

Superframes Manual

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1 Introduction

Superframes is an annotation scheme for semantic roles. Like other such schemes, it is essentially about pinning down, in a machine-readable form, “who did what to whom”. It is different from other such schemes, such as FrameNet (Baker et al., 1998), VerbNet (Kipper Schuler, 2005), PropBank (Palmer et al., 2005), VerbAtlas (Di Fabio et al., 2019), or WiSER (Feng et al., 2022) in a number of ways. It aims to avoid a number of practical problems in annotating with those schemes. Here’s how Superframes annotation works, in a nutshell:

Superframe	Roles				Sec.
SCENE	initial-scene	participant	scene	transitory-scene	target-scene
IDENTIFICATION		identified	identifier		
RANK		has-rank	rank		
CLASS	initial-class	has-class	class		target-class
EXISTENCE			exists		
TRANSFORMATION-CREATION		material			created
REPRODUCTION		original			copy
QUALITY		has-quality	quality		
STATE	initial-state	has-state	state		target-state
DESTRUCTION		destroyed			
EXPERIENCE		experiencer	experience		
ACTIVITY		is-active	activity		
MODE		has-mode	mode		
ACCOMPANIMENT		accompanied	accompanier		
DEPictIVE		has-depictive	depictive		
ATTRIBUTE		has-attribute	attribute		
ASSET		has-asset	asset		
COMPARISON		compared	reference		
CONCESSION		assertion	conceded		
EXPLANATION		explained	explanation		
PURPOSE		has-purpoe	purpose		
LOCATION	initial-location	has-location	location	transitory-location	target-location
WRAPPING-WEARING		worn	wearer		
ADORNMENT-TARNISHMENT	initial-surface	ornament	surface		target-surface
HITTING		hitting	hit		
INGESTION		ingested		transitory-location	ingerster
EXCRETION	excreter	excreted		transitory-location	
UNANCHORED-MOTION		in-motion		transitory-location	
MEANS		has-means	means		
MESSAGE		topic	content		
PART-WHOLE	initial-whole	part	whole		target-whole
POSSESSION	initial-possessor	possessed	possessor		target-possessor
QUANTITY		has-quantity	quantity		
SENDING		sent	sender		
SEQUENCE		follows	followed		
CAUSATION		result	causer		
REACTION		reaction	trigger		
RESULTATIVE		has-resultative	resultative		
CONDITION		has-condition	condition		
EXCEPTION		has-exception	exception		
SOCIAL-RELATION	initial-social-relation	has-social-relation	social-relation		target-social-relation
TIME		has-time	time		
NONCOMP		has-noncomp	noncomp		

Table 1: The superframes and their roles. Top-level superframes are shown in bold. Underneath, some superframes have special cases with partly renamed roles, included to make them more intuitive to apply.

1. Every content word (verb, noun, pronoun, adjective, or adverb) is a *predicate*. Every predicate evokes one of a few dozen *superframes*, which determines its coarse semantic class and the possible role labels for its core arguments.
2. The syntactic *dependents* of a predicate can be *core arguments*, in which case they get one of the role labels defined by the superframe of the predicate, or *external arguments* or *modifiers*, in which case they are treated as evoking their own frame in which the predicate serves as a core argument.
3. There are only two main core role labels per superframe.
4. For predicates denoting change (or lack thereof) over time, some superframes have *aspectual variants* with role variants that allow to distinguish participants before, during, and after an event. This avoids having Source and Target as roles in their own right, which indicate the time sequence but suppress information about the nature of the relation that is changing.
5. Similarly, Superframes do not have the Agent role, which is often in conflict with roles indicating more specifically the agent's relation to other participants.
6. Doubt, ambiguity, and figurativity are systematically treated. If there is not one clear solution, the solution is to give two or more alternative labels.

Table 1 shows the superframes and their roles.

1.1 Core Arguments

The most prototypical predicate is a verb, and the simplest case is a verb with only one argument. It can for example denote a state or an activity:

- (1) Kim is sleeping_{STATE}
- (2) Kim is partying_{ACTIVITY}

With two core arguments, a verb denotes a relation that holds between them:

- (3) Kim owns_{POSSESSION} a house
- (4) The house belongs_{POSSESSION} to Kim
- (5) Kim seems_{MESSAGE} happy

1.2 Aspect and Mode

Rather than a static relationship between two entities, many verbs (and other predicates) denote a change (or absence of change) in such a relationship. We sort such predicates into a few coarse aspectual classes. For example, initiation (-INIT) means a state is begun or worked towards, deinitiation (-DEINIT) means a state is ended, completed, or its end is worked towards, change (-CHANGE) combines both, where one state is replaced by another, and continuation (-CONTINUATION) means a state persists or is even intensified. Accordingly, roles with prefix *target-* mark participants at or beyond the end of the event, *initial-* marks participants at the beginning of the event, and *transitory-* marks participants at some point during the event.

- (6) Kim got_{POSSESSION-INIT} the house
- (7) Kim lost_{POSSESSION-DEINIT} the house
- (8) Kim sold_{POSSESSION-CHANGE} the house to Sandy
- (9) Kim kept_{POSSESSION-CONTINUATION} the house
- (10) Kim went_{LOCATION-CHANGE} from Chicago via Pittsburgh to Boston
- (11) The vase fell_{LOCATION-CHANGE} to the ground
- (12) The vase broke_{STATE-CHANGE}
- (13) Kim befriended_{SOCIAL-RELATION-INIT} Sandy
- (14) Kim married_{SOCIAL-RELATION-INIT} Sandy
- (15) Kim divorced_{SOCIAL-RELATION-DEINIT} Sandy

The SCENE superframe is often evoked by “light” verbs that contribute an aspectual or modal meaning. Thus, its aspectual variants are especially common.

- (16) The concert began_{SCENE-INIT}
- (17) The concert continued_{SCENE-CONTINUATION}
- (18) The concert finished_{SCENE-DEINIT}
- (19) The shouting intensified_{SCENE-CONTINUATION}
- (20) The shouting faded_{SCENE-DEINIT}
- (21) A coup was attempted_{SCENE-INIT}
- (22) Kim finished_{SCENE-DEINIT} their work

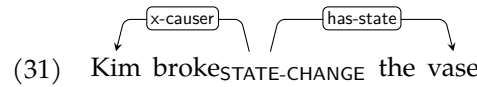
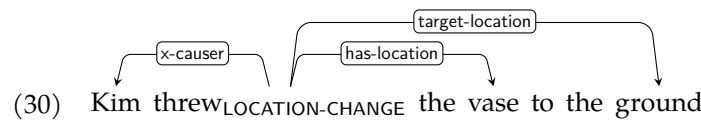
In addition, we use the modal suffixes -NECESSITY, -POSSIBILITY. and -NEG. They can combine with aspectual suffixes.

- (23) Change is necessary_{SCENE-NECESSITY}
- (24) Change is possible_{SCENE-POSSIBILITY}
- (25) Kim owes_{POSSESSION-CHANGE-NECESSITY} Sandy money
- (26) Swift action prevented_{SCENE-INIT-NEG} an outbreak
- (27) Kim refrained_{SCENE-INIT-NEG} from going
- (28) Kim prevented_{SCENE-INIT-NEG} Sandy from going
- (29) Kim saved_{SCENE-INIT-NEG} Sandy from the dragon

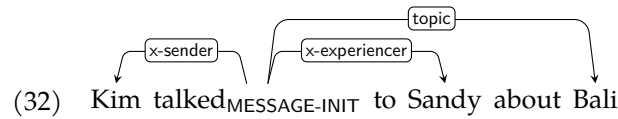
In the last example, *dragon* is to be understood metonymically as a scene in which Sandy would have been harmed by the dragon.

