Research Article

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Animacy and Affectedness in Germanic Languages

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Abstract: This paper deals with the influence of animacy on affectedness. German, like other Germanic languages, requires oblique marking of the inanimate undergoer argument of verbs of contact by impact (e.g. *hit, kick, bite*), whereas the animate undergoer argument takes non-oblique marking. Inanimacy does not necessarily result in oblique marking; undergoer arguments with inanimate referents are realized in a non-oblique construction if a change of state or location is explicitly predicated, as in resultative constructions. This suggests that the marking of inanimate undergoer arguments is conditioned by two factors: animacy and affectedness. The basic claim is that animate and inanimate entities are affected differently by hitting, kicking and similar activities. Inanimates can only be physically affected, whereas animates can be psychologically affected as well. Since verbs of contact by impact do not entail a change of state/location, they do not represent their undergoer arguments as being (necessarily) physically affected. Hence, the potential psychological effect of hitting, kicking and the like on animate beings gives rise for interpreting animate undergoer arguments of those verbs as being affected.

Keywords: Verbs of contact, Differential object marking, Germanic languages, Affectedness

List of abbreviations: ACC: accusative, DAT: dative, DEF: definite article, GEN: genitive, NON_NOM: non-nominative, REFL: reflexive. I only indicate those grammatical categories which are relevant for the topic under discussion.

1 Introduction

This paper deals with the influence of animacy on the realization of undergoer arguments in Germanic languages. In German, as well as some other related languages, the undergoer argument of verbs like *hit* or *kick* receives non-canonical marking if its referent is inanimate.[1] As the examples in (1) show, the animate undergoer (1a) is realized as a direct object NP and receives accusative case. The inanimate undergoer in (1b) requires oblique marking and is realized within a prepositional phrase. Non-oblique marking of the inanimate undergoer results in an awkward sentence.

1 Note that German *schlagen* does not have the same meaning and range of uses as English *hit*. A sentence like *The car hit the wall*, for example, cannot be translated into German by using *schlagen*. Some differences between *schlagen* and *hit* are discussed in Goldschmidt et al. (2017).

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(1) a. *Das* *Mädchen* *schlug* *den* *Junge-n.*
DEF girl hit DEF.ACC boy-ACC
'The girl hit the boy.'
b. *Das* *Mädchen* *schlug* *(*auf/gegen*) *den* *Tisch.*
DEF girl hit on/against DEF.ACC table
'The girl hit (on/against) the table.'

It is not the case, however, that the inanimate undergoer argument of these verbs always requires oblique marking. Rather, in certain contexts inanimate undergoers are realized in the same way as animate ones (2). In (2a), a resultative prefix is added to the verb, and in (b) the verb is used in a resultative construction.

(2) a. *Das* *Mädchen* *zer-schlug* *den* *Tisch.*
DEF girl ZER-hit DEF.ACC table
'The girl hit the table into pieces.'
b. *Das* *Mädchen* *schlug* *den* *Tisch* *in* *Stücke.*
DEF girl hit DEF.ACC table in pieces
'The girl hit the table into pieces.'

The asymmetry shown in (1) and (2) above is not restricted to German but is found in other Germanic (e.g. Swedish, Dutch, Danish) and Slavic languages (e.g. Polish, Russian) as well. De Swart (2014) presents an analysis for Dutch. His basic claim is that the marking asymmetry depends on animacy. Lundquist & Ramchand (2012), by looking at Swedish and German, present an analysis in terms of affectedness. Inanimate entities are less affected by hitting or kicking than animate ones are. In the current paper, I look at a broader range of data than what is included in either of these studies. The current analysis includes a larger number of languages, as well as taking additional verbs (pure verbs of contact like English *touch*) and further constructions, like those with oblique animate undergoer arguments, into account.

The analysis proposed here combines insights from both de Swart's and Lundquist & Ramchand's approaches. Following de Swart, I opt for an analysis in terms of paradigmatic differential object marking. This – as I argue in section 6 – also provides the basic explanation for the absence of marking asymmetry in English. In accord with Lundquist & Ramchand, I argue for an analysis in terms of affectedness. As I detail in section 3, Lundquist & Ramchand's conception of affectedness suffers from being imprecise with respect to how many degrees of affectedness are distinguished and how to test for variance. To overcome these shortcomings, I rely on Beavers' (2011, 2013) notion of affectedness, which offers clear linguistic criteria for distinguishing between grades of affectedness. Affectedness, in Beavers' approach, refers to how specific a predicate is about the theme argument's progress on the scale measuring the change. The idea put forth here, and developed in section 7, is that animacy puts a constraint on the possible scales along which an entity can change. Animate as well as inanimate entities can both change along scales measuring physical properties, but only animate beings can change in psychological/emotional dimensions. I argue that inanimate undergoer arguments are taken to be unaffected by hitting or kicking, unless there is an explicit result predication like in (2). Animate undergoer arguments, on the other hand, are seen as affected by such actions by virtue of being either physically or emotionally/psychologically affected. Thus, the ontologically based distinction between animate and inanimate beings influences affectedness in German and other Germanic and Slavic languages.

The paper is structured as follows: Section 2 introduces the marking asymmetry of animate and inanimate undergoer arguments of verbs of contact by impact. The discussion in this section is restricted to German. Section 3 presents a brief review of two previous analyses of this marking asymmetry: de Swart's (2014) analysis in terms of sentience and Lundquist & Ramchand's (2012) analysis in terms of affectedness. They each face different problems, which sets the stage for my own affectedness-based analysis. Section 4 introduces Beavers' account, which clearly defines and operationalizes the notion of affectedness. Based on this account, I argue in section 5 that the marking asymmetry in German is based on affectedness. The

basic claim is that inanimate undergoer arguments are less affected by processes like hitting or kicking than animates are. Section 6 goes beyond German and discusses similar marking asymmetries in other Germanic and Slavic languages. The connection between animacy and affectedness is further explored in section 7, where I argue that animacy provides a constraint on suitable dimensions of change. The paper ends with a conclusion, which provides an outlook on possible future research.

2 Introducing the marking asymmetry

The aim of this section is to illustrate the asymmetry in marking of animate and inanimate undergoer arguments in German. This marking asymmetry is restricted to a certain class of verbs – verbs of contact by impact, introduced in section 2.1. Section 2.2 focusses on the contexts in which animate and inanimate undergoer arguments of verbs of contact by impact are not marked differently. Finally, in section 2.3 I briefly discuss the optional prepositional marking of animate undergoer arguments. In the remainder, I use the term 'oblique marking' for undergoer arguments which are either obligatorily or optionally realized within a PP.

2.1 Oblique undergoer arguments

In German, the asymmetry in the marking of the undergoer argument is restricted to verbs of contact by impact. In her monograph on English verb classes, Levin (1993: 150) characterizes verbs of contact by impact as follows: "These verbs describe moving one entity in order to bring it into contact with another entity, but they do not necessarily entail that this contact has any effect on the second entity". In the case of John's kicking of Harald, John is moving his leg and brings one of his feet into contact with Harald. The moved entity is usually a body part, which is lexically encoded in the verb. It is a leg or foot in case of *treten* 'kick' or the teeth in case of *beißen* 'bite'. Only *schlagen* 'hit' allows the specification of an instrument which is not a body part as in *John schlug Harald mit einem Stock* 'John hit Harald with a stick'. The moved entity can be called an instrument, irrespective of whether it is a lexically encoded body part or specified by an instrumental PP.

Verbs of contact by impact are semantically transitive; the first argument is usually agentive and is traditionally called an agent. The second argument is either called a patient or a location (e.g. Fillmore 1970). Instead of using thematic role labels like agent, patient or location, I make use of the more general macroroles 'actor' and 'undergoer' (following Van Valin 2005: 60ff.). 'Actor' is used for the more agentive argument of a transitive predicate and 'undergoer' for the more patientive one, irrespective of their exact thematic relation. The reason for scholars like Fillmore to characterize the undergoer as being a location, rather than a patient, is that verbs of contact by impact merely entail the bringing about of contact between the instrument and the undergoer. Thus, the undergoer is seen as the location towards which the instrument moves. Essentially, the verbs do not entail any effect on the undergoer but merely contact between the instrument and the undergoer. As indicated by the English examples in (3a, b), it is possible to deny any effect on the referent of the undergoer argument without contradiction.[2] On the other hand, denying that the instrument actually made contact with the referent of the undergoer argument is contradictory (3c) and requires special constructions like the conative construction.

(3) a. Maria kicked John, but nothing is different about him.
b. Maria kicked the table, but nothing is different about it.
c. #Maria kicked the table, but did not even touch it.

2 See Beavers & Koontz-Garboden (2012: 337) on *nothing is different about x* as a general negation of result.

In contrast to (3a, b), a verb like *break* does entail a change of state of its undergoer argument; therefore, denying the result leads to a contradictory statement (4).

(4) #Shane just broke the vase, but nothing is different about it. (Beavers & Koontz-Garboden 2012: 337)

Levin, in her classification of verbs, distinguishes verbs of contact by impact from pure verbs of contact. The latter, like German *berühren* 'touch', *küssen* 'kiss' or *lecken* 'lick', also entail the bringing about of contact between an instrument – often a body part – and an undergoer. But, as Levin (1993: 156) states, "with no necessary implication that the contact came through impact". The absence of 'impact' with pure verbs of contact seems to be relevant for argument realization, since they realize animate and inanimate undergoer arguments in the same way (5).

