort nicht aus!)
            und   schrecke   mich   der Sorge   nicht   entgegen
            and   scare:IMP   1s:ACC   the sorrow:DAT   not   toward
            '(Do not warn me of evil!) and do not scare me towards sorrow.' (Goethe 9, 290, DWb IX, col. 1669)

ängstigen 'to frighten sb.'

According to Pfeifer (1993), modern German *ängstigen* 'to frighten sb.' originated in the 16th century as a deadjectival derivation. The adjectival base *engstig* originated from the Old High German noun *angust* (germ. **angusti-* or **angustu-*), a (s)*ti*-abstractum to the Grm. adjective **angu-* 'tight'. Old High German (s)*ti*-abstracta are nouns which denote what is connected to the base adjective; in the case of **angusti* this is the 'state of something being tight'. Thus, the original meaning of the deadjectival verb *ängstigen* exhibits a sense of ctrl(x,s) and phys(x,y) and can best be translated as 'put sb. in the state of being tight'. Compare also modern German expressions like *Beklemmungen haben* 'to have a feeling of tightness', *jmdm. schnürt sich (vor Angst) die Kehle zu* 'sb's throat is laced up (out of fear)' in which the metaphor that evoked the psych-verb *ängstigen* is still active. The same semantic change – 'tight' (ie. **anĝhú-*) → 'frighten' – took place in several Indo-European languages (e.g.

---

[27] Possibly the same metaphorisations have taken place in the giver language, as can be seen in the German psych-verb *provozieren* 'provoke' which goes back to the Latin particle verb *provocere* 'evoke' with a verbum dicendi as a base. Here the participant who is calling is a Proto-Agent, and the participant who is being called for is a Proto-patient.

Latin *angō* 'I lace up, frighten sb.') The Old High German adjective *ango, engi* was still polysemous between the concrete reading 'tight' and the psych-reading 'be frightened' (cf. Heidermanns 1993: 100)[28].

erbosen 'to annoy sb.'

As is shown by Kluge (2002), *erbosen* 'to annoy sb.' and its English cognate *boast* originated in a verb meaning 'to blow up sth.' Because of the phonetic similarity to *böse* 'bad', it underwent a blend with the adjective *böse* before the second half of the 17th century, which gave way to the resulting contemporary psych-reading. It remains unclear, whether this blend with an adjective denoting a stative concept may explain the semantic change in *erbosen* from a physical manipulation verb 'blow sth. up' to a non-control psych-verb. The fact that *erbosen* originates in a physical manipulation verb, however, makes the Exp/ACC-case frame plausible, although it cannot explain why the psych-reading of *erbosen* only allows for non-controlling stimuli.

wundern 'to surprise'

For *wundern* 'to surprise' the case is not as clear as with *erbosen* 'to annoy'. According to the DWb (XIV/II, col. 1929-1943), the verb is a denominal derivation of the noun *Wunder* 'miracle', resulting in a verb denoting a mental state 'being surprised' as well as yielding the causative reading 'putting sb. in the state of being surprised' ("kennzeichnung eines (passiven) psychischen zustandes, in dem sich jem. befindet, oder zur bezeichnung des vorganges, dasz jem. in einen solchen Vorgang versetzt wird" DWb XIV/II, col. 1930). The second reading, however, only occurs in constructions with sentential or expletive subjects and does not allow for subject-NPs denoting human referents. From its early uses on the psych-verb *wundern* thus has been a verb that only allows for a non-controller stimulus[29].

Kluge (2002) supposes a more far reaching etymology of the verb in that he states the Grm. nominal root **wundra-* is possibly a *ro*-derivation of the verb *winden*[30]. He draws a parallel to the lexicalisation process of the Latin word *perplexus*, which is the perfect participle of the verb *plectere* 'to plait into one another' and has developed a psych-verb reading meaning 'tangled, obscure'. Note also that the same metaphoric process takes place in the modern German verb *verwirren* 'entangle', which denotes a physical manipulation (phys(x,y)) in its physical reading (cf. 69a). When used with an object-NP denoting an animate referent, the construction evokes a psych-verb reading with Exp/ACC (cf. 69b).

(69) a. Der Wind   verwirrte   sein Haar.
          the wind:NOM   entangle:PAST:3s   his hair:ACC
          'The wind entangled his hair.' (Duden, Bd. 6)

      b. Seine Gegenwart   verwirrte   sie.
          his presence:NOM   entangle:PAST:3s   3s:ACC
          'His presence irritated her.' (Duden, Bd. 6)

In accordance with Kluge (2002), we argue for the verb *wundern* to secondarily originate in a concrete physical manipulation verb.

---

[28] According to the DWb (I, col. 358), the adjective *bange* and the psych-verb *bangen um* as a deadjectival derivation also are derivations of the adjective *angu, starting from a *be*-prefixation *be-ange* (cf. contemporary German *be-engt*).

[29] The argumentation of the DWb can also be found in Kaliuščenko (1988). In his section on Old High German denominal verb derivation Kaliuščenko paraphrases the denominal derivation of *wundern* as "the first participant triggering the emotion as is denoted in the nominal base in the second participant" („S1 löst bei S2 das Gefühl Sm [= motivierendes Substantiv, SK] aus" (Kaliuščenko 1988: 77), whereby the first participant (S1) has no control over the event („S1 ist in diesem Fall nicht aktiv in bezug auf S2", Kaliuščenko 1988: 77). The verb *wundern* is only one of several psych-verbs derived from nouns in this semantic subgroup of his third type (= the Sm denotes an action, process or state) of derivational mechanisms.

[30] *Ro*-derivations are of the weak grade, hence the vowel change /i/ > /u/.

4.3.3 Exp/DAT

Some Exp/DAT-verbs (cf. 71) do only have psych-verb readings; i.e., the deletion of the DAT-argument for these verbs is only possible if the experiencer (i.e. the referent of the omitted DAT-NP) is retrievable from the context. But even when the DAT-argument is omitted, this does not cause a change in the meaning of the verb; i.e., it still allows for a psych-reading only (cf. 70).

