Superframes v0 Manual

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1 Introduction

Superframes is an annotation scheme for semantic roles. It has the following goals:

1. **Lexicon-free annotation:** With fine-grained schemes like FrameNet (Baker et al., 1998) or PropBank (Palmer et al., 2005), annotators have to constantly look up which frames exist and which roles are defined for them. Lexicons are also perennially incomplete, and the process of extending them is complicated. Superframes defines only a small number of coarse-grained frames with the aim of making annotation quick and easy across all languages and domains, and to minimize role divergence even in the absence of a lexicon.

2. **Obvious role choices through framing:** In semantic role inventories in the VerbNet tradition (Kipper Schuler, 2005), roles are semantically defined only vaguely and ambiguously. For example, the subject of the English verb *watch* can be described as an Agent as well as an Experiencer. Prior approaches to resolving this ambiguity involve the creation of a lexicon (see above) or giving up on the idea of categorial role labels altogether (White et al., 2016). The Superframes approach is to proceed in two steps: first pick the most fitting superframe for each predicate, then the core roles are clearly defined. Additional argument roles are handled via mixin roles (see below).

3. **Comprehensive annotation with a unified vocabulary**: Superframes is a comprehensive and unified inventory of coarse semantic roles applicable to all types of morphosyntactic dependencies between content words, including modifier relations, compound relations, state argument relations, process argument relations, event argument relations, discourse relations, etc. It is designed to be annotated on top of existing morphosyntactic dependency graphs (e.g., Universal Dependencies; de Marneffe et al., 2021). This has the advantage that the markables are pre-identified and that an explicit annotation of the morphosyntax-semantics interface results.

4. **Ambiguity tolerance:** not all ambiguities in choosing a superframe can be resolved. Superframes embraces data perspectivism (Basile, 2020) and encourages annotators to annotate multiple possibilities, in particular in the case of metaphorical language.

5. **Fine-grained comparisons:** By virtue of being annotated atop syntactic dependencies, Superframes target the syntax-semantics interface and enable cross-linguistic studies that go beyond comparisons of meaning representations like AMR (Banarescu et al., 2013).

The Superframes annotation scheme is based on the binary relations shown in Table 1. Borrowing terminology from AMR, we call the first relate the "domain" and the second relate the "range". This inventory is then used to annotate bilexical dependencies with roles. We distinguish a number of types of roles, as explained in the following.

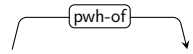
relation	description	domain	range	sec.
superframe relations				
acc	accompaniment	accompanied	accompanier	2.1
ast	asset	scene	asset	2.2
cau	causer	scene	cause(r)	2.3
cmp	comparison	compared	reference	2.4
loc	location	located	location	2.5
mnr	manner	scene	manner	2.6
mns	means	scene	means	2.7
msg	message	topic	comment	2.8
pcp	participation	participant	scene	2.9
prc	precedence	successor	predecessor	2.10
pss	possession/control	possessee	possessor	2.11
pwh	part-whole	part	whole	2.12
qnt	quantity	of what	how much	2.13
rcp	recipient	scene	recipient	2.14
snd	sender	scene	sender	2.15
soc	social	somebody	relative/org/task...	2.16
tmp	temporal	scene	time/frequency/...	2.17
xpl	explanation	scene	explanation	2.18
constructional relations				
att	attribute	predicate	attribute	3.1
cpd	complex predicate	predicate	same predicate	3.2
dim	discourse marker	token	discourse marker	3.3
dpc	depictive	predicate	secondary predicate	3.4
exp	expletive	predicate	expletive	3.5
rsd	resultative	predicate	affected entity	3.6
rsr	resultative	predicate	result	3.6

Table 1: The inventory of superframes, with links to the manual sections in which they are described.

1.1 Role Type I: Modifier Roles

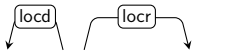
Modifier dependencies are annotated with a plain binary relation or its inverse (denoted by -of, as in AMR). This applies equally to verb, noun, and other modifiers.

(1) a.

b. 

1.2 Role Type II: Core Argument Roles

Predicates such as verbs (but also adjectives, state/process/event nouns, relational nouns, etc.) evoke their own superframe. The core arguments are those that correspond to the domain and the range, respectively. We denote them by the suffixes d and r, respectively.

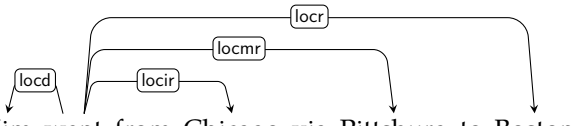
(2) a. 

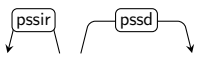
b.

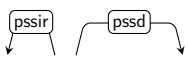
The first example illustrates that Superframes abstract away from aktionsart: it does not matter for the choice of superframe or roles whether a state (Kim is in Boston), an event bringing that state about (Kim went to Boston), or a process (Kim is walking) is described. Borrowing terminology from UCCA (Abend and Rappoport, 2013), we collectively call states, processes, and events "scenes".

1.3 Role Type IIa: Initial and Intermediate Range Roles

However, some predicates denote the dissolution of a relation between a domain and an initial range, and the establishment of the domain and a new range. To distinguish the initial from the final range, we use the prefix ir instead of r for it. Likewise, we use mr for intermediate ranges.

