












































Superframes Manual

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SITUATION	initial-situator	theme	situator	transitory-situator	target-situator	2.1
ACCOMPANIMENT	initial-accompanier	accompanied	accompanier		target-accompanier	2.2
DEPictive		has-depictive	depictive			2.3
ASSET		has-asset	asset			2.4
ATTRIBUTE		has-attribute	attribute			2.5
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LOCATION	initial-location	has-location	location	transitory-location	target-location	2.17
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EXCRETION	excreter	excreted		transitory-location	target-location	2.19
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UNANCHORED-MOTION		in-motion		transitory-location		2.22
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MODE		has-mode	mode			2.26
NONCOMP		has-noncomp	noncomp			2.27
PART-WHOLE	initial-whole	part	whole		target-whole	2.28
EXAMPLE		example	exemplified			2.29
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QUANTITY	initial-quantity	has-quantity	quantity		target-quantity	2.31
RANK	initial-rank	has-rank	rank		target-rank	2.32
SCENE	initial-scene	participant	scene	transitory-scene	target-scene	2.33
STATE	initial-state	has-state	state		target-state	2.34
QUALITY	initial-quality	has-quality	quality		target-quality	2.35
CLASS	initial-class	has-class	class		target-class	2.36
DESTRUCTION		destroyed				2.37
SENDING		sent	sender			2.38
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Table 1: Hierarchy of Superframes and their Roles

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:

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, sorted into a rough hierarchy. At the top is **SITUATION**. All the main superframes are direct children of **SITUATION**. Some of them have one or more subtypes intended to make the annotation of certain special cases more intuitive and unambiguous.

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:



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



1.2 Aspect, Mode, and Polarity

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, continuation (-CONTINUATION) means a state persists or is even intensified, and (-PREVENTION) means it fails to come about. 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
- (16) Kim saved_{SITUATION-PREVENTION} Sandy from the dragon

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

- (17) The concert began_{SCENE-INIT}
- (18) The concert continued_{SCENE-CONTINUATION}
- (19) The concert finished_{SCENE-DEINIT}
- (20) The shouting intensified_{SCENE-CONTINUATION}
- (21) The shouting faded_{SCENE-DEINIT}
- (22) A coup was attempted_{SCENE-INIT}
- (23) Kim finished_{SCENE-DEINIT} their work
- (24) Swift action prevented_{SCENE-PREVENTION} an outbreak
- (25) Kim refrained_{SCENE-PREVENTION} from going
- (26) Kim prevented_{SCENE-PREVENTION} Sandy from going

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

- (27) Change is necessary_{SCENE-NECESSITY}
- (28) Change is possible_{SCENE-POSSIBILITY}
- (29) Kim owes_{POSSESSION-CHANGE-NECESSITY} Sandy money

Finally, we can use the polarity suffix -NEG. It can combine with aspectual and modal suffixes.

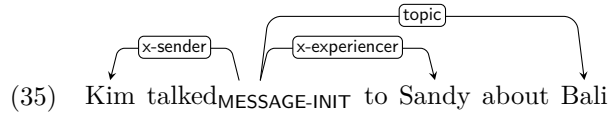
- (30) absence_{EXISTENCE-NEG} of evidence
- (31) That is impossible_{SCENE-POSSIBILITY-NEG}
- (32) They never_{TIME-NEG} understand

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 (33) 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.

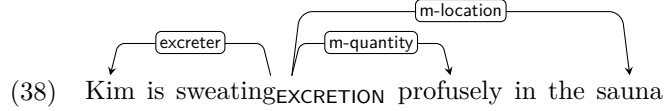


Other non-core arguments are usually rather predicate-specific.

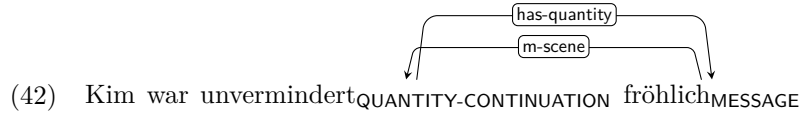
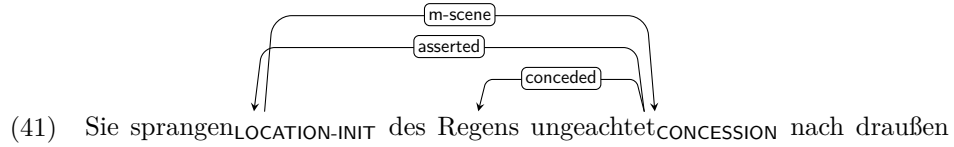
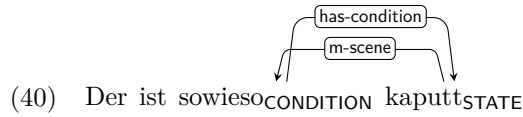
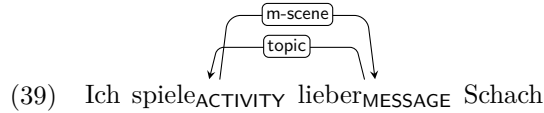


1.4 Modifiers

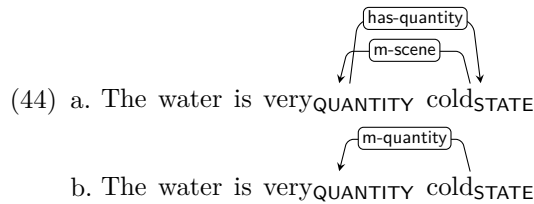
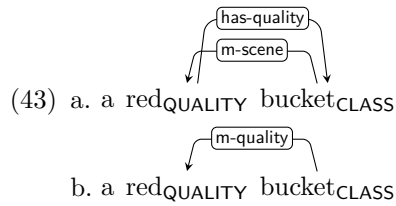
Like non-core arguments, modifiers are assumed to evoke an additional frame, and labeled with the role they fill in that frame, but with a prefix marking them as modifiers: **m-**.

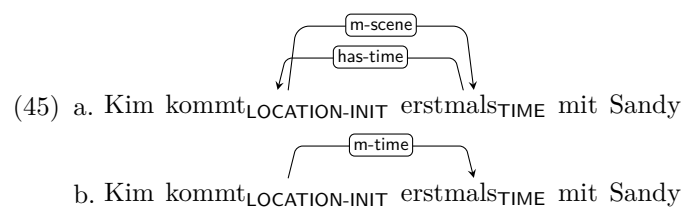


Adjectival and adverbial modification is characterized by the syntactic modifier acting as a predicate, with the syntactic modifiee as an argument. We label such modifier dependencies **m-scene** (cf. Section 2.33) and add a reverse dependency with the corresponding role label.



If `arg2` has the same name as the frame, this structure can be abbreviated to just use that as a modifier role instead of **m-scene** and a backlink. For example, the following pairs are equivalent:

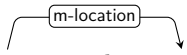




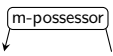
1.5 Nonverbal Predicates

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:

(46) a tree_{CLASS} in the garden



(47) Kim 's tree_{CLASS}



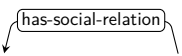
Event nouns evoke event frames and have arguments:

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



Relational nouns evoke relational frames and have arguments:

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



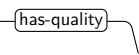
Pronouns and names evoke the **IDENTIFICATION** frame, meaning that they identify their referent as some entity (via naming or anaphora resolution).

(50) Kim_{IDENTIFICATION}

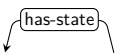
(51) they_{IDENTIFICATION}

Predicate adjectives most typically denote states or qualities.

(52) I am despicable_{QUALITY}

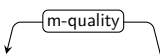


(53) the dog is tired_{STATE}




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

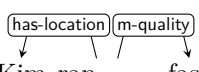
(54) despicable me_{IDENTIFICATION}

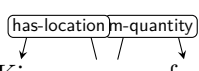


(55) the tired dog_{CLASS}



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

(56) 

(57) 

1.6 Nonlocal Dependencies

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

- (58) Kim promised Sandy to come_{LOCATION-CHANGE} (subject control)
- (59) Kim used a hammer to smash_{STATE-CHANGE} the vase (subject control)
- (60) Kim persuaded Sandy to come_{LOCATION-CHANGE} (object control)
- (61) Kim seemed to fly_{UNANCHORED-MOTION} (raising)
- (62) Kim entered the room singing_{MESSAGE-INIT} (depictive)
- (63) You're talking me silly_{STATE} (resultative)
- (64) Kim has come to stay_{LOCATION-CONTINUATION} (subjectless adverbial clause)
- (65) Kim left after trashing_{STATE-CHANGE} the room (subjectless adverbial clause)
- (66) Kim is hard to love_{MESSAGE} (*tough* construction)
- (67) the song that I like_{MESSAGE} (relative clause)
- (68) the question we raised without answering_{MESSAGE-INIT} (parasitic gap)
- (69) ein sogenannter_{IDENTIFICATION-INIT} Televisor_{CLASS} oder Hörsehschirm_{CLASS} (coordination)

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.

