














































# Superframes Manual

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SUPERFRAME	initial-arg2	arg1	arg2	transitory-arg2	target-arg2	Sec.
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
COMPARISON		compared	reference			2.6
CONCESSION		assertion	conceded			2.7
EVENT		undergoer	event			2.8
ACTIVITY		is-active	activity			2.9
EXISTENCE	initial-exists	material	exists		target-exists	2.10
REPRODUCTION		original			copy	2.11
TRANSFORMATION-CREATION		material			created	2.12
EXPERIENCE		experiencer	experienced			2.13
EXPLANATION		explained	explanation			2.14
IDENTIFICATION	initial-identifier	identified	identifier		target-identifier	2.15
LOCATION	initial-location	has-location	location	transitory-location	target-location	2.16
ADORNMENT-TARNISHMENT	initial-surface	ornament	surface		target-surface	2.17
EXCRETION	excreter	excreted		transitory-location	target-location	2.18
HITTING		hitting	hit			2.19
INGESTION		ingested		transitory-location	ingerter	2.20
UNANCHORED-MOTION		in-motion		transitory-location		2.21
WRAPPING-WEARING	initial-wearer	wrapper	wearer		target-wearer	2.22
MEANS		purpose	means			2.23
MESSAGE	initial-content	topic	content		target-content	2.24
MODE		has-mode	mode			2.25
NONCOMP		has-noncomp	noncomp			2.26
PART-WHOLE	initial-whole	part	whole		target-whole	2.27
EXAMPLE		example	exemplified			2.28
POSSESSION	initial-possessor	possessed	possessor		target-possessor	2.29
QUANTITY	initial-quantity	has-quantity	quantity		target-quantity	2.30
RANK	initial-rank	has-rank	rank		target-rank	2.31
SCENE	initial-scene	participant	scene	transitory-scene	target-scene	2.32
STATE	initial-state	has-state	state		target-state	2.33
QUALITY	initial-quality	has-quality	quality		target-quality	2.34
CLASS	initial-class	has-class	class		target-class	2.35
DESTRUCTION		destroyed				2.36
SENDING		sent	sender			2.37
SEQUENCE		follows	followed			2.38
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CONDITION		has-condition	condition			2.40
EXCEPTION		has-exception	exception			2.41
REACTION		reaction	trigger			2.42
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SOCIAL-RELATION	initial-social-relation	has-social-relation	social-relation		target-social-relation	2.44
TIME	initial-time	has-time	time		target-time	2.45

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:



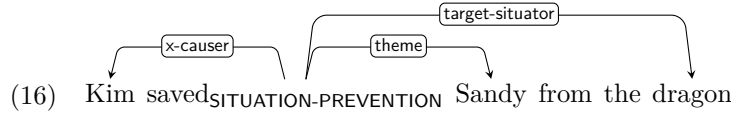
With two core arguments, a verb denotes a relation that holds between them:



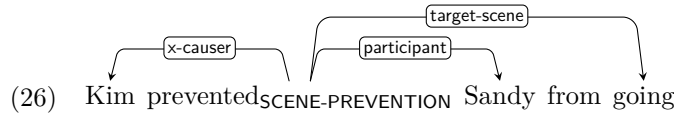
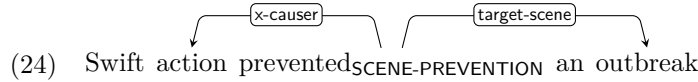
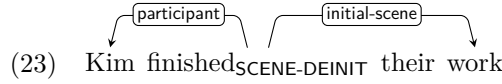
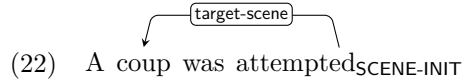
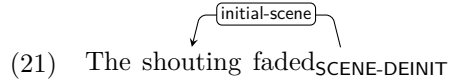
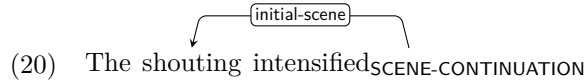
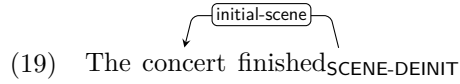
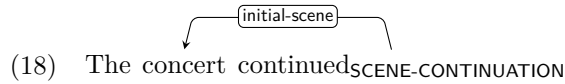
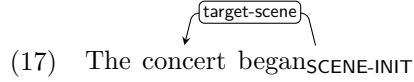
## 1.2 Aspect, Mode, and Polarity

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, arg2 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. Use -INIT or -PREVENTION when there is a target arg2; use -DEINIT or -CONTINUATION when there is an initial arg1; use -CHANGE when there is neither or both.

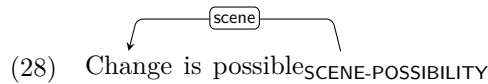
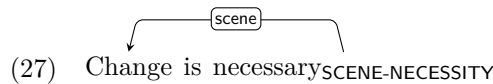
- (6) Kim got<sub>POSSESSION-INIT</sub> the house
- 
- (7) Kim lost<sub>POSSESSION-DEINIT</sub> the house
- 
- (8) Kim sold<sub>POSSESSION-CHANGE</sub> the house to Sandy
- 
- (9) Kim kept<sub>POSSESSION-CONTINUATION</sub> the house
- 
- (10) Kim went<sub>LOCATION-CHANGE</sub> from Chicago via Pittsburgh to Boston
- 
- (11) The vase fell<sub>LOCATION-CHANGE</sub> to the ground
- 
- (12) The vase broke<sub>STATE-CHANGE</sub>
- 
- (13) Kim befriended<sub>SOCIAL-RELATION-INIT</sub> Sandy
- 
- (14) Kim married<sub>SOCIAL-RELATION-INIT</sub> Sandy
- 
- (15) Kim divorced<sub>SOCIAL-RELATION-DEINIT</sub> Sandy
-



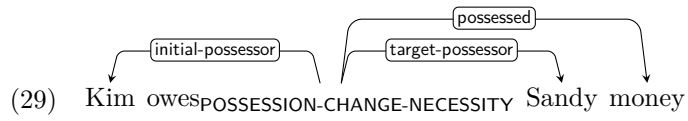
The **SCENE** superframe is often evoked by “light” verbs that contribute an aspectual or modal meaning. Thus, its aspectual variants are especially common.



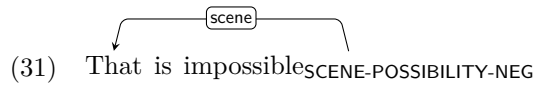
In addition, we use the modal suffixes **-NECESSITY** and **-POSSIBILITY**. They can combine with aspectual suffixes.







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



### 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.



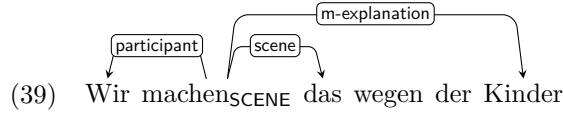
Other non-core arguments are usually rather predicate-specific.



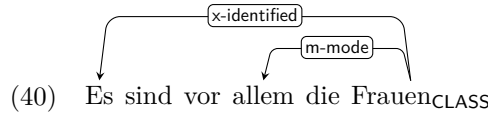
## 1.4 Modifiers

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-**.

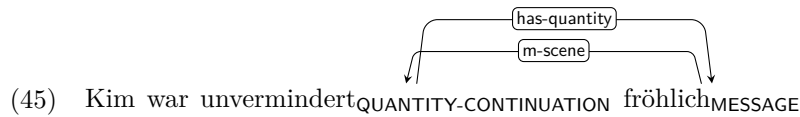
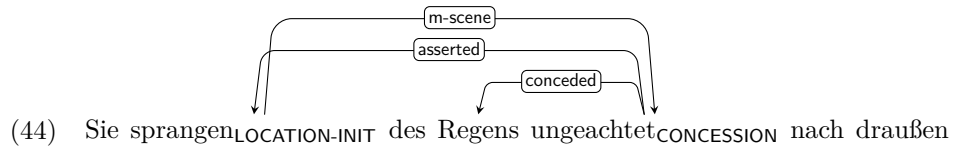
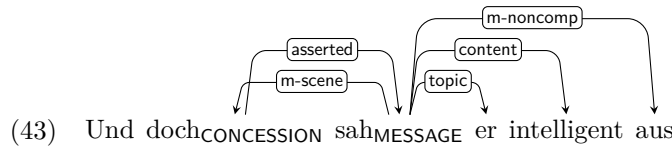
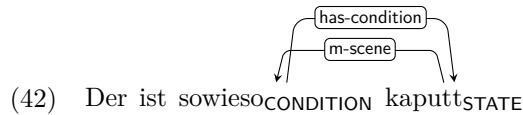
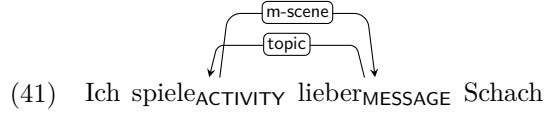
The simplest type of modifier is an adpositional phrase where the adposition encodes a type of relation, such as **LOCATION**:

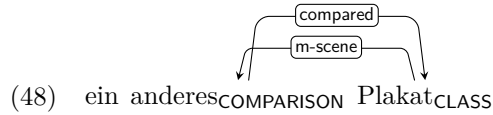
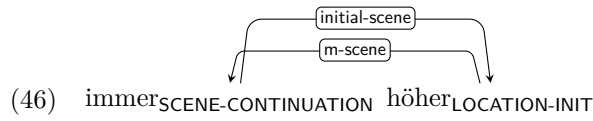


A slightly more subtle case is adpositional phrases that are multiword expressions such as *vor allem*. Here, the relation is not so much indicated by the adposition as by the combination of the adposition and its complement. We still follow the syntactic edge that points to the complement:

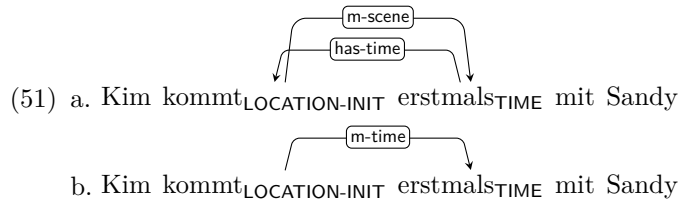
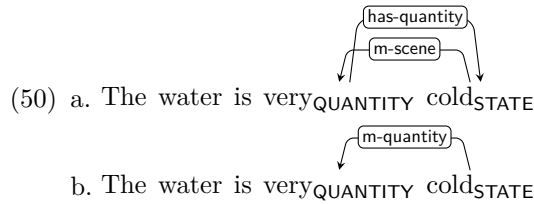
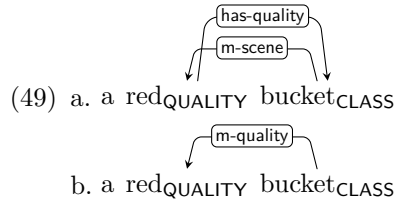


Adjectival and adverbial modification is characterized by the syntactic modifier acting as a predicate, with the syntactic modifiee as an argument. We label such modifier dependencies **m-scene** (cf. Section 2.32) and add a reverse dependency with the corresponding role label.

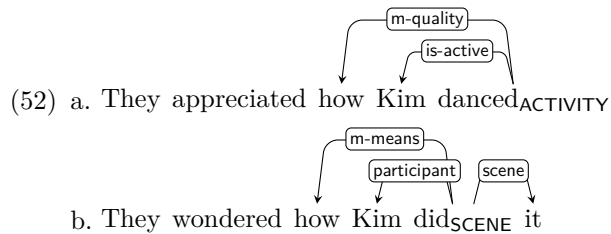


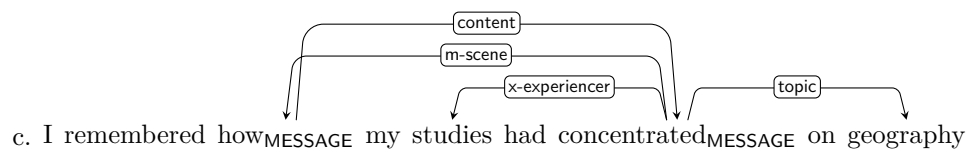


If arg2 has the same name as the frame, this structure can be abbreviated to just use that as a modifier role instead of m-scene and a backlink. For example, the following pairs are equivalent:



Note the polysemy of some connective adverbs:

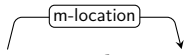




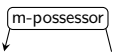
## 1.5 Nonverbal Predicates

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:

(53) a tree<sub>CLASS</sub> in the garden



(54) Kim 's tree<sub>CLASS</sub>



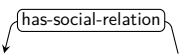
Event nouns evoke event frames and have arguments:

(55) Kim 's breaking<sub>STATE-CHANGE</sub> of the vase



Relational nouns evoke relational frames and have arguments:

(56) Kim 's friend<sub>SOCIAL-RELATION</sub>



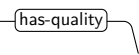
Pronouns and names evoke the **IDENTIFICATION** frame, meaning that they identify their referent as some entity (via naming or anaphora resolution).

(57) Kim<sub>IDENTIFICATION</sub>

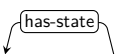
(58) they<sub>IDENTIFICATION</sub>

Predicate adjectives most typically denote states or qualities.

(59) I am despicable<sub>QUALITY</sub>

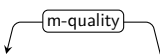


(60) the dog is tired<sub>STATE</sub>




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

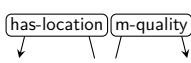
(61) despicable me<sub>IDENTIFICATION</sub>

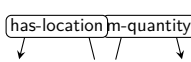


(62) the tired dog<sub>CLASS</sub>



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

(63) 

(64) 

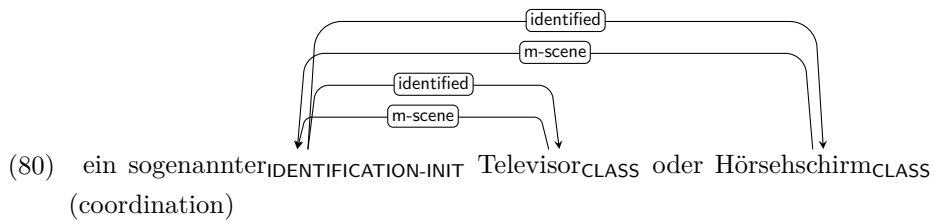
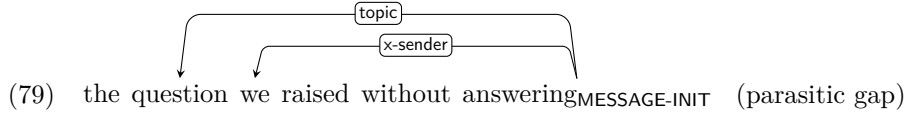
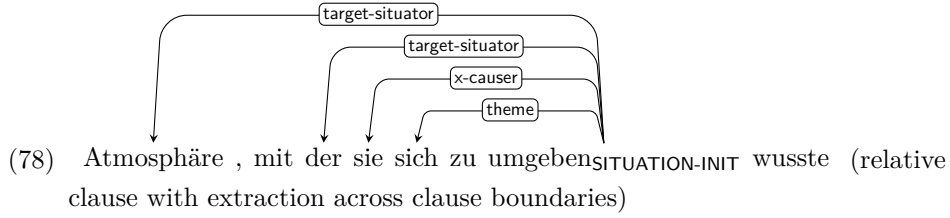
## 1.6 Nonlocal Dependencies

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

- (65) Kim promised Sandy to come<sub>LOCATION-CHANGE</sub> (subject control)
- (66) Kim used a hammer to smash<sub>STATE-CHANGE</sub> the vase (subject control)
- (67) Kim persuaded Sandy to come<sub>LOCATION-CHANGE</sub> (object control)
- (68) Kim left after trashing<sub>STATE-CHANGE</sub> the room (non-obligatory control)
- (69) Kim has come to stay<sub>LOCATION-CONTINUATION</sub> (infinitive of purpose)
- (70) Kim seemed to fly<sub>UNANCHORED-MOTION</sub> (raising)
- (71) Kim entered the room singing<sub>MESSAGE-INIT</sub> (secondary predicate)
- (72) Kim is hard to love<sub>MESSAGE</sub> (*tough* construction)
- (73) the song that I like<sub>MESSAGE</sub> (relative clause)
- (74) the song I like<sub>MESSAGE</sub> (reduced relative clause)
- (75) the song liked<sub>MESSAGE</sub> by Kim (non-finite reduced relative clause)
- (76) students living<sub>LOCATION</sub> on campus (non-finite reduced relative clause)
- (77) eine Gestalt , deren Magerkeit<sub>QUALITY</sub> durch den Trainingsanzug noch betont<sub>MESSAGE</sub> wurde

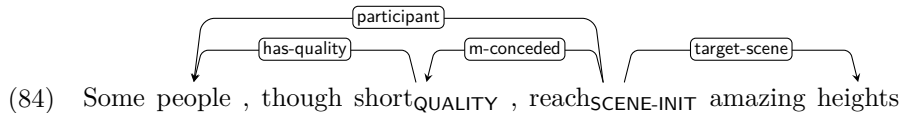
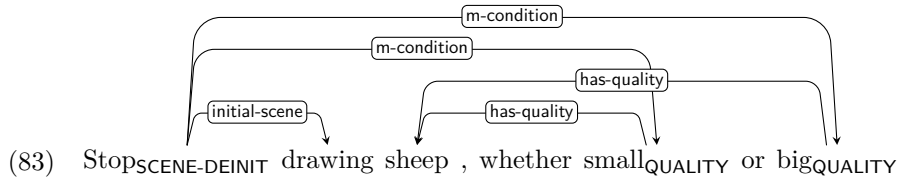
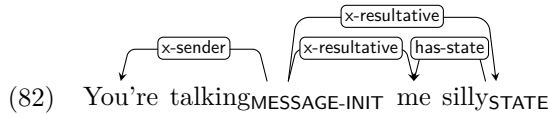
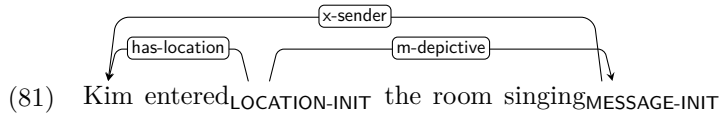


(relative clause with complex extracted element)



### 1.6.1 Secondary Predicates

Secondary predicates are modifiers that syntactically attach to a (primary) predicate, but semantically predicate over one of the primary predicate's arguments, or even something more deeply embedded. The semantic relation between the primary and secondary predicate can be one of simple accompaniment (depictive), result (resultative), or something else.