(5) a. *Peter* *berührte* *den* *Hund.*
Peter touched DEF.ACC dog
'Peter touched the dog.'
b. *Peter* *berührte* *den* *Stein.*
Peter touched DEF.ACC stone
'Peter touched the stone.'

Verbs of contact by impact, on the other hand, realize animate and inanimate undergoer arguments differently. If the referent of the undergoer argument is animate, the undergoer is realized as direct object NP and receives accusative case (6).[3]

(6) *Das* *Mädchen* *schlug/* *trat/* *biss* *den* *Junge-n.*
DEF girl hit kicked bit DEF.ACC boy-NON_NOM
'The girl hit/kicked/bit the boy.'

If, on the other hand, the referent is inanimate, the undergoer is realized in a prepositional phrase. As the examples in (7) show, there is some variability in the choice of preposition, which affects the interpretation of the sentence. *Schlagen auf* 'hit on' is used if one hits the top of something, whereas the preposition *gegen* is used if one hits the side of an entity.

(7) a. *Das* *Mädchen* *schlug* *auf/gegen* *den* *Tisch.*
DEF girl hit on/against DEF.ACC table
'The girl hit (on/against) the table.'
b. *Das* *Mädchen* *trat* *gegen* *den* *Tisch.*
DEF girl kicked against DEF.ACC table
'The girl kicked (against) the table.'
c. *Der* *Hund* *biss* *auf/in* *den* *Knochen.*
DEF dog bit on/in DEF.ACC bone
'The dog chewed (on) the bone.'

Besides the morphosyntactic marking of the undergoer argument, there is a further asymmetry between (6) and (7). Only the undergoer argument in (6) can be passivized, whereas the inanimate ones in (7) cannot,

3 German has a distinct accusative case only for nouns of masculine gender; for feminine and neuter nouns there is no distinct accusative case form. Krifka (2009) provides an explanation for this asymmetry in terms of animacy. Often, case is only marked on dependent elements within the NP but not on the head noun. I only gloss a form as accusative if it is distinct from the nominative case form.

as shown in (8). The data on passivization in (8) show that only animate undergoers arguments of verbs of contact are realized as direct objects; inanimate ones are not. Thus, the oblique marking affects the grammatical status of the undergoer argument.[4]

(8) a. *Der* *Junge* *wurde* (*von* *dem* *Mädchen*) *geschlagen.*
DEF boy was by DEF.DAT girl hit
'The boy was hit (by the girl).'
b. *#Der* *Tisch* *wurde* (*von* *dem* *Mädchen*) *geschlagen.*
DEF table was by DEF.DAT girl hit
'The table was hit (by the girl).'[5]

At least two questions arise: First, why do verbs of contact by impact realize animate undergoer arguments differently from inanimate ones? Second, why do pure verbs of contact not show differential marking of animate and inanimate undergoer arguments? Is it merely the factor of force that causes the contrast, or does force correspond to a different property – such as affectedness? In section 4, I argue that verbs of contact by impact and pure verbs of contact differ with respect to affectedness, and it is due to this difference that the marking asymmetry does not arise with verbs of contact.

The marking asymmetry illustrated in (6) and (7) is restricted to a subset of verbs of contact by impact. The verbs displaying the asymmetry are listed in (9a). But there are verbs of contact by impact which only take inanimate undergoer arguments and require oblique marking of the undergoer; these are listed in (9b). Trivially, these verbs do not exhibit the marking asymmetry since they do not take animate undergoer arguments. Nevertheless, the verbs in (9a) and (b) behave similarly in requiring oblique marking of inanimate undergoer arguments. I will include the verbs in (9b) in the discussion, as the next section will show that, aside from not accepting animate undergoer arguments, they display virtually the same behavior as the ones in (9a).

(9) a. *schlagen/hauen* 'hit', *treten* 'kick', *kneifen* 'pinch', *beißen* 'bite', *kratzen* 'scratch/claw'
b. *klopfen/pochen* 'knock', *picken* 'pick', *tippen* 'tap', *scharren* 'scratch/paw'

The example in (10) illustrates the oblique marking of the inanimate undergoer argument of the verb *klopfen* 'knock'. As is the case with *schlagen*, this inanimate undergoer argument cannot be passivized (11).

(10) *Der* *Junge* *klopft* *(*an*) *die* *Tür.*
DEF boy knocks on DEF door
'The boy knocks at the door.'

(11) *#Die* *Tür* *wurde* (*von* *dem* *Mädchen*) *geklopft.*
DEF door was by DEF.DAT girl knocked

I next turn to the contexts in which inanimate undergoer arguments of verbs of contact by impact do not require oblique marking.

4 Following Van Valin (2005: 65), undergoer arguments are never obliquely marked. The oblique marking of the second argument of verbs of contact by impact shows that it does not have macrorole status. Thus, verbs of contact by impact show variable macrorole transitivity and can either be realized as an intransitive verb with an obliquely marked (inanimate) second argument, or as a transitive predicate with a non-oblique (animate) second argument. Although this is a relevant distinction within Role & Reference Grammar, for the ease of reference I use the notion 'undergoer' for both direct – meaning non-oblique – and oblique second arguments of verbs of contact by impact.

5 The passive form of (8b) cannot be G*egen/auf die Tische wurde (von dem Mädchen) geschlagen*, lit. 'Against/on the table was hit by the girl' as shown by the fact that the auxiliary does not show agreement with the prepositional phrase. The noun in the PP is plural but the verb is third person singular.

2.2 Non-oblique inanimate undergoer arguments

In certain contexts the inanimate undergoer argument is treated like an animate undergoer and does not require oblique marking. Rather, the use of a preposition would result in an ungrammatical sentence. The relevant contexts are resultative constructions and caused motion constructions.

The examples in (12) illustrate the use of inanimate undergoer arguments in resultative constructions. In (12a) the verb *schlagen* 'hit' is combined with the adjective *kaputt* 'broken' functioning as a secondary resultative predicate, and (b) shows the combination of *beißen* 'bite' with the PP *in Stücke* 'in pieces'. Semantically, the examples in (12) differ from those in (6) in that they entail a change of state of the undergoer argument's referent. For example, (12a) can be paraphrased as 'the girl broke the table by hitting it'. Similarly, example (12b) can be paraphrased as 'the dog broke the bone into pieces by biting it'. In such cases, the result cannot be negated, as shown in (13) for the example in (12a).

(12) a. *Das* *Mädchen* *schlug* (**auf/gegen*) *den* *Tisch* *kaputt.*
DEF girl hit on/against DEF.ACC table broken
'The girl hit the table into pieces.'

b. *Der* *Hund* *biss* (**auf/in*) *den* *Knochen* *in* *Stücke.*
DEF dog bit on/in DEF.ACC bone in pieces
'The dog bit the bone into pieces.'

(13) *#Das* *Mädchen* *schlug* *den* *Tisch* *kaputt,* *aber* *der* *Tisch* *ist* *nicht*
DEF girl hit DEF table broken but DEF table is not
kaputt/ *aber* *er* *ist* *immer noch* *heil.*
broken but he is still unbroken
'The girl hit the table into pieces but it is not in pieces/it is still unbroken.'

The use of resultative prefixes, like *zer-* (14), has the same effect as using a resultative construction. The prefixed verb prohibits the realization of the inanimate undergoer in a prepositional phrase.

(14) a. *Der* *Hund* *zer-biss* (**auf/in*) *den* *Knochen.*
DEF dog ZER-bit on/in DEF.ACC bone
'The dog bit the bone into pieces.'

b. *Das* *Mädchen* *zer-schlug* (**auf/gegen*) *den* *Tisch.*
DEF girl ZER-hit on/against DEF.ACC table
'The girl hit the table into pieces.'

Those verbs of contact by impact which only take inanimate undergoer arguments are only marginally acceptable in resultative constructions. In those constructions, the undergoer argument has to be realized as a reflexive pronoun (15a) which is coreferential with the actor argument. As (15b) shows, the undergoer argument cannot be realized as an overt NP.

(15) a. *Der* *Junge* *klopfte* *sich* *müde.*
DEF boy knocked REFL tired
'The boy knocked himself tired.'

b. *#Der* *Junge* *klopfte* *die* *Tür* *kaputt.*
DEF boy knocked DEF door broken

In colloquial speech, the verb *klopfen* is also used in the sense of 'to hammer' and in this case a non-reflexive resultative construction is possible (16). The verb may also be prefixed by *aus-*, which can be interpreted as

a resultative prefix. The prefixed verb has the meaning of 'removing dust and/or dirt by hitting against an object' (17). As the two examples show, the verbs which only take inanimate undergoer arguments do not allow oblique marking of the undergoer argument if a resultative predication is admissible, similarly to the verbs which do take animate undergoers.

(16) *Der* *Junge* *klopfte* (**auf*/**gegen*) *die* *Nägel* *krumm.*
DEF boy knocked on/against DEF nails bent
'The boy hammered the nails bent.'

(17) *Der* *Junge* *hat* (**auf*/**gegen*) *den* *Teppich* *ausgeklopft.*
DEF boy has on/against DEF.ACC carpet AUS.knocked
'The boy has beaten the carpet.'