(70) A hush passed^{in-motion » scene}UNANCHORED-MOTION » SCENE over the group^{transitory-location » participant}

(71) Kim refused^{x-sender » participant}MESSAGE-INIT » SCENE to eat^{topic » scene}

This mechanism can be used to indicate that an expression has become fixed and not fully compositional:

(72) primeval forest^{m-time » m-noncomp}CLASS

(73) colored pencil^{m-quality » m-noncomp}CLASS

(74) to lay^{has-location » topic}LOCATION-CHANGE » MESSAGE-DEINIT aside my drawings^{target-location » x-noncomp}

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

2 Superframes Reference

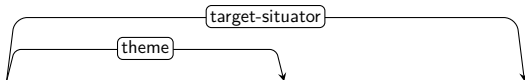
2.1 SITUATION

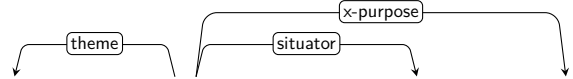
This is the most generic superframe: something (**theme**) is related to something (**situator**). Prototypically, the former is the less central, more mobile element. It is situated in some conceptual space with respect to the situator, or put differently: it undergoes something in connection with the situator. When in doubt, the syntactically less oblique argument is the theme. In more specific superframes, the theme:situator relation takes the shape of e.g., compared:reference, has-location:location, possessed:possessor, part:whole, follows:followed, has-social-relation:social-relation. It can take more abstract shapes as well, e.g. has-quality:quality, where the situator is a predicate that is true of the theme.

This generic superframe is useful in cases where the type of relation is not specified further.

(75) Yes_{SITUATION}

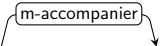

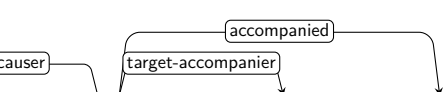

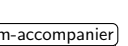
(76) No_{SITUATION-NEG}

(77) 

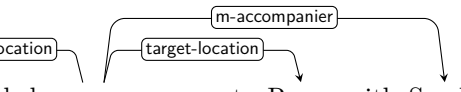
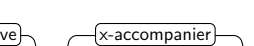
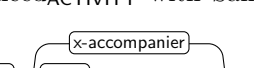
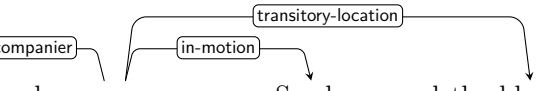
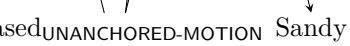
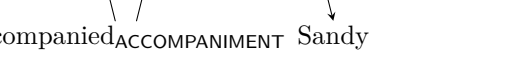
(78) 

2.2 ACCOMPANIMENT

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

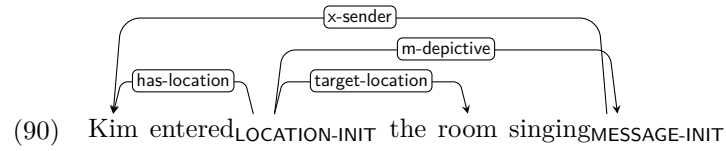
- (79) veggies_{CLASS} with rice

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

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

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

- (83) boy king_{SOCIAL-RELATION}


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

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

- (85) Kim danced_{ACTIVITY} with Sandy

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

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

- (88) Kim accompanied_{ACCOMPANIMENT} Sandy

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


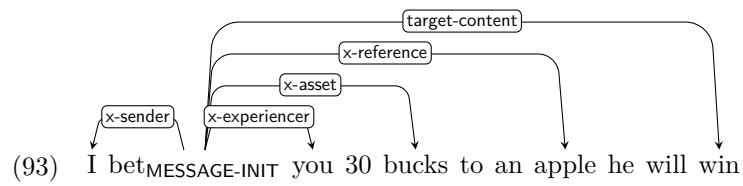
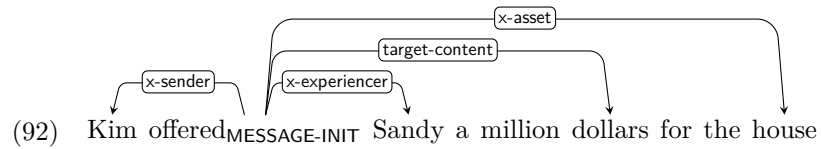
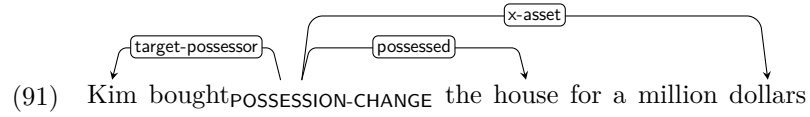
2.3 DEPICTIVE

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



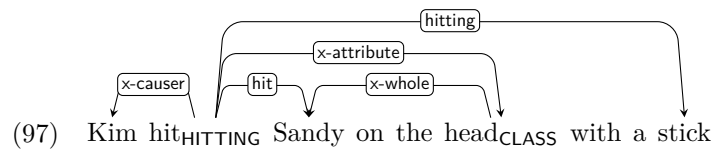
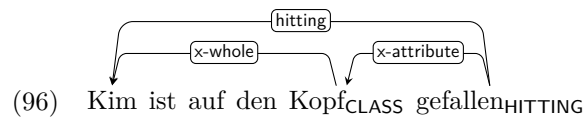
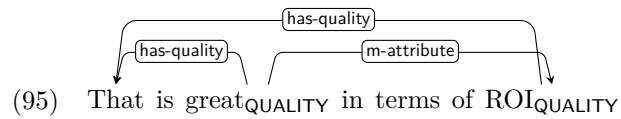
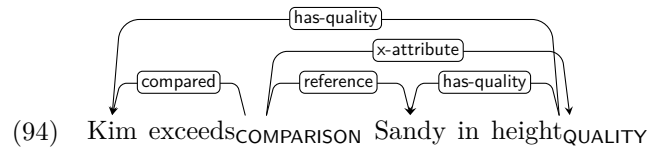
2.4 💰 ASSET

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



2.5 * 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.



2.6 COMPARISON

compared is characterized with respect to reference.

Examples of comparing scenes:

- (98) Compared to Sandy, Kim is tall_{QUALITY}
- (99) Sandy is short_{QUALITY} whereas Kim is tall
- (100) They demonize_{MESSAGE-INIT} the left while doing nothing about the right

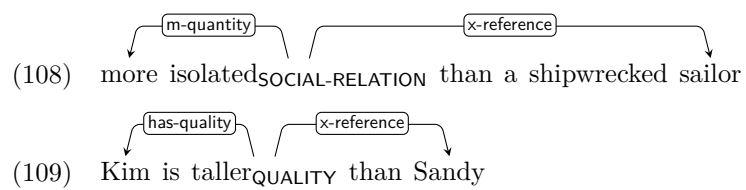
Examples of comparing non-scene entities:

- (101) Kim outranks_{COMPARISON} Sandy
- (102) Kim exceeds_{COMPARISON} Sandy in height
- (103) The Polish restaurant compared_{COMPARISON} favorably to the Spanish one
- (104) Kim compared_{COMPARISON} Coke to Pepsi
- (105) kidney bean_{CLASS}

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

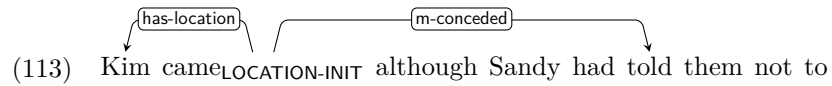
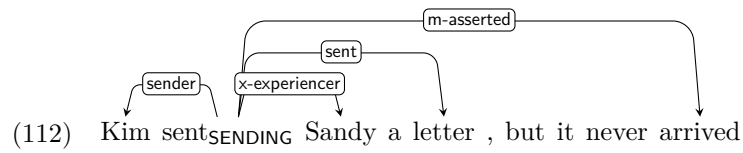
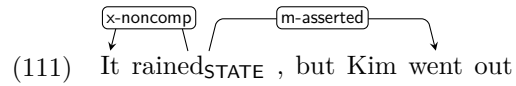
- (106) The program conforms_{COMPARISON} to the spec
- (107) Kim ran_{COMPARISON-DEINIT} afoul of Fielding 's constraints

We analyze gradation of adjectives as a valency-changing derivation that adds an x-reference argument.



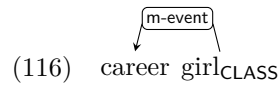
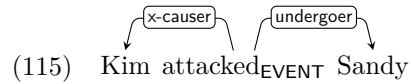
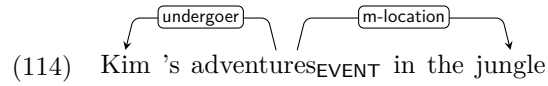
2.7 🔥 CONCESSION

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

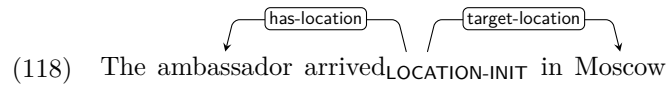
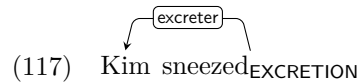


2.8 ✂ EVENT

Used for predicates that are inherently dynamic and cannot be framed as - CHANGE/-INIT/-DEINIT, so usually activities in terms of Vendler.