## 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.

- (85) A hush passed<sub>UNANCHORED-MOTION » SCENE</sub> over the group
- (86) Sie streifte<sub>UNANCHORED-MOTION » SCENE</sub> ihn mit einem Seitenblick<sub>MESSAGE-INIT</sub>
- (87) Kim refused<sub>MESSAGE-INIT » SCENE</sub> to eat
- (88) ein Stück<sub>PART-WHOLE » QUANTITY</sub> Schwarzbrot

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

- (89) primeval forest<sub>CLASS</sub>
- (90) colored pencil<sub>CLASS</sub>
- (91) to lay<sub>LOCATION-CHANGE » MESSAGE-DEINIT</sub> aside my drawings

Similarly, a use of a verb that is ambiguous between transitive (more literal) and inherently reflexive (more figurative) can be annotated in this way:

- (92) Winston drehte<sub>LOCATION-CHANGE</sub> sich um

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

## 2 Superframes Reference

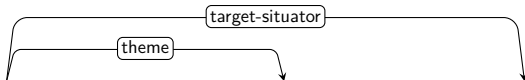
### 2.1 SITUATION

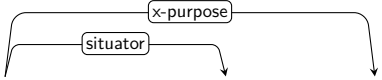
This is the most generic superframe: something (**theme**) is related to something (**situater**). Prototypically, the former is the less central, more mobile element. It is situated in some conceptual space with respect to the situater, or put differently: it undergoes something in connection with the situater. When in doubt, the syntactically less oblique argument is the theme. In more specific superframes, the theme:situater 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 situater 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.

(93) Yes<sub>SITUATION</sub>

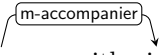

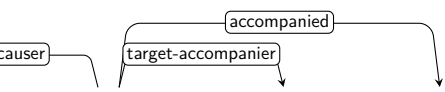

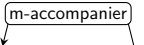
(94) No<sub>SITUATION-NEG</sub>

(95) 

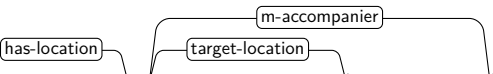
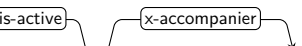
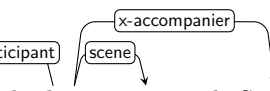
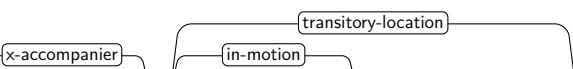
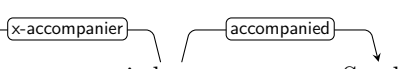
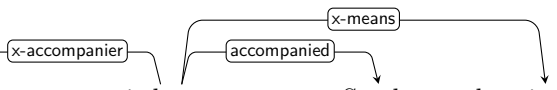
(96) 

## 2.2 ACCOMPANIMENT

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

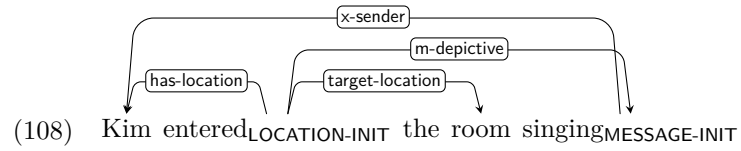
- (97)  veggiesCLASS with rice
- (98)  The veggies comeACCOMPANIMENT with rice
- (99)  Kim addedACCOMPANIMENT-INIT rice to the veggies
- (100)  Rolling thunder accompaniesACCOMPANIMENT the rain
- (101)  boy kingsSOCIAL-RELATION

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

- (102)  Kim cycledLOCATION-CHANGE to Rome with Sandy
- (103)  Kim dancedACTIVITY with Sandy
- (104)  Kim hadSCENE sex with Sandy
- (105)  Kim chasedUNANCHORED-MOTION Sandy around the block
- (106)  Kim accompaniedACCOMPANIMENT Sandy
- (107)  Kim accompaniedACCOMPANIMENT Sandy on the piano

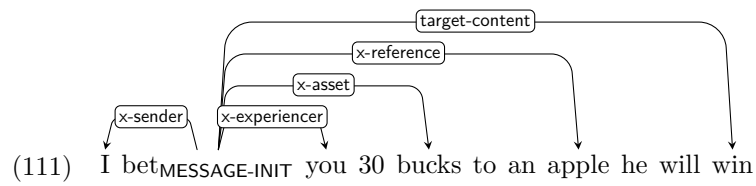
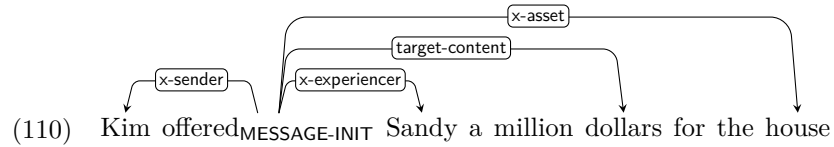
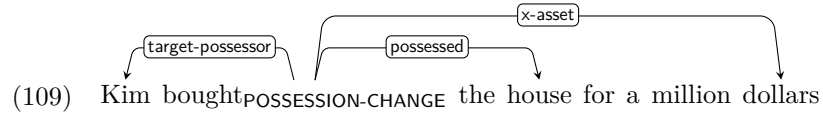
## 2.3 DEPICTIVE

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



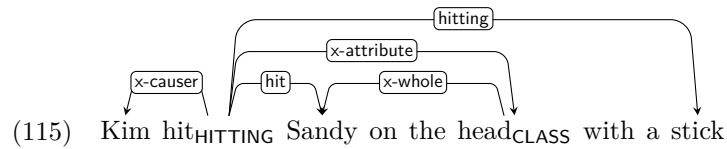
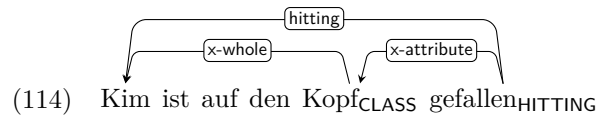
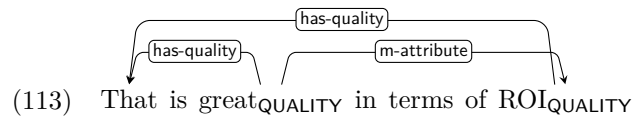
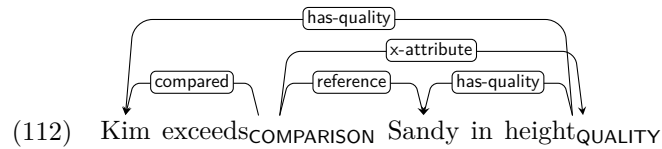
## 2.4 💰 ASSET

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



## 2.5 \* ATTRIBUTE

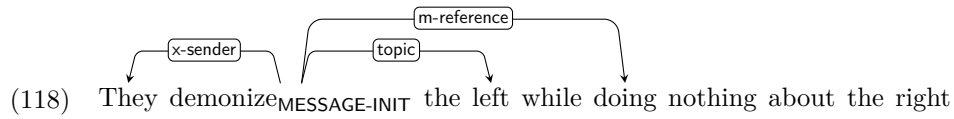
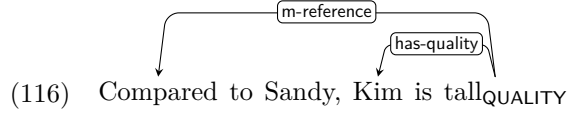
In a scene **has-attribute**, **attribute** is the part or attribute of one or more participants that is most directly involved in the scene. Add a dependency link between the participant and its attribute to indicate which participant(s) have the attribute.



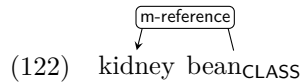
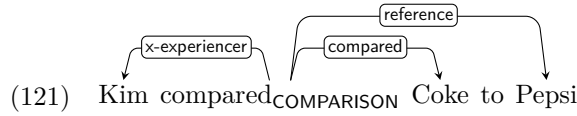
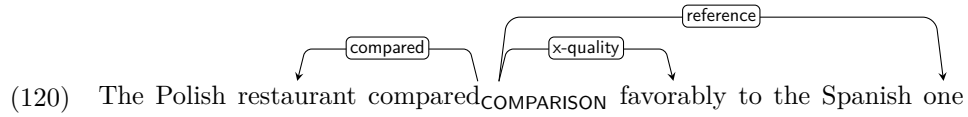
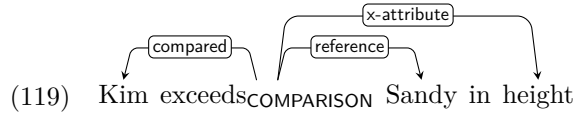
## 2.6 COMPARISON

compared is characterized with respect to reference.

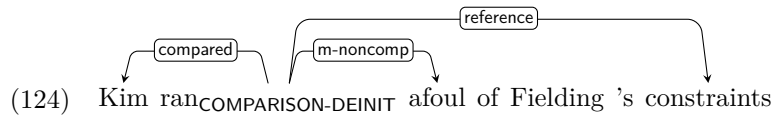
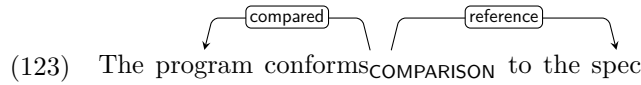
Examples of comparing scenes:



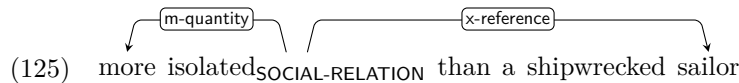
Examples of comparing non-scene entities:



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



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





(126) Kim is taller<sub>QUALITY</sub> than Sandy

(127) die unter allen Provinzen am drittstärksten<sub>QUANTITY</sub> bevölkerte<sub>LOCATION</sub>

Similarly for comparative verb alternation constructions:

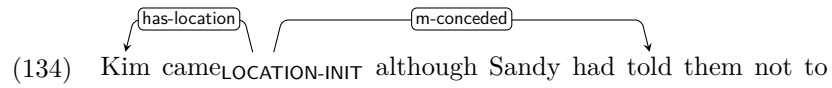
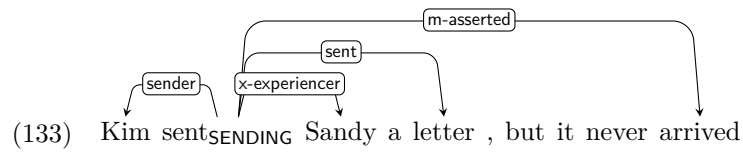
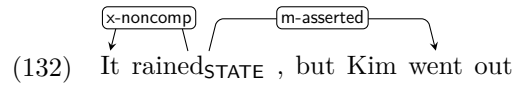
(128) Kim outranks<sub>RANK</sub> Sandy

(129) Kim outshines<sub>MESSAGE</sub> Sandy

(130) Sie versuchten , die Stimme zu übertönen<sub>MESSAGE-INIT</sub>

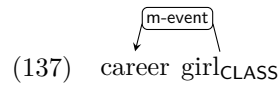
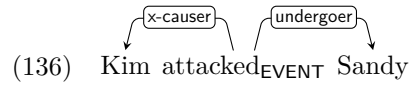
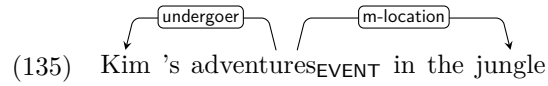
## 2.7 🔥 CONCESSION

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

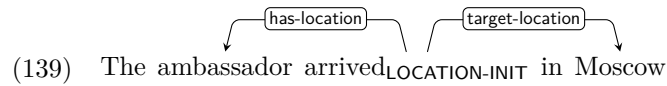
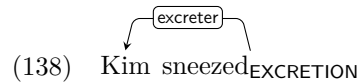


## 2.8 ✂ EVENT

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



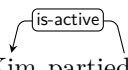
Note that many predicates that denote events in terms of Vendler can be framed differently (as changes):



## 2.9 🦊 ACTIVITY

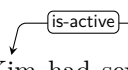
Special case of EVENT where the *undergoer* is active.

(140) Kim partied<sub>ACTIVITY</sub>



A diagram consisting of a rounded rectangular box labeled 'is-active' positioned above the word 'partied'. Two arrows originate from the box: one points down to the subject 'Kim' and the other points down to the verb 'partied'.

(141) Kim had sex<sub>ACTIVITY</sub>



A diagram consisting of a rounded rectangular box labeled 'is-active' positioned above the word 'sex'. Two arrows originate from the box: one points down to the subject 'Kim' and the other points down to the verb 'sex'.

## 2.10 ✨ EXISTENCE

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

(142) I exist<sub>EXISTENCE</sub>

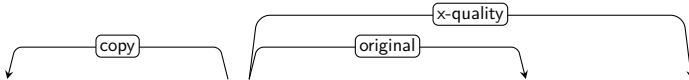
(143) There is<sub>EXISTENCE</sub> a hill

(144) There is<sub>SCENE</sub> 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.

(145) Here is a  copy<sub>REPRODUCTION</sub> of the drawing

(146) This is a translation<sub>REPRODUCTION</sub> 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**.

(147) I succeeded in making<sup>x-causer</sup>TRANSFORMATION-CREATION<sup>created</sup> my first drawing

(148) Kim built<sup>x-causer</sup>TRANSFORMATION-CREATION<sup>created</sup> a castle out of sand<sup>material</sup>

(149) Kim turned<sup>x-causer</sup>TRANSFORMATION-CREATION<sup>created</sup> straw into gold<sup>material</sup>

Use this only for non-scene entities; for scenes, use the **SCENE-CHANGE** frame:

(150) Die Hassovation steigerte<sup>initial-scene</sup>SCENE-CHANGE<sup>target-scene</sup> sich zur Raserei

## 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.

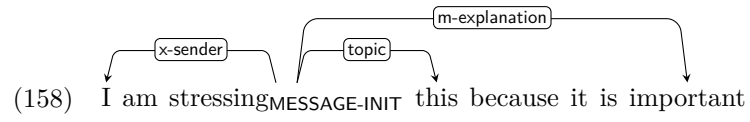
- (151) I saw<sub>MESSAGE</sub> a magnificent picture
- (152) I pondered<sub>MESSAGE-INIT</sub> deeply
- (153) Kim talked<sub>MESSAGE-INIT</sub> to Sandy
- (154) Kim did<sub>SCENE</sub> something nice for Sandy
- (155) Kim cooked a meal only to have<sub>SCENE</sub> Sandy spurn it
- (156) Die Piroggen waren Maria zu dunkel geraten<sub>SCENE-INIT</sub>
- (157) Das hat mir gerade noch gefehlt<sub>EXPERIENCE</sub>

For more uses, see the examples for MESSAGE in Section 2.24.



## 2.14 ! EXPLANATION

explanation explains explained, but is not a cause.



## 2.15 IDENTIFICATION


identifier identifies identified.

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

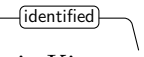
(159) I<sub>IDENTIFICATION</sub> saw a picture

(160) I can distinguish China<sub>IDENTIFICATION</sub> from Arizona

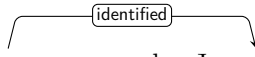
(161) a book called<sub>IDENTIFICATION</sub> True Stories from Nature



(162) This is Kim<sub>IDENTIFICATION</sub>

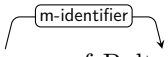


(163) das Abzeichen<sub>IDENTIFICATION</sub> der Jugendliga gegen Sexualität



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

(164) the island<sub>CLASS</sub> of Pultanella




(165) the stallion<sub>CLASS</sub> of Rumour



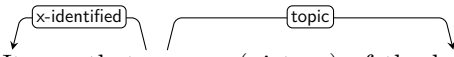
Likewise, *in* has an identifying sense:

(166) In answer , he repeated<sub>MESSAGE-INIT</sub> : Please, draw me a sheep !



Pronouns with core arguments are instead framed the same as the (presumable) antecedent:

(167) It was that<sub>MESSAGE</sub> (picture) of the boa constrictor



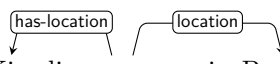
## 2.16 📍 LOCATION

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

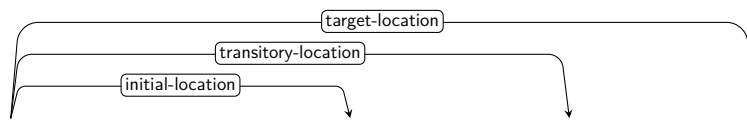
(168) the hat<sub>CLASS</sub> in the box



(169) Kim lives<sub>LOCATION</sub> in Boston



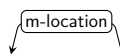
(170) Kim went<sub>LOCATION-CHANGE</sub> from the living room through the door into the kitchen



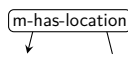
(171) Kim placed<sub>LOCATION-CHANGE</sub> the hat on the table



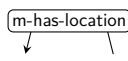
(172) house music<sub>MESSAGE</sub>



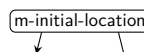
(173) music hall<sub>CLASS</sub>



(174) sugar cane<sub>CLASS</sub>

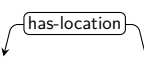


(175) cane sugar<sub>CLASS</sub>



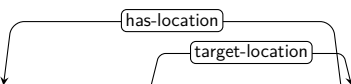
Adverbs of location evoke LOCATION:

(176) Kim ist oben<sub>LOCATION</sub>



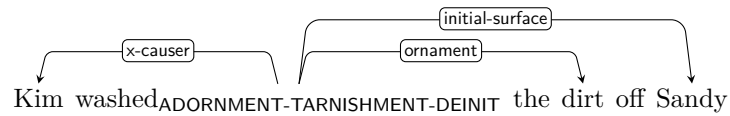
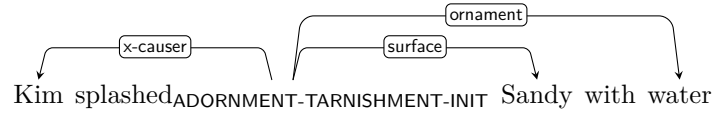
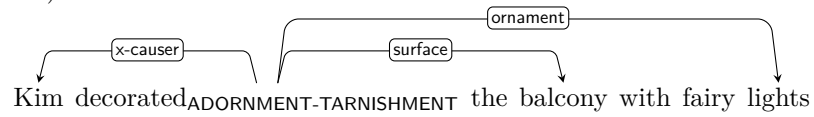
Adverbs of direction

(177) Kim fliegt<sub>LOCATION-INIT</sub> hoch<sub>LOCATION-INIT</sub>



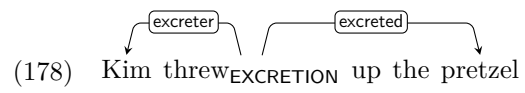
## 2.17 ADORNMENT-TARNISHMENT

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



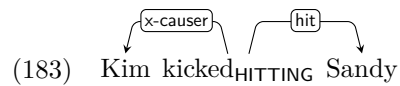
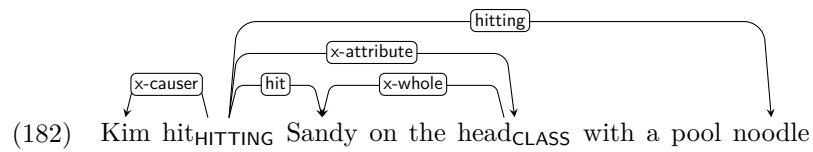
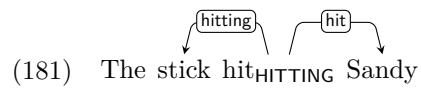
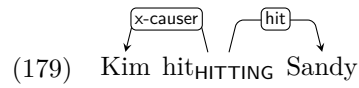
## 2.18 EXCRETION

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



## 2.19 🖋️ HITTING


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



## 2.20 🍴 INGESTION

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

(184) Kim ate<sub>INGESTION</sub> an apple



The diagram for (184) shows two boxes, 'ingerter' and 'ingested', connected by a horizontal line. An arrow points from 'ingerter' down to 'Kim', and another arrow points from 'ingested' down to 'an apple'.