1.3 Non-core Arguments

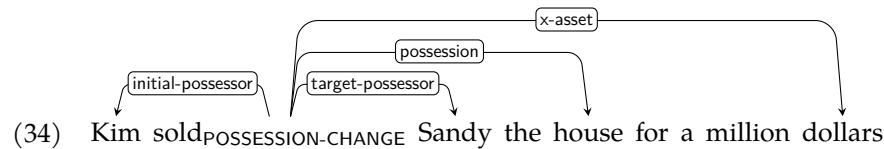
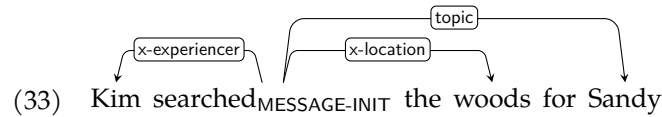
Core arguments always get role labels from the superframe the predicate evokes. But many verbs have more arguments. One common case is a subject that is presented as the causer of the scene. For example, compare (30) with (11). The core scene is the same (same superframe, same arguments). We now assume there is an additional CAUSATION scene with *Kim* as the causer and the core scene as the result. We denote this by giving *Kim* the causer role label, with an x- prefix to mark it as a non-core role.



Two other common non-core arguments are the senders and recipients (experiencers) of messages.

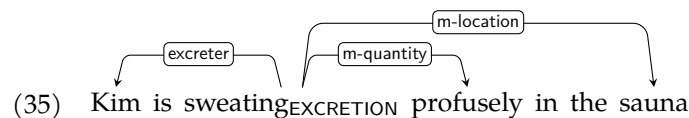


Other non-core arguments are usually rather predicate-specific.



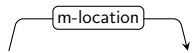
1.4 Modifiers

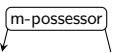
Like non-core arguments, modifiers are assumed to evoke an additional frame, and labeled with the role they fill in that frame, but with a prefix marking them as modifiers: m-.



1.5 Nonverbal Predicates

So far, we have only looked at verbal predicates. But of course, there are other types of predicates. An ordinary noun like *tree* evokes the CLASS frame, marking the entity it refers to as being a member of a class (in this case: the class of trees). There are no arguments here because the predicate itself doubles as a referent. However, the predicate can of course be modified:


(36)  a tree_{CLASS} in the garden

(37)  Kim's tree_{CLASS}

Event nouns evoke event frames and have arguments:

(38)  Kim's breaking_{STATE-CHANGE} of the vase

Relational nouns evoke relational frames and have arguments:

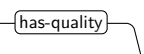
(39)  Kim's friend_{SOCIAL-RELATION}

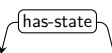
Pronouns and names evoke the IDENTIFICATION frame, meaning that they identify their referent as some entity (via naming or anaphora resolution).

(40) Kim_{IDENTIFICATION}

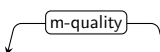
(41) they_{IDENTIFICATION}


Predicate adjectives most typically denote states or qualities.

(42)  I am despicable_{QUALITY}

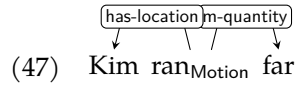
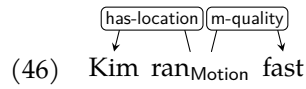
(43)  the dog is tired_{STATE}

With attributive adjectives, the dependency relation is reversed, and the role label is changed accordingly.

(44)  despicable me_{IDENTIFICATION}

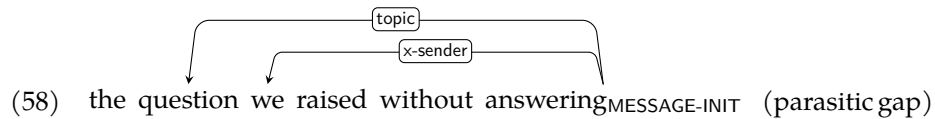
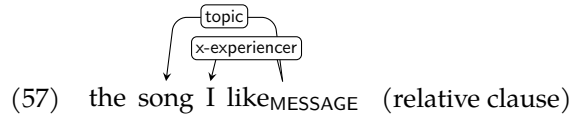
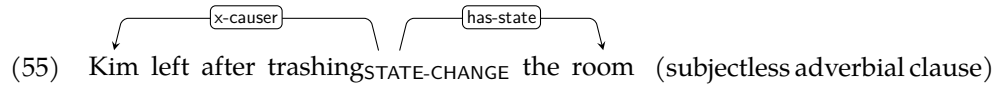
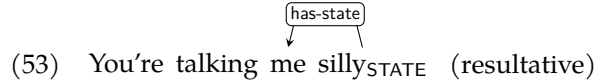
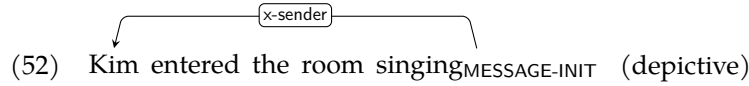
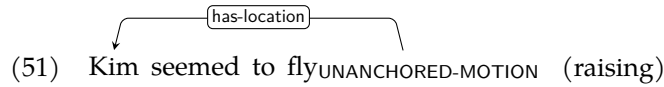
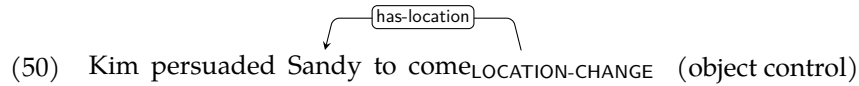
(45)  the tired dog_{CLASS}

Similarly for adverbs denoting, e.g, manner (quality) or extent (quantity):



1.6 Control Relations

Many constructions systematically introduce semantic predicate-dependent dependencies that do not correspond to (surface) syntactic dependencies. In such cases, we add those dependency links.



1.7 Figurativity, Idiomaticity, and Uncertainty

Difficulties in choosing frames often arise because a predicate literally evokes one frame, but is used in a way that perhaps fits another frame equally well or better. In such cases, annotate both the more literal frame and roles, followed by the >> operator, followed by the more figurative frame and roles.

(59) A hush passed_{UNANCHORED-MOTION » SCENE} over the group

(60) Kim refused_{MESSAGE-INIT » SCENE} to eat

This mechanism can be used to indicate that a modification may not be fully compositional:

(61) primeval forest_{CLASS}

(62) colored pencil_{CLASS}

(63) to lay_{LOCATION-CHANGE » MESSAGE-DEINIT} aside my drawings

If you cannot choose between two frames for another reason, use || instead of >>.

2 Superframes Reference

2.1 SCENE

A “meta” frame for predicates where the main frame is invoked by scene, and the predicate adds some temporal, aspectual, modal, etc., meaning, or just acts as a light verb. If there is a participant, it is assigned a role by scene, which needs an extra dependency link. In the following examples, we show the annotations for both the matrix predicate and the embedded predicate in one graph.

(64) The concert_{MESSAGE-INIT} began_{SCENE-INIT}

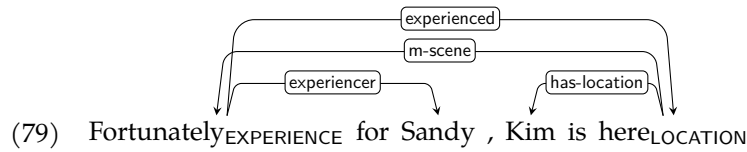
(65) The concert_{MESSAGE-INIT} continued_{SCENE-CONTINUATION}

(66) The concert_{MESSAGE-INIT} finished_{SCENE-DEINIT}

- (67) The shouting_{MESSAGE-INIT} intensified_{SCENE-CONTINUATION}
- (68) The shouting_{MESSAGE-INIT} faded_{SCENE-DEINIT}
- (69) A coup_{EXPERIENCE} was attempted_{SCENE-INIT}
- (70) Kim finished_{SCENE-DEINIT} their work_{ACTIVITY}
- (71) Swift action prevented_{SCENE-INIT-NEG} an outbreak_{SCENE-INIT} of measles_{EXPERIENCE}
- (72) Kim refrained_{SCENE-INIT-NEG} from going_{LOCATION-CHANGE}
- (73) Kim prevented_{SCENE-INIT-NEG} Sandy from going_{LOCATION-CHANGE}
- (74) Kim saved_{SCENE-INIT-NEG} Sandy from the dragon_{CLASS}
- (75) Kim plays_{SCENE} tennis_{ACTIVITY}
- (76) Kim used_{SCENE} to plays_{SCENE} tennis_{ACTIVITY}
- (77) Kim gave_{SCENE} Sandy a kick_{HITTING}

The modifier relation m-scene is used when a syntactic dependency points from an argument to a predicate, as, e.g., with relative clauses or evaluatives.