(70)　　　　Das　　leuchtet　　(mir)　　ein.
　　　　　　this　　shine:PRS:3s　1s:DAT　in
　　　　　　'This makes sense (to me).'

Thus, the features of Jacobs (1994) that are considered to be relevant in this article (obligatoriness and participation) still hold for these verbs.

Verbs of this class either are particle derivations of one-place predicates (cf. 71a) or etymologically originate in physical manipulation verbs (cf. 71b). Thus, with the exception of *fallen* 'to fall' – which is only phys(x) – ctrl(x, s) and phys(x) hold for these verbs.

(71)　　a.　　*gefallen* 'enjoy', *mißfallen* 'dislike', *bekommen* 'affect sb. positively with respect to sb.'s physical state', *nahegehen* 'affect', *entgehen* 'escape the mind', *nahestehen* 'affect', *obliegen* 'behoove', *liegen* 'be affected to', *fernliegen* 'not intend to', *fernstehen* 'feel distant to', *einleuchten* 'make sense', *widerstreben* 'jib', *zusprechen* 'like', …

　　　　b.　　*schmeicheln* 'flatter', *dünken* 'come to mind', *aufdrängen* 'impose upon', *nutzen* 'be useful', *schaden* 'harm', …

The Exp/DAT-verbs listed in (72) are problematic.

(72)　　　　*behagen* 'to feel cosy', *grauen* 'to be horrified', *grausen* 'to be horrified'

The case of the psych-verb *behagen* 'to feel cosy' is problematic since from the earliest data on, *behagen* has been only used in Exp/DAT-constructions and no good data on one-place predicate uses of *behagen* have been found (except from some few examples in poetry, where the one-place predicate use may result from rhyme techniques (cf. Willems/van Pottelberge 1998: 516). Thus, the emergence of the Exp/DAT-construction by valence increase can be seen as doubtful. The DWb (I, 1318), however, argues for a possible origin in Old High German *hagan* 'brushwood for fencing' ("der hegende dorn"), *hac* 'the cared-for forest' ("der gehegte wald") and the causative verb *hegen* 'to make a fence'. The causative verb *hegen* 'to make a fence' in Middle High German has spread to denoting situations where peace has to be kept like with court places (which are marked by a fence), or where plants and animals are kept (behind fences). Bearing that in mind, one can argue that *behagen* 'to feel cosy' expresses the feeling of possessing a safe place or a place where one supplies oneself with food, with the DAT-NP denoting the possessor of the place that is fenced.

The verb *grausen* 'to be horrified' is an intensifying derivation of the psych-verb *grauen*. *Grauen* can be traced back as a psych-verb to Old High German *grūen* 'to be horrified'. Kluge (2002) sees a possible cognate in Lat. *horrēre* 'to quake'. If one accepts this as a possible etymology of *grūen*, then *grauen* and *grausen* are expected to be similar to verbs like *erschüttern* (< *schüttern* 'to shake') in the Exp/ACC-class in section 4.3.2. Note also that the Exp/ACC-verb *gruseln* 'to be horrified' (cf. 66) is cognate to the Exp/DAT-verbs *grauen* and *grausen*. According to Kluge (2002) it is parallel to *grausen* in that it is an intensifying derivation of the base verb *grūen*. Given the fact of cognacy and the probable physical manipulation reading of the original base *grūen*, *grauen* and *grausen* are expected to be Exp/ACC-verb. Thus the Exp/DAT-constructions for these verbs remain problematic.

In order to illustrate the mechanisms of evolving psych-verbs by valence increase, we now give some detailed expositions on the etymology of some contemporary psych-verbs. The verb *gefallen* 'to enjoy sth.' is chosen as an example of intransitive verbs, while *schmeicheln* 'to flatter sb.' and *nutzen* 'be useful to' are taken to illustrate more complex semantic changes that have taken place in German Exp/DAT-verbs.

gefallen 'to enjoy sth.'

According to Willems/van Pottelberge (1998: 506f) *gefallen* is a derivation of the uncontrolled process verb Old High German *fallan* 'to fall, topple' with the intensifying particle *gi-*; it originally meant 'to sink down' as is illustrated in (73).

(73)   ába déro éinualtun gágenuuerti   *gefállet*   si
        from the simple present   sink:PRS:3s   3s:NOM

        in dia únéntlichun mánegfalti
        in the infinitive variety
        'From the simple presence (the matter) sinks down towards the endless variety.'[31]
        (Willems/van Pottelberge 1998: 507)

In this originally physical process reading phys(x), *gifallan* is an intransitive predicate. From Old High German onwards, however, the prefixed verb *gifallan* has been polysemous and among other readings has been used to express a transfer of an unspecified possessor to a specified recipient. For this use Willems/van Pottelberge translate *gifallan* as *zuteil werden*, *zufallen* 'get, to fall to'. In this use, the recipient of the transfer verb is added via a DAT-NP, as is illustrated in (74).

(74)   in zórften tēilen   sint   *mír*   geuallen   diū lantmezsēil.
        in beautiful parts   AUX:3p   1s:DAT   fall:PPERF   the measure.bands:NOM
        'For beautiful landscapes the measure bands fell to me (I got some beautiful lands).'[32]
        (Willems/van Pottelberge 1998: 508)

According to Willmes/van Pottelberge (1998: 508), the emergence of the psych-verb reading may then be explained by the fact that a transfer of possession is a positive event, which arouses positive feelings, hence giving way to the emergence of an evaluator. The original concrete reading of *gifallan* continues well into Middle High German, although the psych-verb reading is used more and more frequently throughout this period and finally the concrete physical reading gets lost in modern German.

schmeicheln 'to flatter sb.'

The Exp/DAT-verb *schmeicheln* 'to flatter sb.' goes back to the late middle ages and exhibits several different case frames throughout its history (cf. Willems/van Pottelberge 1998, chap. IV.5 for details). According to the DWb (IX, col. 980f), *schmeicheln* was originally used as an intransitive predicate denoting motion in a secret manner and was the *l*-intensive derivation of the base form *schmeichen* 'to snuggle, to caress by touching'. As the DWb illustrates, *schmeicheln* 'to flatter sb.' also took over meaning components of its base form *schmeichen* 'to snuggle, caress', thus being used as a transitive verb denoting a physical manipulation (ctrl(x,s), phys(x,y)). According to Kluge (2002) and Pfeifer (1993) this construction gave birth to the psych-verb reading. Starting from external possessor constructions as given in (75), the psych-verb reading established the external possessor as the experiencer of the emerging psych-verb reading.