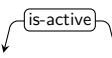
Note that many predicates that denote events in terms of Vendler can be framed differently (as changes):



2.9 🦊 ACTIVITY

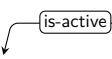
Special case of EVENT where the *undergoer* is active.

(119) Kim partied_{ACTIVITY}



A diagram consisting of a rounded rectangular box labeled 'is-active'. Two arrows originate from the box: one points down and to the left towards the word 'Kim', and the other points down and to the right towards the word 'partied'.

(120) Kim had sex_{ACTIVITY}




A diagram consisting of a rounded rectangular box labeled 'is-active'. Two arrows originate from the box: one points down and to the left towards the word 'Kim', and the other points down and to the right towards the word 'sex'.


2.10 ✨ EXISTENCE

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


(121) I exist_{EXISTENCE}



(122) There is_{EXISTENCE} a hill



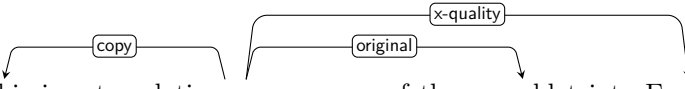
(123) There is_{SCENE} a hubbub



2.11 REPRODUCTION

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

(124) Here is a  copy_{REPRODUCTION} of the drawing

(125) This is a translation_{REPRODUCTION} of the pamphlet into English 

2.12 ✨ TRANSFORMATION-CREATION

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

(126) I succeeded in making^{TRANSFORMATION-CREATION} my first drawing

(127) Kim built^{TRANSFORMATION-CREATION} a castle out of sand

(128) Kim turned^{TRANSFORMATION-CREATION} straw into gold

2.13 👁 EXPERIENCE

experiencer experiences experienced.

In connection with a MESSAGE frame in the experienced role, used for sensory and mental perception as well as addressees in communication. Also use for beneficiaries, and for “bystander” roles.

(129) I saw_{MESSAGE} a magnificent picture

(130) I pondered_{MESSAGE-INIT} deeply

(131) Kim talked_{MESSAGE-INIT} to Sandy

(132) Kim did_{SCENE} something nice for Sandy

(133) Kim cooked a meal only to have_{SCENE} Sandy spurn it

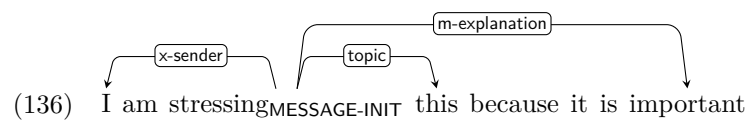
(134) Die Piroggen waren Maria zu dunkel geratens_{SCENE-INIT}

(135) Das hat mir gerade noch gefehlt_{EXPERIENCE}

For more uses, see the examples for MESSAGE in Section 2.25.

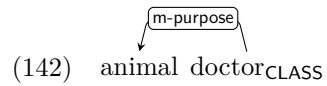
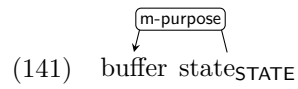
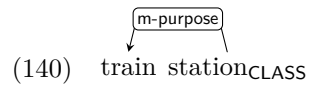
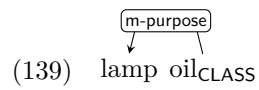
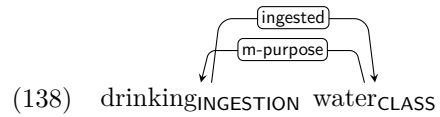
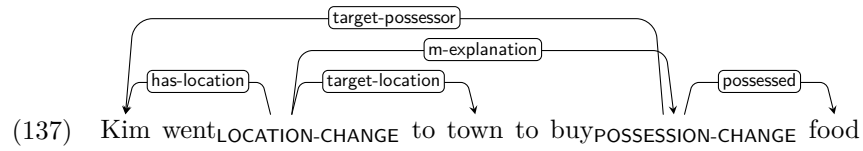
2.14 ! EXPLANATION

explanation explains explained, but is not a cause.



2.15 🎯 PURPOSE

Special case of EXPLANATION where explanation is a purpose.



2.16 IDENTIFICATION


identifier identifies identified.

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

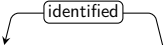
(143) I_{IDENTIFICATION} saw a picture

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

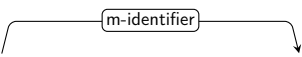
(145) a book called_{IDENTIFICATION} True Stories from Nature



(146) This is Kim_{IDENTIFICATION}

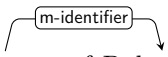


(147) Obamas Sonderberater_{inSOCIAL-RELATION} Kori Schulman



In English, the preposition *of* has an identifying sense, which can also be metaphorical:

(148) the island_{CLASS} of Pultanella




(149) the stallion_{CLASS} of Rumour



Likewise, *in* has an identifying sense:

(150) In answer , he repeated_{MESSAGE-INIT} : Please, draw me a sheep !




2.17 📍 LOCATION

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

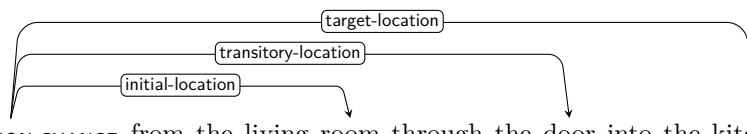
(151) the hat_{CLASS} in the box



(152) Kim lives_{LOCATION} in Boston



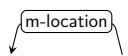
(153) Kim went_{LOCATION-CHANGE} from the living room through the door into the kitchen



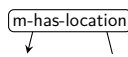
(154) Kim placed_{LOCATION-CHANGE} the hat on the table



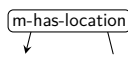
(155) house music_{MESSAGE}



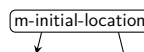
(156) music hall_{CLASS}



(157) sugar cane_{CLASS}

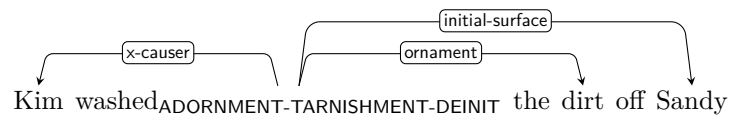
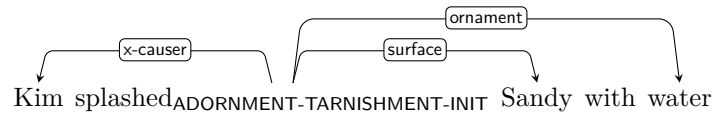
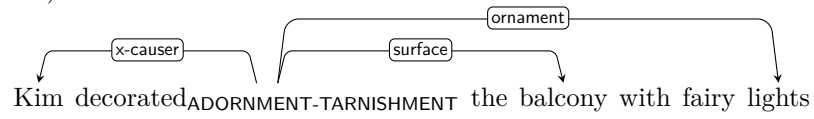


(158) cane sugar_{CLASS}



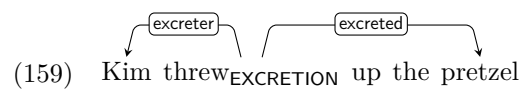
2.18 ADORNMENT-TARNISHMENT

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



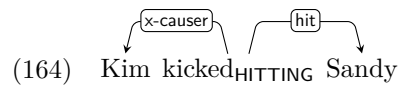
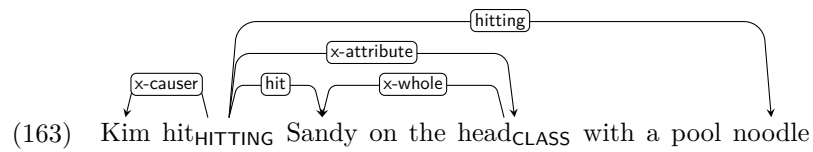
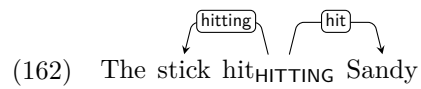
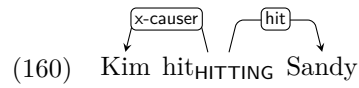
2.19 EXCRETION

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



2.20 🖋️ HITTING


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



2.21 🍴 INGESTION

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

(165) Kim ate_{INGESTION} an apple



The diagram for (165) shows two boxes, 'ingerter' and 'ingested', positioned above the words 'ate' and 'an' respectively. An arrow points from 'ingerter' to 'Kim', and another arrow points from 'ingested' to 'an apple'.

(166) Kim nibbled_{INGESTION} on the pretzel



The diagram for (166) shows two boxes, 'ingerter' and 'ingested', positioned above the words 'nibbled' and 'on' respectively. An arrow points from 'ingerter' to 'Kim', and another arrow points from 'ingested' to 'on the pretzel'.