- (78) the clown_{CLASS} I saw_{MESSAGE} smiled



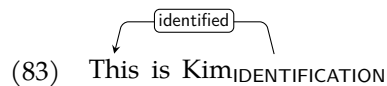
2.2 IDENTIFICATION

identifier identifies identified.

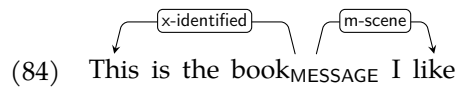
Evoked by pronouns, names, and other identifiers, as well as predicates denoting naming relationships.

(80) I_{IDENTIFICATION} saw a picture

(81) I can distinguish China_{IDENTIFICATION} from Arizona

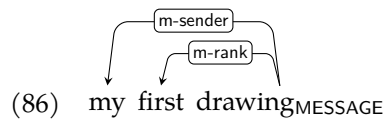
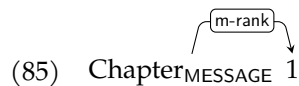


Predicates that evoke other frames can still use x-identified to mark the copula subject as identified:



2.3 RANK

rank indicates the order that has-rank has in some sequence.



2.4 CLASS

class indicates the class of entity that has-class represents.

Most prototypically evoked by common nouns with no arguments.

(87) swallowing an animal_{CLASS}

2.5 EXISTENCE

exists exists. Use this only for non-scene entities; for scenes, use the SCENE frame.

- (88) I exist_{EXISTENCE}
- (89) There is_{EXISTENCE} a hill
- (90) There is_{SCENE} a hubbub

2.6 TRANSFORMATION-CREATION

Special case of EXISTENCE-INIT where created (aka target-exists) is newly created from material, or material is transformed to become created.

- (91) I succeeded in making_{TRANSFORMATION-CREATION} my first drawing
- (92) Kim built_{TRANSFORMATION-CREATION} a castle out of sand
- (93) Kim turned_{TRANSFORMATION-CREATION} straw into gold

2.7 REPRODUCTION

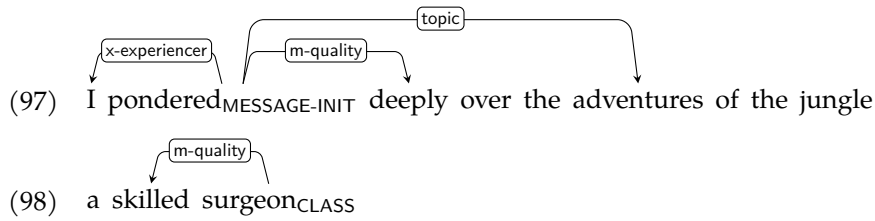
Special case of EXISTENCE-INIT where original continues to exist, and a (modified) copy (aka target-exists) comes into existence.

- (94) Here is a copy_{REPRODUCTION} of the drawing
- (95) This is a translation_{REPRODUCTION} of the pamphlet into English

2.8 QUALITY

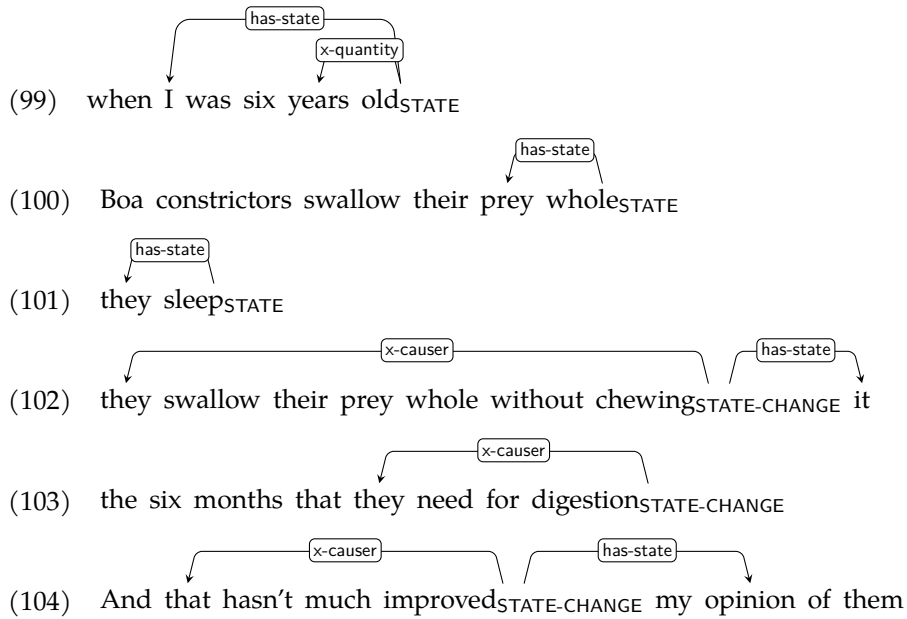
quality indicates a (permanent) quality/property/manner of has-quality.

- (96) a magnificent picture_{MESSAGE}



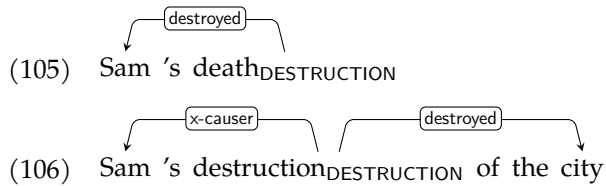
2.9 STATE

state indicates a (temporary) state of has-state.



2.10 DESTRUCTION

Special case of STATE-CHANGE where destroyed (aka has-state) goes out of existence.



2.11 EXPERIENCE

experience indicates an experience that experiencer undergoes.

Used for dynamic scenes where the experiencer is not necessarily active, and that cannot well be framed as a state change. In connection with a MESSAGE frame in the experience role, used for sensory and mental perception, addressees in communication. Also use for beneficiaries, and for "bystander" roles.

- (107) Kim 's adventures_{EXPERIENCE} in the jungle
- (108) Kim attacked_{EXPERIENCE} Sandy
- (109) I saw_{MESSAGE} a magnificent picture
- (110) I pondered_{MESSAGE-INIT} deeply
- (111) Kim talked_{MESSAGE-INIT} to Sandy
- (112) Kim did_{SCENE} something nice for Sandy
- (113) Kim cooked a meal only to have_{SCENE} Sandy spurn it
- (114) Kim managed_{EXPERIENCE} with dealing the cards
- (115) Die Piroggen waren Maria zu dunkel geraten_{SCENE-INIT}
- (116) Das hat mir gerade noch gefehlt_{EXPERIENCE}
- (117) they need_{EXPERIENCE-NECESSITY} six months for digestion

For more uses, see the examples for MESSAGE in Section 2.30.

2.12 ACTIVITY

is-active actively participates in activity.

Used for dynamic scenes where is-active has agency and that cannot well be framed as a state change.

- (118) Kim worked_{ACTIVITY}
- (119) Kim partied_{ACTIVITY}
- (120) Kim had sex_{ACTIVITY}
- (121) after some work_{ACTIVITY} with a colored pencil
- (122) I devoted myself to geography_{ACTIVITY}

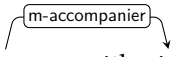

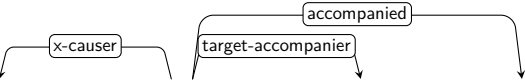

2.13 MODE

Used for adverbial modifiers that have no arguments other than the phrase they modify, and that, roughly speaking, indicate the modal strength of what is expressed and/or its relation to the discourse.

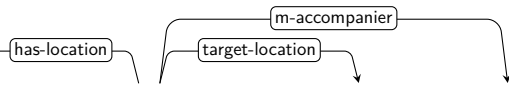
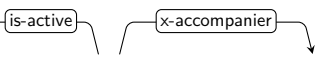
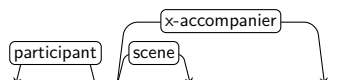
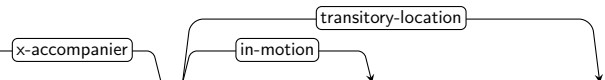


- (123) Even Kim_{IDENTIFICATION} did n't know that
- (124) They only rinsed_{ADORNMENT-TARNISHMENT-DEINIT} the dishes
- (125) Passt_{COMPARISON} das eh ?
- (126) Kim probably knows_{MESSAGE} that
- (127) That 's really great_{QUALITY}
- (128) Kim is not here_{LOCATION}

2.14 ACCOMPANIMENT

accompanier accompanies accompanied, meaning that it occurs together with it or participates equally in the same scene.

