

# The conceptual building blocks of intransitives

Workshop on the building blocks and mortar of word meaning  
Tillmann Pross, prossn@ims.uni-stuttgart.de  
Institute for Natural Language Processing, University of Stuttgart

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- In this paper, I would like to make some steps toward a conceptual analysis of intransitives (comprising both intransitive verbs and intransitive verbal constructions) which does not start from the popular assumption that intransitives are ‘amputated’transitives.
- More specifically, the goal of the paper is to engineer a conceptualization of thematic roles in intransitives without the bias towards a transitive derivation and conceptualization of intransitives à la Perlmutter (1978)

## 1 Transitive Thematic Roles

“There is perhaps no concept in modern syntactic and semantic theory which is so often involved in so wide a range of contexts, but on which there is so little agreement as to its nature and definition, as THEMATIC ROLE and its derivative in Government-Binding theory, THETA-ROLE” (Dowty, 1991, p. 547).

- Argument-Indexing View:
  - Each DP argument is uniquely assigned a  $\theta$ -role from a given (hierarchically ordered) inventory of roles (agent, patient, theme, . . .) Fillmore (1968); Chomsky (1981).
  - (But: how many  $\theta$ -roles are there and what is their hierarchy (cp. Croft (1998))?)
- Individual Thematic Role View:
  - Thematic relations are named/introduced by the predicates with which they occur (builder, buildee/hitter, hittee, . . .) (cp. e.g. Jackendoff (1983)), thematic relations are particular configurations of primitive operations (GO, STAY, CAUSE) in conceptual structures.
  - (But: how does conceptual structure link to formal semantics and syntax, see e.g. Pross and Roßdeutscher (2015, 2014)?)
- Structural View:
  - Thematic roles are identified with the position of a DP in a given syntactic structure (Hale and Keyser (1993), also Kratzer (1996)’s Spec, Voice = Agent)
  - (But: how does the limited inventory of structural position correlate to the wide range of thematic roles (e.g. Folli and Harley (2005)’s conceptual ‘flavouring’ of structural positions)?)
- All three approaches have in common that they conceptualize thematic roles with transitive constructions
- E.g. Dowty (1991)’s characterization of proto-role entailments:

- Agent Proto-Role: causing an event in *another* participant, movement relative to the position of *another* participant
- Patient Proto-Role: causally affected by *another* participant, stationary relative to movement of *another* participant

## 2 Unaccusativity

- How do conceptually transitive thematic roles relate to thematic roles in intransitive verbs?
- Answers to this question usually draw on an influential proposal concerning the relation between transitive and intransitive verbs, the so-called syntactic unaccusative hypothesis Perlmutter (1978) according to which (in GB-terms) an unergative verb takes a deep-structure subject and no object, whereas an unaccusative verb takes a deep-structure object and no subject.
- Syntactic tests that have been argued to diagnose unaccusativity in German:
  - Unergative verbs appear in impersonal passives while unaccusative verbs do not (Perlmutter (1978)'s original diagnosis).
  - Unergative verbs select the perfect auxiliary *haben/hebben* (to have) while unaccusative verbs select *sein/zijn* (to be) (cp. Hoekstra (1984)).
  - Unaccusative verbs allow for the adjectival use of their past participle but not unergative verbs (cp. Zaenen (1993)).
  - Further diagnostics:
    - Unergatives but not unaccusatives allow for middle constructions,
    - Unaccusatives but not unergatives allow for resultative constructions.
    - Unergatives but not unaccusatives allow for resultative constructions with a reflexive in the object position
    - Unergatives but not unaccusatives have *-er* nominals
    - Unaccusatives but not unergatives have derived event nominals
- Unaccusativity is a syntactic hypothesis but has a semantic correlate in that “intransitive predicates argued to be unaccusative on syntactic grounds usually turned out to entail relatively patient-like meanings for their arguments (e.g. arrive, die, fall), while those argued to be syntactically unergative were usually agentive in meaning (smile, walk, talk, etc.).” (Dowty, 1991, p. 605)
- Both the syntactic and the semantic identification of unaccusativity has proved difficult, e.g.
  - Within a language, syntactic tests draw the boundary between unergatives and unaccusatives in different places, e.g. impersonal passives in Dutch do not correlate well with auxiliary selection Zaenen (1988))
  - Intransitive verbs that are not unambiguously syntactically unergative or unaccusative are also semantically problematic e.g. *to glow* (internally caused in Rappaport Hovav and Levin (2000) vs. externally caused in Reinhart (2002))
  - Cross-linguistically, despite their meaning being similar, intransitive verbs can behave syntactically as unergatives in one language but as unaccusatives in others, e.g. *to bleed* in Italian and Turkish, see Rosen (1984)
- In summary, “it would appear that unaccusativity is not a unified phenomenon from either a semantic or a syntactic perspective.” (Rappaport Hovav, 2005, p. 623)