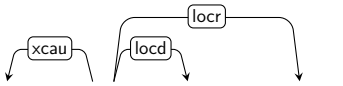
(3) a. 

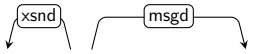
b. 

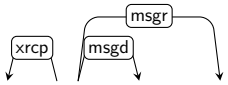
c. 

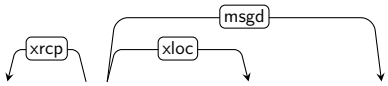
1.4 Role Type III: Non-core Argument Roles

Some predicates have more than just the domain and range arguments. For such arguments, annotators should choose the binary relation that describes the relation between the scene and the argument best, and prefix it with x to distinguish it from a modifier. Particularly frequent non-core roles are xcau, xsnd, and xrcp.

(4) a. 

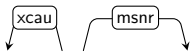
b. 

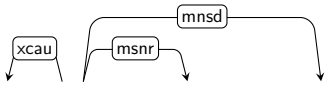
c. 

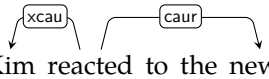
d. 

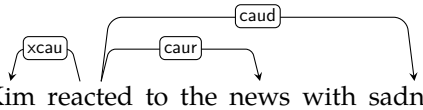
1.5 General Guidelines for Framing

Part of the annotation task is to choose a superframe for each instance of a predicate. In choosing a superframe, keep in mind *implicit arguments*, i.e., arguments that are part of the syntactic frame of the predicate but not realized in the present instance. For example, the superframe chosen in (5-a), (6-a), and (7-a) may not be obvious unless you consider the implicit arguments, which are explicit in (5-b), (6-b), and (7-b).

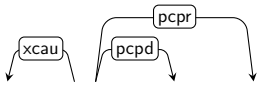
(5) a. 

b. 

(6) a. 

b. 

(7) a.



b. Kim helped Sandy clean the dishes

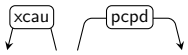
Likewise, *shadow* and *default* arguments should be considered when choosing a superframe.

(8) a. Kim deboned the fish (pwh, not pcp)

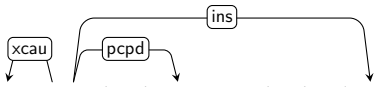
b. Kim sneezed (loc, not pcp)

c. Our local supermarket delivers (loc, not pcp)

A participant whose syntactic argument position is occupied should not be treated like an implicit argument. For example, consider (9-a). Here, *The knife* occupies the subject position and should be treated as the causer of the cutting. We could add the person handling the knife as the causer, and treat the knife as an instrument. However, for this we would not merely have to realize another argument, but change the syntactic argument structure so that the subject position goes to that causer, as in (9-b). Thus, we treat this as a different framing with a different causer, rather than a more explicit version of the same framing. Likewise, (10-a) and (10-b) are two different framings, one with *price* as the pcpd, and one with *butter*.



(9) a. The knife cut the butter

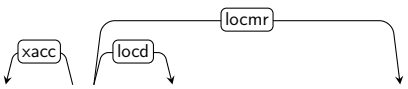


b. Kim cut the butter with the knife

(10) a. The price is high

b. The butter is high in price

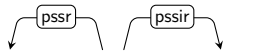
When in doubt, try to treat different syntactic frames of the same predicate consistently. For example, in (11-a) *chase* could be framed as caused motion (with Kim as an xcau) or as accompanied motion (with Kim as an xacc). Because the latter works for other syntactic frames of *chase* as well, as in (11-b), prefer it.



(11) a. Kim chased Sandy around the block

b.

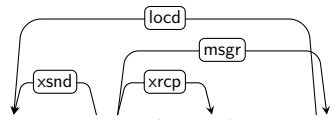
Prefer core roles over non-core roles. For example, if the subject is both the causer and the final possessor in a scene, choose pssr over xcau.

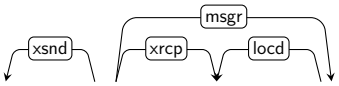
(12) a. 

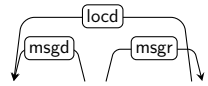
b.

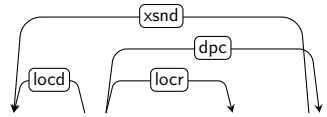
1.6 Handling Control Constructions

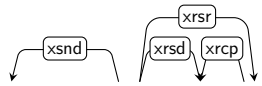
In control construction, a predicate has an argument or modifier that is not its child (but rather a sibling or something else) in the syntactic dependency tree. This necessitates an additional arc on which to do the role labeling.

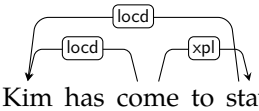
(13) a. 
 (subject control verb)

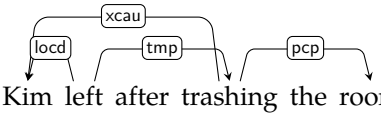
b. 
 (object control verb)

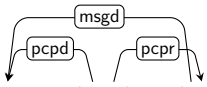
c. 
 (raising)

d. 
 (depictive)

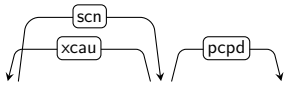
e. 
 (resultative)

f. 
 (subjectless adverbial clause)

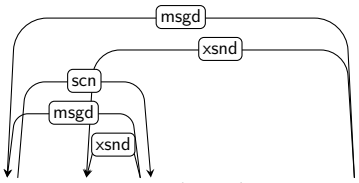
g. 
 (subjectless adverbial clause)

h. 