The second context in which inanimate undergoer arguments do not require oblique marking is the caused motion construction. This construction is somewhat similar to the resultative one, but it expresses a change of location of the undergoer argument referent rather than a change of state. The secondary predicate is usually a goal phrase, such as *zu dem Jungen* 'to(ward) the boy' in (18).

(18) *Das* *Mädchen* *trat* *den* *Ball* *zu* *dem* *Jungen.*
DEF girl kicked DEF.ACC ball to DEF.DAT boy
'The girl kicked the ball toward the boy.'

As mentioned in the last section, oblique undergoer arguments of verbs of contact by impact do not function as direct objects as shown by the resistance to passivisation. The inanimate undergoer in resultative and caused motion constructions, however, can be passivized, as shown in (19), and therefore shows properties of direct objects.

(19) a. *Der* *Knochen* *wurde* (*von* *dem* *Hund*) *zerbissen.*
DEF bone was by DEF.DAT dog ZER.bitten
'The bone was bitten into pieces (by the dog).'

b. *Dieser* *Teppich* *wurde* *bereits* (*von* *de-m* *Mädchen*) *ausgeklopft.*
this carpet was already by DEF.DAT girl AUS.knocked
'The carpet was already beaten (by the girl).'

c. *Der* *Ball* *wurde* (*von* *dem* *Mädchen*) *zu* *dem* *Jungen* *getreten.*
DEF ball was by DEF.DAT girl to DEF.DAT boy kicked
'The ball was kicked to the boy (by the girl).'

With respect to pure verbs of contact, it should be mentioned that they do not easily take a resultative phrase, as indicated by (20). This is also stated by Levin (1993: 156) for the corresponding English verbs.

(20) *Karl* *berührte* *die* *Tür* *#auf*/*#kaputt.*
Karl touched DEF door open/broken

The data discussed in the last two sections show that, in German, verbs of contact by impact realize their undergoer argument as an NP – rather than a PP – and therefore as a direct object, if the referent of the undergoer argument is (i) animate, or (ii) inanimate with a change of state or location explicitly expressed (i.e., if the verb is used in a resultative or caused motion construction, which predicates about the undergoer argument). This shows that different factors – animacy and the explicit expression of change of state or location – govern the marking of inanimate undergoer arguments together.

2.3 Oblique animate undergoer arguments

The discussion of obliquely marked undergoer arguments would be incomplete without mentioning the fact that some verbs of contact by impact also license the realization of animate undergoer arguments within a prepositional phrase. In contrast to inanimate undergoer arguments, however, the realization of animate undergoers within a PP is only ever optional.

In (21a) the animate undergoer is realized in a PP headed by *auf* 'on'. By comparing (21a) and (b), one can observe that the interpretation of the verb changes slightly, as is made clear in the English translations. In (21b) *treten* is translated as *kick*, whereas in (a) *treten auf* has the meaning of *step on*.

(21) a. *Der* *Mann* *trat* *auf* *den* *Hund.*
DEF man kicked on DEF.ACC dog
'The man stepped on the dog.'
b. *Der* *Mann* *trat* *den* *Hund.*
DEF man kicked DEF.ACC dog
'The man kicked the dog.'

Besides *auf*, other prepositions such as *gegen* 'against' can also be used with animate undergoers (22).

(22) *Der* *Mann* *trat* *gegen* *den* *Hund.*
DEF man kicked against DEF.ACC dog
'The man kicked (against) the dog.'

Like other transitive predicates, *treten* takes *haben* 'have' as a perfect auxiliary (23a). *Treten auf* 'step on', on the other hand, licenses both *haben* and *sein* 'to be' as perfect auxiliaries (23b).[6] Speakers, at least those I consulted, accept both auxiliaries but prefer *sein* over *haben*. With respect to (23a), the use of the perfect auxiliary *sein* is judged to be ungrammatical.

(23) a. *Der* *Mann* *hat/*ist* *den* *Hund* *getreten.*
DEF man has/is DEF.ACC dog kicked
'The man has kicked the dog.'
b. *Der* *Mann* *hat/ist* *auf* *den* *Hund/Stein* *getreten.*
DEF man has/is on DEF.ACC dog/stone kicked
'The man has stepped on the dog/stone.'

The same choice in the use of the perfect auxiliary is found with *treten gegen* 'kick against' (24). The speakers I consulted prefer *haben* over *sein*, but the choice between the two reflects a difference in volitionality. With *sein*, the kicking is interpreted as happening accidentally, whereas *haben* allows for a volitional interpretation. As (25) shows, the adverbial *absichtlich* 'intentionally/on purpose' is acceptable with the perfect construction formed with *haben* (a), but odd with the one formed with *sein* (b).

(24) *Der* *Mann* *hat/ist* *gegen* *den* *Hund/Stein* *getreten.*
DEF man has/is on DEF.ACC dog/stone kicked
'The man has stepped on the dog/stone.'

6 In more syntactically-oriented approaches (Burzio 1986, Grewendorf 1989), it is assumed that *sein* is selected by unaccusative predicates, whereas unergative and transitive predicates select *haben*. In more semantically-oriented approaches (e.g. Van Valin 1990, Kaufmann 1995), the selection of the perfect auxiliary is dependent on semantic properties such as Aktionsart and agentivity.

(25) a. *Der* *Mann* *hat* *absichtlich* *gegen* *den* *Hund* *getreten.*
DEF man has intentionally against DEF.ACC dog kicked
'The man kicked the dog intentionally/purposely.'
b. *#Der* *Mann* *ist* *absichtlich* *gegen* *den* *Hund* *getreten.*
DEF man is intentionally against DEF.ACC dog kicked

Thus, the volitionality contrast observed in (25) is reflected in the choice of the perfect auxiliary. The oblique marking of the undergoer arguments results, as shown in section 2.1, in a syntactically intransitive construction. This provides the appropriate grammatical context for the use of the *sein* auxiliary. An inanimate effector or instrument like a branch requires an oblique realization of an animate undergoer argument (26b). Having a direct realization of the animate undergoer (26a) results in an odd sentence (I will come back to the licensing of inanimate effector arguments in section 7). The perfect construction in (26b) only licenses *sein* 'to be' but not *haben* 'to have' as perfect auxiliary, in line with the fact that the branch cannot act volitionally.

(26) a. *#Der* *Ast* *hat* *Peter* *geschlagen.*
DEF branch has Peter hit
'The branch hit Peter.'
b. *Der* *Ast* *ist* *gegen* *Peter* *geschlagen.*
DEF branch is against Peter hit
'The branch hit (against) Peter.'

Variability in the choice of the perfect auxiliary is also found with certain motion verbs (e.g. *joggen* 'to jog') and change of state verbs like *altern* 'to age' or *rosten* 'to rust'. The factor controlling the choice of auxiliary is different for them than for verbs of contact by impact. Volitionality is not a relevant factor for those two classes of verbs, but they prefer *sein* 'to be' as a perfect auxiliary if they receive a telic interpretation. Otherwise the auxiliary *haben* 'to have' is used (see, e.g., the discussion in Gillmann 2016 and references cited therein).

In the remainder of the paper, I concentrate on the variation in argument marking and leave the issue of the perfect auxiliary aside. Before turning to an analysis of the marking asymmetry in terms of affectedness, I briefly discuss two previous analyses put forward by de Swart (2014) and Lundquist & Ramchand (2012).

3 Previous analyses

The differential marking of animate and inanimate undergoer arguments of verbs of contact by impact is not restricted to German but can similarly be found in Dutch (de Swart 2014) and Swedish (Lundquist & Ramchand 2012). In this section, I briefly review the analyses of de Swart and Lundquist & Ramchand; a cross-linguistic comparison of the marking asymmetry within the Germanic languages is the topic of section 6.

3.1 Salience-based analysis (de Swart 2014)

In his paper on prepositional inanimates in Dutch, de Swart (2014) investigates examples like those in (27). With respect to these examples, he argues that they can be considered an instance of paradigmatic differential object marking. Paradigmatic differential object marking has the function of signaling a semantic, or thematic, contrast between arguments; rather than to differentiate the actor and undergoer argument, which is the function of 'syntagmatic differential object marking' (de Swart 2014: 446; for a more general treatment of syntagmatic differential object marking see, e.g., Bossong 1985, Aissen 2003, de Swart 2007).

(27) Dutch (de Swart 2014: 445f.)

a. *De hond beet de man.*
DEF dog bit DEF man
'The dog bit the man.'

b. *De hond beet in het brood.*
DEF dog bit in DEF bread
'The dog bit the bread.'

The notion of paradigmatic differential object marking goes back to Ackerman & Moore's (2001) Paradigmatic Argument Selection Principle. It states that if arg_{i} and arg_{ii} are two different arguments of the same predicate, both grammatically encoded in different ways, and if "arg_{i} is more prototypical with respect to a particular proto-role, then arg_{i}'s encoding will be less oblique than arg_{ii}'s encoding" (Ackerman & Moore 2001: 169). *De man* 'the man' in (27a) exhibits more proto-patient properties – namely it is a stationary participant and sentient – than *het brood* 'the bread' (27b), which is only a stationary participant but not sentient. Thus *de man* is more prototypical with respect to the proto-patient role than *het brood* is (see Dowty 1991, Ackerman & Moore 2001, de Swart 2014 among others for a closer discussion of proto-(patient) properties). This is reflected in the realization of the two arguments. *De man* is less oblique then *het brood*, which is realized within a PP. It is the difference with respect to sentience that accounts for the marking asymmetry in (27). Since sentience is restricted to animate beings, de Swart concludes "it may be that the animacy effect is in fact epiphenomenal" (de Swart 2014: 463).