- In fact, the list of intransitive verb constructions that have been identified as more or less problematic with respect to syntactic and/or semantic unaccusativity is long (see e.g. Levin and Rappaport Hovav (1995) for a detailed discussion).
- Problematic are in particular strictly intransitive constructions (i.e. where the intransitive does not alternate with transitive construction), e.g.
  - Verbs of Motion (*kriechen* (to crawl), *klettern* (to climb)) (variable behaviour, cp. e.g. (Levin and Rappaport Hovav, 1995, ch. 5.1.1))
  - Verbs of Emission (*bluten*, (to bleed), *strahlen* (to radiate), *keimen* (to germinate)) (unaccusative Reinhart (2002) vs. unergative Rappaport Hovav and Levin (2000))
  - Verbs of Change of State (*sterben*, (to die) *stolpern* (to stumble))
- A hypothesis that could arise from the problematic behaviour of intransitives:
- Maybe the analysis of intransitives requires different concepts than the analysis of transitives
- Furthermore, maybe the concepts used in the analysis of transitives are derived from the concepts that are relevant to the analysis of intransitives.
- Let me provide some initial motivation for the further exploration of these hypotheses with one particularly problematic example of unaccusativity in strictly intransitive verbs, Verbs of Emission (VoE).

### 3 An example: Verbs of Emission

- VoEs are known to be problematic for syntactic unaccusativity diagnostics because in e.g. German they do not appear in impersonal passives (1-a), do not license the adjectival use of their past participle (1-b) but select *haben* (have) as perfect auxiliary (1-c) (see also Zaenen (1993) for Dutch).
- (1)
- \*Es wurde           geblutet.  
it   be.AUX.PASS bleed  
'It was bled.'
  - \*Der geblutete   Peter.  
The bleed.PERF Peter  
'The bled Peter.'
  - Peter hat           geblutet.  
Peter have.AUX bleed.PRS.PRF  
'Peter has bled.'
- Like for unergatives, no adjectival use of the perfect participle of VoEs is possible, as in (2-b). Unlike unaccusatives, no resultative constructions of VoEs are possible, as in (2-c) and (2-d).
- (2)
- \*Die Tablette wirkt       sich leicht.  
The pill       take effect REFL easily  
'The pill took effect itself easily.'
  - \*Die gewirkte Tablette  
The effected pill  
'The effected pill'
  - \*Die Tablette wirkte       aus  
The pill       took effect out  
'The pill took effect out'

- d. \*Die Tablette wirkte den Patienten gesund.  
 The pill took effect the patient health.  
 ‘The pill took effect the patient healthy.

- As VoEs are non-agentive but atelic, VoEs are similarly problematic with respect to the semantic determination of unaccusativity.
- Rappaport Hovav and Levin (2000) argue that VoEs describe events which are internally caused - thus semantically unergative - because “some property inherent to the argument of an internally caused verb is responsible for bringing about the eventuality it describes” (Rappaport Hovav and Levin, 2000, p. 287).
- Reinhart (2002) argues for the contrary position: VoEs are ‘theme unergatives’, a class of verbs semantically indistinct from unaccusatives because “the event described by the unergative derivation *the diamond glowed* could not have just come about without some source of light - the ‘external cause’ of the glowing” (Reinhart, 2002, p. 281).
- In Pross (2015), I argued that both perspectives on VoEs are right in their own respect.
- VoEs identify manifestations of dispositions, where dispositions are inherent potential properties (à la Rappaport Hovav and Levin (2000)) that manifest themselves only when certain external circumstances obtain (à la Reinhart (2002))
- E.g., a diamond would glow when there were an external source of light beaming at it
- That is, *the diamond glowed* describes a situation in which the disposition of the diamond manifested itself in the presence of an external source of light
- “When the agent and the patient meet in the way appropriate to the disposition in question, the one must act and the other be acted on” (Aristotle, *Metaphysics IX 5*, 1048a 5-7)
- That is, a disposition is realized when the bearer of an active disposition and the bearer of a complementary passive disposition meet in an appropriate way.
- A glass has a passive disposition to break if struck and a hammer has an active disposition to break the glass if it strikes it.
- If the two meet in an appropriate way - the hammer strikes the glass - it breaks. (I’ll explore the parallelity between causatives and VoEs in more detail later in the paper)
- VoEs describe a similar meeting of dispositions but with an intransitive construction
- If the event described by VoEs involves both an active and a passive disposition, this explains why VoEs resist the syntactic and semantic determination of its either being active or passive: they are both because they have a conceptually transitive semantics.
- The conceptual transitivity of VoEs may explain why most VoEs are cognate constructions, in which the verb names an event and the result it produces (e.g. bleed-blood, glow-glowing).
- Consequently, the event identified by VoEs cannot be reduced to either external or internal causation but pertains to a conditional relation between both types of causation: manifestations of dispositions define a type of causality in which internal causality (the particular internal configuration of substances that disposes a diamond to glow) depends on external causality (a source of light).
- Also, the single argument of a VoE is neither or both an agent nor a patient.