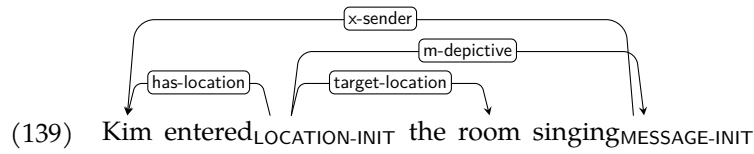
- (129) veggies_{CLASS} with rice

- (130) The veggies come_{ACCOMPANIMENT} with rice

- (131) Kim added_{ACCOMPANIMENT-INIT} rice to the veggies

- (132) Rolling thunder accompanies_{ACCOMPANIMENT} the rain


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

- (133) Kim cycled_{LOCATION-CHANGE} to Rome with Sandy

- (134) Kim danced_{ACTIVITY} with Sandy

- (135) Kim had_{SCENE} sex with Sandy

- (136) Kim chased_{UNANCHORED-MOTION} Sandy around the block

- (137) Kim accompanied_{ACCOMPANIMENT} Sandy

- (138) Kim accompanied_{ACCOMPANIMENT} Sandy on the piano


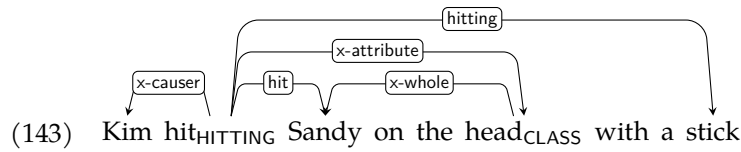
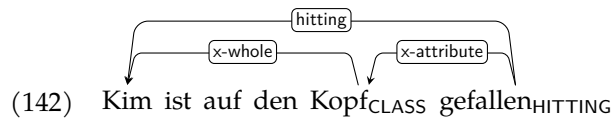
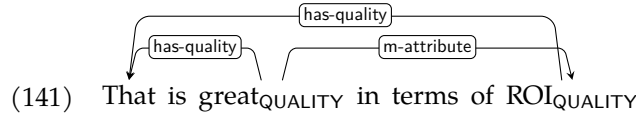
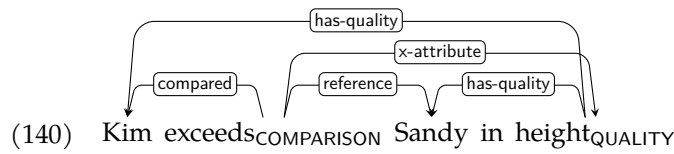
2.15 DEPICTIVE

Special case of ACCOMPANIMENT where depictive (aka accompanier) assigns a participant of has-depictive (aka accompanied) a role (cf. Sec. 1.6).



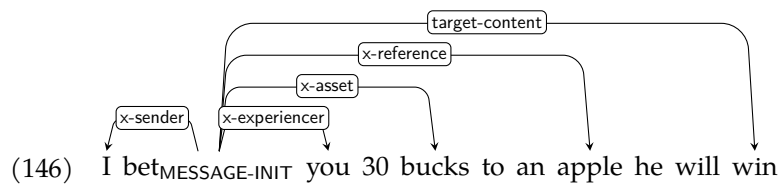
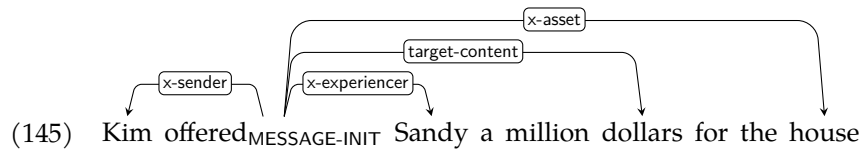
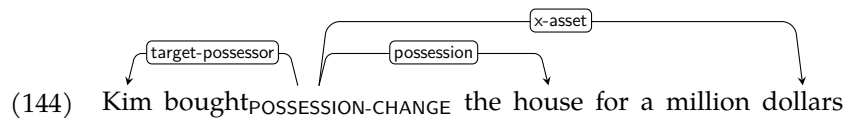
2.16 ATTRIBUTE

In a scene has-attribute, attribute is the part or attribute of one or more participants that is most directly involved in the scene. Add a dependency link between the participant and its attribute to indicate which participant(s) have the attribute.



2.17 ASSET

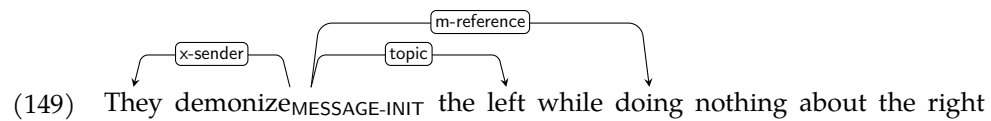
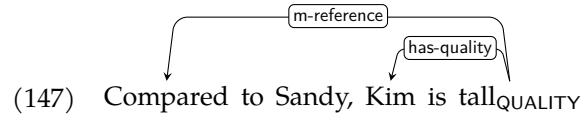
In a scene has-asset, asset is given or offered in an exchange or wager.



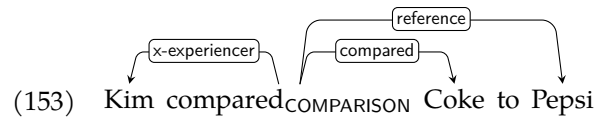
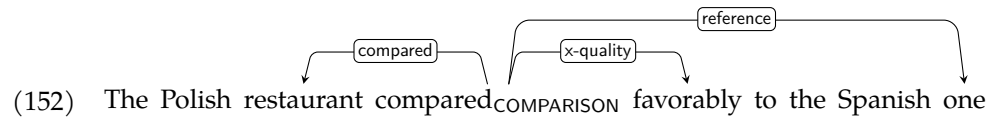
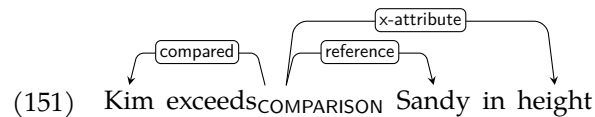
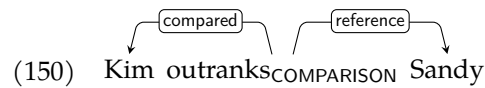
2.18 COMPARISON

compared is characterized with respect to reference.

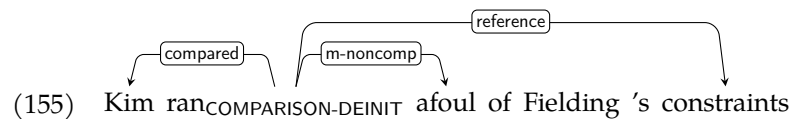
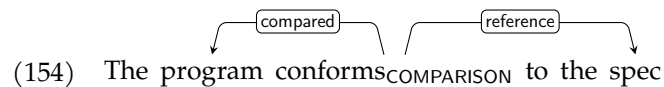
Examples of comparing scenes:



Examples of comparing non-scene entities:

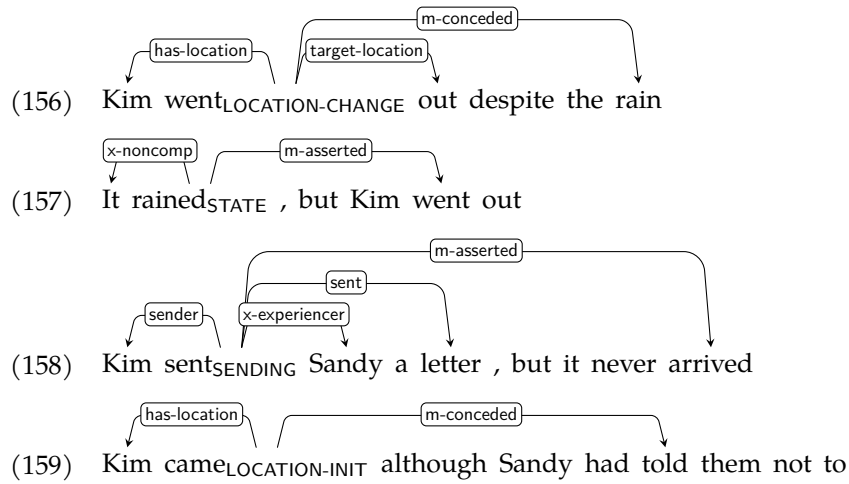


The reference need not be an entity similar to the compared, it can also be an abstract constraint:



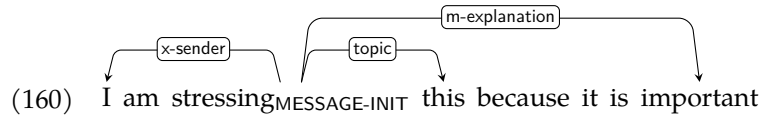
2.19 CONCESSION

Special case of COMPARISON, where compared is what's asserted and reference is what's conceded.