2.22 🧠 UNANCHORED-MOTION

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

(167) Kim is running^{in-motion}UNANCHORED-MOTION^{transitory-location} along the river


(168) I learned to pilot^{x-causer}UNANCHORED-MOTION^{in-motion} airplanes


(169) Kim is dancing^{in-motion}UNANCHORED-MOTION^{m-accompanion} around the room with Sandy


(170) Kim is an avid unicyclist^{in-motion}UNANCHORED-MOTION^{m-quality}

2.23 WRAPPING-WEARING

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

(171) Kim is wearing  WRAPPING-WEARING a shirt

(172) Kim is wearing  WRAPPING-WEARING glasses

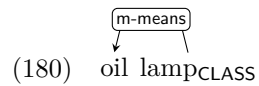
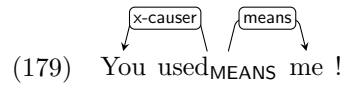
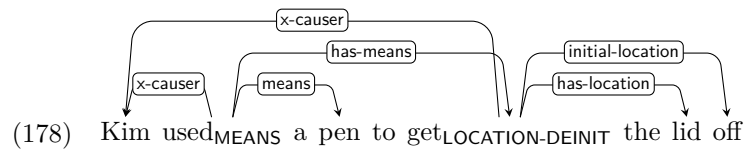
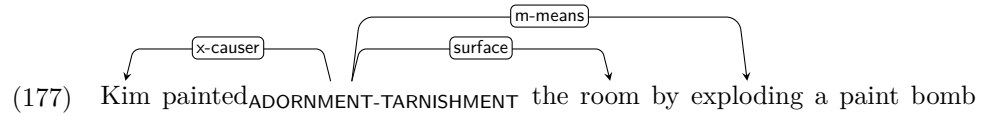
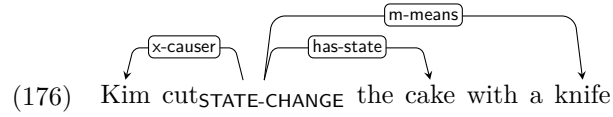
(173) The shroud wraps  WRAPPING-WEARING the scepter

(174) Kim put  WRAPPING-WEARING-INIT on a sweater

(175) Kim took  WRAPPING-WEARING-DEINIT off their glasses

2.24 🛠️ MEANS

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



2.25 MESSAGE

A message about **topic** with content **content** exists in perceived, measured, or 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.

Predicates of expression use **MESSAGE-INIT**:

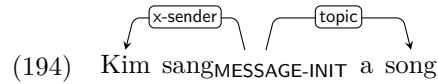
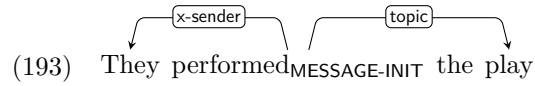
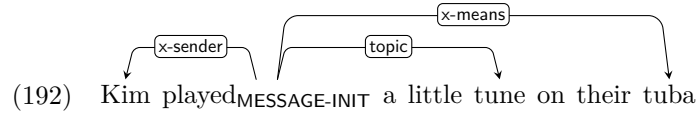
- (181) Kim yelled_{MESSAGE-INIT}
- (182) Kim said_{MESSAGE-INIT} : it 's fine
- (183) Kim said_{MESSAGE-INIT} it was fine
- (184) Kim called_{MESSAGE-INIT} Sandy a liar_{MESSAGE}
- (185) Kim told_{MESSAGE-INIT} Sandy a secret
- (186) Kim talked_{MESSAGE-INIT} about Sandy
- (187) Kim talked_{MESSAGE-INIT} shit_{MESSAGE} about Sandy
- (188) Kim and Sandy conversed_{MESSAGE-INIT}
- (189) Kim conversed_{MESSAGE-INIT} with Sandy

Gesture is a kind of expression, too:

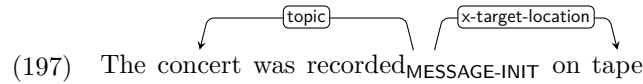
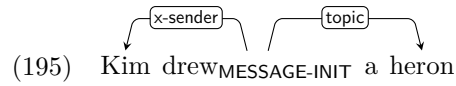
- (190) Kim curtseyed_{MESSAGE-INIT} to the Queen
- (191) Kim shook_{UNANCHORED-MOTION » MESSAGE-INIT} their head no

Performance of a work of art is framed as **MESSAGE** where the work of art is

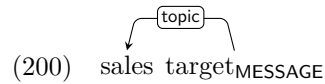
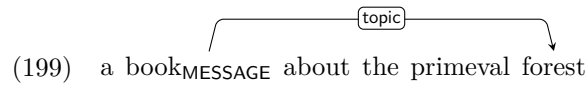
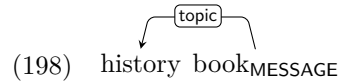
the topic:



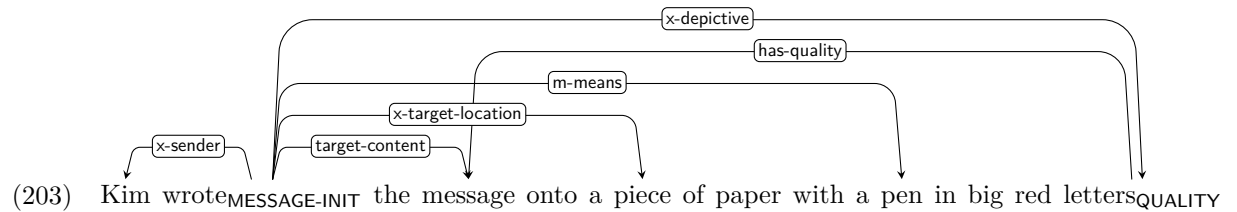
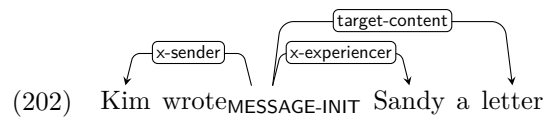
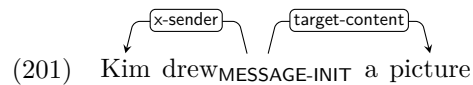
What is depicted gets the **topic** role:

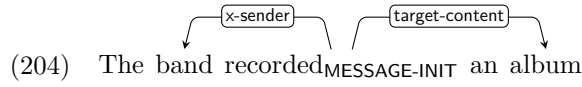


Recordings of information are framed as messages:

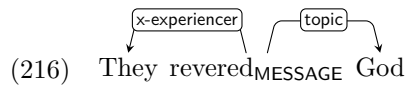
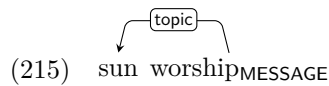
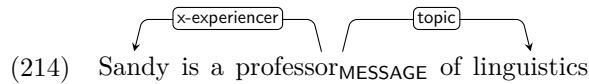
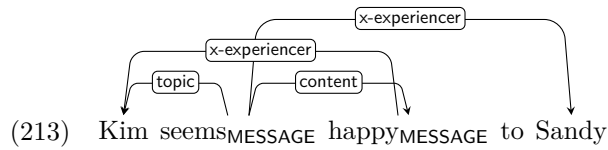
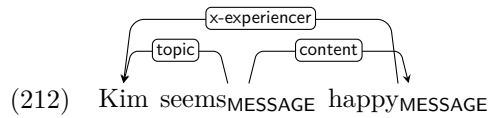
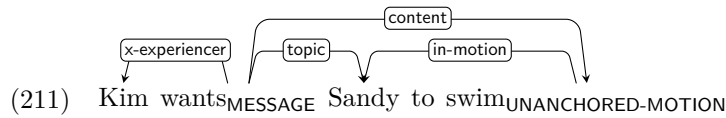
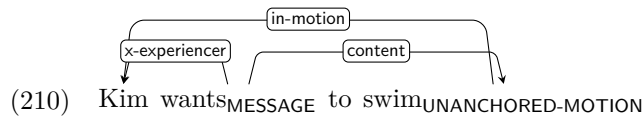
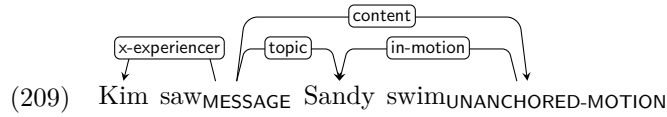
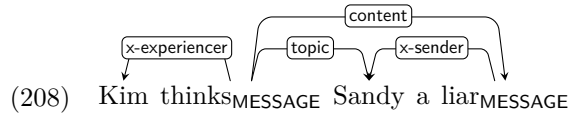
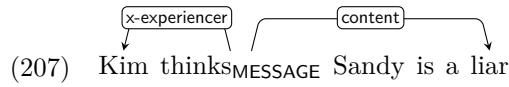
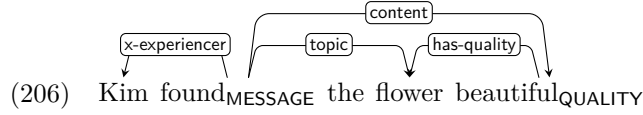
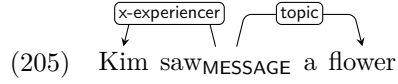


The result of recording something gets the **target-content** role:





Predicates of perception use MESSAGE, including mental perception:



Predicates that denote the initiation of perception (e.g., by acquiring knowledge, or observation, or reasoning), use **MESSAGE-INIT**:

(217) The Thought Police observed_{MESSAGE-INIT} Winston

(218) Kim studies_{MESSAGE-INIT} linguistics

(219) Kim noticed_{MESSAGE-INIT} the bird

(220) Kim taught_{MESSAGE-INIT} Sandy Spanish

(221) Kim measured_{MESSAGE-INIT} the elasticity

(222) The jury found_{MESSAGE-INIT} Kim guilty_{SCENE} of the crime_{ACTIVITY}

Predicates that denote the deinitiation of perception use **MESSAGE-DEINIT**:

(223) Kim forgot_{MESSAGE-DEINIT} everything they knew

(224) Kim forgot_{MESSAGE-DEINIT} about the cake

And finally, perception (here: remembering something) that was meant to happen but didn't is framed as **MESSAGE-PREVENTION**:

(225) Kim forgot_{MESSAGE-PREVENTION} to take the trash out

2.26 ? 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.