Kim is hard to love (*tough* construction)

i. 

Kim , who broke the vase , is sorry (relative clause)

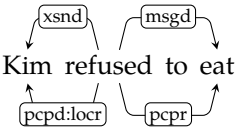
j. 

the question we raised without answering (parasitic gap)

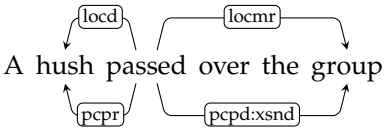
TODO: addtional relations for acc, att?

1.7 Dual Framing

If you are not sure which framing fits better, annotate both.

(14) 

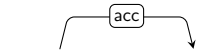
Likewise, if both a literal and a metaphorical meaning are accessible to you, annotate both.

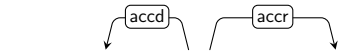
(15) 

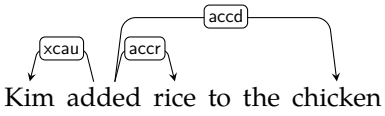
2 Superframe Relations

2.1 Accompaniment (acc)

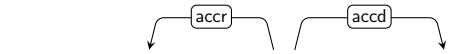
The accd and the accr appear together, more or less symmetrically.

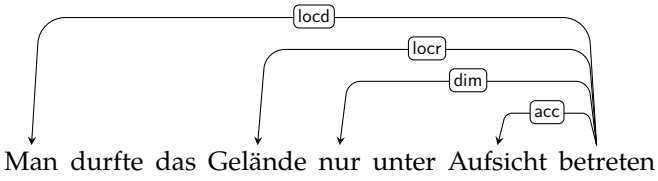
(16) a. 

b. 

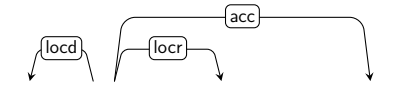
c. 

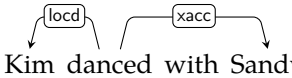
Can also be used for scenes unfolding in close connection.

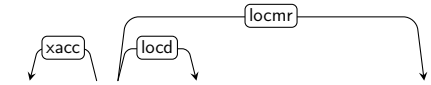
(17) a. 

b. 

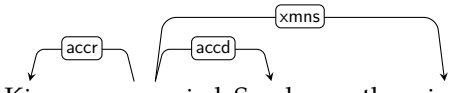
Often, the accompanier denotes not a scene but an entity participating in it, and must be metonymically understood as the scene.

(18) a. 

b. 

c. 

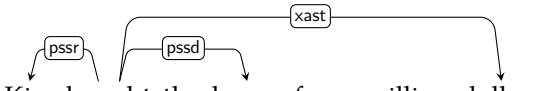
d.

e. 

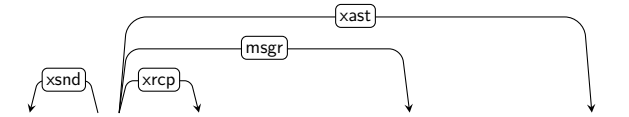
2.2 Asset (ast)

Entity given or offered in an exchange or wager.

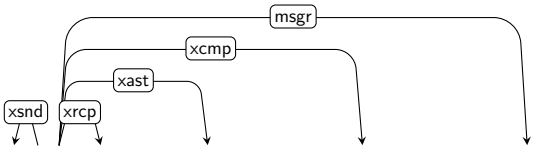
(19) a.



b.



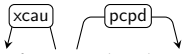
c.

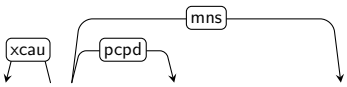


2.3 Causer (cau)

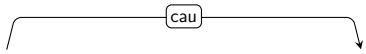
Entity causing a scene.

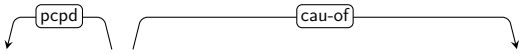
(20) a.

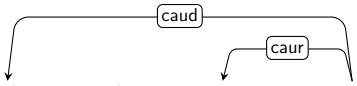
b. 

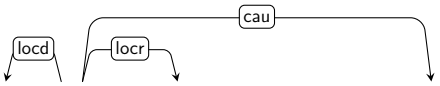
c. 

d.

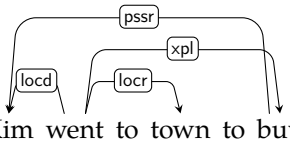
e. 

f. 

g. 

h. 

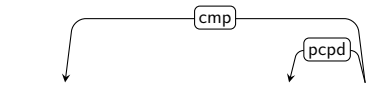
Note how the last example expresses a purpose, but construes it as a cause, so cau is the right relation to use. Compare this to construal as a purpose:

(21) a. 

2.4 Comparison (cmp)

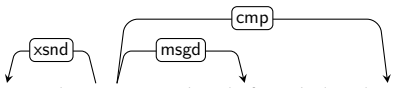
cmpd is compared with or in some other way described in reference to cmpr. Used to contrast scenes:

(22) a.