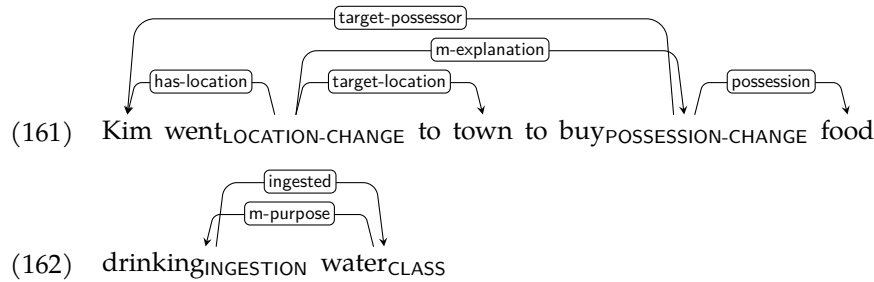
2.20 EXPLANATION

explanation explains explained, but is not a cause.



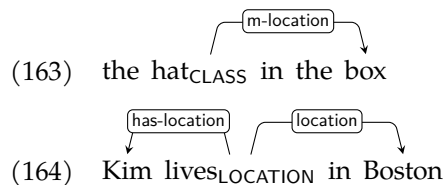
2.21 PURPOSE

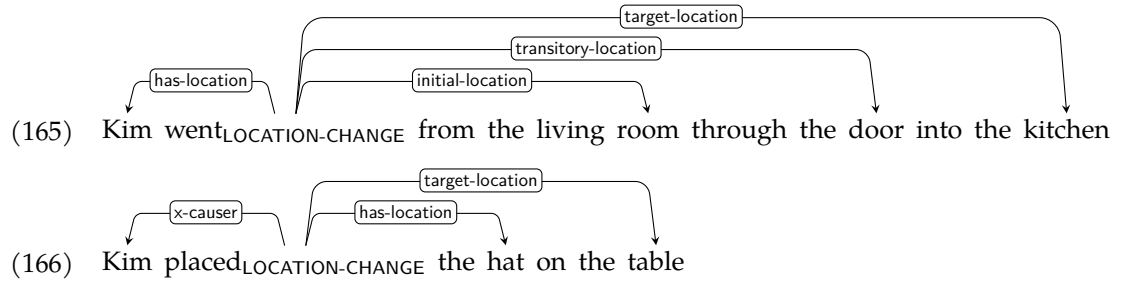
Special case of EXPLANATION where explanation is a purpose.



2.22 LOCATION

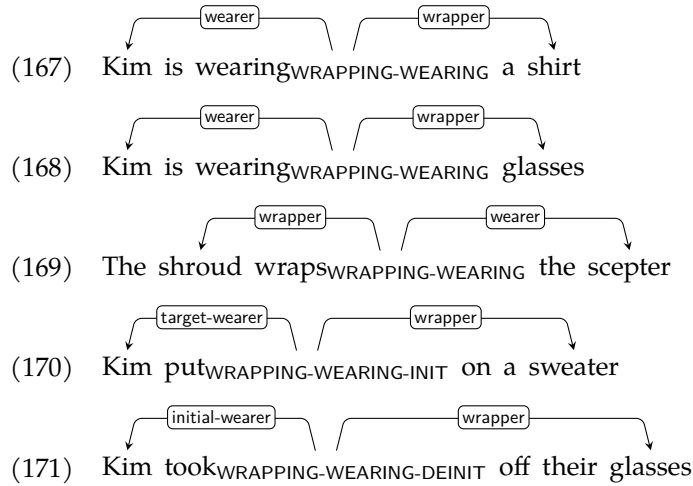
Describes has-location as located or moving wrt. respect to location.





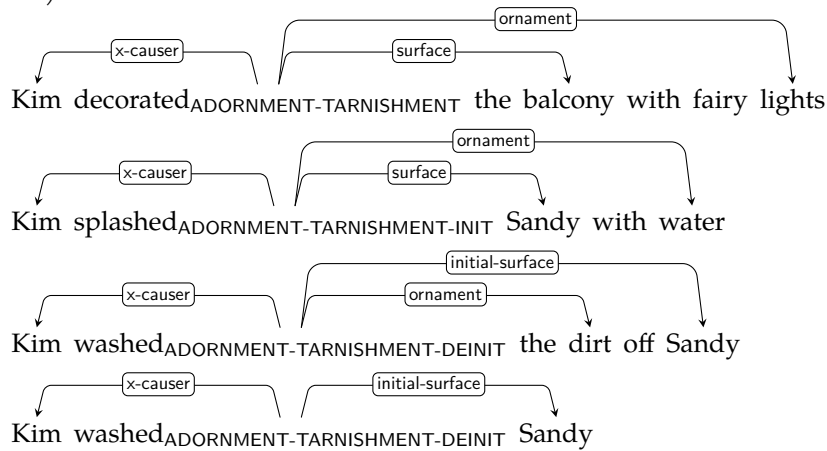
2.23 WRAPPING-WEARING

Special case of LOCATION where wearer (aka location) wears or is wrapped in wrapper (aka has-location).



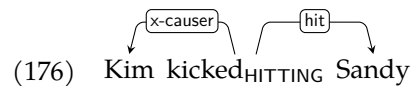
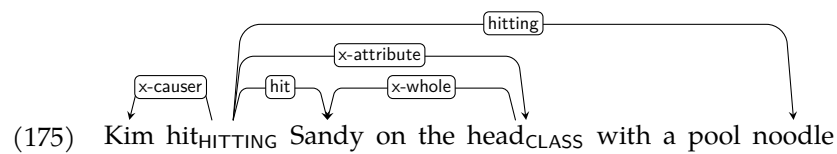
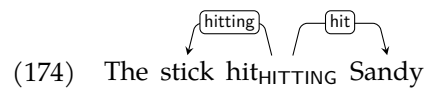
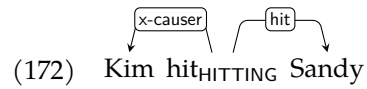
2.24 ADORNMENT-TARNISHMENT

Special case of LOCATION where ornament (aka has-location) sits on surface (aka location).



2.25 HITTING

Special case of LOCATION-INIT where hitting (aka has-location) comes into contact with hit (aka target-location).



2.26 INGESTION

Special case of LOCATION-INIT where ingester (aka target-location) ingests ingested (aka has-location).



2.27 EXCRETION

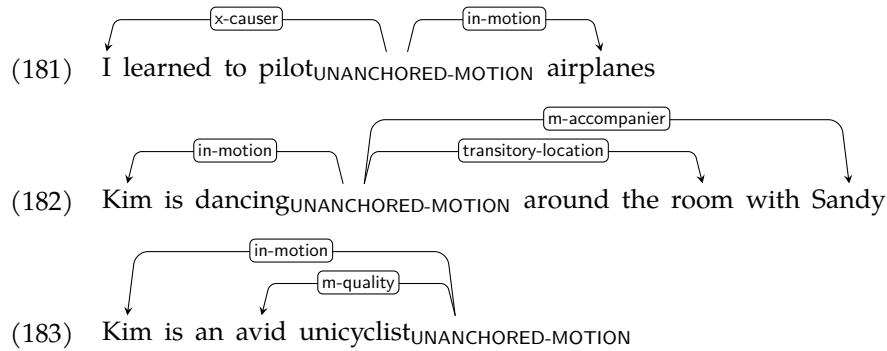
Special case of LOCATION-DEINIT where excreter (aka initial-location) excretes excreted (aka has-location).