- Finally, the reason why VoEs systematically escape syntactic and semantic unaccusativity diagnostics across and within languages may be that VoEs constitute a third class of intransitive verbs besides unaccusatives and unergatives.
- But then, the abnormal syntactic behaviour of VoEs in (1),(2) is a systematic diagnosis that distinguishes VoEs from unaccusatives and unergatives.

## 4 Manifestations of active and passive dispositions

- VoEs are intransitive descriptions of an active and a passive disposition meeting in an appropriate way: a bleeding manifests itself when a skin lesion (the active disposition) triggers the disposition of the skin to bleed (the passive disposition) when cut.
- While VoEs are conceptual transitives, in unaccusatives and unergatives the complementary disposition is not conceptualized.
- Unaccusatives are manifestations of passive dispositions without the requirement that an appropriate active disposition is conceptualized (i.e. *to die* does not entail any strong connection with the cause or reason of the dying).
- E.g. *sterben* (to die), *stolpern* (to stumble)
- The other way round, manifestations of active dispositions are prototypically expressed by unergatives, without the requirement that an appropriate passive disposition is conceptualized (i.e. why someone laughs).
- E.g. *lachen* (to laugh), *warten*, (to wait), *schmollen* (to sulk)

## 5 Alternating constructions and dispositions

- The verbs discussed so far are strictly intransitive and do not alternate with a transitive construction.
- It is tempting to push the conceptual engineering a bit further so as to transfer the concept of active and passive dispositions and their meeting in VoEs to transitive constructions, thus deriving the transitive concepts of agent, patient and causer/effect from intransitive dispositions.
- To do so, I propose to consider a class of alternations between transitive and intransitive constructions for which dispositionality has been called into play independently: middle constructions as in (3).

- (3) Das Buch liest sich leicht.  
 The book read REFL easy  
 The book reads easily.

- From a transitive point of view, middle constructions as in (3) are problematic with respect to unaccusativity: the matrix predicate in the middle construction takes only a single argument whereas it has two arguments in its transitive use
- The standard transitive analysis of middles assumes that middles are derived from transitives (cp. Schäfer and Pitteroff (2014); Ackema and Schoorlemmer (1994)):
  - The grammatical subject of the matrix predicate of the middle corresponds to the internal argument of the transitive use of the matrix predicate

- The agent of the transitive use of the middle predicate is demoted, the agent is syntactically inactive but semantically present (cp. Condoravdi (1989)).
- Middles do not make reference to an actual event but report a dispositional property of the grammatical subject (cp. Lekakou (2005))
- Cohen (2015) locates middle constructions in what he calls the square of disposition, a cross-classification of natural language expressions that identify dispositional properties.

(4)

	+Causer	-Causer
Existential	capability(dynamic can)	passivity: -able/-bar adjectives
Universal	-er nominals	middles

- Universal dispositions are always instantiated in the presence of appropriate circumstances
- Existential dispositions are sometimes instantiated in the presence of appropriate circumstances
- Bearers of dispositions can be a causer (then the disposition is an active disposition) or not (then the disposition is a passive disposition)
- (Note that Cohen (2015) argues that habituais are not dispositions, as only dispositions are modal)