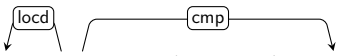
b.

c.

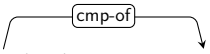


In concessive contexts, the range is what happens admittedly, and the domain is what happens nevertheless:

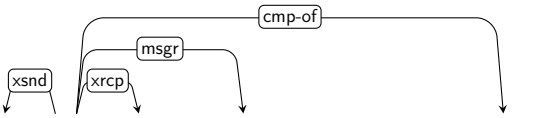
(23) a.



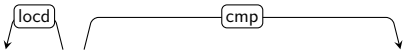
b.



c.



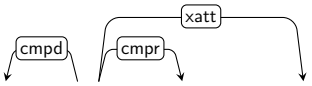
d.



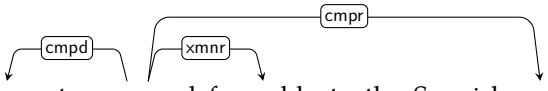
cmp is also used to compare non-scene entities:

(24) a.

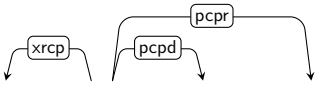
b.

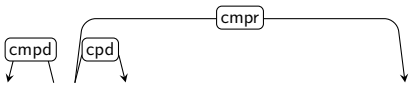


c.



d.





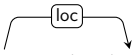
e. Kim ran afoul of Fielding 's constraints

The comparative of adjectives is treated as a valency-changing operation that gives the adjective an additional xcmp argument:

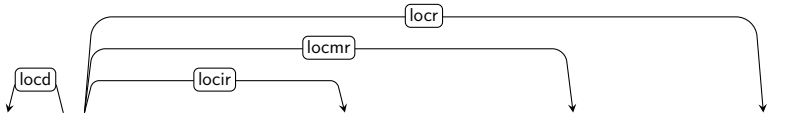
(25) a. Kim is taller than Sandy

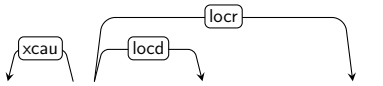
2.5 Location (loc)

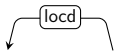
Describes the location (or change of location, i.e., motion) of the locd.

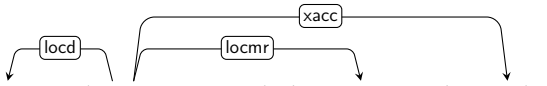
(26) a. 

b.

c. 

d. 

e. 

f. 

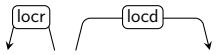
2.5.1 Wrapping and Wearing

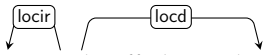
The item wrapping or being worn by something is construed as the locd.

(27) a.

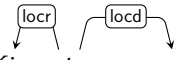
b.

c.

d. 

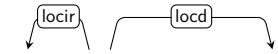
e. 

2.5.2 Ingestion and Excretion

(28) a. 

b.

Kim nibbled on the pretzel

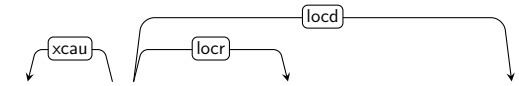
c. 

Kim threw up the apple

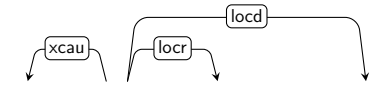
d.

Kim sneezed

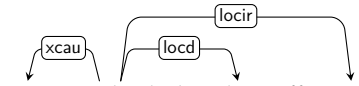
2.5.3 Embellishment and Tarnishment

(29) a. 

Kim decorated the balcony with fairy lights

b. 

Kim splashed Sandy with water

c. 

Kim washed the dirt off Sandy

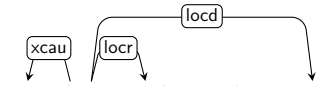
d.

Kim washed Sandy

2.5.4 Hitting

(30) a.

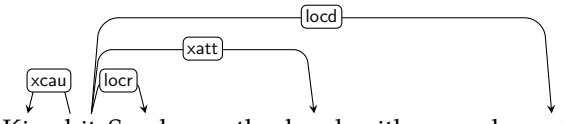
Kim hit Sandy

b. 

Kim hit Sandy with a stick

c.

The stick hit Sandy

d. 

Kim hit Sandy on the head with a pool noodle

e.

Kim kicked Sandy

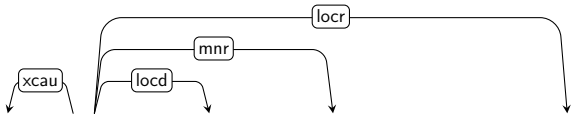
2.6 Manner (mnr)

Manner in which a scene unfolds.

(31) a.

Kim sang softly

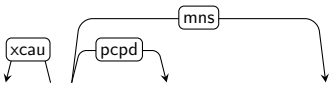
b.



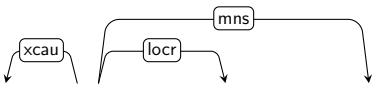
Kim placed the note surreptitiously on the counter

2.7 Means (mns)

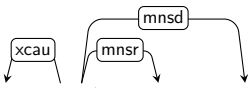
Intermediary between the causer and a scene; instrument or second scene through which the causer causes the first scene.