(75)   was   schmeichelst du   mir   um's kinn
        why   caress:PRS:2s 2s:NOM   1s:DAT   around:the chin
        'Why are you caressing me around my chin.' (G.A. Bürger, 18th century, taken from DWb IX, col. 981)

---

[31] The New High German translation of the Old High German text as given by Willems/van Pottelberge (998:507) is: „Und von der einfachen Gegenwart sinkt sie (die Beschaffenheit) herab in die unendliche Mannigfaltigkeit vergangener und zukünftiger Zeiten".

[32] The New High German translation of the Old High German text as given by Willems/van Pottelberge (998:508) is: „In herrlichen Teilen sind mir die Meßschnüre zuteil geworden. (lit. 'herrliche Landstriche sind mir durch die Meßschnur zuteil geworden')".

A parallel in construction and in the metaphorisation process can be found in contemporary psych-verb expressions with similar meanings: *jmdm. den Bauch pinseln* 'to brush so.'s belly', *jmdm. um den Bart streichen* 'to sweep so.'s beard'.

nutzen 'be useful to sb.'

According to Willems/van Pottelberge (1998: 354), the psych-verb *nutzen* (Low German and Standard German variant)/*nützen* (High German variant) originated in two different derivations of the Old High German noun *nuzi* 'use'. The low German *nutzen* is an *ōn*-derivation of *nuzi* and resulted in the physical manipulation verb *nuzzōn* 'to make use of sth/sb' (ctrl(x,s), phys(x,y)). The High German variant apparently resulted from the causative *–jan*-derivation from *nuzi,* which can be seen in the resulting ablaut in the Middle High German verb form *nützen,* and had the same meaning 'to make use of sth/sb'. Thus, in Old High German only two-place predicate uses of *nutzen* are found, as is illustrated in (76) with an example from Notker.

(76)   tīe   sīa   núzzōnt   mít kūotlichi
          of what   3p:NOM   use:PRS:3p   with superbness
          'Of what they superbly make use.'[33] (Piper, I, 122, 13, zitiert nach Willems/van Pottelberge 1998: 354)

Elliptical uses, resulting in a change of semantics from a physical manipulation reading to a psych-verb reading 'to be useful', can only be found from Middle High German onwards. During this period, two different constructions of the psych-verb reading co-occured: the Exp/DAT-construction with an additional experiencer-NP originating from the elliptical use of *nutzen* and the Exp/ACC-construction originating in the transitive base verb. Only from early High German onwards both constructions have been lexicalised to different readings, with the DAT-construction exhibiting the contemporary psych-verb reading 'to be useful to sb.' (for more details cf. Willems/van Pottelberge 1998, chap. IV.13).

4.3.4   Stim/DAT

While Exp/DAT-verbs denote events that are potentially open to an evaluation and, therefore allow the experiencer to be added with an emerging psych-verb interpretation of the base verb, Stim/DAT-verbs emerge the other way around. The base verb denotes a mental state of an experiencer denoted by a NOM-NP with no event-internal causer. The stimulus may then additionally be referred to by a DAT-NP. According to the Jacobsian (1994) valence feature of participation ("Beteiligtheit", cf. 4.2.3.2 above), we consider this addition of a stimulus-NP a valence increase. Crucial for the dative selection is that the additional argument has A^{min}-properties, as will be shown for *trauen* below (cf. Willems/van Pottelberge 1998: 359f. for *zürnen*). (77) lists a number of Stim/DAT-verbs we find in contemporary German.

(77)   *neiden* 'envy', *verübeln* 'resent', *zürnen* 'be angry', *gönnen* 'not grudge', *verzeihen* 'forgive', *grollen* 'resent', *wünschen* 'wish sth. on sb.', *(ver)trauen* 'trust', *misstrauen* 'misstrust', *glauben* 'believe sb.', *verfallen* 'fall for', *vorwerfen* 'blame'…

Stim/DAT-verbs are a rather marginal class of psych-verbs in contemporary German. Therefore, we restrict the exploration of the Stim/DAT-verbs to only one exemplary exposé, the emergence of the verb *trauen* 'to trust sb.', following Willems/van Pottelberge (1998, chap. IV.1).

trauen 'to trust sb.'

The Stim/DAT-psych-verb *trauen* 'to trust sb.' originated in the Old High German cognitive verb *trûren*, which was semantically similar to the cognitive verb *glauben* 'believe', as illustrated in (78).

---

[33] The New High German translation of the Old High German text as given by Willems/van Pottelberge (1998: 354) is: „wovon sie mit Herrlichkeit Gebrauch machen".

(78) a. Íh   netrūrēn   chád   íh.
          1s:NOM   NEG:believe:PRS:1s   say:PRS:1s   1s:NOM
          'I do not believe this, I said.' (Willems/van Pottelberge 1998: 201)

      b. trūrest   du   daz   unser sēla   durhuuáten
          believe:PRS:2s 2s:NOM   that   our soul:NOM wade.through:PPERF

          hábe   únēhtig uuazzer?
          AUX:3s   substanceless water
          'Do you believe that our souls have waded through substanceless water?' (Willems/van Pottelberge 1998: 202)[34]

In Old High German *trüren* could only be used in transitive constructions. Whereas in Middle High German *trûren* (then: *trûwen*) could be used in ditransitive constructions with the DAT-NP denoting an addressee of the mental state denoted by *trûren*. A new psych-reading emerged which expressed the experiencer's believe in the addressee's capability of a certain deed or property denoted by the ACC-NP. The example in (79) illustrates how this new reading emerged.