- (226) Even Kim_{IDENTIFICATION} did n't know that
- (227) They only rinsed_{ADORNMENT-TARNISHMENT-DEINIT} the dishes
- (228) Passt_{COMPARISON} das eh ?
- (229) Kim probably knows_{MESSAGE} that
- (230) That 's really great_{QUALITY}
- (231) Kim is not here_{LOCATION}

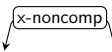
2.27 ✎ NONCOMP

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

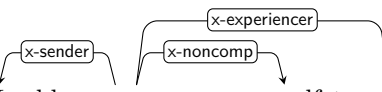
(232) Kim kicked_{DESTRUCTION} the bucket



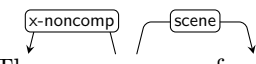
(233) It is raining_{STATE}



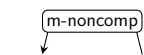
(234) I address_{MESSAGE-INIT} myself to you



(235) There was_{SCENE} a famine



(236) fountain pen_{CLASS}

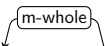


Light verbs, on the other hand, are treated with **SCENE**, see Section 2.33.

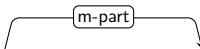
2.28 PART-WHOLE

part is part of whole.

(237) Kim 's leg_{CLASS}




(238) a man_{CLASS} with a mustache



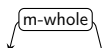
(239) part_{PART-WHOLE} of the year



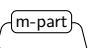
(240) wheat contains_{PART-WHOLE} gluten



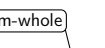
(241) orange seed_{CLASS}



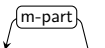
(242) seed orange_{CLASS}



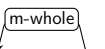
(243) car motor_{CLASS}



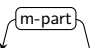
(244) motor car_{CLASS}



(245) cube sugar_{CLASS}

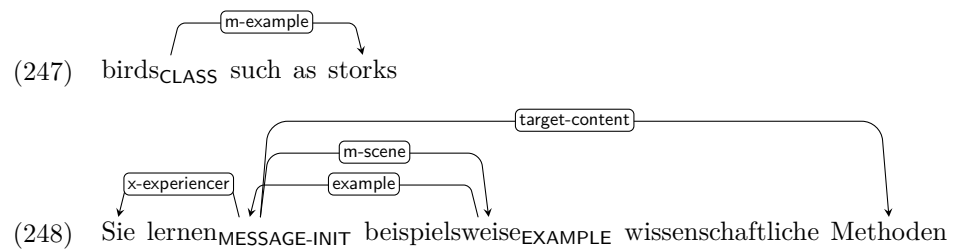


(246) sugar cube_{CLASS}



2.29 💡 EXAMPLE

Special case of PART-WHOLE where example (aka part) is given as an example of exemplified (aka whole).



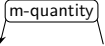
2.30 🐶 POSSESSION


possessor possesses or controls the possessed.

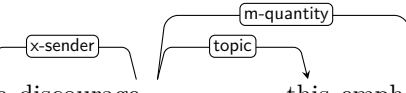
- (249) Kim 's house_{CLASS}
- (250) Kim owns_{POSSESSION} a house
- (251) The house belongs_{POSSESSION} to Kim
- (252) the owner_{POSSESSION} of the house
- (253) Kim has_{POSSESSION} Sandy 's phone
- (254) Kim bought_{POSSESSION-CHANGE} a house from Sandy
- (255) Sandy sold_{POSSESSION-CHANGE} Kim the house
- (256) Kim kept_{POSSESSION-CONTINUATION} the house
- (257) Kim lost_{POSSESSION-DEINIT} the house
- (258) Caesar conquered_{POSSESSION-INIT} Gaul
- (259) Caesar 's conquest_{POSSESSION-INIT} of Gaul
- (260) Kim owes_{POSSESSION-CHANGE-NECESSITY} Sandy money
- (261) family estate_{CLASS}

2.31 QUANTITY

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

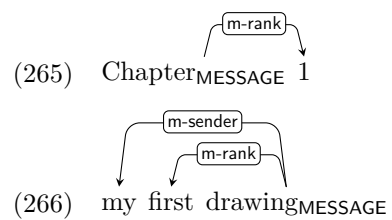
(262)  three burgersCLASS

(263)  three litersQUANTITY of coke

(264)  We discourageMESSAGE-INIT this emphatically

2.32 🏆 RANK

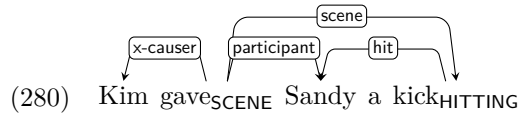
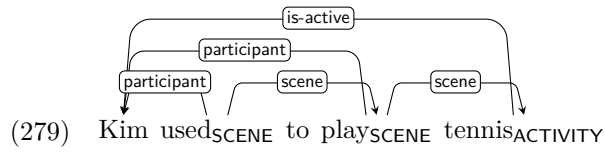
rank indicates the order that has-rank has in some sequence.



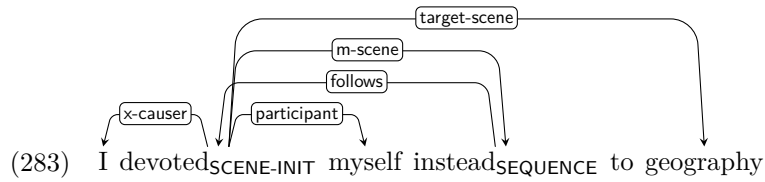
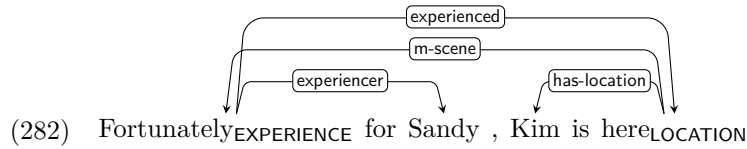
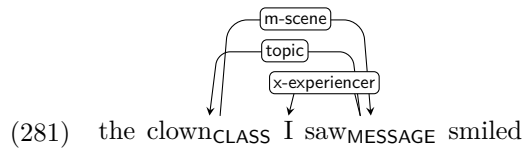
2.33 🧑🏫 SCENE

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.

- (267) The concert_{MESSAGE-INIT} began_{SCENE-INIT}
- (268) The concert_{MESSAGE-INIT} continued_{SCENE-CONTINUATION}
- (269) The concert_{MESSAGE-INIT} finished_{SCENE-DEINIT}
- (270) The shouting_{MESSAGE-INIT} intensified_{SCENE-CONTINUATION}
- (271) The shouting_{MESSAGE-INIT} faded_{SCENE-DEINIT}
- (272) A coupe_{EVENT} was attempted_{SCENE-INIT}
- (273) Kim finished_{SCENE-DEINIT} their work_{ACTIVITY}
- (274) Swift action prevented_{SCENE-PREVENTION} an outbreak_{SCENE-INIT} of measles_{EVENT}
- (275) Kim refrained_{SCENE-PREVENTION} from going_{LOCATION-CHANGE}
- (276) Kim prevented_{SCENE-PREVENTION} Sandy from going_{LOCATION-CHANGE}
- (277) Kim saved_{SCENE-PREVENTION} Sandy from the dragon_{CLASS}
- (278) Kim plays_{SCENE} tennis_{ACTIVITY}



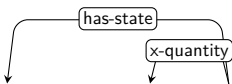
The modifier relation **m-scene** is used when a syntactic dependency points from an argument to a predicate, as, e.g., with relative clauses or sentence adverbs.




2.34 STATE

state indicates a state of **has-state**. Typically used with predicates that do not, in fact, have a **state** role, because the state is already incorporated into the meaning of the predicate.