## 5.1 Non-Core Transitives

- The core class of predicates occurring in the middle construction are so-called non-core transitive verbs (NCT) like *lesen* (to read), see (5)
- (5)
- Peter liest ein Buch. (transitive)  
Peter read a book  
Peter is reading a book.
  - Peter liest. (NCT)  
Peter read  
Peter is reading.
  - Peter ist ein Leser. (universal,+causer)  
Peter is a reader  
Peter is a reader.
  - Peter kann lesen. (existential, +causer)  
Peter can read  
Peter can read.
  - Das Buch ist lesbar (existential, -causer)  
The book is read.SFX.bar  
The book is readable.
  - Das Buch liest sich leicht. (universal, -causer)  
The book read REFL easy.  
The book reads easily.
- NCTs alternate between a transitive construction and an intransitive construction in which the object of the transitive construction is dropped
  - Alternation between a transitive construction and an intransitive construction has been identified as a relevant condition for entering the middle construction (cp. Hale and Keyser (1987))
  - NCTs are prototypical unergatives and identify manifestations of active dispositions but with their transitive object NCTs license passive dispositions

- Note that manifestation is no necessary condition for the existence of dispositional properties (probably with some exceptions such as *tapfer* (brave))
- Thus, the passive universal disposition expressed by NCT-middles does not involve (implicit) reference to the concept of an agent who would actualize the disposition in question
- E.g., a book reads easily even if no one ever read it easily
- Note also that the dispositional analysis of middles à la Cohen does not explain middles from transitive constructions but from a dispositional property of the single argument, which explains why there is no event denotation in middles

## 5.2 Unmarked Anticausatives

- Besides NCTs, another class of alternating verbs that prototypically enters the middle construction are unmarked anticausatives (UAC) as in (6-b).
- (6)
- Peter zerbricht den Stock. (causative)  
Peter break the stick  
Peter is breaking the stick.
  - Der Stock zerbricht. (unmarked anticausative)  
The stick break  
The stick is breaking.
  - \*Peter ist ein Zerbercher  
Peter is a break.SFX.er  
Peter is a breaker
  - \*Peter kann zerbrechen  
Peter can break  
Peter can break
  - Der Stock kann zerbrechen (non-dynamic ‘plain possibility’can)  
The stick can break  
The stick can break
  - Der Stock ist zerbrechbar. (existential,-causer)  
The stick is break.SFX.bar  
The stick is breakable
  - Der Stock zerbricht sich leicht. (universal, -causer)  
The stick break REFL easy  
The stick breaks easily.

- Unlike NCTs, UAC verbs do not license +causer dispositions
- Thus, UACs identify manifestations of passive dispositions and are prototypical unaccusatives

## 6 *-bar* adjectives and the licensing of transitivity

- NCTs and UACs license *-bar* adjectives whereas this is not the case for strictly intransitive verbs.
- (7)
- \*sterbbar, \*stolperbar (unaccusative)  
die.SFX.bar, stumble.SFX.bar  
dieable, stumbleable
  - \*blutbar, \*strahlbar (VoE)  
bleed.SFX.bar, radiate.SFX.bar  
bleedable, radiatable

- c. \*lachbar, \*arbeitbar (unergative)  
laugh.SFX.bar, work.SFX.bar  
laughable, workable
- d. essbar, lesbar (NCT)  
eat.SFX.bar, read.SFX.bar  
eatable, readable
- e. zerbrechbar, verschrottbar (UAC)  
break.SFX.bar, scrap.SFX.bar  
breakable, scrapable

- *-bar* adjectives single out the class of strict intransitives
- There are two ways to interpret the separating function of *-bar* based on its ‘passive-modal’ meaning Flury (1964)
- First, *-bar* could have a transitivity requirement because *-bar* adjectives are derived by a quasi-passive operation on transitives Oltra-Massuet (2013)
- Second, as Cohen suggests, *-bar* adjectives could be passivities, i.e. intransitive passive existential dispositional properties
- According to the second option, the availability of a *-bar* adjective could be the necessary condition for a verb entering a transitive construction after all
- Only if a thing is  $\phi$ -bar (if it bears a passivity) is a causer capable of  $\phi$ -ing the thing.
- If *-bar* adjectives license transitivity, there emerges an interesting connection between transitive and intransitive constructions.

## 7 Deriving transitivity

- Let’s compile some facts.
  - UACs do not license active dispositions but only passive dispositions.
- (8)
- a. \*Peter ist ein Zerbercher  
Peter is a break.SFX.er  
Peter is a breaker
  - b. \*Peter kann zerbrechen  
Peter can break  
Peter can break
  - c. Der Stock kann zerbrechen (non-dynamic ‘plain possibility’ can)  
The stick can break  
The stick can break
- Furthermore, only NCTs but not UACs involve volition (9).
- (9)
- a. \*Der Stock/Peter will zerbrechen.  
The stick/Peter wants to break.  
The stick/Peter wants to break.
  - b. Peter will lesen.  
Peter wants to read  
Peter wants to read.
- Like UACs, VoEs don’t license existential capabilities whereas unergatives and NCTs do (10)