De Hoop (2015) – in her analysis of examples like (27) – follows de Swart and argues that the marking asymmetry is explained by prominence. Under the notion of 'prominence' she subsumes factors like definiteness, referentiality, animacy, person, topichood and word order (de Hoop 2015: 174f.). De Hoop explicitly rejects an analysis in terms of affectedness but argues that animacy is the crucial factor determining the marking asymmetry in (27). In a joint work, de Swart & de Hoop (2018) explicitly follow de Swart's analysis of the phenomenon under discussion and emphasize that the use of the preposition in case of an inanimate argument is due to a type conflict. Verbs of contact require an animate object and it is the function of the preposition to change the selectional restrictions of the verb. Thus, "a preposition is inserted to overcome the mismatch between the selectional restrictions of the verb, requiring an animate (sentient) object, and the inanimate noun phrase *the bread* [27a]" (de Swart & de Hoop 2018: 13f.).

De Hoop's salience-based analysis and de Swart's sentience-based one account equally well for the marking asymmetry in German, as represented by examples like those in (28). *Den Mann* 'the man' is sentient and therefore animate, whereas *das Brot* 'the bread' is inanimate and therefore not sentient.

(28) a. *Der Hund biss den Mann.*
DEF dog bit DEF.ACC man
'The dog bit the man.'

b. *Der Hund biss in das Brot.*
DEF dog bit in DEF bread
'The dog bit the bread.'

However, both approaches face a problem if one takes examples like those in (29) into account. As shown there – and discussed in the last section – if a resultative prefix (a) or a secondary resultative predicate (b) is added, the inanimate undergoer is not realized within a PP. *Der Knochen* 'the bone' in (29) is not less inanimate than *das Brot* in (28b), so there is no contrast regarding sentience or animacy that can account for the marking difference between (28b) and (29). Other salience factors, such as definiteness or referentiality, cannot explain the difference either, as the undergoer arguments in (28b) and (29) are both marked as definite with the use of the definite article.

(29) a. *Der* *Hund* *zer-biss* *den* *Knochen.*
DEF dog ZER-bit DEF.ACC bone
'The dog bit the bone into pieces.'
b. *Der* *Hund* *biss* *den* *Knochen* *kaputt.*
DEF dog bit DEF.ACC bone broken
'The dog bit the bone into pieces.'

Although salience – in terms of animacy or sentience – does explain the differential marking of animate and inanimate undergoer arguments, it does not provide an explanation for the cases in which the inanimate undergoer argument of verbs of contact by impact does not take oblique marking. Furthermore, the analysis does not account for cases of optional oblique marking of animate undergoer arguments. The oblique marking of an animate undergoer argument – as discussed in the last section – does not result in reduced animacy/sentience of the argument's referent. Therefore, the analysis does not provide an explanation for either the contexts in which the inanimate undergoer requires oblique marking, or those in which it prohibits such a marking, or the contexts in which animate undergoer arguments receive oblique marking.

The 'type shift'-analysis proposed in de Swart & de Hoop (2018) – based on de Swart (2014) – leaves one crucial question open: Why is a type shift required in the context of inanimate object arguments? The authors simply state it as a fact. I will argue below that the reason why animate and inanimate beings are treated differently can be explained by the notion of affectedness.

3.2 Affectedness-based analysis (Lundquist & Ramchand 2012)

Lundquist & Ramchand (2012) discuss the marking asymmetry of animate and inanimate undergoer arguments of verbs of contact by impact in Swedish and German. Their data are comparable to de Swart's, but they differ in the explanation they offer for the asymmetry. A Swedish example, corresponding to the one discussed from Dutch in (27), is given in (30).

(30) Swedish (Lundquist & Ramchand 2012: 227)
a. *Hund-en* *bet* *mann-en.*
dog-DEF bit man-DEF
'The dog bit the man.'

b. *Jag* *bet* *(*i*) *äpple-t.*
I bit in apple-DEF
'I bit the apple.'

In Swedish, like in German, the inanimate undergoer argument of verbs of contact by impact does not require oblique marking if there is an explicit expression of a change of state or location. This is shown in the use of the resultative construction in (31).

(31) *Jag* *bet* *äpple-t* *i* *två* *bitar.*
I bit apple-DEF in two pieces
'I bit the apple into two pieces.' (Lundquist & Ramchand 2012: 228)

In contrast to de Swart and de Hoop, Lundquist & Ramchand take into account contexts in which the inanimate undergoer arguments do not require oblique marking. The authors provide an explanation for the marking asymmetry in terms of affectedness. Their basic claim is that the inanimate referent of the undergoer argument in (30b) is not seen as being affected by the biting, whereas the animate referent in (a) is taken to be affected. Hence, Lundquist & Ramchand (2012: 229f.) propose that "the notion of affectedness

is encyclopedically different for animates and inanimates. While inanimates can only be asserted as affected by virtue of outward physical changes as a result of the action, animates can be affected by virtue of their inner world, by being experientially affected by the event". It is not controversial that animate and inanimate entities differ in that only the former has a mental life and can be emotionally affected without being physically affected as well. This distinction is related to sentience, as only sentient beings can be experientially affected. Nevertheless Lundquist & Ramchand do not base their analysis on sentience; rather they relate the property of sentience to affectedness.[7]

Lundquist & Ramchand (2012: 233) explain the notion of affectedness as follows: "Any DP that holds a property that is continuously changing, or that is the holder of a property that is a result of a change is defined as 'affected'. The property in question can be in the domain of 'quality' or 'location' depending on the particular lexical encyclopedic properties of the verb." The notion of affectedness, as used by Lundquist & Ramchand, presupposes the notion of change, as an entity is only seen as affected if one of its properties is continuously changing or the result of a change. Lundquist & Ramchand do not explicate what is meant by change in the context of verbs of contact by impact. One can ask how Peter changes if Mary hits him. Even if in certain cases the undergoer is somehow changing, do verbs of contact by impact necessarily describe events that result in a change of the undergoer? As already mentioned in the first section, many researchers (e.g. Fillmore 1970 and Levin 1993) explicitly deny that verbs of contact by impact entail a change of the undergoer argument's referent. As such, it is unclear what Lundquist & Ramchand really mean by 'change' and how strongly the notion of 'change' is seen to be lexically encoded in verbs of contact by impact.

A further problem is that Lundquist & Ramchand do not give any criteria – besides the difference in the marking of the undergoer argument – that can be used for distinguishing different grades of affectedness. In addition, it remains an open question whether Lundquist & Ramchand take affectedness to be a binary or graded concept.

Although Lundquist & Ramchand shed light on the phenomenon, their analysis lacks an explicit and operationalizable notion of affectedness. In the next section, I introduce Beavers' (2011, 2013) analysis, which comes with a clear definition and well-defined criteria to distinguish different grades of affectedness. Hence, Beavers' account does not face the same problems as Lundquist & Ramchand's and can be used to demonstrate that the marking asymmetry, as argued by Lundquist & Ramchand, is triggered by affectedness.

4 Explicating affectedness

Affectedness is one of the key terms in discussions concerned with the syntax-semantics interface. The notion is used by different authors, such as Tenny (1994), Tsunoda (1981) or Næss (2007), for analyses of various phenomena including, among others, objecthood, lexical aspect, transitivity and argument alternations (see Beavers 2011, as well as von Heusinger & Kaiser 2011 for a review of various uses of the notion). Often the notion of affectedness lacks a clear definition. Beavers, however, identifies the notion of change as a common core which all of the various uses share.

Beavers' (2011: 350) own explication of 'affectedness' starts with a definition of change as "a transition of a theme along a scale". A scale is commonly understood as a linearly ordered set of degrees in a certain measurement dimension (cf. Kennedy & McNally 2005). In case of a quantity scale, for example, the measurement dimension is quantity and the degrees represent the measurement units, for example 1 liter, 2 liters, and so on. Following Kennedy (1999), the scale's dimension represents a gradable property of individuals. Hence, the notion of 'change' is understood as an increase or decrease in the degree of some property of an individual. An exact representation of scalar changes is not crucial for the current paper but see Kennedy & Levin (2008), Beavers (2011), Fleischhauer & Gamerschlag (2014), Fleischhauer (2016), among others, for more discussion of this issue.

Beavers distinguishes four degrees of affectedness corresponding to how "specific a predicate is about the theme's progress on the scale" (Beavers 2011: 357). The more specific the predicate is, the higher the degree of affectedness. The hierarchy in (32) brings these four grades of affectedness in order, decreasing

7 Lundquist & Ramchand are not explicitly speaking of sentience, but it seems to cover what they mean and easily allows connecting their analysis with de Swart's.

from left to right. The highest degree of affectedness is represented by quantized changes, whereas predicates that are unspecified for change represent the lowest degree. Affectedness is a property of the relation between a predicate and the undergoer argument. The lexical semantics of the verb are crucial in determining affectedness, but they are not the only relevant factor. Rather it is the combination of the verb and the undergoer argument that determines affectedness, as will be shown in the following discussion.

