

1. Introduction

Verb alternations: one verb appears in two (or more) different syntactic frames

- Dative alternation
 - Peter gave Mary a book.*
 - Peter gave a book to Mary.*
- Locative alternation
 - Peter sprayed paint on the wall.*
 - Peter sprayed the wall with paint.*
- Body-part possessor ascension alternation
 - Peter kissed Mary's cheek.* [ATTRIBUTIVE POSSESSIVE FRAME]
 - Peter kissed Mary on the cheek.* [ACC. EXTERNAL POSSESSIVE FRAME]

What is interesting about verb alternations?

- Meaning differences between the alternating forms
- The source of these differences
- Verb alternations as a playground for the research on verbal semantics: identification of classes of verbs and components of their meaning (e.g., Levin 1993, Levin & Rappaport Hovav 2005)

2. Research goals and claims

- The primary goal of the research is to isolate verbs that appear the external possessive frame of the body-part possessor ascension alternation in German
- Claim I:** Unlike attributive possessives, accusative external possessives presuppose physical attachment between the possessor and the possessee.
- Claim II:** Given that the presupposition of physical attachment is satisfied, to appear in external possessive frame, the following *double entailment* must hold: the same (potential) result state entailed by the verb must hold for both participants, the possessor and the possessee.
- The double entailment holds due to:
 - the internal argument structure of the verb: possessee in the prepositional phrase resembles an "incorporated" object
 - the restriction on the result state entailed by the verb: the verb must not entail quantized change in the undergoer.

3. Previous research

Cross-linguistically known meaning differences between alternating forms:

- External possessive frame:** possessor seems affected by the action/state expressed in the sentence.
- Attributive possessive frame:** distant perception of possessor.
- in external possessive frame, possessor is mostly animate.
- Verbs appearing in external possessive frame are verbs of direct physical contact.

Towards the isolation of verbs:

Levin (1993) on English

- Generalization:** unlike *hit*-, *cut*-, and *touch*-verbs, *break*- and *carve*-verbs do not allow for body-part possessor ascension alternation (cf. (4))

- Peter touched Paul on the arm.*
 - **Peter broke Paul on the arm.*

- Explanation:** to participate in body-part possessor ascension alternation, **verbs must entail physical contact**
- Problem:** *carve*-verbs (as also other verbs considered further) entail physical contact, but don't appear in the alternation

↓ Why?
What are other restrictions on participating verbs?

Dowty (2001)

- Explanation for Levin's generalization:**
 - verbs in question must entail physical contact and motion
 - the "part-to-whole spread" must hold: the relationship between the Agent and the body part must entail that the same relationship holds between the Agent and the possessor of that body-part (cf. (5))

- Mary touched the toenail on John's big toe.*
 - (therefore) *Mary touched John's big toe.*
 - (therefore) *Mary touched John's foot.*
 - (therefore) *Mary touched John's body.*
 - (therefore) *Mary touched John.*

(Dowty 2001:183)

- break**-verbs: the "part-to-whole spread" doesn't hold because the result state entailed for the part (the part is out of order) doesn't necessarily hold for the whole because the part and the whole fulfill different functions ((6a) vs. (6b)). However, this generalization does not apply to all *break*-verbs.

- John's arm is broken.*
 - John is broken.*

(Dowty 2001:184)

- Problem:** external forms considered by Dowty lack PPs

Massam (1989)

- Generalization:** from the three verb classes below, the only verbs that appear in body-part possessor ascension alternation are the verbs which physically affect but do not transform their object entirely (Class II).

- Class I:** verbs which **entirely transform their objects:** *destroy, break, kill, create...*
- Class II:** verbs which **physically affect but do not transform their objects:** *hit, kiss, touch, punch, wound...*
- Class III:** verbs which have **no physical affect on their objects:** *watch, see, hear, like...*

- Question:** What makes a transformation "entire"?

take verbs of contact by impact

4. The challenge

Among verbs of physical contact, resultatives that entail a specific result state do not appear in body-part possessor ascension alternation:

- Die Katze hat die Wange des Mädchens gekratzt / zerkratzt.*
the cat has the girl's cheek scratched / scratched up
'The cat scratched / scratched up the girl's cheek.'
- Die Katze hat das Mädchen gekratzt / zerkratzt.*
the cat has the girl scratched / scratched up
'The cat scratched / scratched up the girl.'
- Die Katze hat das Mädchen auf der Wange gekratzt / *zerkratzt.*
the cat has the girl on the cheek scratched / scratched up
'The cat scratched / *scratched up the girl on the cheek.'

Levin's (1993) physical contact approach:

Both verbs entail physical contact, but *zerkratzen* 'to scratch up' doesn't participate in body-part possessor ascension alternation

Dowty's (2001) impact-spread approach:

For both verbs (7) entails (8), but (9) with is ungrammatical with *zerkratzen* 'to scratch up' is ungrammatical.

Massam's (1989) entirety of transformation approach:

Zerkratzen 'to scratch up' does not seem to entail an entire transformation of the object, but it does appear in the external possessive frame.

↓
The three existing approaches make inaccurate predictions about verbs appearing in the external possessive frame

5. Methodology

- Verbs considered: German verbs of physical influence with different levels of affectiveness (cf. Beavers 2011)
- Verbs were collected from Wortschatz Leipzig / Leipzig Corpora Collection
- Syntactic behavior of collected verbs as related to their appearance in attributive and external possessive frame was examined based on DWDS Corpora of German language.