(185) Kim nibbled<sub>INGESTION</sub> on the pretzel



The diagram for (185) shows two boxes, 'ingerter' and 'ingested', connected by a horizontal line. An arrow points from 'ingerter' down to 'Kim', and another arrow points from 'ingested' down to 'on the pretzel'.

## 2.21 🧠 UNANCHORED-MOTION

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

(186) Kim is running<sup>in-motion</sup>UNANCHORED-MOTION<sup>transitory-location</sup> along the river

(187) I learned to pilot<sup>x-causer</sup>UNANCHORED-MOTION<sup>in-motion</sup> airplanes


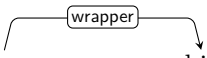
(188) Kim is dancing<sup>in-motion</sup>UNANCHORED-MOTION<sup>m-accompanion</sup> around the room with Sandy

(189) Kim is an avid unicyclist<sup>in-motion</sup>UNANCHORED-MOTION<sup>m-quality</sup>


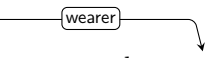


## 2.22 🧥 WRAPPING-WEARING

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

(190) Kim is wearing  WRAPPING-WEARING  a shirt

(191) Kim is wearing  WRAPPING-WEARING  glasses

(192) The shroud wraps  WRAPPING-WEARING  the scepter

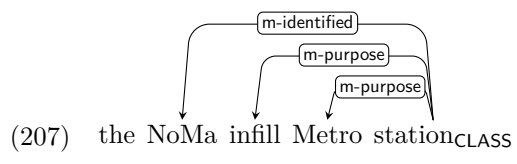
(193) Kim put  WRAPPING-WEARING-INIT  on a sweater

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

## 2.23 🛠️ MEANS

means is an intermediary causer of or is destined to serve a purpose.

- (195) Kim cut<sub>STATE-CHANGE</sub> the cake with a knife
- (196) Kim painted<sub>ADORNMENT-TARNISHMENT</sub> the room by exploding a paint bomb
- (197) Kim used<sub>MEANS</sub> a pen to get<sub>LOCATION-DEINIT</sub> the lid off
- (198) You used<sub>MEANS</sub> me !
- (199) oil lamp<sub>CLASS</sub>
- (200) die Nische war für ein Bücherregal bestimmt<sub>MEANS</sub>
- (201) Kim went<sub>LOCATION-CHANGE</sub> to town to buy<sub>POSSESSION-CHANGE</sub> food
- (202) drinking<sub>INGESTION</sub> water<sub>CLASS</sub>
- (203) lamp oil<sub>CLASS</sub>
- (204) train station<sub>CLASS</sub>
- (205) buffer state<sub>STATE</sub>
- (206) animal doctor<sub>CLASS</sub>



## 2.24 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**:

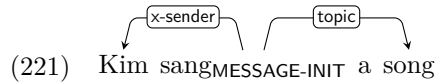
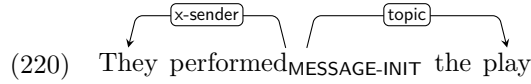
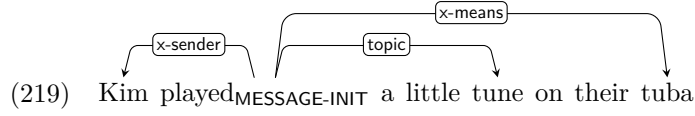
- (208) Kim yelled<sub>MESSAGE-INIT</sub>
- (209) Kim said<sub>MESSAGE-INIT</sub> : it 's fine
- (210) Kim said<sub>MESSAGE-INIT</sub> it was fine
- (211) Kim called<sub>MESSAGE-INIT</sub> Sandy a liar<sub>MESSAGE</sub>
- (212) Kim told<sub>MESSAGE-INIT</sub> Sandy a secret
- (213) Kim talked<sub>MESSAGE-INIT</sub> about Sandy
- (214) Kim talked<sub>MESSAGE-INIT</sub> shit<sub>MESSAGE</sub> about Sandy
- (215) Kim and Sandy conversed<sub>MESSAGE-INIT</sub>
- (216) Kim conversed<sub>MESSAGE-INIT</sub> with Sandy

Gesture is a kind of expression, too:

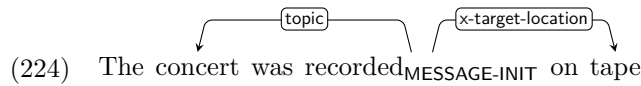
- (217) Kim curtseyed<sub>MESSAGE-INIT</sub> to the Queen
- (218) Kim shook<sub>UNANCHORED-MOTION » MESSAGE-INIT</sub> their head no

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

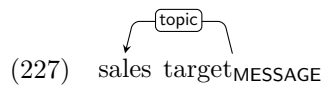
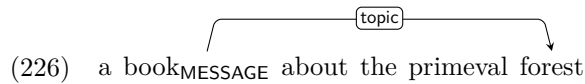
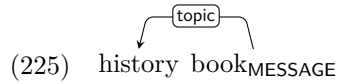
the topic:



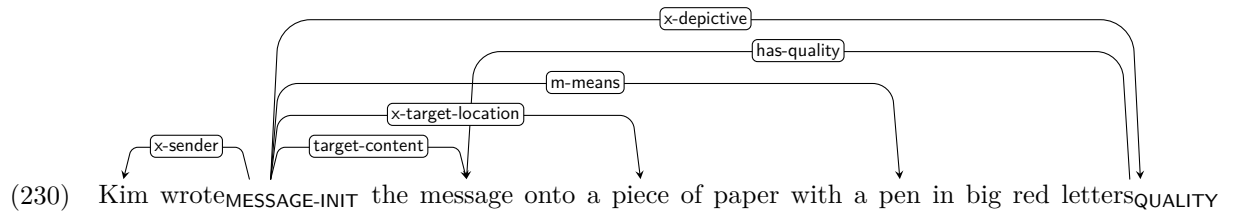
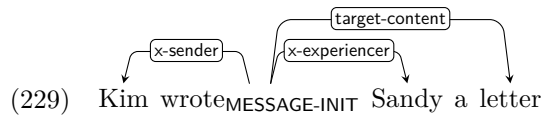
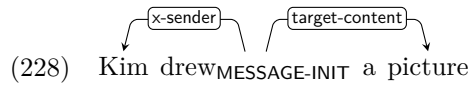
What is depicted gets the **topic** role:

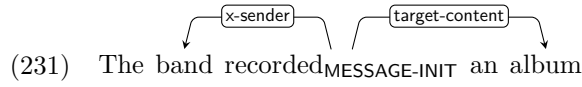


Recordings of information are framed as messages:

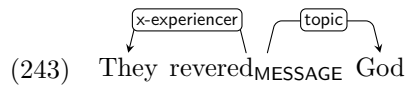
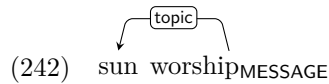
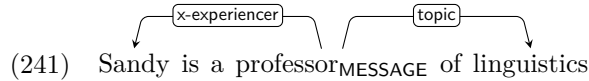
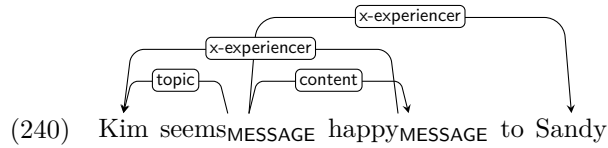
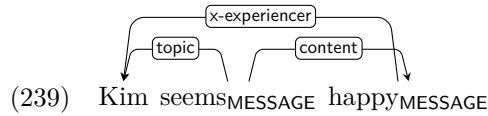
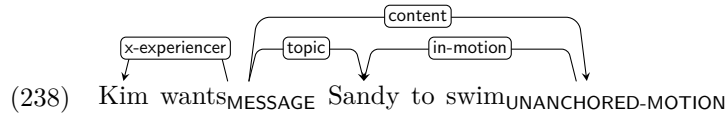
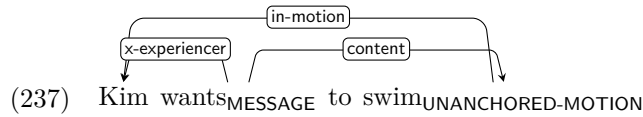
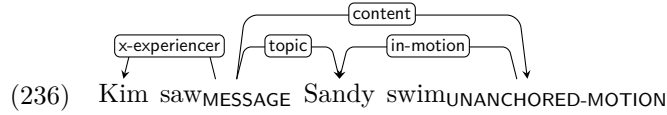
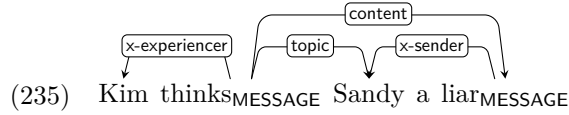
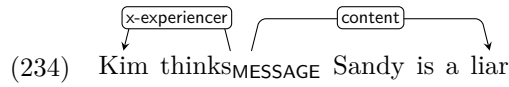
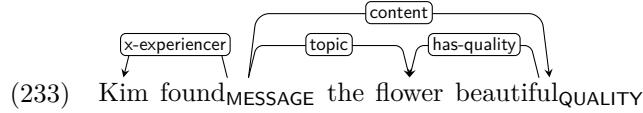
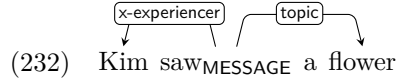