2.28 UNANCHORED-MOTION

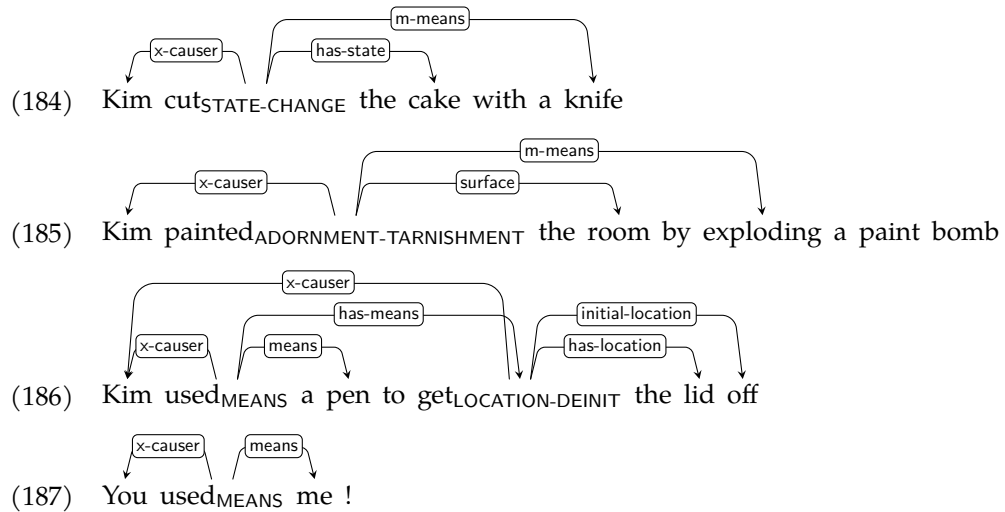
Special case of LOCATION-CHANGE where no initial or target location is indicated.





2.29 MEANS

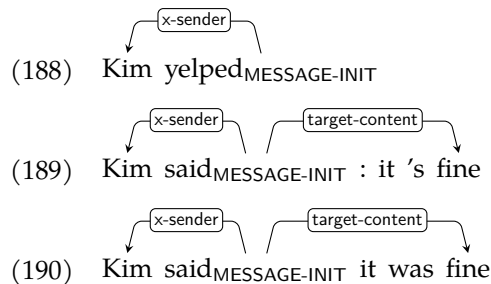
has-means is a scene caused by something via an intermediary means.



2.30 MESSAGE

A message about topic with content content is received or exists in recorded form. When a message is created through expression or observation, use MESSAGE-INIT. When content and topic are both realized, content must assign a role to topic.

2.30.1 Expression



- (191) Kim called_{MESSAGE-INIT} Sandy a liar_{MESSAGE}
- (192) Kim told_{MESSAGE-INIT} Sandy a secret
- (193) Kim talked_{MESSAGE-INIT} about Sandy
- (194) Kim talked_{MESSAGE-INIT} shit_{MESSAGE} about Sandy
- (195) Kim and Sandy conversed_{MESSAGE-INIT}
- (196) Kim conversed_{MESSAGE-INIT} with Sandy

2.30.2 Gesture

- (197) Kim curtseyed_{MESSAGE-INIT} to the Queen
- (198) Kim shook_{UNANCHORED-MOTION » MESSAGE-INIT} their head no


2.30.3 Performance

Performance of a work of art is framed as MESSAGE where the work of art is the topic.

- (199) Kim played_{MESSAGE-INIT} a little tune on their tuba
- (200) They performed_{MESSAGE-INIT} the play
- (201) Kim sang_{MESSAGE-INIT} a song

2.30.4 Depiction

(202) Kim drew_{MESSAGE-INIT} a heron




(203) a picture_{MESSAGE} of the heron




2.30.5 Recording

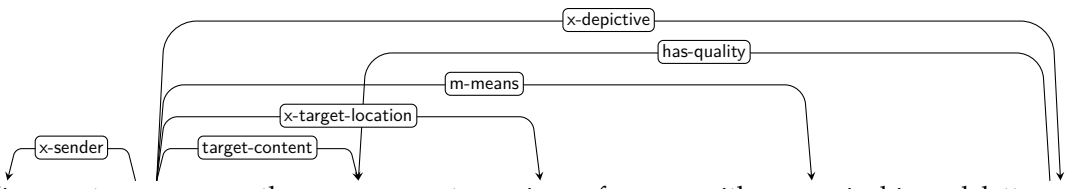
(204) Kim drew_{MESSAGE-INIT} a picture



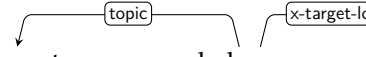
(205) Kim wrote_{MESSAGE-INIT} Sandy a letter




(206) Kim wrote_{MESSAGE-INIT} the message onto a piece of paper with a pen in big red letters_{QUALITY}



(207) The concert was recorded_{MESSAGE-INIT} on tape



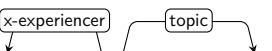
(208) The band recorded_{MESSAGE-INIT} an album



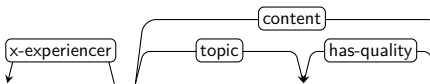
2.30.6 Perception

We also frame perception as MESSAGE, including mental and volitional perception.

(209) Kim saw_{MESSAGE} a flower



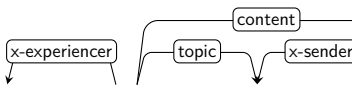
(210) Kim found_{MESSAGE} the flower beautiful_{QUALITY}



(211) Kim thinks_{MESSAGE} Sandy is a liar



(212) Kim thinks_{MESSAGE} Sandy a liar_{MESSAGE}



- (213) Kim saw_{MESSAGE} Sandy swim_{UNANCHORED-MOTION}
- (214) Kim wants_{MESSAGE} to swim_{UNANCHORED-MOTION}
- (215) Kim wants_{MESSAGE} Sandy to swim_{UNANCHORED-MOTION}
- (216) Kim seems_{MESSAGE} happy_{MESSAGE}
- (217) Kim seems_{MESSAGE} happy_{MESSAGE} to Sandy

2.30.7 Beginning and Ending Perception

Use MESSAGE-INIT (MESSAGE-DEINIT, MESSAGE-INIT-NEG) for predicates denoting the coming about (ending, failing to come about) of knowledge and awareness.

- (218) The Thought Police observed_{MESSAGE-INIT} Winston
- (219) Kim noticed_{MESSAGE-INIT} the bird
- (220) Kim taught_{MESSAGE-INIT} Sandy Spanish
- (221) Kim measured_{MESSAGE-INIT} the elasticity
- (222) Kim forgot_{MESSAGE-DEINIT} everything they knew
- (223) Kim forgot_{MESSAGE-DEINIT} about the cake
- (224) Kim forgot_{MESSAGE-INIT-NEG} to take the trash out

2.31 PART-WHOLE

part is part of whole.

- (225) Kim 's leg_{CLASS}
- (226) a man_{CLASS} with a mustache
- (227) part_{PART-WHOLE} of the year
- (228) wheat contains_{PART-WHOLE} gluten

2.32 POSSESSION

possessor possesses or controls the possessed.

- (229) Kim 's house_{CLASS}
- (230) Kim owns_{POSSESSION} a house
- (231) The house belongs_{POSSESSION} to Kim
- (232) the owner_{POSSESSION} of the house
- (233) Kim has_{POSSESSION} Sandy 's phone
- (234) Kim bought_{POSSESSION-CHANGE} a house from Sandy
- (235) Sandy sold_{POSSESSION-CHANGE} Kim the house
- (236) Kim kept_{POSSESSION-CONTINUATION} the house
- (237) Kim lost_{POSSESSION-DEINIT} the house

- (238) Caesar conquered_{POSSESSION-INIT} Gaul
- (239) Caesar 's conquest_{POSSESSION-INIT} of Gaul
- (240) Kim owes_{POSSESSION-CHANGE-NECESSITY} Sandy money

2.33 QUANTITY

quantity is the quantity, degree, or extent of has-quantity.