(32) quantized change > non-quantized change > potential change > unspecified for change

The four grades of affectedness can be illustrated by discussing the diagnostics used for distinguishing them. The diagnostics proposed by Beavers (2013) are listed in table 1. The first diagnostic – telicity – distinguishes verbs expressing quantized changes from those that do not (this view on telicity goes back to Krifka 1986, 1989). Informally speaking, a predicate denotes a quantized change, if it truthfully applies to an event but not to a proper part of it. *Drinking a glass of wine* denotes a quantized change, since no proper part of the event of *drinking a glass of wine* by itself constitutes a drinking of a glass of wine. *Drinking wine*, on the other hand, denotes a non-quantized change, since a proper part of an event of drinking wine can be truthfully denoted by the predicate *drinking wine*. The crucial question is what makes a change quantized. In a quantized change, the attainment of a specific goal state is entailed. Non-quantized changes, on the other hand, do not supply a specific goal state, but rather only entail the general existence of a goal state (Beavers 2011: 357).[8]

Change of state verbs like *die* or *close* and change of position verbs such as *enter* are lexically telic. The verbs lexically provide a specific goal state which applies to the referent of the theme argument at the end of the event. Degree achievement predicates such as *grow* or *widen* do not entail that a specific goal state is reached and therefore are not lexically telic (the notion 'degree achievement' goes back to Dowty 1979, see Hay et al. 1999 and Kennedy & Levin 2008 for more recent analyses of these predicates).

Table 1 Affectedness diagnostics based on Beavers (2013: 689)

Diagnostics	quantized change	non-quantized change	potential change	unspecified for change
predicate is telic	+	-	-	-
predicate entails a change of *x*	+	+	-	-
happened/did to x	+	+	+	-

Quantized and non-quantized changes entail a change of state or location of the undergoer argument's referent. This is different for predicates expressing potential changes. In those cases, the occurrence of a change can be negated without contradiction. It is possible to deny any result of a verb like *kick*, as (33a) shows; whereas in the case of *break* and the degree achievement predicate *grow,* the negation of the entailed result leads to a contradiction (b/c). Hence, the possibility of negating that the referent of the undergoer argument changes in a certain property distinguishes (non-)quantized from potential changes.

(33) a. The donkey kicked the farmer but nothing is different about the farmer.
b. #Maria broke the window but nothing is different about it/but it is not broken.
c. #Maria has grown but nothing is different about her/but she is not taller than before.

Verbs expressing potential changes differ from verbs which are unspecified for changes with respect to the *happen/did to* test. The test goes back to Cruse (1973) and is seen by Beavers (2011: 339) as probably the only direct test for affectedness. Predicates unspecified for change cannot be used in a *happen/did to* frame as (34a) shows. The verb *follow* expresses no affectedness of the undergoer, which is the entity being followed. Intuitively, this is clear, as following a star has no effect, not even a potential one, on the star. The *happen/*

8 Beavers (2012) presents a more sophisticated definition of telicity but see also Fleischhauer (2013, 2016) for discussion of subtypes of telic predicates which cannot be captured by the definition of telicity presented above.

did to frame is only applicable if the verb entails some degree of affectedness, as shown in (34b) and (c). The predicates *destroy* and *eat* entail a change of the referent of the undergoer argument and can easily be used in the test construction. But, as (34c) shows, the same holds for *hit*.

(34) a. #What happened to the star is they followed it (out of Bethlehem).
b. What happened to the case is that John destroyed/ate it.
c. What happened to the car is John hit it.
(Beavers 2011: 340)[9]

The four degrees of affectedness form an implicational hierarchy, which becomes clear in Beavers' (2011: 358) formal definitions in (35). In the definitions, *e* represents the event denoted by the predicate φ, *s* is the scale along which the entity *x* changes. *g* is a degree on *s* and represents the goal of the change. If a predication expresses a quantized change on *x*, then there is a state which results from the event and at which the specific goal *g* holds of *x*.

(35) a. *x* undergoes a quantized change iff $\varphi \rightarrow \exists e \exists s[\text{result'}(x, s, g_{\varphi}, e)]$
b. *x* undergoes a non-quantized change iff $\varphi \rightarrow \exists e \exists s \exists g[\text{result}'(x, s, g, e)]$
c. *x* has potential for change iff $\varphi \rightarrow \exists e \exists s \exists \theta[\theta(x, s, e)]$
d. *x* is unspecified for change iff $\varphi \rightarrow \exists e \exists \theta'[\theta'(x, e)]$

The lower degrees of affectedness are defined by existential generalization. As Beavers (2011: 358) writes: "Non-quantized change is an existential generalization over the goal of a quantized change, potential for change is an existential generalization of the θ-relation between the theme, scale, and event, and being unspecified for change is an existential generalization over the thematic role of the theme".

The discussion above already reveals that verbs of contact by impact are predicates expressing potential changes, since they do not entail a change of state, but they do pass the *happen/did to* test (34c). Beavers (2013: 689) explicates 'potential change' as follows: "To model impingement for impact and contact predicates, Beavers [2011] proposes that *x* has potential for change: it is associated by the predicate with a scale – there is some specific set of possible changes that could occur due to the type of action the predicate describes – but there is not necessarily any actual change". The verb does not lexically entail a change in the undergoer argument, but its lexical meaning is compatible with the obtainment of a change. This can be seen by the fact that these verbs easily license resultative constructions, whereas verbs unspecified for change do not. Verbs of contact by impact are associated with different possible changes, which could happen as a result of the action denoted by the verb. Depending on the referent of the undergoer argument, the change could affect a physical property (e.g. *break a table* (*into pieces*) *by hitting*, *break someone's nose by hitting*) or a sentential property (e.g. *make someone upset by hitting him*, *make someone sad by hitting him*).

5 Decreased affectedness in German

Following from Beavers' account of affectedness, the current section aims to show that oblique marking of undergoer arguments results in decreased affectedness compared to non-oblique marking. Applying the tests introduced in the last section, it can easily be demonstrated that pure verbs of contact like German *berühren* 'touch' are unspecified for change. These verbs do not entail a change and also do not pass the German version of the *happen/did to* test (36). Furthermore, as already discussed in section 2, they do not take resultative predicates. But (36a) improves if *touch* is understood as 'assault indecently'; in such a case Karl would be understood as being negatively affected and the sentence would pass the *happen/did to* test. This already indicates that psychological/emotional affect is crucial in determining affectedness.

9 The test does not work for intransitive degree achievements such as g*r*ow.

(36) a. *#Was* (*mit*) *Karl* *passierte* *ist,* *dass* *Maria* *ihn* *berührte.*
what with Karl happened is that Maria him touched
'What happened to Karl is that Maria touched him.'

b. *#Was* (*mit*) *dem* *Tisch* *passierte* *ist,* *dass* *Maria* *ihn*
what with DEF.DAT table happened is that Maria him
berührte.
touched
'What happened to the table is that Maria touched it.'

If the differential marking of animate and inanimate undergoer arguments of verbs of contact by impact is triggered by affectedness, the affectedness diagnostics should lead to different results depending on the animacy of the undergoer argument. As verbs of contact by impact do not entail a change of state, irrespective of the animacy of the undergoer argument, the relevant contrast seems to be the one between predicates expressing potential changes and those unspecified for change. Thus, the application of the *happen/did to* test is the crucial criterion to look at.

Indeed, animacy shows an effect in the outcome of the German version of the *happen/did to* test as shown in (37). The construction is acceptable with animate undergoer arguments, but results in an odd sentence with inanimate ones. Therefore, it is reasonable to conclude that if the undergoer is animate, the predicate shows the characteristics of potential change. If, on the other hand, the undergoer is inanimate, the predicate shows the characteristics of verbs which are unspecified for change. Verbs of contact by impact with inanimate undergoer arguments show the same behavior as pure verbs of contact, with respect to the affectedness diagnostics.

(37) a. *Was* (*mit*) *Karl* *passierte* *ist,* *dass* *Maria* *ihn* *schlug.*
what with Karl happened is that Maria him hit
'What happened to Karl is that Maria hit him.'

b. *#Was* (*mit*) *dem* *Tisch* *passierte* *ist,* *dass* *Maria* *ihn*
what with DEF.DAT table happened is that Maria him
schlug.
hit
'What happened to the table is that Maria hit it.'

In section 2.3, I mentioned that animate undergoer arguments optionally allow an oblique realization (38a). As (38b) shows, the oblique animate undergoer argument does not pass the *happen/did to* test, showing that a deep connection between oblique marking and reduced affectedness exists. Both animate and inanimate undergoer arguments can be realized as being unaffected by the activity denoted by a verb of contact by impact. The crucial difference is that the grammar treats inanimate undergoer arguments as being unaffected by default, resulting in an obligatory oblique marking. With animate undergoer arguments, it is the choice of argument marking (oblique vs. non-oblique) which reflects a decrease in affectedness (potential change vs. unspecified for change).

(38) a. *Maria* *trat* *gegen* *den* *Hund.*
Maria kicked against DEF.ACC dog
'Maria kicked against the dog.'

b. *#Was* (*mit*) *dem* *Hund* *passierte* *ist,* *dass* *Maria* *gegen* *ihn*
what with DEF.DAT table happened is that Maria against him
trat.
kicked
'What happened to the dog is that Maria kicked against it.'