(32) a. 

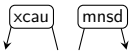
Kim cut the cake with a knife

b. 

Kim painted the room by exploding a paint bomb

c. 

Kim used a pen to get the lid off

d. 

You used me !

2.8 Message (msg)

A message is expressed or received, where msgd is what the message is about, and msgr is the message itself, or its contents. Often used together with xsnd (sender) and xrcp (recipient).

2.8.1 Expression

(33) a.

Kim yelped

b.

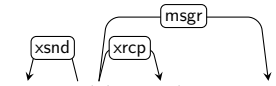
Kim said : it 's fine

c.

Kim said it was fine

d.

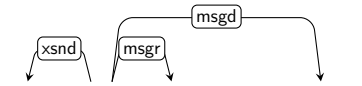
Kim called Sandy a liar

e. 

Kim told Sandy a secret

f.

Kim talked about Sandy

g. 

Kim talked shit about Sandy

h.

Kim and Sandy conversed

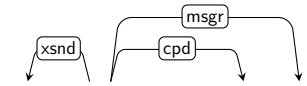
i.

Kim conversed with Sandy

2.8.2 Gesture

(34) a.

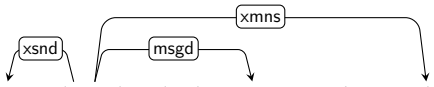
Kim curtseyed to the Queen

b. 

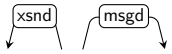
Kim shook their head no

2.8.3 Performance

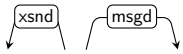
Performing a work of art is framed as expression where the work of art is the msgd.

(35) a. 

b.

c. 

2.8.4 Depiction

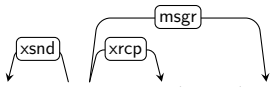
(36) a. 

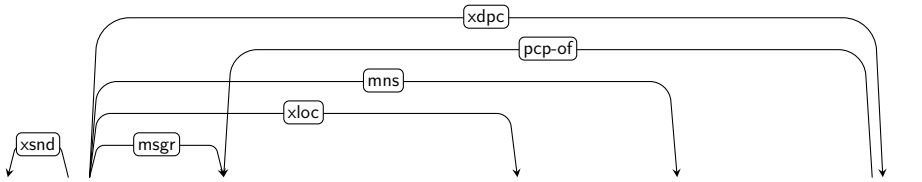
b.

When the object is the resulting work of art, frame it as creation (pcp) instead:

(37) a.

2.8.5 Recording

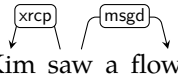
(38) a. 

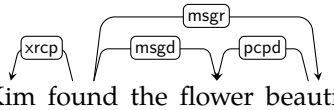
b. 

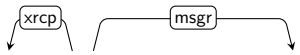
c.

2.8.6 Perception

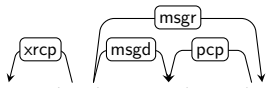
Perception, including mental and volitional perception.

(39) a. 

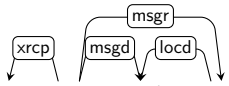
b. 

c. 

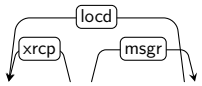
Kim thinks Sandy is a liar

d. 

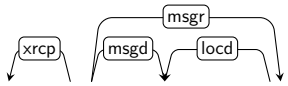
Kim thinks Sandy a liar

e. 

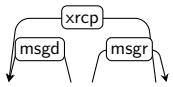
Kim saw Sandy swim

f. 

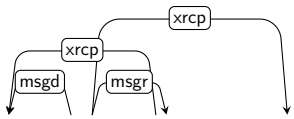
Kim wants to swim

g. 

Kim wants Sandy to swim

h. 

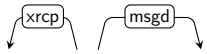
Kim seems happy

i. 

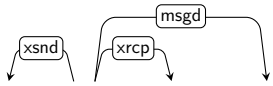
Kim seems happy to Sandy

j.

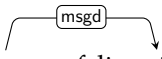
The Thought Police observed Winston

k. 

Kim studies linguistics

l. 

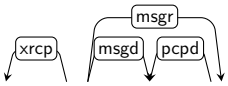
Kim taught Sandy Spanish

m. 

Sandy is a professor of linguistics

n.

Kim measured the elasticity

o. 

The jury found Kim guilty

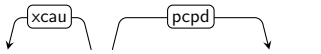
2.9 Participation (pcp)

pcpd is the single core participant of a scene specified by the predicate, or a participant in a scene specified by the pcpr.

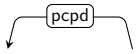
2.9.1 States and Properties

(40) a.

b.

c. 

2.9.2 Kinds

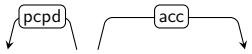
(41) a. 

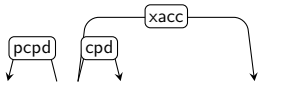
b.

2.9.3 Activities

"Activities" are events with a single core participant that can be characterized as actively participating in the event.

(42) a.

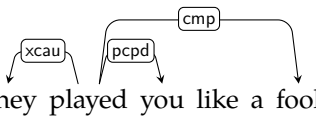
b. 

c. 