(79)   "wir   trûwen iu   áller êren",   sprach dô Swemmelîn.
          1p:NOM   trust 2p:DAT all honour:GEN   said then Swemmelin
          "'We suppose that you are honourable", Swemmelin then said.' (Willems/van Pottelberge 1998: 207)

In case of the prefix verb *vertrauen* (Old High German *firtrüren*, Middle High German *vertrûwen*) the *ver*-prefix reinforces the semantics of the base verb. In contrast to the base verb *trüren*, which could mean both 'trust in people' and 'trust in information', the reinforced *firtrüren* could only be used to denote 'trust in people'. Similar to the diachronic development of its base verb, *vertrauen* has been used in transitive constructions from Old High German onwards, as is shown in (80), which is taken from the Middle High German novel Tristan by Gottfried von Straßburg (verse 10204).

(80)   weist iht,   waz   ich   vertriuwet   hân?
          know sth   what   1s:NOM   promise:PPERF   AUX:1s
          'Don't you know what I have promised?' (Willems/van Pottelberge 1998: 215)

As the example illustrates, *firtrûwen*, like its base verb *trûwen*, was semantically open to take an additional DAT-NP referring to the addressee of the act denoted by the verb.

5   Summary and outlook

The aim of our paper is to show that case selection in German psych-verbs is not dependent on the psych-reading of the verb. For Exp/NOM and Exp/ACC verbs it is characteristic to have other, non-psych readings as well, and these non-psych readings determine the case selection. Concerning Exp/ DAT verbs, we have argued that DAT-selection is due to valence increase and thus also independent of the psych-reading of the Exp/ DAT verb.

In section 1 we gave an overview of the high constructional variation in German psych-verbs. German psych-verbs exhibit a wide range of construction types in that the experiencer as well as the stimulus may appear in NOM, ACC, DAT and even in prepositional phrases. In section 2 we delineated the general idea of each of the three main approaches to argument linking in psych-verbs – the syntactic, the event structure and the causal structure approach – and presented data on German psych-verbs that cannot adequately be dealt with in these approaches. We then argued for a different motivation for the great constructional variety of German

---

[34] The New High German translation of the Old High German text as given by Willems/van Pottelberge (1998: 354) is: „Glaubst du, daß unsere Seele Wasser ohne Substanz durchwatet hat?" (Willems/van Pottelberge 1998: 202).

psych-verbs by taking into consideration the lexical peculiarities of psych-verbs, namely the characteristic polysemy of a great number of psych-verbs in contemporary German.

Subsequently, we suggested a model of the case-selection in psych-verbs for German (sections 3 and 4). In section 3 we briefly introduced the theoretical background of our approach to argument linking, namely the proto-role approach as introduced by Dowty (1991) and modified by Primus (2002), and we delineated the main principles of proto-role-driven case selection for German.

In section 4.1 we argued for the importance of the principle of Lexical Economy for German, which states that entries in the mental lexicon are as simple as possible. As a consequence, verbal lexemes should exhibit as few case frames as possible, and case frames should only vary minimally. In section 4.2 we showed how this principle takes account of the case selection of Exp/NOM and Exp/ACC-verbs. Since psych-verbs must satisfy the principle of Lexical Economy, their case frame must be compatible with the strongest reading, namely the reading with the strongest thematic distinctiveness of each argument, which in many instances is a reading with a maximal agent and a maximal patient. For DAT-verbs, however, we argued for a different motivation of the case selection. For all Exp/DAT and Stim/DAT-verbs, we demonstrated that the psych-reading is evoked by adding a new argument to the construction. Since the DAT is the default case for valence increase in German, the case selection for these verbs is also well motivated by mechanisms that do not depend on the psych-reading of the verbs themselves. In section 4.3 we dealt with a great number of psych-verbs that in contemporary German do not exhibit a polysemy between psych-reading and non-psych readings and thus on first sight are problematic to our approach. We illustrated that, from a diachronic perspective, the vast majority of Exp/NOM and Exp/ACC-verbs in German had physical, non-psych readings in earlier stages of the language. For DAT-verbs we showed that the majority of these verbs can be traced back to one- or two-place base verbs which by valence increase yield a psych-reading. Thus, we claim that case selection of psych-verbs at least in German does not depend on their psych-reading. Whether our claims hold from a typological perspective is to be tested. Preliminary investigations of some other European languages seem to strengthen our argumentation.

6   References

Belletti, Adriana; Rizzi, Luigi (1988). Psych-Verbs and θ-theory. *Natural Language and Linguistic Theory* 6, 291-352.

Bossong, Georg (1998). Le marquage de l'expérient dans les langues d'Europe. In *Actance et valence dans les langues de l'Europe*, Jack Feuillet (ed.), 259-294. Berlin: de Gruyter.

Bouchard, Denis (1995). *The semantics of syntax. A minimalist approach to grammar.* Chicago/London: University of Chicago.

Brennenstuhl, Waltraud (1982). *Control and Ability. Towards a Biocybernetics of Language.* Amsterdam/Philadelphia: Benjamins.

Burzio, Luigi (1986). *Italian Syntax: A Government-Binding Approach.* Dordrecht: Kluiwer.

Croft, William (1991). *Syntactic Categories and Grammatical Relations. The Cognitive Organisation of Information.* Chicago/London: University of Chicago Press.

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

Croft, William (1998). Event structure and argument linking. In *The projection of arguments*, Miriam Butt; Wilhelm Geuder (eds.), 21-64. Stanford: CSLI.

Dixon, R.M.W. (1994). *Ergativity.* Cambridge Studies in Linguistics 69. Cambridge: CUP.

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

Duden (1981): *Duden – Das große Wörterbuch der deutschen Sprache in 6 Bänden.* Hg. und bearb. vom Wiss. Rat und den Mitarbeitern der Dudenredation unter Leitung von Günther Drosdowski.

Durie, Mark 1985. *A grammar of Acehnese on the basis of the dialect of North-Aceh.* Dordrecht: Foris.

DWb: *Deutsches Wörterbuch von Jacob und Wilhelm Grimm*. Bearbeitet von der Arbeitsstelle des Deutschen Wörterbuches zu Berlin 1854-1954. Leipzig: Hirzel.