The use of resultative constructions or resultative verb prefixes increases the degree of affectedness. Prefixing *zer-* to a verb like *schlagen* results in a complex verb meaning 'hit into pieces'. *Zerschlagen* expresses a quantized change on its undergoer argument and therefore the prefixed verb indicates a higher degree of affectedness than the simplex one does. Thus, the prefixed verb does not only pass the *happen/did to* test (39) but also the telicity test (40). The latter is failed by the simplex verb irrespective of the animacy of the undergoer argument (41).

(39) *Was* (*mit*) *dem* *Tisch* *passierte* *ist,* *dass* *Maria* *ihn* *zer-schlug.*
what with DEF.DAT table happened is that Maria him ZER-hit
'What happened to the table is that Maria hit it into pieces.'

(40) *Maria* *zer-schlug* *den* *ganzen* *Tisch* *in* *nur* *einer* *Minute.*
Maria ZER-hit DEF.ACC whole.ACC table in just one minute
'Maria hit the whole table into pieces in just one minute.'

(41) *Maria* *schlug* *# den* *Tisch/* *# den* *Hund* *in* *nur* *einer* *Minute.*
Maria hit DEF.ACC table DEF.ACC dog in just one minute
'Maria hit the table/the dog in just one minute.'

The discussion above reveals that inanimate undergoer arguments of simplex verbs of contact by impact are always taken to be unaffected. With animate undergoer arguments of such simplex verbs, there is a choice between representing the argument as undergoing a potential change or as undergoing no change. The different interpretations correlate with a difference in the morphosyntactic marking of the undergoer argument. Unaffected arguments – irrespective of animacy – receive oblique marking, whereas direct marking – meaning non-oblique – is used for undergoer arguments undergoing a potential change. The marking variability with respect to animate undergoer arguments reflects an interpretational difference with respect to the expressed degree of affectedness. In other words, oblique marking correlates with a lesser degree of affectedness. This is in line with the general view that a higher degree of affectedness correlates with a higher degree of (syntactic) transitivity. That oblique marking results in reduced transitivity has been shown in section 2. Oblique undergoer arguments cannot be passivized and therefore do not function as direct objects. This is consistent with, e.g., Tsunoda (1981), who argues that case frames can be ordered with respect to affectedness. According to his analysis, a transitive case frame (e.g. nominative-accusative) is correlated with a high(er) degree of affectedness, whereas reduced affectedness in many languages results in a deviant case frame (e.g. nominative-oblique). As the marking asymmetry discussed for German is an instance of paradigmatic differential object marking, it is not related to the morphosyntactic expression of transitivity in general. Hence, it is not predicted that all unaffected undergoer arguments would take an oblique realization. As the discussion of verbs of contact revealed, the undergoer arguments of these verbs are not affected by the action denoted by the verb, but they still do not receive oblique marking. This type of marking asymmetry only shows up in the limited context of verbs of contact by impact.

The crucial question emerging out of the discussion of the German data is this: why does animacy have an impact on affectedness in German? Before I turn to a discussion of this question, I would like to look beyond German to demonstrate that the same type of interaction between animacy and affectedness is found in other Germanic and Slavic languages as well.

6 Looking beyond German

Data from Dutch and Swedish have already been mentioned in section 3. As shown above, these two languages exhibit the same kind of differential marking as German does. Illustrative examples are given in (42), for (Belgian) Dutch, and (43), for Swedish, again. Danish, as shown in (44), shows this kind of marking asymmetry as well.[10]

10 De Swart (2014) mentions that the marking asymmetry is also found in Norwegian.

(42) Dutch
a. *Het meisje stampte de jongen.*
DEF girl kicked DEF boy
'The girl kicked the boy.'
b. *Het meisje stampte *(tegen) de tafel.*
DEF girl kicked against DEF table
'The girl kicked the table.'

(43) Swedish (Lundquist & Ramchand 2012: 227)
a. *Jag sparkade mannen flera gånger.*
I kicked man.DEF many times
'I kicked the man many times.'
b. *Jag sparkade *(på) bordet flera gånger.*
I kicked on table.DEF many times
'I kicked the table many times.'

(44) Danish
a. *Dreng-en slår pige-n.*
boy-DEF hit girl-DEF
'The boy hit the girl.'
b. *Dreng-en slår *(i) bord-et.*
boy-DEF hit in table-DEF
'The boy hit the table.'

I now turn to a discussion of whether the marking asymmetry in Swedish and Dutch is triggered by affectedness as well.[11] As is the case with German, the inanimate undergoer receives oblique marking unless a change of state is explicitly predicated. This is shown by the use of the resultative constructions in (45a) for Dutch and (b) for Swedish.

(45) a. *Het meisje stampte de deur kapot.*
DEF girl kicked DEF door broken
'The girl kicked the door into pieces.'
b. *Jag sparkade sönder bordet.*
I kicked apart table.DEF
'I kicked the table apart.' (Lundquist & Ramchand 2012: 228)

Similarly, if the referent of the undergoer argument is understood as changing location, oblique marking is not permitted. This is shown in (46a) for Dutch and (b) for Swedish.

(46) a. *Jan stampte de bal in het doel.*
Jan kicked DEF ball in the goal
'Jan kicked the ball into the goal.'
b. *Jag sparkade bollen i mål.*
I kicked ball.DEF in goal
'I kicked the ball into the goal.' (Lundquist& Ramchand 2012: 229)

The marking asymmetry shows up in exactly the same contexts as in German. However, to show that it is triggered by affectedness, the *happen/did to* test has to be applied to the respective verbs. In (47) the test – using the verb *overkomen* 'happen' – is applied to the Dutch verb *slaan* 'hit'. As (47a) shows, the test works well for animate undergoers, but the test sentence becomes odd if the undergoer is inanimate (b).

11 Unfortunately, I lack the relevant data for Danish, therefore I restrict the analysis to Dutch and Swedish.

(47) a. *Wat* *de* *koe* *overkwam,* *is* *dat* *de* *jongen* *haar* *sloeg.*
what DEF cow happened is that DEF boy her hit
'What happened to the cow was that the boy hit her.'
b. *#Wat* *de* *tafel* *overkwam,* *is* *dat* *de* *jongen* *hem* *sloeg.*
what DEF table happened is that DEF boy him hit
'What happened to the table was that the boy hit it.'

In (48) the same test is used for the Swedish verb *bita* 'bite'. If the undergoer is animate, the test works well (a). The sentence in (48b) is odd, but it improves if the preposition *i* 'in' is used (c). Nevertheless, the sentence in (48c) has been judged as less acceptable than the one in (a) by my informant, thus pointing in the same direction as the German and Dutch data do.

(48) a. *Vad* *som* *hände* *med* *mann-en* *var* *att* *hund-en* *bet*
what who happened with man-DEF was that dog-DEF bit
honom.
him
'What happened to the man was that the dog bit him.'
b. *#Vad* *som* *hände* *med* *äpple-t* *var* *att* *hund-en*
what who happened with apple-DEF was that dog-DEF
bet *det*
bite it
'What happened to the apple was that the dog bit it.'
c. *?Vad* *som* *hände* *med* *äpple-t* *var* *att* *hund-en*
what who happened with apple-DEF was that dog-DEF
bet *i* *det.*
bit into it
'What happened to the apple was that the dog bit into it.'

The data indicate that the oblique marking of inanimate undergoer arguments is triggered by affectedness in Dutch and Swedish as well. In both these languages, verbs of contact by impact with inanimate undergoer arguments show the characteristics of predicates unspecified for change, whereas with animate undergoer arguments they show the characteristics of potential changes.

It is striking that English lacks the affectedness-based marking asymmetry found in the other Germanic languages. Lundquist & Ramchand (2012: 224) also state that this absence of marking asymmetry is in need of an explanation. Superficially, it looks as if German and Swedish use a different strategy from English and realize inanimate undergoer arguments structurally differently than English does. Whereas German and Swedish use different syntactic structures depending on the animacy of the undergoer arguments, one could assume that English uses the same syntactic structure for *John hit the boy* and *John hit the table*. However, in their analysis, Lundquist & Ramchand argue against attributing the same syntactic structure to these two English sentences. They point out that the issue with this approach is "that it gives us a somewhat surprising answer to the question of what makes English different from Swedish [...] – it essentially says that English conceives of tables as being properly affected by kicking, while Swedish doesn't. Since we are unaware of any psychological/Whorfian difference between English speakers and Swedes with respect to their attitudes towards tables, we find this unlikely" (Lundquist & Ramchand 2012: 234f.). The authors propose the same syntactic structures for the respective sentences in Swedish, German and English. This is achieved by proposing a null preposition AT_{LOC} for English which conflates with the verbs of contact (a similar assumption is made by Erteschik-Shir & Rapoport 2010). Whereas Swedish and German make use of an overt preposition, English requires a null element. Reduced affectedness is related to prepositional marking – either overtly or covertly – in Swedish, German and English. Lundquist & Ramchand assume that different syntactic structures result in different interpretations. Thus, positing a null preposition for English

allows maintaining a one-to-one mapping between syntactic structure and interpretation across languages (Lundquist & Ramchand 2012: 235). Since speakers of English do not, presumably, conceive of tables differently than speakers of German or Swedish do, Lundquist & Ramchand intend to avoid attributing different structures to these languages.