- (241) three burgers_{CLASS}
- (242) three liters_{QUANTITY} of coke
- (243) We discourage_{MESSAGE-INIT} this emphatically

2.34 SENDING

sender originates a message, sent, that can be experienced.

- (244) According to Kim , it is raining_{STATE}

For more uses, see MESSAGE (Section 2.30).

2.35 SEQUENCE

follows follows followed, e.g., temporally, logically, by rank, as heir, etc.

- (245) Form follows_{SEQUENCE} function
- (246) Cook is Jobs 's successor_{SEQUENCE}
- (247) Das fußt_{SEQUENCE} auf einer falschen Vorstellung

(248) Kim deduced_{SEQUENCE} the truth from the clues

(249) Given that I 'm tired , I wo n't be there_{LOCATION}

2.36 CAUSATION

Special case of SEQUENCE where causer (aka followed) causes result (aka follows).

(250) Kim broke_{STATE-CHANGE} the glass

(251) The knife cut_{STATE-CHANGE} the bread

(252) Kim cut_{STATE-CHANGE} the bread with a knife

(253) The war caused_{CAUSATION} a famine

(254) There was_{SCENE} a famine because of the war

(255) Der Wasserdruck stieg_{QUANTITY-CHANGE} , wodurch der Brunnen überfloss

(256) Die Qualität ist der Motivation geschuldet_{CAUSATION}

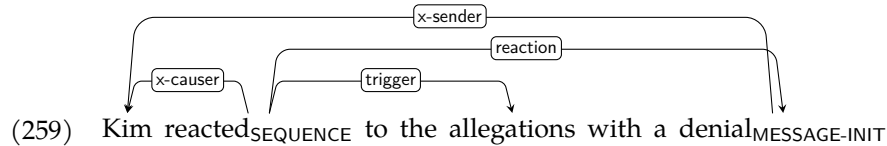
(257) Kim went_{LOCATION-CHANGE} to town because they wanted to buy food

Note how the last example expresses a purpose, but expresses it as a cause, so m-causer is the right label to use. Compare this to construal as a purpose:

(258) Kim went_{LOCATION-CHANGE} to town to buy food

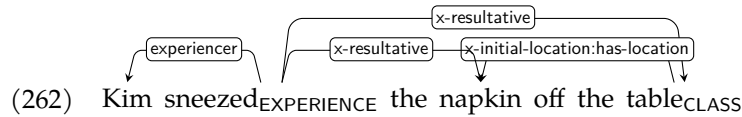
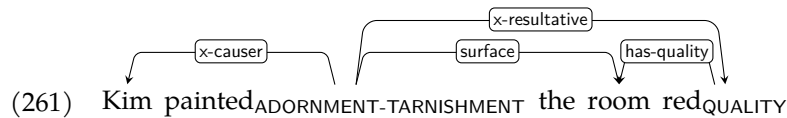
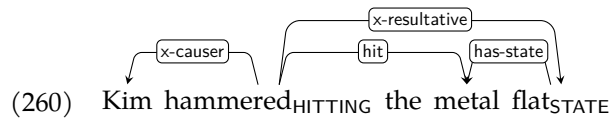
2.37 REACTION

Special case of CAUSATION where trigger (aka causer) triggers a reaction (aka result) in the x-causer.



2.38 RESULTATIVE

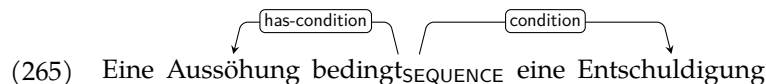
Special case of CAUSATION where resultative (aka result) assigns an argument of has-resultative (aka causer) a role. We treat the English resultative construction as a valency-changing operation that adds one or two arguments to the matrix predicate, so we use x-resultative rather than m-resultative.



In the last example, we use x-initial-location:has-location to specify not only the role of the napkin in the resulting event (has-location) but also that of the table (initial-location). Using x-has-location would be imprecise because we would then assume that the table has location.

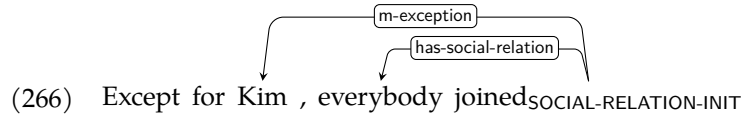
2.39 CONDITION

Special case of SEQUENCE where condition (aka followed) is a condition to has-condition (aka follows).



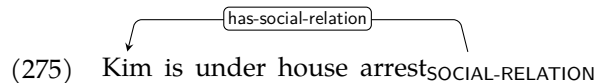
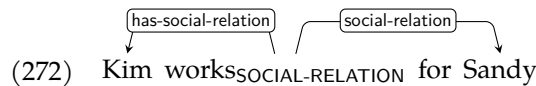
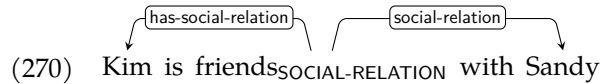
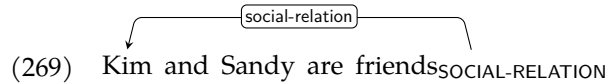
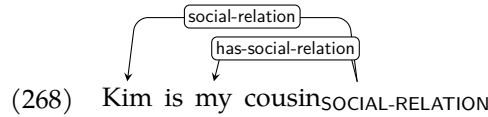
2.40 EXCEPTION

Special case of SEQUENCE where exception (aka followed) is an exception (a negative condition, if you will) to has-exception (aka follows).



2.41 SOCIAL-RELATION

has-social-relation is an individual that is in some socially constructed relationship with social-relation. social-relation might, e.g., be a relative, a friend, an organization, a responsibility, or a judicial sentence.



- (278) The official married_{SOCIAL-RELATION-INIT} Kim to Sandy
- (279) The official married_{SOCIAL-RELATION-INIT} Kim and Sandy
- (280) Kim divorced_{SOCIAL-RELATION-DEINIT} Sandy
- (281) Kim befriended_{SOCIAL-RELATION-INIT} Sandy
- (282) Kim took_{SOCIAL-RELATION-INIT} the job
- (283) Kim joined_{SOCIAL-RELATION-INIT} Google
- (284) Kim joined_{SOCIAL-RELATION-INIT} a union
- (285) Sandy fired_{SOCIAL-RELATION-DEINIT} Kim from their job
- (286) Kim left_{SOCIAL-RELATION-DEINIT} Google
- (287) Kim assumed_{SOCIAL-RELATION-INIT} office
- (288) The judge sentenced_{SOCIAL-RELATION-INIT} Kim to three days in prison
- (289) Kim was pardoned_{SOCIAL-RELATION-DEINIT}

2.42 TIME

time indicates when, how often, or for how long has-time takes place. Also evoked by time expressions without arguments.

- (290) Kim swims_{SUNANCHORED-MOTION} on Monday

- (291) Kim sneezed_{EXPERIENCE} twice
- (292) Kim swam_{UNANCHORED-MOTION} for an hour
- (293) Kim says_{MESSAGE-INIT} hello whenever I meet them
- (294) Once_{TIME} when I was six years old
- (295) the six months_{TIME} they need_{SCENE-NECESSITY} for digestion

2.43 NONCOMP

Used to mark syntactic arguments that are thought of as part of the predicate, as in verbal idioms, weather verbs, inherently reflexive verbs, or existential *there*.