Eichmann, Thomas L. (1973). Althochdeutsch *sinnan* 'streben nach', sanskritisch *san-*, *sā-* 'gewinnen', und hethitisch *sanh̑-* 'erstreben'. *Zeitschrift für vergleichende Sprachforschung (Kuhn's Zeitschrift)* 87, 269-271.

Fleischer, Wolfgang; Barz, Irmhild (1995 [1992]). *Wortbildung der deutschen Gegenwartssprache*, 2nd ed. Tübingen: Niemeyer.

Fromm, Hans (1982). *Finnische Grammatik*. Heidelberg: Winter.

García García, Marco (2001). Kasus bei situationsidentifizierenden Argumenten: einen Traum haben, einen Traum träumen, ein Träumer sein. Unpublished Staatsexamen-Thesis, Department of German Language and Literature, University of Cologne.

Greule, Albrecht (1999). *Syntaktisches Verbwörterbuch zu den althochdeutschen Texten des 9. Jahrhunderts. Altalemanische Psalmenfragmente, Bendiktinerregel, Hildebrandslied, Monseer Fragmente, Murbacher Hymnen, Otfrid, Tatian und kleinere Sprachdenkmäler*. Regensburger Beiträge zur deutschen Sprach- und Literaturwissenschaft 73. Frankfurt/M.: Lang.

Grimshaw, Jane B. (1990). *Argument Structure*. Cambridge/Mass: MIT Press.

Härtl, Holden (2001). *CAUSE und CHANGE. Thematische Relationen und Ereignisstrukturen in Konzeptualisierung und Grammatikalisierung*. Berlin: Akademie Verlag.

Hammond, Michael (1995). There is no lexicon! In *Rutgers Optimality Archive*. URL: http://ruccs.rutgers.edu/roa.html.

Haspelmath, Martin (2001). Non-canonical marking of core arguments in European languages. In *Non-canonical marking of subjects and objects*, Alexandra Aikhenvald; R. W. M. Dixon; Masayuki Onishi (eds.), 53-85. Typological Studies in Language 46. Amsterdam/Philadelphia: Benjamins.

Heidermanns, Frank (1993). *Etymologisches Wörterbuch der germanischen Primäradjektive*. Studia linguistica Germanica 33. Berlin: de Gruyter.

Hentschel, Elke (2003). *Es* war einmal ein Subjekt. *Linguistik online* 13. URL: http://www.linguistik-online.de.

Holisky, Dee Ann 1987. The case of the intransitive subject in Tsova-Tush (Batsbi). In *Studies in Ergativity*. R.M.W. Dixon (ed.), 103-132. Amsterdam: North-Holland.

Iwata, Seizi (1995). The distinctive character of psych-verbs as causatives. *Linguistic Analysis* 25, 95-120.

Jacobs, Joachim (1994). *Kontra Valenz*. Trier: Wissenschaftlicher Verlag.

Kaliuščenko, Vladimir D. (1988). *Deutsche denominale Verben*. Studien zur deutschen Grammatik 30. Tübingen: Narr.

Kluge (2002): *Kluge Etymologisches Wörterbuch der deutschen Sprache*. 24th ed., erw. u. bearb. v. Elmar Seebold. Berlin/New York: de Gruyter.

Lewis, David (1973). Causation. *Journal of Philosophy* 70, 556-572.

LIV: *Lexikon der indogermanischen Verben*. Die Wurzeln und ihre Primärstammbildungen. 2. erw. und verbesserte Auflage bearbeitet von Martin Kümmel und Helmut Rix 2001. Wiesbaden: Reichert.

Onishi, Masayuki (2001). Introduction: Non-canonically marked subjects and objects. In *Non-canonical marking of subjects and objects*, Alexandra Aikhenvald; R. W. M. Dixon; Masayuki Onishi (eds.), 1-52. Typological Studies in Language 46. Amsterdam/Philadelphia: Benjamins.

Paul, Hermann (2002). *Deutsches Wörterbuch. Deutungsgeschichte und Aufbau unseres Wortschatzes*. 10th ed., überarb. u. erw. v. Helmut Henne; Heidrun Kämper; Georg Objartel. Tübingen: Niemeyer.

Pesetsky, David (1995). *Zero Syntax. Experiencers and casacades*. Cambridge MA: MIT Press.

Pfeifer, Wolfgang (1993): *Etymologisches Wörterbuch des Deutschen*. 2nd ed., durchges. u. erg. v. Wolfgang Pfeifer. Erarbeitet im Zentralinstitut für Sprachwissenschaft Berlin unter der Leitung von Wolfgang Pfeifer. Berlin: Akademie.

Plank, Frans (1987). Direkte indirekte Objekte, oder: was uns *lehren* lehrt. *Leuvense Bijdragen* 76, 37-61.

Postal, Paul M. (1971). *Cross Over Phenomena*. New York: Holt, Rinehart and Winston.

Primus, Beatrice (1999). *Cases and thematic roles – Ergative, accusative and active*. Linguistische Arbeiten 393. Tübingen: Niemeyer.

Primus, Beatrice (2002). Proto-Roles and Case Selection in Optimality Theory. *Theorie des Lexikons* 122. Arbeiten des Sonderforschungsbereichs 282. Düsseldorf: Universität.

Primus, Beatrice (2004). Proto-Rollen und Verbtyp: Kasusvariation bei psychischen Verben. In *Semantische Rollen*, Martin Hummel; Rolf Kailuweit (eds.), 377-401. Tübingen: Narr.

Pütz, Herbert (1986). *Über die Syntax der Pronominalform 'es' im modernen Deutsch.* 2nd, revised ed. Studien zur deutschen Grammatik 3. Tübingen: Narr.

Roeper, Thomas (1987). Implicit Arguments and the Head-Complement Relation. *Linguistic Inquiry* 18(2), 267-310.

Rudolph, Udo; Försterling, Friedrich (1997). The psychological causality implicit in verbs: A review. *Psychological Bulletin* 124, 192-218.

Schwamb, Jessica (2003). Reflexivkonstruktionen unter besonderer Berücksichtigung psychischer Verben. Unpublished MA-Thesis, Department of German Language and Literature, University of Cologne.