I take a different position on this issue. The mere presence or absence of differential object marking in a language does not result in a difference the way speakers conceptualize events. It is simply grammatically determined in a particular language whether certain arguments are treated as salient enough to be realized as a direct object or not. In German, Swedish and Dutch, the contrast between the two affectedness grades of 'potential change' and 'unspecified for change' is grammatically relevant in the context of verbs of contact by impact. In English, it is not grammatically relevant and therefore does not give rise to an argument marking asymmetry. It is well-known that languages show variation in argument marking. Quite often, accusative case is restricted to salient arguments, which can be arguments with an animate referent or those with a definite interpretation. In other words, despite cross-linguistic variation in argument marking, it is a universal tendency that if a language shows argument marking asymmetry, accusative case is always restricted to (highly) salient arguments rather than those low in salience (e.g. Aissen 2003, de Swart 2007). The same tendency is found with affectedness-based differential object marking. In the languages under discussion, oblique marking is found with the less salient argument – meaning lower or even the lowest on the affectedness hierarchy.

Asking why English lacks affectedness-based differential object marking is similar to asking why it does not display definiteness-based differential object marking. Those kinds of splits are simply absent in some languages, the reasons for which can be manifold. In any case, the position I take is that different syntactic structures do not (necessarily) result in different worldviews. Saying that English does not require oblique marking for inanimate undergoer arguments of verbs of contact by impact does not imply that speakers of English think of inanimates as differently affected than speakers of German or Swedish do. It only means that English does not show a grammatical reflection of the difference in affectedness between animate and inanimate entities. A different – and as far as I know still open – question is whether English has had this type of marking asymmetry in its history and lost it. Given the fact that different Germanic languages share this type of paradigmatic differential object marking, it is reasonable to assume that it is inherited from Proto-Germanic.

Before ending this section, a brief mention of Slavic languages is in order. The same kind of marking asymmetry observed in German, Swedish, Danish and Dutch is also found in the Slavic languages Polish and Russian.[12] Examples from Russian are discussed in Levin (2015: 1656), Polish examples are shown in (49).

(49) a. *Dziewczyna* *kopnęła* *chłopca*.
girl kicked boy.ACC/GEN
'The girl kicked the boy.'

b. *Dziewczyna* *kopnęła* *w* *stół*.
girl kicked in/to table
'The girl kicked the table.'

As in the Germanic languages, the inanimate undergoer argument of verbs of contact by impact requires oblique marking. Polish, like other Slavic languages, is known to have animacy-based syntagmatic differential object marking as well, as can be seen in (49a). Nouns of the masculine gender do not have a distinct accusative form. Rather, the accusative is identical to the nominative for inanimate referents, but identical to the genitive for animate referents (e.g. Bielec 1998; see Kulikov 2006 for a short overview on the development of the category of animacy in the Slavic languages). As the example shows, Polish combines paradigmatic and syntagmatic differential object marking, as German does. As in the Germanic languages,

12 I lack data for other Slavic languages.

the type of paradigmatic differential object marking shown in (49) displays a contrast in affectedness. This is shown in (50) with an equivalent for the *happen/did to* test in Polish.

(50) a. *Jeśli chodzi o Karol-a, to Maria go uderzyła.*
when goes about Karol-ACC/GEN so Maria him hit
'What happened to Karl was that Maria hit him.'
b. *#Jeśli chodzi o stół, to Maria go uderzyła.*
when goes about table so Maria him hit
'What happened to Karl was that Maria hit him.'

Thus, affectedness triggers argument realization splits in Germanic as well as Slavic languages. Whether similar splits are found in other language families as well is a topic for future research.

7 Animacy and affectedness

In the two previous sections, I demonstrated that the marking asymmetry observed with verbs of contact by impact is related to the notion of affectedness. If the predication is conceived as being unspecified for change the undergoer argument receives oblique marking. Any higher degree of affectedness – either potential changes with simplex predicates or quantized changes in the context of resultative predications – requires direct marking of the undergoer argument. Animacy plays a role in the marking asymmetry as well, since undergoer arguments with an inanimate referent license direct marking only in the context of resultative predications. With simplex verbs of contact by impact, inanimate undergoer arguments always receive oblique marking. Animate undergoer arguments – at least in German – show variance in marking. They allow for direct as well as oblique marking, but the latter is chosen in a context of reduced affectedness.

The crucial question now is why animate and inanimate undergoer arguments differ with respect to the degree of affectedness expressed by a simplex verb of contact by impact. Various authors propose an essential difference between animate and inanimate entities concerning affectedness. Malchukov (2008: 211) as well as Lundquist & Ramchand (2012: 229f.) argue that inanimate undergoers are only conceived of as being affected if either a physical change or a change of location occurs. Animate undergoers, on the other hand, can also be emotionally/psychologically affected. Similarly, de Hoop writes that "[...] it could be argued that animate objects are more affected by verbal action than inanimate ones because they can actually suffer, feel pain, or experience emotion" (de Hoop 2015: 172). This results in a distinction of different dimensions of affectedness, as summarized in table 2. The basic distinction is between physical affectedness on the one hand and emotional/psychological affectedness on the other. Emotional/psychological affectedness presupposes animacy, as only sentient beings can, for example, be frightened or offended. A further distinction between human and non-human animates could probably be justified, but for the languages under discussion this is not relevant with respect to affectedness.

Table 2. Dimensions of affectedness and animacy.

Dimensions of affectedness	Animacy	Example
physical	animate & inanimate	animate: *being hurt*, *being killed* inanimate: *being broken*, *being bent*
emotional/psychological	animate	*being frightened*, *being offended*

How does this relate to Beavers' analysis of affectedness? I have demonstrated that verbs of contact by impact express potential changes. The scale argument of these verbs is existentially quantified, which means that there is a scale along which the individual could change. This is in line with Beavers' (2013: 689) view that there is a specific set of possible changes associated with verbs of contact by impact. The verbs do not entail a physical change; rather a change in a physical dimension requires a resultative predication.

Therefore I assume that the verbs restrict potential changes to non-physical dimensions. A non-physical dimension along which a change can be measured is only inferable for animate beings. In this way, one can conceive of animacy as providing restrictions on inferable scalar dimensions. Since inanimate entities do not license inferring a suitable scalar dimension, the only solution consists of reducing the degree of affectedness by "an existential generalization over the thematic role of the theme" (Beavers 2011: 358) which results in the lowest degree of affectedness. This decrease in affectedness is reflected by oblique marking in the languages under discussion.

The account by Beavers provides a well-defined and operationalized notion of affectedness in terms of specificity "about the theme's progress on the scale" (Beavers 2011: 357). Whereas this works well as a general view on affectedness, it leaves out the fact that entities can change in various (scalar) dimensions. The ontological distinction between animate and inanimate entities (in the sense of Dahl & Fraurud 1998, Dahl 2008 and de Swart & de Hoop 2018) provides a general constraint on possible dimensions along which an individual can change. One reviewer raised the question of whether the argument marking asymmetry under analysis depends on animacy and affectedness as two separate and equally relevant semantic factors. And if not, is it the case that affectedness cannot be properly understood without factoring in animacy? The position argued for in this paper is that animacy and affectedness – at least with respect to the phenomenon under discussion – are not two separate factors. As I argue above, animacy determines the suitable scales along which an entity can change. Verbs of contact by impact do not license the inference that the referent of the undergoer argument undergoes a change in a physical dimension. Thus, verbs of contact by impact can only be understood as expressing potential changes, if a non-physical scale is inferable. This shows that affectedness is not independent from animacy since the scales measuring the (potential) change are constrained by animacy. The informal approach presented above serves as a first attempt at capturing such animacy effects within Beavers' approach by analyzing the relationship between animacy and affectedness in terms of restrictions on inferable scales. A more formal analysis of the interplay between the two features – along the analysis sketched above – is planned for future work.

Oblique marking of animate undergoer arguments also results in a decrease of affectedness. One can speculate whether the optional oblique marking of animate undergoer arguments is not so much motivated by this, but rather by the resulting decrease in syntactic transitivity. The syntactic intransitivity allows for a choice of perfect auxiliary, which gives rise to a volitionality contrast, but also licenses inanimate actor arguments (51a) which are not allowed in the syntactically transitive constructions (b). The sentence in (51b) would only be acceptable if one intended to describe the branch as acting volitionally.

(51) a. *Der* *Ast* *schlug* *gegen* *den* *Mann.*
DEF branch hit against DEF.ACC man
'The branch hit (against) the man.'

b. *#Der* *Ast* *schlug* *den* *Mann.*
DEF branch hit DEF.ACC man

I am not sure whether one should assume that psychological/emotional affectedness presupposes a volitional act on side of the actor. In that case, psychological/emotional affectedness would presuppose animacy on both the side of the actor as well as the undergoer. This is an issue which is worth considering in the future, but which goes beyond the scope of the current paper.

8 Conclusion

In the current paper I presented an analysis of a certain type of paradigmatic differential object marking for animate and inanimate undergoer arguments of verbs of contact by impact in German as well as other Germanic languages. The marking asymmetry is triggered by affectedness, as shown in sections 5 and 6. Relying on Beavers' (2011, 2013) conception of affectedness, it is possible to show that referents of inanimate undergoer arguments are characterized as being less affected by such actions as hitting, biting

or kicking than referents of animate undergoer arguments. Building the analysis of the marking asymmetry on affectedness allows us to explain why in certain contexts – namely, in the presence of a result or goal predication – inanimate undergoer arguments reject oblique marking. Since in these contexts the referents of the inanimate undergoer arguments are indisputably affected, marking which indicates unaffectedness is prohibited. The analysis of the marking asymmetry put forward in the paper is corroborated by the behavior of pure verbs of contact. Verbs of contact by impact with inanimate undergoer arguments show the same characteristics as verbs of contact, which are clearly predicates unspecified for change.