The result of recording something gets the **target-content** role:





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**:

- (244) The Thought Police observed<sub>MESSAGE-INIT</sub> Winston
- (245) Kim studies<sub>MESSAGE-INIT</sub> linguistics
- (246) Kim noticed<sub>MESSAGE-INIT</sub> the bird
- (247) Kim taught<sub>MESSAGE-INIT</sub> Sandy Spanish
- (248) Kim measured<sub>MESSAGE-INIT</sub> the elasticity
- (249) The jury found<sub>MESSAGE-INIT</sub> Kim guilty<sub>SCENE</sub> of the crime<sub>ACTIVITY</sub>

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

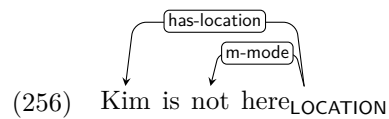
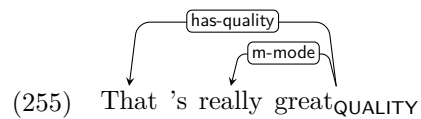
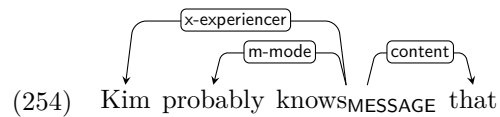
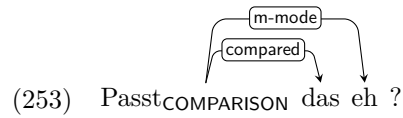
- (250) Kim forgot<sub>MESSAGE-DEINIT</sub> everything they knew
- (251) Kim forgot<sub>MESSAGE-DEINIT</sub> about the cake

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

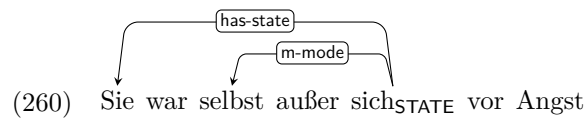
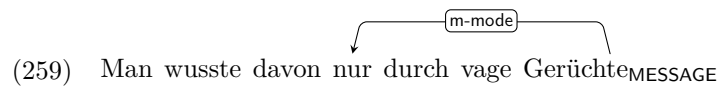
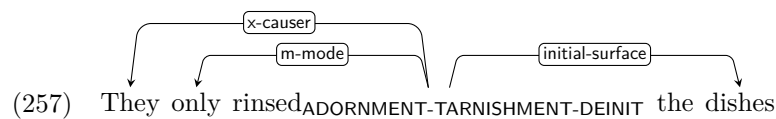
- (252) Kim forgot<sub>MESSAGE-PREVENTION</sub> to take the trash out

## 2.25 ? 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.



MODE is also used for focus adverbs:



For connective adverbs, see Section 1.4.



## 2.26 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*, names, or other fixed expressions. (Light verbs, on the other hand, are treated with **SCENE**, see Section 2.32.)

- (261) Kim kicked<sub>DESTRUCTION</sub> the bucket
- (262) It is raining<sub>STATE</sub>
- (263) There was<sub>SCENE</sub> a famine
- (264) Motion Picture Association<sub>CLASS</sub> of America
- (265) fountain pen<sub>CLASS</sub>

The superframe to assign to such dependents is **NONCOMP**, unless an argument of the whole predicate syntactically attaches to it. In that case, label it the same as the top predicate:

- (266) Kim kicked<sub>DESTRUCTION</sub> the bucket<sub>NONCOMP</sub>
- (267) Kim kicked<sub>EVENT</sub> Sandy 's as<sub>EVENT</sub>

Bound pronouns that are part of multiword expressions should get the same role as their antecedent:

- (268) I address<sub>MESSAGE-INIT</sub> myself to you
- (269) I jumped<sub>STATE-CHANGE</sub> to my feet<sub>STATE-CHANGE</sub>
- (270) I had<sub>ACCOMPANIMENT</sub> with me neither a mechanic nor any passengers

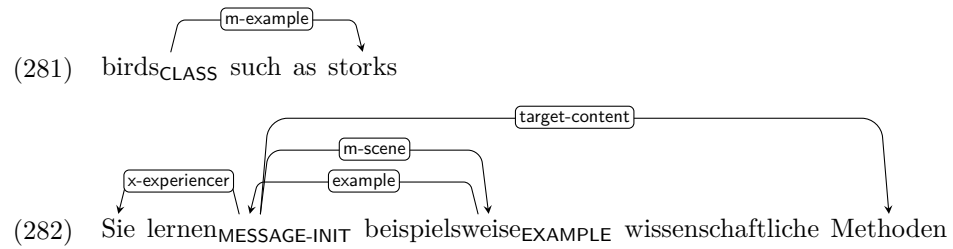
## 2.27 PART-WHOLE

part is part of whole.

- (271) Kim 's legPART-WHOLE
- (272) a manCLASS with a mustache
- (273) partPART-WHOLE of the year
- (274) wheat containsPART-WHOLE gluten
- (275) orange seedCLASS
- (276) seed orangeCLASS
- (277) car motorCLASS
- (278) motor carCLASS
- (279) cube sugarCLASS
- (280) sugar cubeCLASS

## 2.28 💡 EXAMPLE

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



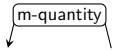
## 2.29 🐶 POSSESSION


possessor possesses or controls the possessed.

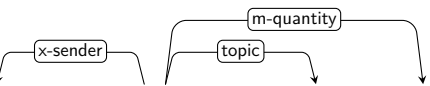
- (283) Kim 's house<sub>CLASS</sub>
- (284) Kim owns<sub>POSSESSION</sub> a house
- (285) The house belongs<sub>POSSESSION</sub> to Kim
- (286) the owner<sub>POSSESSION</sub> of the house
- (287) Kim has<sub>POSSESSION</sub> Sandy 's phone
- (288) Kim bought<sub>POSSESSION-CHANGE</sub> a house from Sandy
- (289) Sandy sold<sub>POSSESSION-CHANGE</sub> Kim the house
- (290) Kim kept<sub>POSSESSION-CONTINUATION</sub> the house
- (291) Kim lost<sub>POSSESSION-DEINIT</sub> the house
- (292) Caesar conquered<sub>POSSESSION-INIT</sub> Gaul
- (293) Caesar 's conquest<sub>POSSESSION-INIT</sub> of Gaul
- (294) Kim owes<sub>POSSESSION-CHANGE-NECESSITY</sub> Sandy money
- (295) family estate<sub>CLASS</sub>

## 2.30 QUANTITY

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

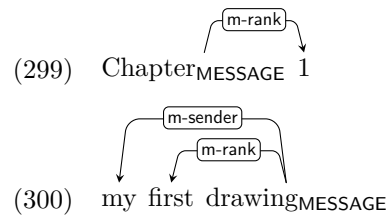
(296)  three burgersCLASS

(297)  three litersQUANTITY of coke

(298)  We discourageMESSAGE-INIT this emphatically

## 2.31 🏆 RANK

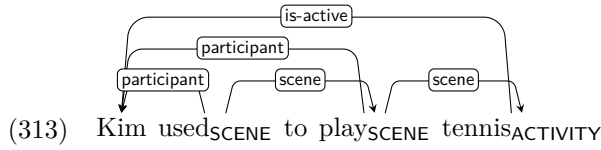
rank indicates the order that has-rank has in some sequence.



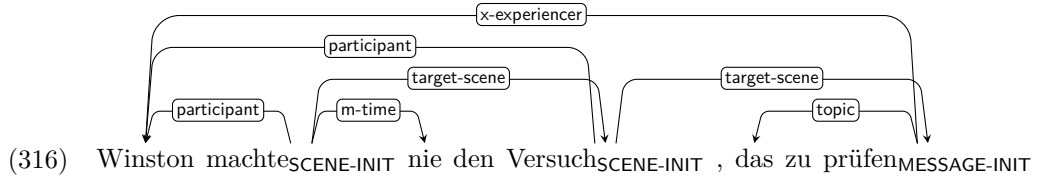
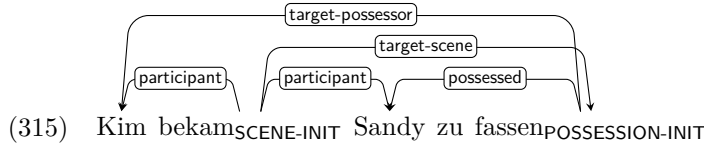
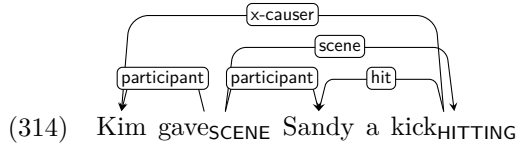
## 2.32 🧑🏫 SCENE

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.