(284) when I was six years old_{STATE}



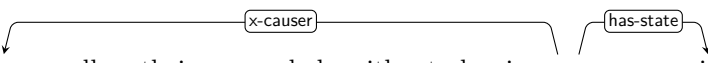
(285) Boa constrictors swallow their prey whole_{STATE}



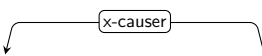
(286) they sleep_{STATE}



(287) they swallow their prey whole without chewing_{STATE-CHANGE} it



(288) the six months that they need for digestion_{STATE-CHANGE}



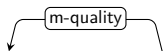
(289) And that hasn't much improved_{STATE-CHANGE} my opinion of them



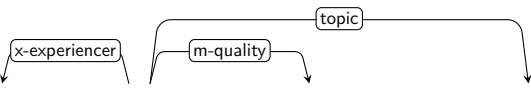
2.35 🍎 QUALITY

Special case of STATE – a quality is a bit more permanent than a state; the has-quality (aka has-state) is not expected to change back and forth between qualitys (aka states) regularly. Also used to describe qualities of events, i.e., manners.

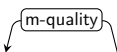
(290) a magnificent pictureMESSAGE



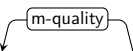
(291) I ponderedMESSAGE-INIT deeply over the adventures of the jungle



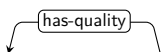
(292) a skilled surgeonCLASS



(293) such knowledgeMESSAGE is valuable



(294) The leaves reddenedQUALITY-INIT

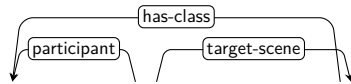


2.36 🌳 CLASS

Special case of QUALITY – a class is even more permanent, in the sense that if the **has-class** (aka **has-state**) takes on a new class (aka **state**), it becomes a new kind of entity.

Most prototypically evoked by common nouns with no arguments.

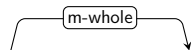
(295) swallowing an animal_{CLASS}



(296) Kim became_{SCENE-INIT} a teacher_{CLASS}

Indefinite pronouns also evoke CLASS.

(297) She saw one_{CLASS}



(298) Nothing_{CLASS} about him suggested a child

(299) Why would anyone_{CLASS} be frightened by a hat?

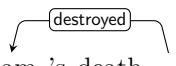
(300) Something_{CLASS} is broken

(301) Where I live everything_{CLASS} is small


2.37 🦴 DESTRUCTION

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

(302) Sam 's death_{DESTRUCTION}




(303) Sam 's destruction_{DESTRUCTION} of the city



When something is broken but not completely destroyed, use STATE.

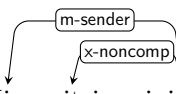
(304) Something was broken_{STATE} in my engine




2.38 📡 SENDING

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


(305) According to Kim , it is rainingSTATE



(306) song birdCLASS



(307) bird songMESSAGE




For more uses, see **MESSAGE** (Section 2.25).

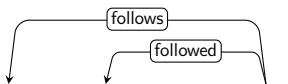
2.39 → SEQUENCE

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


(308) Form followsSEQUENCE function




(309) Cook is Jobs 's successorSEQUENCE



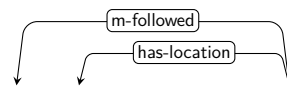
(310) Das fußtSEQUENCE auf einer falschen Vorstellung



(311) Kim deducedSEQUENCE the truth from the clues




(312) Given that I 'm tired , I wo n't be thereLOCATION



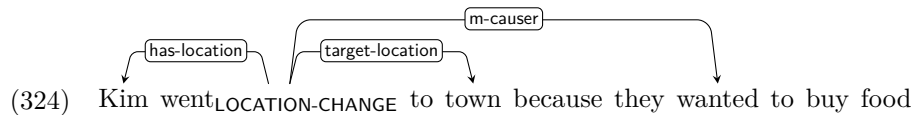
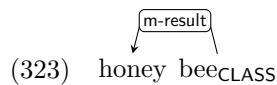
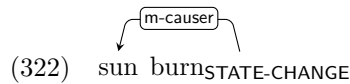
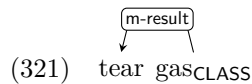
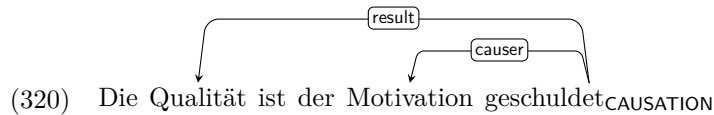
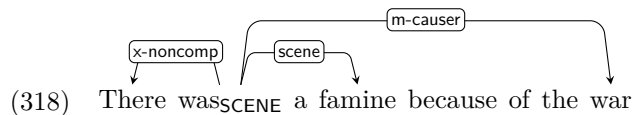
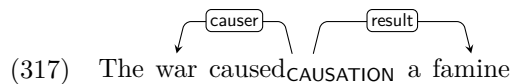
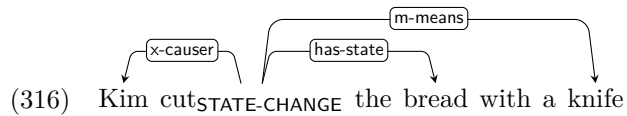
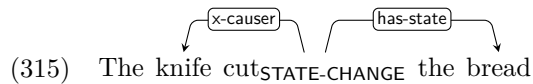
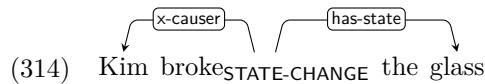
Also used to indicate proportional amounts: for each scoop (followed), it costs 1 euro (follows).

(313) It costs 1 euroQUANTITY per scoop

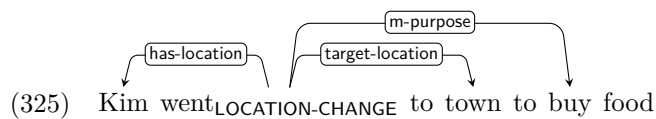


2.40 CAUSATION

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



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:



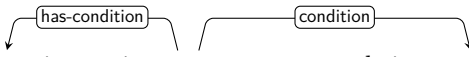
2.41 📜 CONDITION

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


(326) I will join_{SOCIAL-RELATION-INIT} the club if they ask me



(327) The start date is contingent_{CONDITION} on their approval

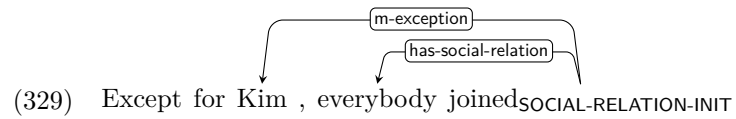


(328) Eine Aussöhung bedingt_{SEQUENCE} eine Entschuldigung



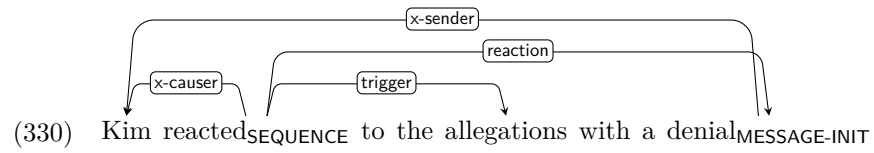
2.42 EXCEPTION

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



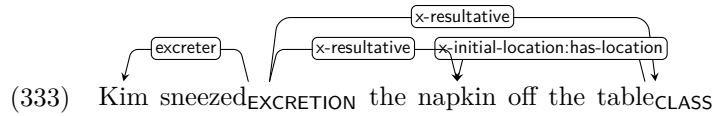
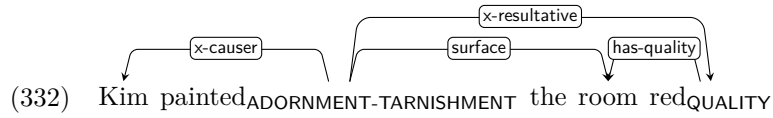
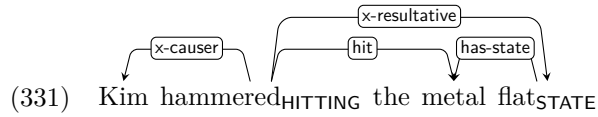
2.43 🌟 REACTION

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



2.44 🤨 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.

2.45 🍷 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.