The proposed analysis combines insights from the work of de Swart (2014), de Hoop (2015) and de Swart & de Hoop (2018) as well as Lundquist & Ramchand (2012). It enhances the analysis of de Swart in terms of explaining the contexts in which the inanimate undergoer does not take oblique marking. Lundquist & Ramchand's own definition of affectedness left open whether it is a binary feature, and how different degrees of affectedness can be tested. Beavers presents a well-defined and operationalized definition of affectedness which does not face the same problems. Furthermore, Lundquist & Ramchand did not bring animacy into their conception of affectedness. In the current analysis, I put forward the claim that animacy restricts the possible scales along which an individual can change. Animate beings license the inference of scales measuring change in a physical, emotional or psychological dimension, whereas inanimate entities only license changes in a physical dimension. As verbs of contact by impact are lexically non-resultative, potential changes are restricted to those in psychological/emotional states. This rules out inanimate beings from being affected by actions such as hitting, kicking or biting.

The analysis proposed in the paper should be seen as a first attempt in exploring the relationship between animacy and affectedness. An essential next step consists in formalizing the inferences of scalar dimensions only informally sketched in the last section.

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References

Ackerman, Farrel, John Moore. 2001. *Proto-properties and grammatical encoding: A correspondence theory of argument selection*. Stanford, CA: CSLI Publications.

Aissen, Judith. 2003. Differential Object Marking: Iconicity vs. Economy. *Natural Language and Linguistic Theory* 21,435-483.

Beavers, John. 2011. On affectedness. *Natural Language and Linguistic Theory* 29: 335-370.

Beavers, John. 2012. *Lexical Aspect and Multiple Incremental Themes*. In Violeta Demonte & Louise McNally (eds.), *Telicity, Change, and State: A Cross-Categorial View of Event Structure*, 23-59.Oxford: Oxford University Press.

Beavers, John. 2013. Aspectual classes and scales of change. *Linguistics* 51 (4): 681-706.

Beavers, John & Andrew Koontz-Garboden. 2012. Manner and Result in the Roots of Verbal Meaning. *Linguistic Inquiry* 43 (3): 331-369.

Bielec, Dana. 1998. *Polish. An Essential Grammar*. London, New York: Routledge.

Bossong, Georg. 1985. *Empirische Universalienforschung. Differentielle Objektmarkierung in den neuiranischen Sprachen*. Tübingen: Gunter Narr.

Burzio, Luigi. 1986. *Italian Syntax*. Dordrecht: Reidel.

Cruse, D. A. 1973. Some thoughts on agentivity. *Journal of Linguistics* 9: 11-23.

Dahl, Östen. 2008. Animacy and egophoricity: Grammar, ontology and phylogeny. *Lingua* 118: 141-150.

Dahl, Östen & Kari Fraurud. 1998. *Animacy in grammar and discourse.* In Thorstein Fretheim & Jeanette K. Gundel (eds.). *Reference and referent accessibility*, 65-88. Amsterdam: John Benjamins.

de Hoop, Helen. 2015. *Against affectedness*. In Sander Lestrade, Peter de Swart & Lotte Hogeweg (eds.). *Addenda. Artikelen voor Ad Foolen*, 169-176. Nijmegen: Radboud University.

de Swart, Peter. 2007. *Cross-linguistic Variation in Object Marking*. PhD thesis. Nijmegen: Radboud University Nijmegen.
de Swart, Peter. 2014. Prepositional inanimates in Dutch: A paradigmatic case of Differential Object Marking. *Linguistics* 52(2): 445-468.
de Swart, Peter & Helen de Hoop. 2018. Shifting animacy. *Theoretical Linguistics* 44 (1-2): 1-23.
Dowty, David. 1979. *Word Meaning and Montague Grammar*. Dordrecht: Reidel.
Dowty, David. 1991. Thematic Proto-Roles and Argument Selection. *Language* 67 (3): 547–619.
Erteschik-Shir, Nomi & Tova Rapoport. 2010. *Contact and Other Results*. In Malka Rappaport Hovav, Edit Doron & Ivy Sichel (eds.). *Lexical Semantics, Syntax, and Event Structure*, 59-75. Oxford: Oxford University Press.
Fillmore, Charles. 1970. The Grammar of *Hitting* and *Breaking*. In Roderick Jacobs & Peter Rosenbaum (eds.). *Readings in English Transformational Grammar*, 120-133. Ginn: Waltham, Mass.
Fleischhauer, Jens. 2013. *Interaction of telicity and degree gradation in change of state verbs*. In Boban Arsenijević, Berit Gehrke & Rafael Marín (eds.), *Studies in Composition and Decomposition of Event Predicates*, 125-152. Dordrecht: Springer.
Fleischhauer, Jens. 2016. *Degree Gradation of Verbs*. Düsseldorf: Düsseldorf University Press.
Fleischhauer, Jens & Thomas Gamerschlag. 2014. We are going through changes: How change of state verbs and arguments combine in scale composition. *Lingua* 141, 30–47.
Gillmann, Melitta. 2016. *Perfekt-Konstruktionen mit „haben" und „sein". Eine Korpusuntersuchung im Althochdeutschen, Altsächsischen und Neuhochdeutschen.* Berlin/Boston: de Gruyter.
Goldschmidt, Anja, Thomas Gamerschlag, Wiebke Petersen, Ekaterina Gabrovska & Wilhelm Geuder. 2017. *Towards Verb Modification in Frames. A Case Study on German* Schlagen *(to hit)*. In Helle Hvid Hansen, Sarah E. Murray, Mehrnoosh Sadrzadeh & Henk Zeevat (eds.), *Selected papers of the 11th International Tbilisi Symposium on Logic, Language, and Computation*. LNCS 10148, 18-36. Berlin: Springer.
Grewendorf, Günther. 1989. *Ergativity in German*. Dordrecht: Foris.
Hay, Jennifer, Christopher Kennedy & Beth Levin. 1999. *Scalar structure underlies telicity in "degree achievements"*. In Tanya Mathews & Devon Strolovitch (eds.), *Salt IX*, 127–144. Ithaca: CLC Publications.
von Heusinger, Klaus & Georg A. Kaiser. 2011. Affectedness and Differential Object Marking in Spanish. *Morphology* 21: 593-617.
Kaufmann, Ingrid. 1995. O– and D–Predicates: A Semantic Approach to the Unaccusative–Unergative Distinction. *Journal of Semantics* 12 (4): 377-427.
Kennedy, Christopher. 1999. *Projecting the Adjective - The Syntax and Semantics of Gradability and Comparison*. New York: Garland.
Kennedy, Christopher & Louise McNally. 2005. Scale Structure, Degree Modification, and the Semantics of Gradable Predicates. *Language* 81 (2): 345–381.
Kennedy, Christopher & Beth Levin. 2008. *The adjectival core of degree achievements*. In Louise McNally & Christopher Kennedy (eds.), A*djectives and Adverbs: Syntax, Semantics and Discourse*, 156-182. Oxford: Oxford University Press.
Krifka, Manfred. 1986. *Nominalreferenz und Zeitkonstitution*. München: Fink.
Krifka, Manfred. 1989. *Nominal reference, temporal constitution and quantification in event semantics*. In Renate Bartsch, Johan van Bentham & Peter van Emde (eds.), *Semantics and contextual expressions*, 75-115. Dordrecht: Foris Publications.
Krifka, Manfred. 2009. *Case syncretism in German feminines: Typological, functional and structural aspects*. In Patrick Steinrküger & Manfred Krifka (eds.), *On inflection*, 141-172. Berlin: Mouton de Gruyter.
Kulikov, Leonid. 2006. *Case systems in a diachronic perspective*. In Leonid Kulikov & Andrej Malchukov (eds.), *Case, valency and transitivity*, 23-47. Amsterdam: John Benjamins.
Levin, Beth. 1993. *English verb classes and alternations*. Chicago: Chicago University Press.
Levin, Beth. 2015. *Verb classes within and across languages*. In Andrej Malchukov & Bernard Comrie (eds.), *Valency Classes in the World's Languages*, Vol. II, 1627-1670. Berlin: de Gruyter.
Lundquist, Björn & Gilian Ramchand. 2012. *Contact, animacy, and affectedness in Germanic*. In Peter Ackema, Rhona Alcorn & Caroline Heycock (eds.), *Comparative Germanic Syntax*, 224-248. Philadelphia: John Benjamins.
Malchukov, Andrej L. 2008. Animacy and asymmetries in differential case marking. *Lingua* 118: 203-221.
Næss, Åshild. 2007. *Prototypical transitivity*. Amsterdam: John Benjamins.
Tenny, Carol. 1994. *Aspectual Roles and the Syntax-semantics Interface*. Dordrecht: Kluwer.
Tsunoda, Tasaku. 1981. Split case-marking patterns in verb-types and tense/aspect/mood. *Linguistics* 19 (5-6): 389-438.
Van Valin, Robert D. Jr. 1990. Semantic Parameters of Split Intransitivity. *Language* 66 (2): 221-260.
Van Valin, Robert D. Jr. 2005. *Exploring the Syntax-Semantics Interface*. Cambridge: Cambridge University Press.