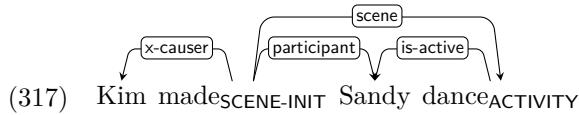
- (301) The concert<sub>MESSAGE-INIT</sub> began<sub>SCENE-INIT</sub>
- (302) The concert<sub>MESSAGE-INIT</sub> continued<sub>SCENE-CONTINUATION</sub>
- (303) The concert<sub>MESSAGE-INIT</sub> finished<sub>SCENE-DEINIT</sub>
- (304) The shouting<sub>MESSAGE-INIT</sub> intensified<sub>SCENE-CONTINUATION</sub>
- (305) The shouting<sub>MESSAGE-INIT</sub> faded<sub>SCENE-DEINIT</sub>
- (306) A coupe<sub>EVENT</sub> was attempted<sub>SCENE-INIT</sub>
- (307) Kim finished<sub>SCENE-DEINIT</sub> their work<sub>ACTIVITY</sub>
- (308) Swift action prevented<sub>SCENE-PREVENTION</sub> an outbreak<sub>SCENE-INIT</sub> of measles<sub>EVENT</sub>
- (309) Kim refrained<sub>SCENE-PREVENTION</sub> from going<sub>LOCATION-CHANGE</sub>
- (310) Kim prevented<sub>SCENE-PREVENTION</sub> Sandy from going<sub>LOCATION-CHANGE</sub>
- (311) Kim saved<sub>SCENE-PREVENTION</sub> Sandy from the dragon<sub>CLASS</sub>
- (312) Kim plays<sub>SCENE</sub> tennis<sub>ACTIVITY</sub>



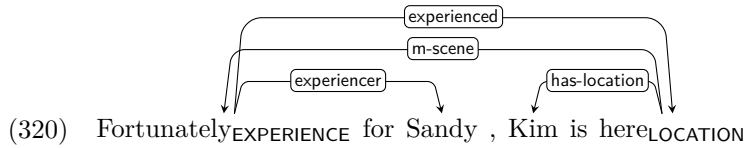
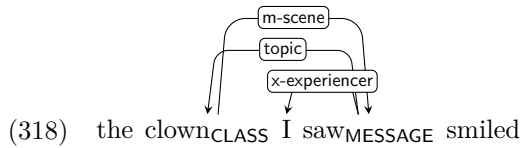
Note that every dependent of the predicate that is necessarily a participant in the embedded **scene** should be labeled **participant**, even when they participate in different roles:



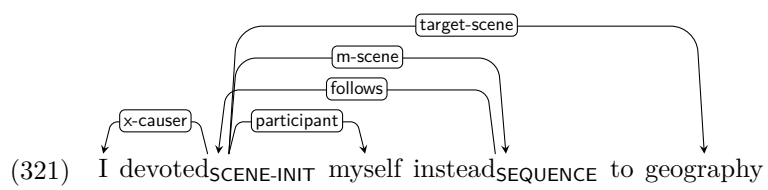
On the other hand, **SCENE** predicates may have arguments that are not members of the embedded **scene**, such as **x-causer**:



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

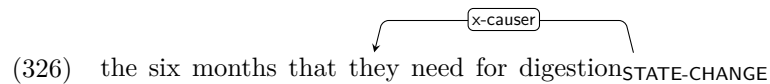
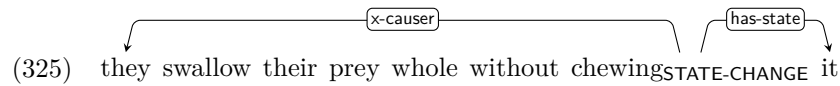
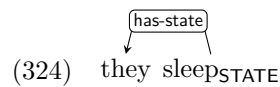
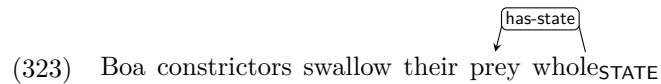
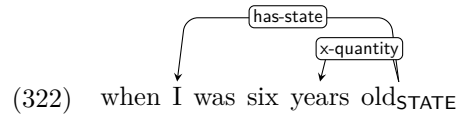






### 2.33 STATE

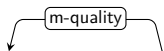
**state** indicates a state of **has-state**. Typically used with predicates that do not, in fact, have a **state** role, because the state is already incorporated into the meaning of the predicate.



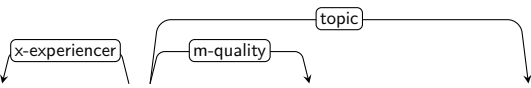
## 2.34 🍎 QUALITY

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.

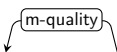
(328) a magnificent pictureMESSAGE



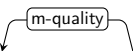
(329) I ponderedMESSAGE-INIT deeply over the adventures of the jungle



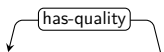
(330) a skilled surgeonCLASS



(331) such knowledgeMESSAGE is valuable



(332) The leaves reddenedQUALITY-INIT

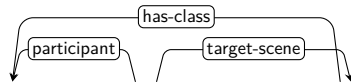


## 2.35 🌳 CLASS

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.

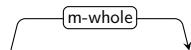
(333) swallowing an animal<sub>CLASS</sub>



(334) Kim became<sub>SCENE-INIT</sub> a teacher<sub>CLASS</sub>

Indefinite pronouns also evoke CLASS.

(335) She saw one<sub>CLASS</sub>



(336) Nothing<sub>CLASS</sub> about him suggested a child

(337) Why would anyone<sub>CLASS</sub> be frightened by a hat?

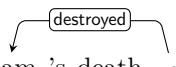
(338) Something<sub>CLASS</sub> is broken

(339) Where I live everything<sub>CLASS</sub> is small


## 2.36 🦴 DESTRUCTION

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

(340) Sam 's death<sub>DESTRUCTION</sub>




(341) Sam 's destruction<sub>DESTRUCTION</sub> of the city



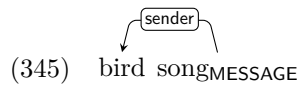
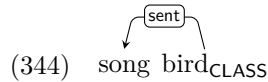
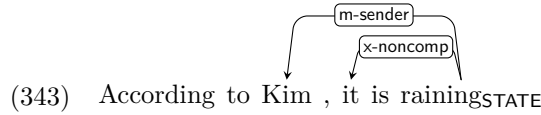
When something is broken but not completely destroyed, use STATE.

(342) Something was broken<sub>STATE</sub> in my engine

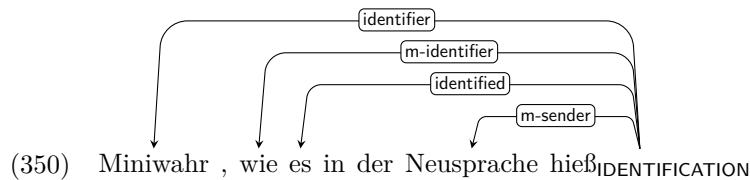
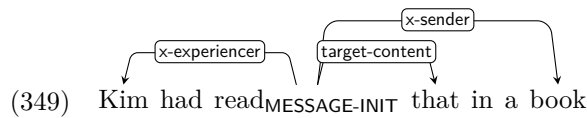
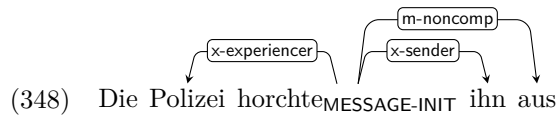
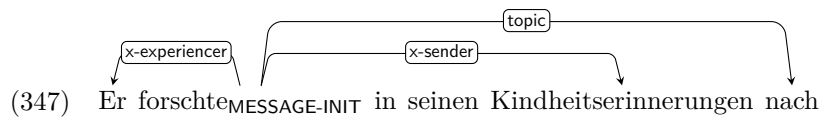
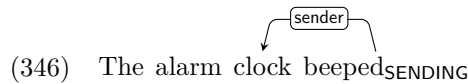


## 2.37 SENDING

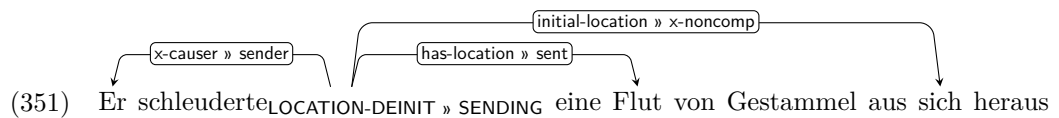
sender originates a message, sent, that can be experienced.



Senders need not be animate or active:



Use SENDING rather than MESSAGE for predicates that cannot take a topic argument:




For more uses, see MESSAGE (Section 2.24).

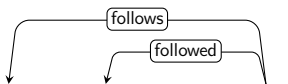
## 2.38 → SEQUENCE

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


(352) Form followsSEQUENCE function




(353) Cook is Jobs 's successorSEQUENCE



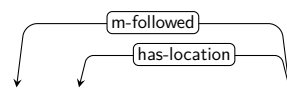
(354) Das fußtSEQUENCE auf einer falschen Vorstellung



(355) Kim deducedSEQUENCE the truth from the clues



(356) 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).