Seeboldt, Elmar (1970). *Vergleichendes und etymologisches Wörterbuch der germanischen starken Verben.* Janua Linguarum Sereis Practica 85. The Hague/Paris: Mouton

Shibatani, Masayoshi (2002). The Non-Case for 'Experiencer' and 'Possessor'. Paper presented at the Conference on Semantic Role Universals, Leipzig, December 5th-7th.

Talmy, Leonard (1976). Semantic Causative Types. In *The Grammar of Causative Constructions,* Masayoshi Shibatani (ed.). Syntax and Semantics 6, 43-116. New York: Academic Press.

Talmy, Leonard (2000). *Toward a Cognitive Semantics.* Cambridge, Mass.: MIT Press.

Tauli, Valter (1983). *Standard Estonian Grammar, vol. II.* Acta Universitatis Upsaliensis. Studia Uralica et Altaica 14. Uppsala: University.

Traugott, Elisabeth Closs; Dasher, Richard B. (2002). *Regularity in semantic change.* Cambridge Studies in Linguistics 97. Cambridge: CUP.

Van Valin, Robert D.; Lapolla, Randy (1997). *Syntax. Structure, meaning and function.* Cambridge: CUP.

Van Valin, Robert D. (2002). The Place of Generalized Semantic Roles in Linguistic Theory. Paper presented at the Conference on Semantic Role Universals, Leipzig, December 5th-7th.

Van Voorst, Jan (1992). The aspectual semantics of psychological verbs. *Linguistics and Philosophy* 15, 65-92.

Wegener, Heide (1985). *Der Dativ im heutigen Deutsch.* Studien zur deutschen Grammatik 28. Tübingen: Narr.

Wegener, Heide (1998). Die Kasus des EXP. In *Die Kasus im Deutschen. Form und Inhalt.* Marcel Vuillaume (ed.), 71-84. Tübingen: Stauffenberg.

Wegener, Heide (1999). Zum Bedeutungs- und Konstruktionswandel bei psychischen Verben. In *Deutsch kontrastiv*, Heide Wegener (ed.), 171-210. Tübingen: Stauffenberg.

Wegener, Heide (2001). Verbs of affect from a synchronic and a diachronic perspective. In *Structural Aspects of Semantically Complex Verbs*, Nicole Dehé; Anja Wanner (eds), 219-248. Frankfurt a.M.: Lang.

Wierzbicka, Anna (1999). *Emotions across languages and cultures: diversity and universals.* Studies in emotion and social interaction 2. Cambridge: CUP.

Willems, Klaas; van Pottelberge, Jeroen (1998). *Geschichte und Systematik des adverbalen Dativs im Deutschen. Eine funktional-linguistische Analyse des morphologischen Kasus.* Studia Linguistica Germanica 49. Berlin/New York: de Gruyter.

7 Symbols and Abbreviations

_	anonym variable
*	defective expression
<	etymological derivation
A$^{(max/min)}$	proto-agent (maximal/minimal)
ACC	accusative case
Argument/CASE	represents that the given argument is coded in the given case
AUX	auxiliary
COMP	complementiser
COP	copula
DAT	dative case
Exp	experiencer
EXPL	expletive
FUT	future tense
GRM	GERMANIC
GEN	genitive case
INF	infinitive
Ie	Indoeuropean
KONJ2	past subjunctive
NOM	nominative case
P$^{(max/min)}$	proto-patient (maximal/minimal)
PASS	passive voice
PAST	past tense
PFX	verbal prefix
POSS	possessive pronoun
PPERF	perfect participle
PPRS	present participle
PREP	preposition
PRS	present tense
REFL	reflexive pronoun
Stim	stimulus

8 Appendices

Appendix I

The table in appendix I lists some Exp/NOM verbs in German that are either polysemous in the contemporary stage of the language or which in earlier stages had a physical (phys(x), phys(x,y)) or a control (ctrl(x,s)) reading. In the latter case a short etymology and the source of our information is given.

Exp/NOM-verbs	Stim	PP	ctrl(x,s) and/or phys(x)/ phys(x,y)	source : Kl(uge) Pf(eifer) Hei(dermanns) DWb	etymology
abfahren 'be crazy about'		*auf*	+		*abfahren* 'depart (e.g. by car)'
ablehnen 'be crazy about'	ACC		+		*an-lehnen* 'lean against'
abschnallen 'get amazed'			+		*abschnallen* 'unstrap (a saddle)'
achten 'esteem'	ACC		+	Kl	OHG *achtôn* 'observe'
anhimmeln 'be fan'	ACC		+	Kl	< *himmeln* 'look to the sky'
anschmachten 'be fan'	ACC			Kl	*schmachten* 'get weak' + verbal particle *an*
ausklinken 'be upset'			+		*ausklinken* 'release (a hook)'
ausrasten 'be upset'			+		*ausrasten* 'snap out (part of a machine)'
bangen 'fear'		*um*	+	Pf, Kl, Hei	OHG. *ango* 'tight' > V -> 'to make tight, to bind tight' *bange* < *be-* + *ango* -> *beengt* 'be tight' ->V: *bangen* 'become tight'
fürchten 'fear'				Pf, DWb	< OHG. adjective *furhtan* 'be frightened', noun *furcht* 'fear' < *furhe* 'furrow'
(be)neiden 'envy'	ACC, DAT		+	Kl	OHG *nîd(h)* < Germanic *neitha-* 'envy, anger', Old Irish *nith* 'fight'
betrauern 'bemoan'	ACC		+	Kl, DWb	OHG *trûren* 'mourn, to look down („die Augen niederschlagen")'
bedauern 'regret'	ACC			Kl, DWb	cognat to *teuer*: *mich nimmt eines dinges tûr* 'a thing is dear to me'
begehren 'desire'	ACC		+	Kl, Pf	Kl: < OHG adjective *ger* 'eager', Pf: 'demanding'
bestaunen 'gaze, be astonished'	ACC		+	Kl, Pf	cognate to MLG *stunen* 'to withstand, to stare'
denken 'think'		*an*	+	Pf, Kl	Pf: (weak grade to *dünken*) < Ie. **tong-* 'think, feel', Kl: < **teng-* 'drag', Slavic 'weigh' -> Germanic originally 'ponder, weigh'
drüberstehen 'not feel involved'	ACC		+		*über etwas stehen* 'stand above sth'