2.9.4 Experiences

"Experiences" are events with a single core participant that can be characterized as undergoing the event.

(43) a.

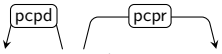
b. 

c. Kim needs Sandy

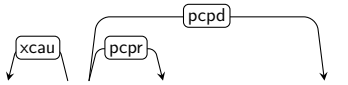
In the last example, understand *Sandy* to metonymically stand for a scene, e.g. one of Sandy helping Kim.

2.9.5 Transformation and Creation

pcpd denotes the entity undergoing the transformation, and pcpr denotes its new state. Creation is framed as transformation of some material (pcpd, often unrealized) into the newly created entity (pcpr).

(44) a.


The ice turned into water

b.


God made people out of clay

c.

A rock formed

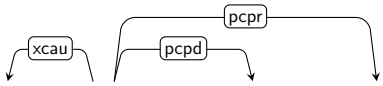
d.

Kim created a work of art

2.9.6 Reproduction

(45) a.

Kim copied the book

b.


Kim translated the book to German

2.9.7 Destruction

(46) a.

The vase broke

b.

Kim broke the vase

c.

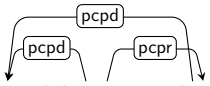
Kim killed Sandy

d.

Sandy died

2.9.8 Phase

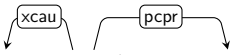
The scene starting, continuing, ending, etc., is always the range. Only use pcpd if the predicate has a separate argument for a participant in the scene.

(47) a. 

The wound began to heal

b.

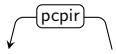
A commotion started

c. 

Kim started a commotion

d.

The concert ended

e. 

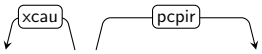
The concert continued

f.

Kim interrupted the session

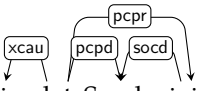
g.

The storm ebbed

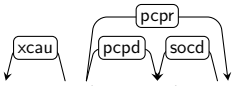
h. 

Kim calmed the commotion

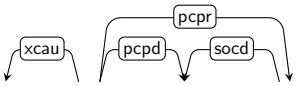
2.9.9 Causation

(48) a. 

Kim let Sandy join

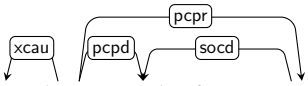
b. 

Kim made Sandy join

c. 

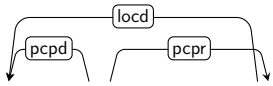
Kim allowed Sandy to join

2.9.10 Prevention

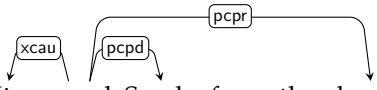
(49) a. 

Kim kept Sandy from joining

b. Swift action prevented an outbreak



c. Kim refrained from going

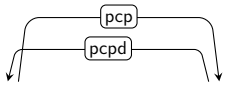


d. Kim saved Sandy from the dragon

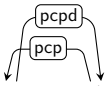
In the last example, understand *dragon* metonymically as a scene in which the dragon causes harm to Sandy.

2.9.11 Predicate Modifiers

Modifiers that are themselves predicates which assign the modified entity a role, such as adjectives or relative clauses, use the pcp relation.



(50) a. a package that was heavy



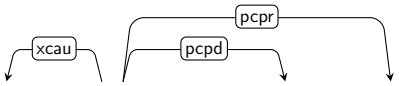
b. a heavy package

2.9.12 Assignment

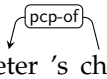
The participation relation is also used for the assignment of names, identifiers, tasks, or abstract assignment of other entities to entities.

(51) a. The baby was named Kim

b. Hangar #3 is empty



c. The teacher assigned each student a task



d. Is that Peter 's chair ?

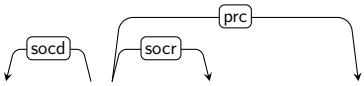
2.10 Precedence (prc)

The prcd follows the prcr, e.g., temporally, logically, by rank, as a heir, etc. Also used for ordinal numbers.

(52)

a.

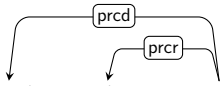
the third man

b. 

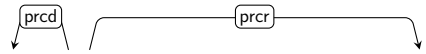
I will join the club if they ask me

c.

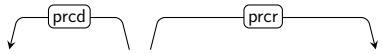
Form follows function

d. 

Cook is Jobs 's successor

e. 

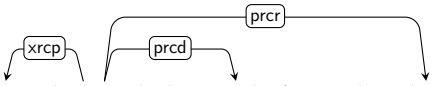
Das fuSSt auf einer falschen Vorstellung

f. 

The start date is contingent on their approval

g.

Eine Aussöhnung bedingt eine Entschuldigung

h. 

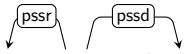
Kim deduced the truth from the clues

2.11 Possession (pss)

The pssr possesses or controls the pssd.

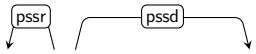
(53)

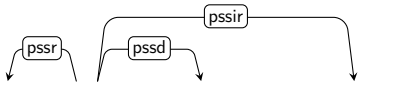
a.

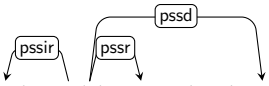
b. 

c.