Beavers (2011) captures **affectiveness** as specificity of result state entailed by a verb. Verbs can be organized along the scale according to their affectiveness:



Distribution of verbs over syntactic frames

		ATTRIBUTIVE POSSESSIVE FRAME	EXTERNAL POSSESSIVE FRAME
<i>berühren</i> 'to touch'	<i>küssen</i> 'to kiss'		
<i>beifjen</i> 'to bite'	<i>attacken</i> 'to attack'	+	+
<i>verletzen</i> 'to injure'	<i>zurichten</i> 'to beat up'		
<i>schneiden</i> 'to cut'	<i>schlagen</i> 'to hit'		
<i>stoßen</i> 'to push'			
<i>brechen</i> 'to break'			
<i>deformieren</i> 'to deform'			
<i>einschlagen</i> 'to smash'		+	
<i>zerkratzen</i> 'to scratch up'			
<i>durchstechen</i> 'to pierce through'			
<i>wachküssen</i> 'to kiss awake'			
<i>quälen</i> 'to torture'			
<i>peinigen</i> 'to torment'			
<i>kränken</i> 'to hurt'			
<i>plagen</i> 'to plague'			

6. Presupposed relationships

Unlike attributive possessives, for external possessives to be acceptable, **presupposition of physical attachment** must be satisfied:

Attributive possessives:

- Peter grabbed Mary's arm.*
 - Peter grabbed Mary's backpack.*

presupposed relationship:
body-part relationship
free relationship

External possessives:

- Peter grabbed Mary by the arm.*
 - Peter grabbed Mary by the backpack.*

physical attachment
physical attachment

References

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7. Double entailment

What gives rise to the double entailment?

Weak definiteness of possessives

Claim: in external possessive frame, PPs are weak definite arguments of verbs that constitute a part of verb meaning denoting kinds of events (cf. (13)).

- [3] [Peter kissed Mary on the cheek] = [Peter cheek-kissed Mary]

Argumentation:

- PPs do not specify the internal location of manner of the action, otherwise (14b) would be acceptable (for opposite view on the issue cf. Fox 1981; Michelson 1991; Evans 1996)

- Peter küsste Marie wach.*
Peter kissed Marie awake
'Peter kissed Marie awake.'

- **Peter küsste Marie auf die Wange wach.*
Peter kissed Marie on the cheek awake
int.: 'Peter waked up Marie by kissing her on the cheek.'

- PPs do not locate result inside the possessor, otherwise (15) would be acceptable (for opposite view on the issue cf. Levy 1999)

- **Die Katze hat das Mädchen auf der Wange zerkratzt.*
the cat has the girl on the cheek scratched up
int.: 'The cat scratched the girl up on the cheek.'

- PPs show behavior of weak definites (cf. Vergnaud & Zubizarreta 1992)

- PPs allow only distributive readings (cf. (16));
- Independently of the possessor's number, possessives are encoded by nominal phrases in singular (cf. (16));
- PPs allow only restrictive, but not non-restrictive adjectival modifiers (cf. (17)).

- Marie hat die Kinder auf die Wange geküsst.*
Marie has the children on the cheek:SG kissed
'Marie kissed the children on the cheek.'

- **Marie hat die Kinder auf die Wangen geküsst.*
Marie has the children on the cheeks:PL kissed
'Marie kissed the children on the cheeks.'

- Marie hat das Kind auf die linke Wange geküsst.*
Marie has the child on the left cheek kissed
'Marie kissed the child on the left cheek.'

- **Marie hat das Kind auf die rote Wange geküsst.*
Marie has the child on the red cheek kissed
'Marie kissed the child on the red cheek.'

Weak definite objects of transitive verbs are claimed to refer to kind arguments that semantically differ from formally same verbs taking definite arguments (cf. Poessio 1994; Barker 2004; Dayal 2011; Aguilar-Guevara and Zwarts 2010; Schwarz 2014).

↓
Verbs in external possessive frame have two objects. This allows these verbs to bare double entailment, i.e., to entail the same result state for two entities, the possessor and the possessee.

*This sentence is acceptable in the situation in which Marie kissed every child on both their cheeks.

Why doesn't double entailment hold for verbs that entail a quantized (specific) result state?

- The same quantized result state cannot hold for two entities standing in part-whole relationship to each other.
- These verbs can be filtered out by application of telicity diagnostics (*in an hour* vs. *for an hour* (Dowty 1979))

- Peter hat sich den Arm in einer Stunde / *eine Stunde lang gebrochen.*
Peter has himself the arm in an hour / for an hour broken
'Peter broke his arm in an hour! *for an hour.'

- Peter hat das Brot in einer Stunde / eine Stunde lang geschnitten.*
Peter has the bread in an hour / for an hour cut
'Peter cut the bread in an hour / for an hour.'

- For telic verbs, the entailed result cannot hold for both undergoer and its subpart.

Double entailment vs. quantized change

Why can't we telicity or entailment of quantized change as a tool for the isolation of verbs appearing in the external possessive frame?

↓
There are atelic verbs that don't appear in external possessives (e.g., *touch*-verbs and other verbs that don't subcategorize for inanimates). They only can be sorted out by double entailment diagnostics.

- Peter hat Paul gequält.*
 - **Peter hat Paul am Bein gequält.*
Peter has Paul tortured. Peter hat Paul on the leg tortured
'Peter tortured Paul.'

8. Conclusions

- To appear in the external possessive frame the double entailment must hold: a verb must entail the same result state for two undergoers, the possessor and the possessee.
- Weak definiteness of the possessee encoded as a PP in the external possessive frame gives rise to the double entailment.
- Specificity of result blocks double entailment because the same quantized result cannot be true for two entities standing in a part-whole relationship to each other.