durchdrehen 'panic'			+		*drehen* 'turn'
durchhängen 'be depressed'			+		*hängen* 'hang'
durchknallen 'become crazy'			+		*knallen* 'to bang'
eifern 'agitate, strive'		*nach*	+	Pf	'pursue a goal'
empfinden 'sense'	ACC	*(als)*	+	Kl	< *ent-finden*, originally 'find out, perceive'
erleiden 'suffer'	ACC		+	Kl Pf, DWb	< OHG *lídan* 'go, make a journey' cognate to *leiten* 'lead'
erschrecken 'get upset'		*vor*	+	Kl, Pf, DWb	OHG *scriccan* 'jump up' (cf. *Heuschrecke* 'locust')
fliegen 'be fan'		*auf*	+		*fliegen* 'fly'
fühlen 'feel'	ACC		+	Kl. Pf	OHG *fuolen* 'to palm'
genießen 'enjoy'	ACC		+	Pf	< Germanic **neutan* < Ie. * *neud-* 'to use'
gewahren 'become aware'	ACC		+	Pf	< OHG *wahren* 'to realize, to observe' OHG *wara* 'shelter, attention' -> *wahrnehmen* 'perceive'
gönnen 'not grudge'	DAT		+	Pf	OHG *giunnan* 'to allow'
grübeln 'muse'		*über*	+	Pf	Iterative derivation to *graben* 'to dig'
hadern 'be at odds with sth, wrangle'		*mit*	+	Kl	< Germanic *hathu* 'fight'
hassen 'hate'	ACC		+	Kl, Pf, DWb	Kl: *haz* < Ie *kedos (Greek *kedos* 'sorrow, mourning' DWb, Pf: 'persecute out of hostile feelings' cf. causative *hetzen* 'to hunt, race'
hoffen 'hope'		*auf*	+	Pf, Kl	Pf: possibly a cognate to *hüpfen* 'jump' Kl: 'to lean forward' -> 'to look into the future'
kennen 'know'	ACC			Pf	*-jan*-PRS to *können* (*kann-jan*) *können*: < Ie. *wellen* < Germanic * *gen(e)-* 'recognize, know'
lieben 'love'	ACC			Kl, DWb	DWb: MHG adjective *liep* -> V: 'to become dear to sb., to make oneself dear to sb.'
merken 'notice'	ACC		+	Pf	< 'to mark by a sign'
mögen 'like'	ACC		ctrl(x,s)		< 'can'
platzen 'be angry'		*vor*	+		*platzen* 'explode'
schätzen 'esteem'	ACC		ctrl(x,s)	Pf	'to estimate a price'
schaudern 'shudder'		*vor*	+	Kl	< 'shake', cf. Exp/ACC, Appendix II
schließen 'conclude'	ACC		+	Pf	'to close with a hook' *beschließen*: *bisliozan* 'to close sth', in MHG also 'to bring to an end'
schwärmen 'be fan'		*für*	+		*schwärmen* 'swarm'

schwelgen 'indulge'		*in*	+	Pf	< OHG *swelgan* 'to gulp down' < Ie. * *suel* 'to gulp'
sinnen 'muse'		*auf*	+	Pf	OHG *sinnan* 'go, make a journey' (-> *senden* 'to send sb.', *Gesinde* 'farmhand'). < Ie. **sent-* 'path, direction'
spüren 'sense'	ACC		+	Pf	'to keep a track (on a hunt) -> 'perceive' -> 'feel'
stehen 'be fan'		*auf*	+		*stehen* 'stand'
streben 'agitate, strive'		*nach*	+	Pf	OHG *streben, strebon* 'to move'
stutzen 'be startled'		*vor*	+	Pf	'to obstruct by bumping' < intensive derivation to *stoßen* 'to bump'
trachten 'be after, strive'		*nach*	+	Pf	< MHG *trahten* 'look at, think about, to attend to, < loan from Lat. *tractare* 'to treat' *tractare* is an intensive to *trahere* 'drag'
übelnehmen 'resent'	Expl CP		+		*nehmen* 'take'
(ver)abscheuen 'despise'	ACC		+	Kl, Pf	Kl: *scheu*: *k*-derivation to *schauen*, Pf: *scheuen* 'to bounce back' (-> causative: *scheuchen*)
(ver)achten 'despise'	ACC		+	Kl	OHG *ahtôn*, MHG *ahten* 'to observe' (vgl. got. *ahjan* 'to mean', *aha* 'mind, sense')
vergessen 'forget'	ACC		+	Kl, Pf, DWb	< OHG *geʒʒan* 'achieve' Old Nordic *getan* 'create' > ME *geten* 'to get', < Ie. **ghe(n)d-* 'to touch to grasp' + *ver-* 'NEG'
wagen 'dare'	ACC		+	Pf	'to put on the scale'
wollen 'want'	ACC		+		OHG *wellen* < Germanic *waljan* 'to choose', OHG *wollen* (Germanic *wiljan*) Old Indic. *vrnati* 's/he choses' < Ie. **uel-* 'want, chose'
wünschen 'wish'	DAT		+	Kl	< Ie. **wene-* 'desire' cf. *gewinnen*. *gewinnen*: Germanic **wenn-a* 'to toil', *gewinnen* thus means 'to achieve by toilment'.
wüten 'anger'		*gegen*	+	Pf	OHG *wuoten* 'be violent', still has a ctrl(x,s) and phys(x) reading in contemporary German

Appendix II

The table in appendix II lists some Exp/ACC verbs in German that are either polysemous in the contemporary stage of the language or which in earlier stages had a physical (phys(x), phys(x,y)) or a control(ctrl (x,s)) reading. In the latter case a short etymology and the source of our information is given.