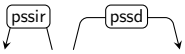
d.

e. 

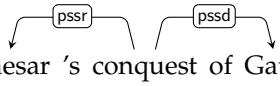
f. 

g. 

h.

i. 

j.

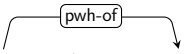
k. 

2.12 Part-whole (**pwh**)

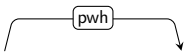
The pwhd is part of the pwhr.

(54) a.

Kim 's leg

b. 

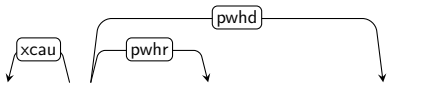
a man with a mustache

c. 

the beginning of the party

d.

Wheat contains gluten

e. 

Kim began the party with a speech

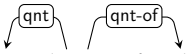
2.13 Quantity (qnt)

qntr is the quantity, degree, or extent of qntd.

(55) a.

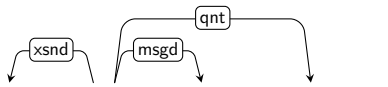
three burgers

b.



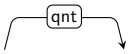
three liters of coke

c.



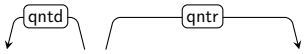
We discourage this emphatically

d.



ten dollars per item

e.



The birds number in the thousands

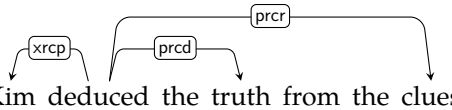
2.14 Recipient (rcp)

Entity that perceives or experiences a scene, or that a message is addressed to.

(56) a.

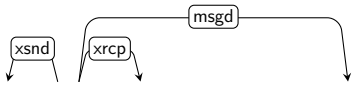
Sandy heard about the virus

b.



Kim deduced the truth from the clues

c.

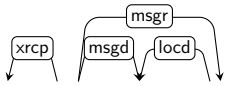


Kim told Sandy about the virus

d.

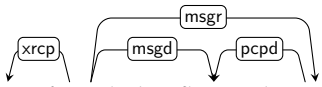
Kim saw a flower

e.



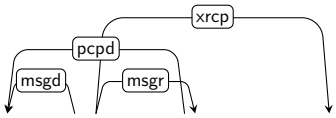
Kim saw Sandy swim

f.



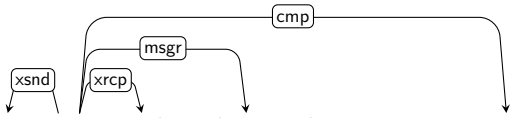
Kim found the flower beautiful

g.



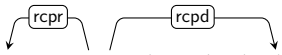
The virus seems dangerous to Kim

h.



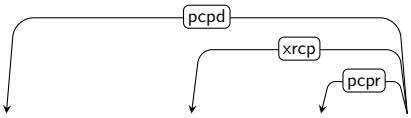
Kim sent Sandy a letter , but it never arrived

i.



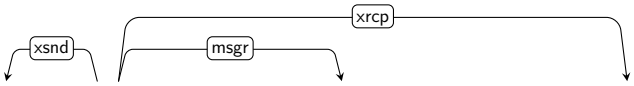
Kim managed with dealing the cards

j.



Die Piroggen waren Maria zu dunkel geraten

k.

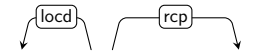


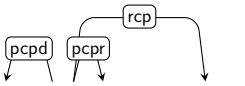
Emily delivered Carlos 's message to Nianwen to Kilian

l.

Carlos 's message to Nianwen

2.14.1 Beneficiaries and Maleficiaries

(57) a. 

b. 

2.14.2 Mental State

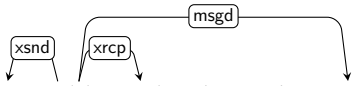
(58) a.

b.

2.15 Sender (**snd**)

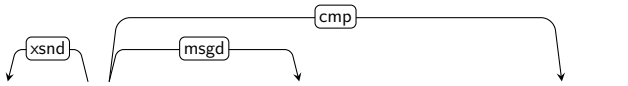
Entity that sends a signal that can be perceived by a recipient.

(59) a.

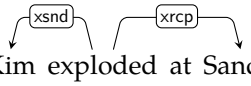


b.

c.



d.

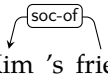


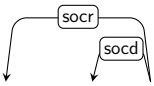
e.

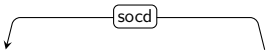
2.16 Social (soc)

The socd is an individual that is in some socially constructed relationship with the socr. The socr might e.g. be a relative, a friend, an organization, a responsibility, or a judicial sentence.

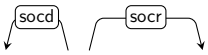
(60)

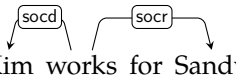
a. 

b. 

c. 

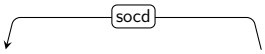
d.

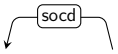
e. 

f. 

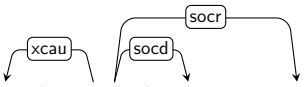
g.

h.

i. 

j. 

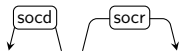
k.

l. 

m.

n.

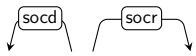
o.

p. 

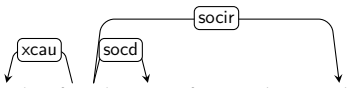
Kim took the job

q.