- (334) Kim 's friends_{SOCIAL-RELATION}
- (335) Kim is my cousin_{SOCIAL-RELATION}
- (336) Kim and Sandy are friends_{SOCIAL-RELATION}
- (337) Kim is friends_{SOCIAL-RELATION} with Sandy
- (338) Kim works_{SOCIAL-RELATION} at Google
- (339) Kim works_{SOCIAL-RELATION} for Sandy
- (340) Kim emcees_{SOCIAL-RELATION}
- (341) Kim is hosting_{SOCIAL-RELATION} the party
- (342) Kim is under house arrest_{SOCIAL-RELATION}
- (343) Kim 's sentences_{SOCIAL-RELATION} was suspended
- (344) Kim married_{SOCIAL-RELATION-INIT} Sandy
- (345) The official married_{SOCIAL-RELATION-INIT} Kim to Sandy
- (346) The official married_{SOCIAL-RELATION-INIT} Kim and Sandy
- (347) Kim divorced_{SOCIAL-RELATION-DEINIT} Sandy

- (348) Kim befriended_{SOCIAL-RELATION-INIT} Sandy
- (349) Kim took_{SOCIAL-RELATION-INIT} the job
- (350) Kim joined_{SOCIAL-RELATION-INIT} Google
- (351) Kim joined_{SOCIAL-RELATION-INIT} a union
- (352) Sandy fired_{SOCIAL-RELATION-DEINIT} Kim from their job
- (353) Kim left_{SOCIAL-RELATION-DEINIT} Google
- (354) Kim assumed_{SOCIAL-RELATION-INIT} office
- (355) The judge sentenced_{SOCIAL-RELATION-INIT} Kim to three days in prison
- (356) Kim was pardoned_{SOCIAL-RELATION-DEINIT}

2.46 TIME

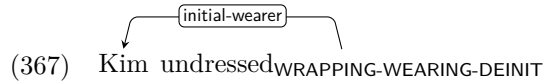
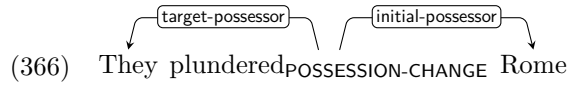
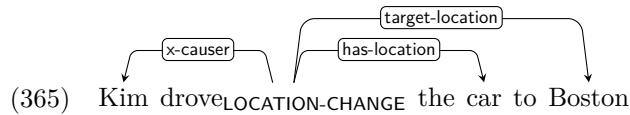
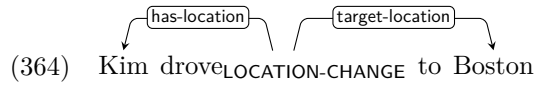
time indicates when, how often, or for how long **has-time** takes place. Also evoked by time expressions without arguments.

- (357) Kim swims_{UNANCHORED-MOTION} on Monday
- (358) Kim sneezed_{EXCRETION} twice
- (359) Kim swam_{UNANCHORED-MOTION} for an hour
- (360) Kim says_{MESSAGE-INIT} hello whenever I meet them
- (361) Once_{TIME} when I was six years old
- (362) summer job_{ACTIVITY}
- (363) golf season_{TIME}

3 Argument Structure and Frame Choice

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.

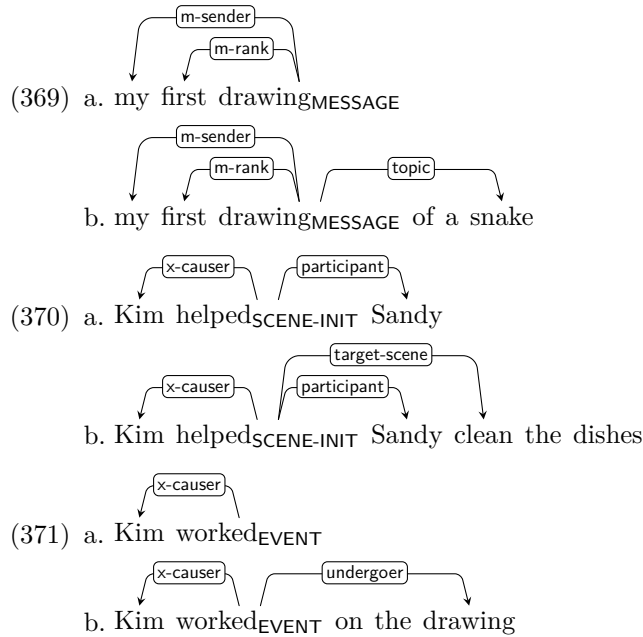


Also, when in doubt, choose the frame so that you can use core roles rather than resorting to non-core roles. For example, in the following sentence, we should use **LOCATION-INIT** rather than **UNANCHORED-MOTION** so that we can use **target-location** and do not have to resort to **x-target-location**.

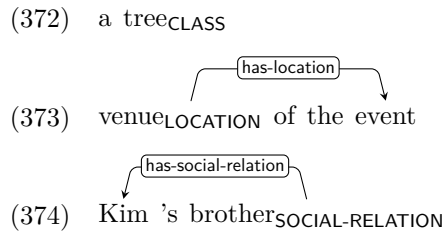


3.2 Arguments Determine Frames

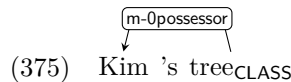
The most important criterion in choosing a frame for a predicate is that there should be suitable roles for the predicate's arguments, even if they are unrealized (implicit) in the annotated instance. For example, while *drawing* denotes a CLASS of things, it can occur with a prepositional argument denoting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



For nouns, you have to decide whether they are nonrelational nouns (CLASS) or relation/event nouns. A useful test is to try and add an argument, i.e., a dependent that is assigned a specific role by the noun. For example:



Note that in *Kim 's tree*, Kim's role is that of **possessor**, but it is not assigned by the noun *tree* but by the possessive construction, so *tree* is still CLASS and we annotate *Kim* as a modifier.



3.3 Shadow and Default Arguments

Arguments that determine a predicate’s superframe include *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 (376), mucus and air in (377), groceries in (378), or sun in (379).

- (376) Kim deboned_{PART-WHOLE-DEINIT} the fish
- (377) Kim sneezed_{EXCRETION}
- (378) Our local supermarket delivers_{LOCATION-INIT}
- (379) at sunrise_{LOCATION-CHANGE » TIME}

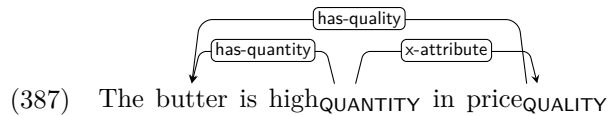
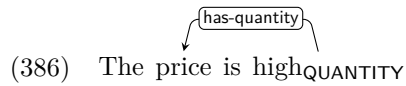
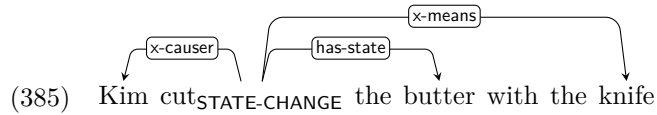
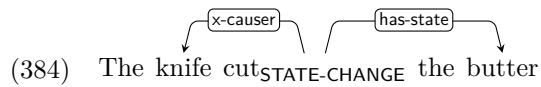
3.4 Predicates that Refer to a Shadow Argument

A special case of shadow argument are those that the predicate itself refers to. For example, the predicate *friend* evokes a **SOCIAL-RELATION** frame, but also refers to the filler of that frame's **social-relation** role. And the predicate *model* evokes a **MESSAGE** frame, but also refers to the filler of that frame's **topic** role, and so on.

- (380) Kim 's friends_{SOCIAL-RELATION}
- (381) the drawing and its model_{MESSAGE}
- (382) ein Großteil_{PART-WHOLE} des digitalen Übergangs
- (383) Obama special assistant_{SOCIAL-RELATION}

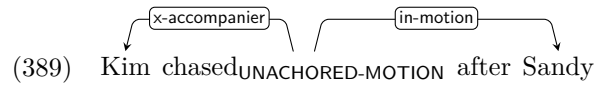
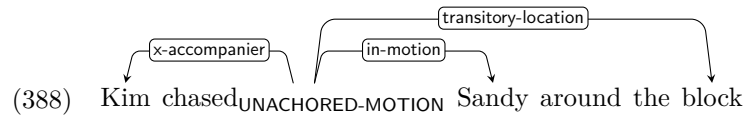
3.5 A Participant whose Syntactic Argument Position is Occupied Should Not Be Treated like an Implicit Argument

For example, consider (384), 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 the subject position goes to that causer, as in (385). Thus, we treat this as a different framing with a different causer, rather than a more explicit version of the same framing. Likewise, (386) and (387) are two different framings, one with *price* as *has-state*, and one with *butter*.



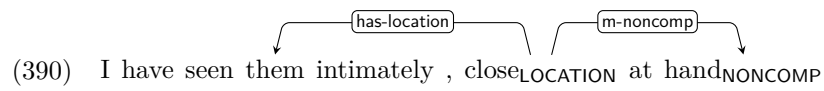
3.6 When in Doubt, Treat Different Syntactic Frames of the Same Predicate Consistently

For example, in (388), *chase* could be framed as caused motion with Kim as x-causer or as accompanied motion with Kim as x-accompanier. Because the latter works for other syntactic frames of *chase* as well, as in (389), prefer it.



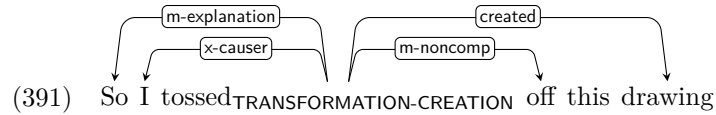
3.7 However, Different Senses of a Predicate Can Have Different Arguments and Therefore Different Superframes

One special case of this is when a predicate occurs as part of an opaque fixed expression, like *hand* in *close at hand*. In this case, *hand* is not annotated with CLASS, but with NONCOMP.