Exp/ACC verb (Stim/Nom)	ctrl(x,s) and/ or phys(x), phys(x,y)	Source [Kl(uge) Pf(eifer) Gr(eule) DWb]	Etymology
abstoßen 'disgust'	+		*stoßen* 'push'
(an)ekeln 'disgust'		Kl	Possibly 'shame', or < Lat. *aeger* 'sick, ill-minded'
(an)öden 'bore'	+	Kl	< OHG. *authja* 'barren', OE *ithan* 'to waste' [-> *ver-öden*]
(an)stinken 'annoy'	+	Kl	Germanic *stenkwa-* 'to bump', > 'smell' ('a smell strikes me')
ankotzen 'be repelled'	+		*kotzen* 'vomit'
anmachen 'turn on, temper'	+		*anmachen* 'light a fire'
anregen 'stimulate, suggest'	+		< *regen* 'move'
ansprechen 'appeal'	+		< *sprechen* 'talk'
anwidern 'disgust'	+	Kl, Gr	OHG: *widarôn* 'to refuse'
anziehen 'appeal'	+		*anziehen* 'put on' (clothes)
ärgern 'annoy'	+	Pf	< OHG *argorōn, ergirōn* 'to seduce so. to do evil'. MHG *ärgern, ergern* 'make worse' < a deadjectival derivation to the comparative of the adjective *arg*, *arg* 'bad, evil' < Germanic *arga-* 'recreant, bad, evil', cognate to Ie. *ergh-* 'shake, agitate'
aufbauen 'encourage'	+		*aufbauen* 'build' (house)
aufrichten 'encourage'	+		*aufrichten* 'erect' (upper part of the body)
(be)trüben 'aggrieve'	+	Kl	OHG adjective *truobi* 'blear' -> V: 'to make blear'
bedrücken 'stress, depress'	+		< *drücken* 'press'
begeistern 'enthusiast'	+	Kl	denominal prefix derivation to *Geist* 'spirit' -> 'to fill with spirit'
belasten 'burden, stress'	+		*belasten* 'lade'
berühren 'affect'	+		*berühren* 'touch (with hand)'
bestechen 'impress'	+		*stechen* 'jab'
bestürzen 'upset'	+	Kl	< OHG *bisturzen* intensive derivation to *sturzen* 'to knock over'
bewegen 'affect'	+		*bewegen* 'move'
dauern 'make sb feel sorry for'		DWb	cognate to *teuer* 'expensive'
empören 'outrage'	+	Kl	MHG. *enbaeren* 'to rise' < MHG. *bôr* 'riot'
(ent)nerven 'unnerve'	+	Pf	< Lat. *ēnervāre* 'to take out the nerves'. *nerves*: < Lat. *nervus* 'muscle, sinew, power'
enttäuschen 'disappoint'	+	Kl	calque: French *désabuser* and *détromper*. 'to pull so. out of an delusion'

entrüsten 'make indignant'	+	Kl	< MHG 'to help so. out of the armament'
(er)freuen 'rejoice'	+	Pf	originally 'make happy' < *froh* < Ie. * *preu* 'jump'
erinnern 'remind'	+	Kl	< OHG adjective *innaro* 'inner' V-> 'make sth. to become the inner part'
(er)schrecken 'to scare sb.'	+	Kl	< OHG *scriccen* 'jump', *screcen* 'to make jump'
erbosen 'annoy'	+	Kl	Originally 'to inflate', cognate to Middle Engl. *boosten*, -> Modern Engl. *boast*
erdrücken 'stress, depress'	+		< *drücken* 'press'
ergötzen 'amuse'	+	Kl	< OHG *irgezzen*, MHG *ergezzen* 'make forget' -> 'to recreate'
ergreifen 'affect'	+		*ergreifen* 'seize'
erregen 'make angry'	+		< *regen* 'move'
erschüttern 'shock'	+	Kl, DWb	*r*-intensive to OHG *(ir)scuttan* 'shake, pour'
grauen/grausen 'horrify', *gruseln* 'give the creeps'	+	Kl	< OHG *grûwen* 'fear', cognate to Ie. **ghers*- and Lat. *horrêre* 'to quake', *gruseln*: intensive to *grausen* *grausen*: intensive to *grauen*
jucken 'bother'	+		*jucken* 'itch'
kratzen 'bother'	+		*kratzen* 'scratch'
packen 'affect'	+		packen 'seize'
reizen 'appeal, tempt, tease'	+		*reizen* 'irritate by acid'
reuen 'make sb feel regret'	+		< Grm **hreww-a* 'to hurt' < Ie. **kreus* 'to grind'
rühren 'move'	+		*rühren* 'stir'
schaffen 'exhaust'			< 'create'
schaudern 'make shudder'	+	Kl	LowGerm *schuddern*, MiddleLowGerm. *schodern* < *schoden* 'to shake'
scheren 'bother'	+		*scheren* 'cut hair'
treffen 'affect'	+		*treffen* 'hit a target'
trösten 'comfort'	+	Pf	< OHG *trösten*, MHG *troesten* 'to appease, to grant shelter'
überraschen 'surprise'	+	Pf	[cf. lemma *über*, pp. 1481], < adjective *rasch*, V: 'to suddenly come over so., to suddenly attack so. '
umhauen 'upset'	+		*umhauen* 'to chop (a tree)'
verbittern 'embitter'	+	Kl	-> 'make bitter' bitter: Germanic **bit-ra* 'bitter' cognate to verbal root Germanic **beit-a-* 'bite'
verdrießen 'chagrin'	+	Kl	< *drücken* 'press', cf. Lat. *trûdere* 'bump, push'
verdutzen 'disconcert'	+	Kl	MLG *vordutten* 'irritate'. In High German the word blends with *vertutzen* 'to offend so.' < *tuz* 'bump'
verstimmen 'affect'	+		*(ver)stimmen* 'put (a piano) out of tune'
(ver)wundern 'amaze'	+	Kl	< Germ. **wundra-* 'wonder' possibly *ro*-derivation to *winden* 'to twine', cf. Lat. *perplexus* to *plectere* 'to braid'
(ver, ent)zücken 'extacise'	+	Kl	< MHG. *enzücken* 'drag away' a prefix derivation to *zucken*, *zücken*, an intensive to *ziehen* 'drag'