- (296) Kim kicked_{DESTRUCTION} the bucket
- (297) It is raining_{STATE}
- (298) I address_{MESSAGE-INIT} myself to you
- (299) There was_{SCENE} a famine

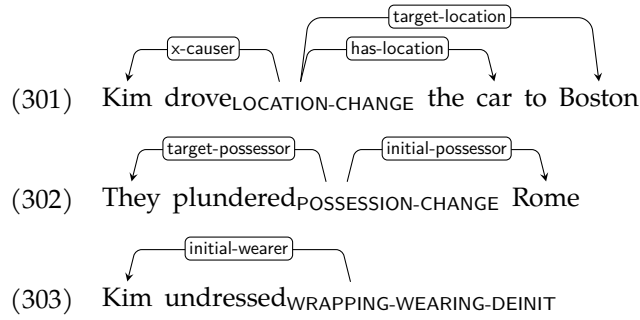
Light verbs, on the other hand, are treated with SCENE, see Section 2.1.

3 Memos

3.1 Prefer Core over Non-core Arguments

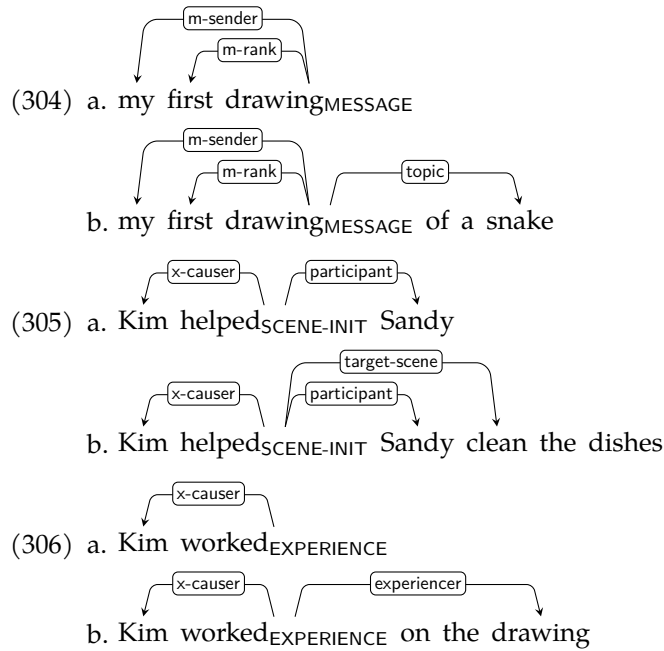
When an argument fills both a core and a non-core role, it is more important to annotate the former.

- (300) Kim drove_{LOCATION-CHANGE} to Boston

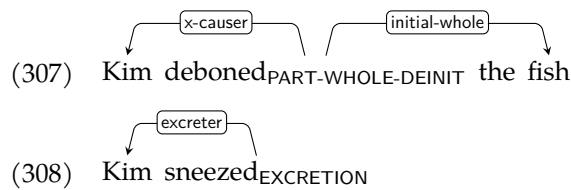


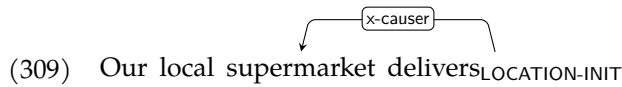
3.2 Arguments Determine Frames

The most important criterion in choosing a frame for a predicate is that there should be suitable roles for the predicate's arguments, even if they are unrealized (implicit) in the annotated instance. For example, while *drawing* denotes a CLASS of things, it can occur with a prepositional argument denoting a topic, so MESSAGE is a better choice.



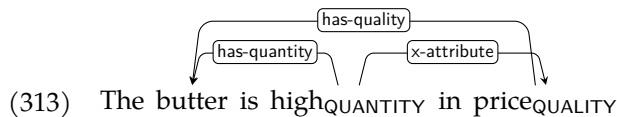
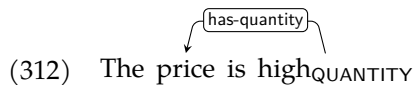
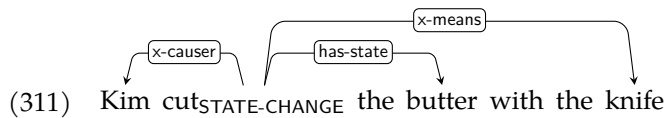
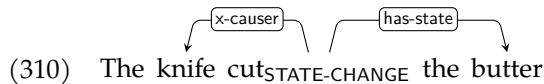
This logic extends to *shadow arguments* and *default arguments* (Pustejovsky, 1995; Di Fabio et al., 2019), i.e., arguments that do not appear in the syntactic argument structure because they are incorporated into the predicate or logically implied, like the bones in (307), mucus and air in (308), or groceries in (309).





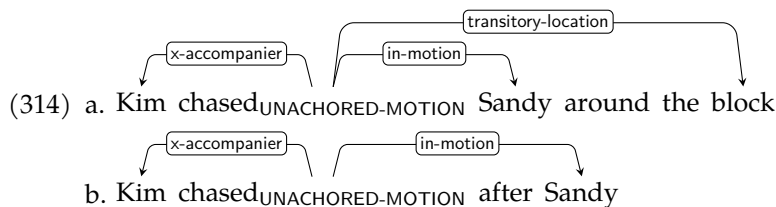
3.3 A Participant whose Syntactic Argument Position is Occupied Should Not Be Treated like an Implicit Argument

For example, consider (310). 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, to add the former to the sentence, we would not merely have to add another realized argument, but also change the syntactic argument structure so that the subject position goes to that causer, as in (311). Thus, we treat this as a different framing with a different causer, rather than a more explicit version of the same framing. Likewise, (312) and (313) are two different framings, one with *price* as has-state, and one with *butter*.



3.4 When in Doubt, Treat Different Syntactic Frames of the Same Predicate Consistently

For example, in (314-a), *chase* could be framed as caused motion with Kim as x-causer or as accompanied motion with Kim as x-accompanioner. Because the latter works for other syntactic frames of *chase* as well, as in (314-b), prefer it.



3.5 Participant Nouns

Some nouns denote a person who participates in a specific type of scene in a specific role. In such cases, use the most appropriate frame for that scene. For

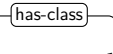
example, in a narrative where the narrator has just been criticized by a stranger, you could annotate as follows:

(315) With that, my critic_{MESSAGE} sat down again

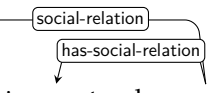


In other cases, such nouns rather denote a person’s profession or expertise or their role in a social context:


(316) He is a teacher_{CLASS}



(317) He is our teacher_{SOCIAL-RELATION}



(318) She is the president_{SOCIAL-RELATION} of our club

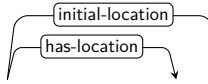


3.6 Particle Verbs

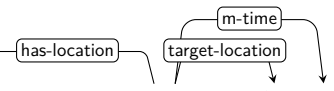
We follow the PARSEME classification of particle verbs into spatial, semi-non-compositional, and fully non-compositional ones (Savary et al., 2017; Ramisch et al., 2018, 2020; Savary et al., 2023).

In UD, particle verbs are connected to their particle via the `compound:prt` relation. If the meaning is spatial, this dependency is labeled with `initial-location` or `target-location`.

(319) get_{LOCATION-DEINIT} the lid off




(320) You may go_{LOCATION-INIT} in now



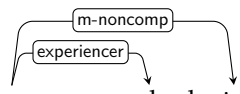
In semi-non-compositional particle verbs, where the particle adds a partially predictable but nonspatial meaning to the verb, use an appropriate role.

(321) eat_{INGESTION} up the cookies (implies *eat* the cookies)



In fully non-compositional particle verbs, where the meaning is not predictable, use `m-noncomp`.

(322) do_{EXPERIENCE} somebody in (does not imply *do* somebody)



4 TODO

The butter is high in price: high has SCENE-like arguments (participant butter and price scene), but also expresses a QUANTITY. SCENE-QUANTITY?

A whole section on sentence adverbs: lieber (MESSAGE), sowieso (CONDITION), ungeachtet (CONCESSION), erstmals (TIME), unvermindert (QUANTITY-CONTINUATION)

Speaker-oriented adverbs: MESSAGE? erstaunlicherweise, geheimnisvollerweise, glücklicherweise, möglicherweise, notwendigerweise, tragischerweise, unglaublicherweise (MESSAGE-INIT-NEG?), unglücklicherweise, zweckmäßigerweise?

codify the general principle somewhere: if superframe and ARG1 have the same name (quasi-unary relations), we can just use m-rel. Otherwise, use m-scene.

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