3.8 Look Up Unfamiliar Words in a Dictionary

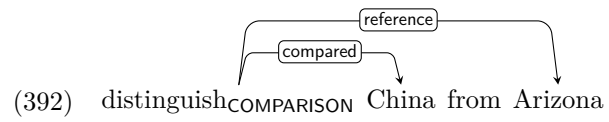
When you come across an unfamiliar predicate, you might not be able to determine what arguments it has, and consequently what the most appropriate superframe is, from this one context alone. Use a dictionary such as Wiktionary in this case. In the following example, I found that *toss off* can mean “to assemble hastily”¹, thus went for the TRANSFORMATION-CREATION frame.



¹https://en.wiktionary.org/w/index.php?title=toss_off&oldid=77814489, retrieved 2024-05-28

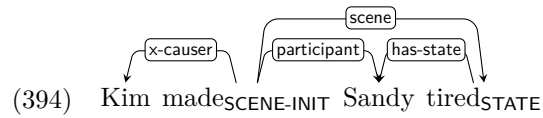
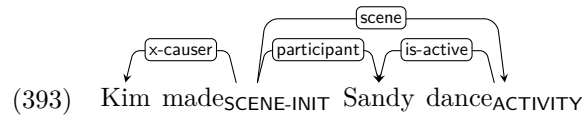
3.9 Symmetric Argument Pairs

Some predicates have a pair of arguments that are semantically symmetric. In such cases, assign the first role to the syntactically less oblique argument.

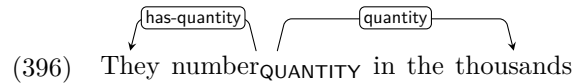
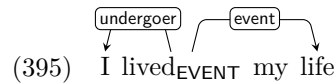


3.10 When to Use SCENE

SCENE should definitely be used if a predicate can add aspectual meaning to predicates of more than one type. For example, English *make* can be used with states and activities, so *make* itself should be neither STATE nor ACTIVITY but SCENE.



On the other hand, if a predicate is restricted to subordinate predicates of a certain type, it can have the same type.



4 Aspect, Mode, and Polarity

4.1 Aspect Annotation is wrt. the Superframe, Not the Predicate



In (397), losing is framed as POSSESSION-DEINIT because a state of possession ends. POSSESSION-INIT would be incorrect because although a losing event begins, the state that the superframe POSSESSION describes ends. In general, aspectual suffixes modify superframes, they do not necessarily indicate the aspectual class of the predicate (here: *lost*).

5 Construction-specific Guidelines

5.1 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:

(398) With that, my critic^{topic}_{MESSAGE} sat down again

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

(399) He is a teacher^{has-class}_{CLASS}

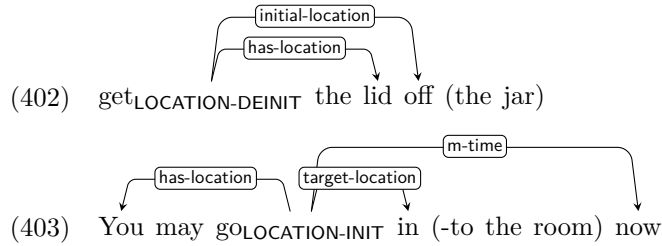
(400) He is our teacher^{social-relation}_{SOCIAL-RELATION}

(401) She is the president^{has-social-relation}_{SOCIAL-RELATION} of our club

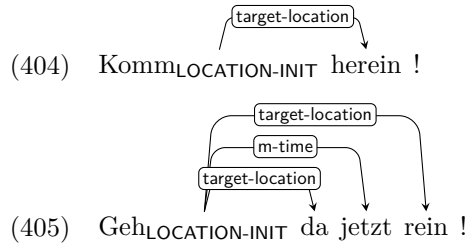
5.2 Particle Verbs

In UD, particle verbs are connected to their particle via the `compound:prt` relation.

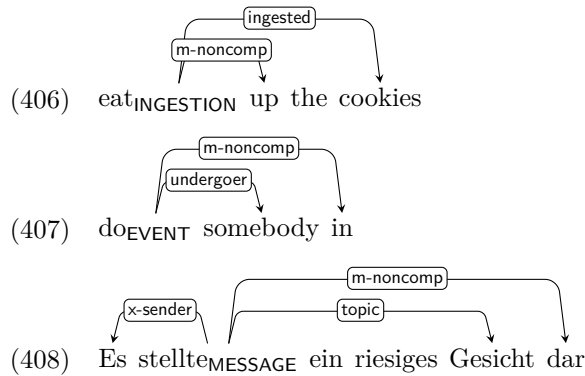
If the particle can be interpreted as an adposition with an elided complement (often the case with spatial meanings), label that relation as the elided complement would be labeled:



Also treat separated and nonseparated adpositional adverbs this way:




Otherwise, use `m-noncomp`:




5.3 Pronouns with Arguments

Definite pronouns are normally annotated with IDENTIFICATION, indefinite ones with CLASS, and they do not have any arguments. However, sometimes they do have arguments, in which case give them their antecedent's superframe:

(409) The picture was that_{MESSAGE} of the boa

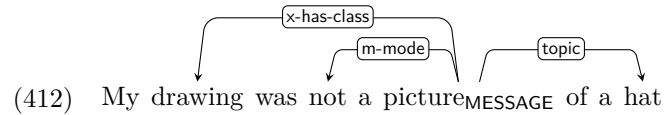
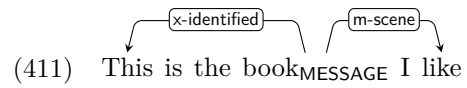


(410) I drew a picture of a dog , one_{MESSAGE} of a cat , and another_{MESSAGE} of a sheep



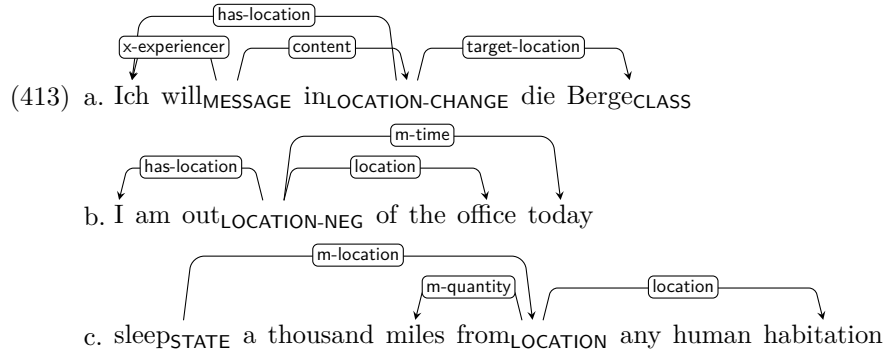
5.4 Nominal Copula Constructions

In nominal copula constructions, the copula subject is interpreted as a non-core argument – typically *x-has-class* if the predicate is indefinite, and *x-identified* if it is definite.

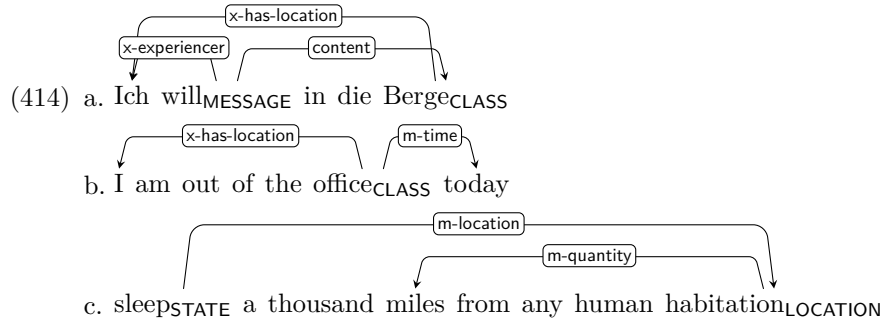


5.5 Predicative Adpositions

At the moment, Superframes follows UD's principle of treating adpositions like case markers, dependent on their objects. This greatly simplifies the annotation of adpositional arguments. On the other hand, it sometimes creates problems. An adposition, added to a noun, can cause a new superframe to be evoked, which it would be simpler to annotate if we could just label the adposition with it. Consider the following examples, where we nonstandardly treat the adpositions *in*, *out of*, and *from* as adpositions. The annotation is quite natural:



But since we don't treat adpositions as predicates, we are forced to choose the following, more opaque and less detailed annotation:



In (414-a) and (414-b), we are forced to give *Berge* and *office* an *x-has-location* role, which is not part of the frame evoked by these words alone; we have to assume it is added by adding the adposition. We also do not have a way to indicate that the additional superframe introduced by the non-core subject is *LOCATION-INIT* and *LOCATION-NEG*, respectively. In (414-c), there is an even more severe problem: the quantity modifier *a thousand miles* semantically modifies the *LOCATION* frame evoked by the adposition *from*, but we have to attach it to *habitation*, which evokes a *different LOCATION* frame which does not have a quantity modifier. Confusion ensues, but for now we have to live with these issues.

6 TODO

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.

Treatment of valency-changing operations:

1. (obligatory) resultative
2. V one's way P N
3. comparative
4. ...

Clearer criteria for distinguishing between LVCs and idioms (or somehow eliminate it).

Make POSSESSION a special case of SOCIAL-RELATION. Rename SOCIAL-RELATION to something like OBLIGATION?

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