Kim joined Google

r. 

Kim joined a union

s. 

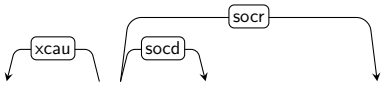
Sandy fired Kim from their job

t.

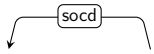
Kim left Google

u.

Kim assumed office

v. 

The judge sentenced Kim to three days in prison

w. 

Kim was pardoned

2.17 Temporal (tmp)

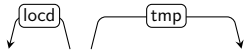
When, how often, or for how long an event takes place.

(61) a.

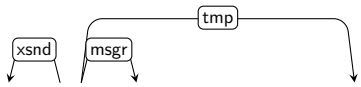
Kim swims on Monday

b.

Kim sneezed twice

c. 

Kim swam for an hour

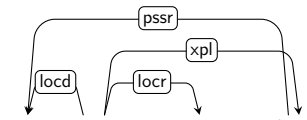
d. 

Kim says hello whenever I meet them

2.18 Explanation (xpl)

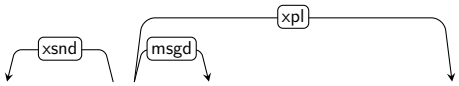
Explanation that is not a cause, such as a purpose.

(62) a.



Kim went to town to buy food

b.



I am stressing this because it's important

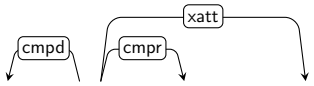
3 Constructional Relations

Constructional relations do not correspond to superframes, but mark various types of mismatches between syntactic and semantic predicate-argument structure.

3.1 Attribute (att)

Used for arguments and adjuncts that denote that part or attribute of another participant which is most directly involved in the scene.

(63) a.

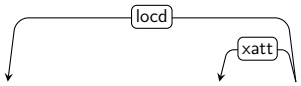


Kim exceeds Sandy in length

b.

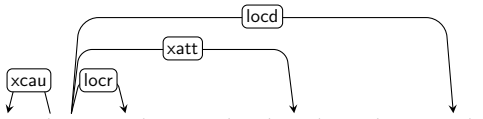
That is great in terms of ROI

c.



Kim ist auf den Kopf gefallen

d.



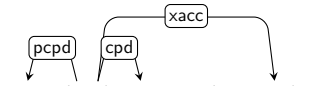
Kim hit Sandy on the head with a stick

3.2 Complex Predicate (cpd)

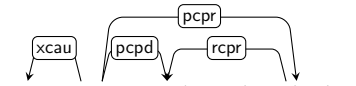
If a predicate together with one or more of its syntactic arguments forms a complex predicate, those syntactic dependencies are labeled cpd.

3.2.1 Light Verbs

(64) a.

b. 

Causative light verbs, on the other hand, are handled with the pcp relation:

(65) a. 

3.2.2 Verbal Idioms

(66) a.

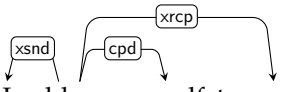
3.2.3 Weather pronouns

(67) a.

3.2.4 Expletive *there*

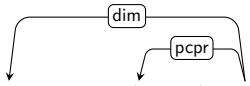
(68) a.

3.2.5 Inherently Reflexive Verbs

(69) a. 

3.3 Discourse Marker (dim)

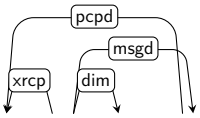
Used for adverbials etc. that mark a clause for its relation to preceding/following discourse, speaker attitude, etc.

(70) a. 

However , nothing happened

b.

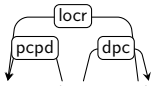
Even Kim didn't see it

c. 

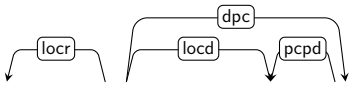
Der will nur spielen

3.4 Depictive (dpc)

Used for secondary predicates that describe the state of one of the participants during the scene.

(71) a. 

Kim slept naked

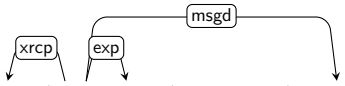
b. 

Pythons swallow their prey whole

3.5 Expletive (exp)

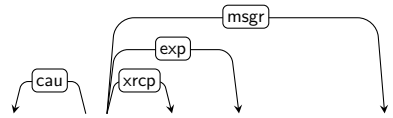
Used for expletive pronouns and pronominal adverbs that fill in for a dislocated clause. Not used for weather pronouns and expletive *there*, which are instead treated as parts of complex predicates (Section 3.2).

(72) a.



Kim hates it when people yell

b.

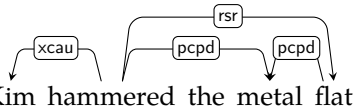


Wie kommst du darauf , ich hätte etwas damit zu tun?

3.6 Resultative (rsd, rsr)

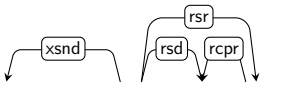
Secondary predicates that denote the end state of a participant are marked rsr. If that participant is not assigned a role by the primary predicate, use rsd instead.

(73) a.



Kim hammered the metal flat

b.



You are talking me silly

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