- (10) a. Peter kann bluten (non-dynamic ‘plain possibility ’can)  
Peter can bleed  
Peter can bleed
- b. Peter kann lesen  
Peter can read  
Peter can read
- c. Peter kann schwimmen  
Peter can swim  
Peter can swim

- I take the data to suggest that
  - Transitive UAC constructions and VoEs combine universal dispositions
  - A person almost always bleeds when cut appropriately, almost always when a vase is hit appropriately, it breaks.
  - Transitive NCT constructions combine an existential active and an existential passive disposition
  - Sometimes, but not always when the capability to read meets a readable book will this lead to an event of the book being read
- The conceptual difference in the combination of universal and existential dispositions is that the combination of existential dispositions is not a causal product of the meeting of dispositions (as it is the case for universal dispositions) but requires volition in the active disposition.
- Whether a person reads a book or not depends on her volition: a reading of a book is not just a ‘causal’ product of a person who can read meeting a book that is readable.
- But whether a stick breaks when hit or not is not a matter of the volition of the causer but of the appropriate meeting of the active and passive disposition (i.e physics).
- Consequently, there are two kinds of prototypically transitive constructions that emerge when intransitive dispositions meet in an appropriate way:
  - Action: An agent acts upon a patient when an existential active disposition and an existential passive disposition meet under volition (as in NCTs (11-a))
  - Causation: A cause produces an effect when a universal active disposition and a universal passive disposition meet by chance or determination (as in transitive UACs (11-b) and the conceptual transitivity of VoEs (11-c))
- UACs and NCTs would thus provide a concept of transitive thematic roles.
- The idea that proto-transitivity emerges from UACs and NCTs finds strong support in an already established linguistic finding
- NCTs and UACs have been identified as constituting a class of prototypically transitive verbs
- That is, verbs like *build (a house)*, *write (a letter)*, *murder*, *eat*, *wash (a plate)* “should be the most stable in the lexicon in their argument pattern, since their subjects have several P-Agent entailments (volition, sentience, causation, and movement) and no P-Patient entailments, while the objects have several of the latter - change, causally affected, and (mostly) incremental theme, stationary, dependent existence.” (Dowty, 1991, p.577)
- To conclude, we derived prototypical transitivity from intransitives with a battery of linguistic tests for dispositionality (unaccusativity, -er nominals, -able adjectives, middles, dynamic can) without reference to syntactic transitivity.

- (11) a. Peter kann lesen + Das Buch ist lesbar  $\rightarrow^{action}$  Peter liest das Buch  
 Peter can read + The book is readable  $\rightarrow^{action}$  Peter is reading the book  
 b. Die Vase würde zerbrechen wenn C der Fall wäre + C ist der Fall  $\rightarrow^{causation}$  Die Vase zerbricht.  
 The vase would break if C were the case + C is the case  $\rightarrow^{causation}$  The vase is breaking.  
 c. Peter würde bluten wenn C der Fall wäre + C ist der Fall  $\rightarrow^{causation}$  Peter blutet.  
 Peter would bleed if C were the case + C is the case  $\rightarrow^{causation}$  Peter is bleeding.

- While the conceptual derivation of causation and action from (combinations) of existential and universal dispositions respectively is intuitively appealing, there seems to be no definite linguistic diagnosis of the distinction between existential and universal dispositions a(at least in English and German).
- This may hint towards a cognitive rather than a linguistic foundation of dispositions.
- The difference between reading a book and breaking a vase may thus be a matter of world knowledge rather than linguistic knowledge.
- Ultimately, universal and existential dispositions may be primitive image schemas in the sense of cognitive semantics Lakoff (1988).
- E.g., on the one hand if your eyes are bedazzled by a source of light, they will (almost always) close themselves independently of volition. On the other, performing an action like raising your arm requires volition for the capability to raise your arm to manifest.

## 8 Outlook

- I focused on the conceptual derivation of thematic roles from intransitive properties
- But the derivation of transitive event structure from properties is similarly attractive
- In fact, the derivation of event structure from properties has become a central goal of the research in B4 over the last few years
- Thus, the proposal made in this paper for locating the source of thematic roles in properties of intransitive constructions is only a small step of B4's larger goal to reveal the roots of verbal constructions by determining the basic (gradable - non-gradable - modal - actual - active - passive - relational - absolute - ...) properties that make up the building blocks of meaning which, when combined, form words, phrases and sentences.

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