(357) It costs 1 euroQUANTITY per scoop



## 2.39 CAUSATION

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

- (358) Kim broke<sub>STATE-CHANGE</sub> the glass
- (359) The knife cut<sub>STATE-CHANGE</sub> the bread
- (360) Kim cut<sub>STATE-CHANGE</sub> the bread with a knife
- (361) The war caused<sub>CAUSATION</sub> a famine
- (362) There was<sub>SCENE</sub> a famine because of the war
- (363) Der Wasserdruck stieg<sub>QUANTITY-CHANGE</sub> , wodurch der Brunnen überfloss
- (364) Die Qualität ist der Motivation geschuldet<sub>CAUSATION</sub>
- (365) tear gas<sub>CLASS</sub>
- (366) sun burn<sub>STATE-CHANGE</sub>
- (367) honey bee<sub>CLASS</sub>
- (368) Kim went<sub>LOCATION-CHANGE</sub> 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:

- (369) Kim went<sub>LOCATION-CHANGE</sub> to town to buy food



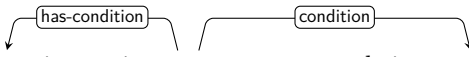
## 2.40 📜 CONDITION

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

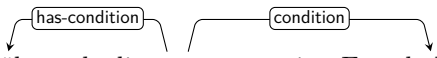
(370) I will join<sub>SOCIAL-RELATION-INIT</sub> the club if they ask me



(371) The start date is contingent<sub>CONDITION</sub> on their approval

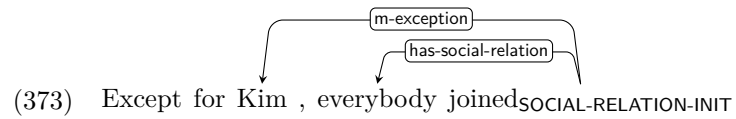


(372) Eine Aussöhung bedingt<sub>SEQUENCE</sub> eine Entschuldigung



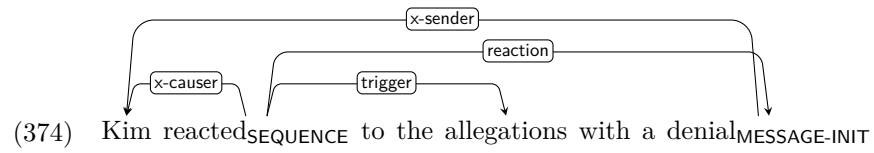
## 2.41 EXCEPTION

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



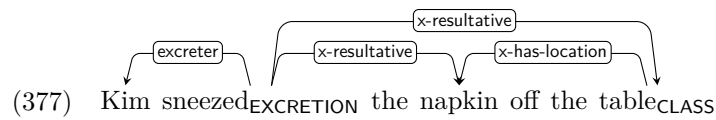
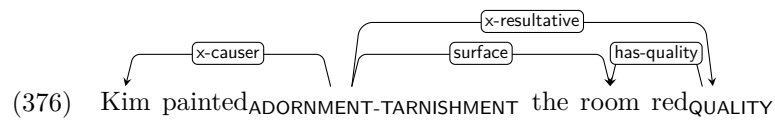
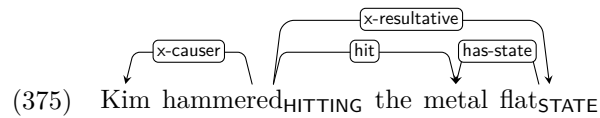
## 2.42 🌟 REACTION

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



## 2.43 🤨 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**.



## 2.44 🍷 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.

- (378) Kim 's friends<sub>SOCIAL-RELATION</sub>
- (379) Kim is my cousin<sub>SOCIAL-RELATION</sub>
- (380) Kim and Sandy are friends<sub>SOCIAL-RELATION</sub>
- (381) Kim is friends<sub>SOCIAL-RELATION</sub> with Sandy
- (382) Kim works<sub>SOCIAL-RELATION</sub> at Google
- (383) Kim works<sub>SOCIAL-RELATION</sub> for Sandy
- (384) Kim emcees<sub>SOCIAL-RELATION</sub>
- (385) Kim is hosting<sub>SOCIAL-RELATION</sub> the party
- (386) Kim is under house arrest<sub>SOCIAL-RELATION</sub>
- (387) Kim 's sentences<sub>SOCIAL-RELATION</sub> was suspended
- (388) Kim married<sub>SOCIAL-RELATION-INIT</sub> Sandy
- (389) The official married<sub>SOCIAL-RELATION-INIT</sub> Kim to Sandy
- (390) The official married<sub>SOCIAL-RELATION-INIT</sub> Kim and Sandy
- (391) Kim divorced<sub>SOCIAL-RELATION-DEINIT</sub> Sandy

- (392) Kim befriended<sub>SOCIAL-RELATION-INIT</sub> Sandy
- (393) Kim took<sub>SOCIAL-RELATION-INIT</sub> the job
- (394) Kim joined<sub>SOCIAL-RELATION-INIT</sub> Google
- (395) Kim joined<sub>SOCIAL-RELATION-INIT</sub> a union
- (396) Sandy fired<sub>SOCIAL-RELATION-DEINIT</sub> Kim from their job
- (397) Kim left<sub>SOCIAL-RELATION-DEINIT</sub> Google
- (398) Kim assumed<sub>SOCIAL-RELATION-INIT</sub> office
- (399) The judge sentenced<sub>SOCIAL-RELATION-INIT</sub> Kim to three days in prison
- (400) Kim was pardoned<sub>SOCIAL-RELATION-DEINIT</sub>

## 2.45 TIME

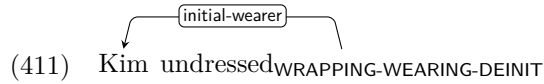
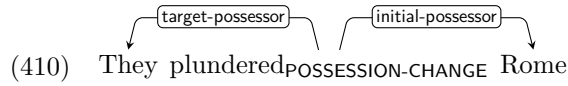
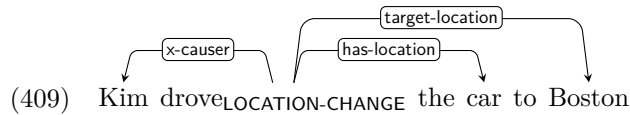
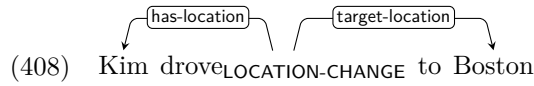
time indicates when, how often, or for how long **has-time** takes place. Also evoked by time expressions without arguments.

- (401) Kim swims<sub>UNANCHORED-MOTION</sub> on Monday
- (402) Kim sneezed<sub>EXCRETION</sub> twice
- (403) Kim swam<sub>UNANCHORED-MOTION</sub> for an hour
- (404) Kim says<sub>MESSAGE-INIT</sub> hello whenever I meet them
- (405) Once<sub>TIME</sub> when I was six years old
- (406) summer job<sub>ACTIVITY</sub>
- (407) golf season<sub>TIME</sub>

### 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.



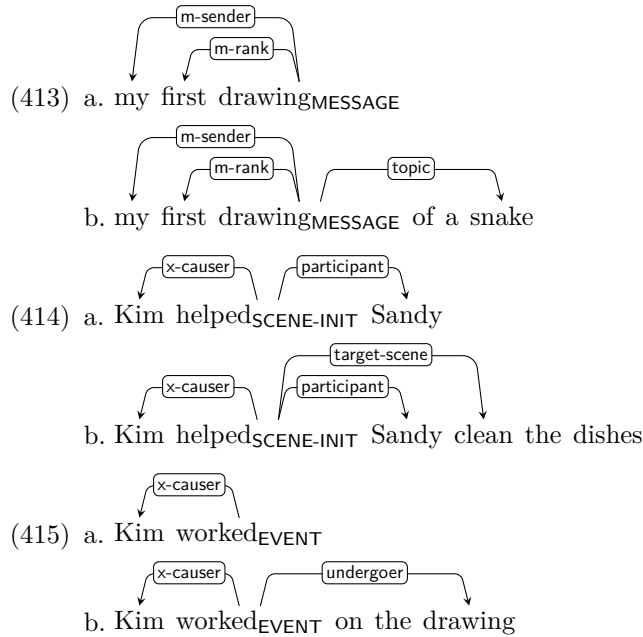
Also, when in doubt, choose the frame so that you can use core roles rather than resorting to non-core roles. For example, in the following sentence, we should use **LOCATION-INIT** rather than **UNANCHORED-MOTION** so that we can use **target-location** and do not have to resort to **x-target-location**.



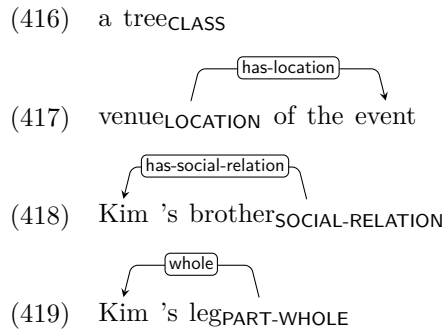


### 3.2 Arguments Determine Frames

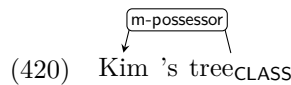
The most important criterion in choosing a frame for a predicate is that there should be suitable roles for the predicate's arguments, even if they are unrealized (implicit) in the annotated instance. For example, while *drawing* denotes a CLASS of things, it can occur with a prepositional argument denoting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



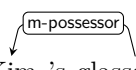
For nouns, you have to decide whether they are nonrelational nouns (CLASS) or relation/event nouns. A useful test is to try and add an argument, i.e., a dependent that is assigned a specific role by the noun. For example:



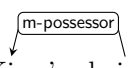
Note that in *Kim 's tree*, Kim's role is that of **possessor**, but it is not assigned by the noun *tree* but by the possessive construction, so *tree* is still CLASS and we annotate *Kim* as a modifier.



(421) Kim 's glasses<sub>CLASS</sub>



(422) Kim 's chair<sub>CLASS</sub>



### 3.3 Shadow and Default Arguments

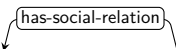
Arguments that determine a predicate’s superframe include *shadow arguments* and *default arguments* (Pustejovsky, 1995; Di Fabio et al., 2019), i.e., arguments that do not appear in the syntactic argument structure because they are incorporated into the predicate or logically implied, like the bones in (423), mucus and air in (424), groceries in (425), or sun in (426).

- (423) Kim deboned<sub>PART-WHOLE-DEINIT</sub> the fish
- (424) Kim sneezed<sub>EXCRETION</sub>
- (425) Our local supermarket delivers<sub>LOCATION-INIT</sub>
- (426) at sunrise<sub>LOCATION-CHANGE » TIME</sub>


### 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.

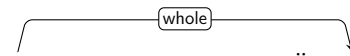
(427) Kim 's friends<sub>SOCIAL-RELATION</sub>



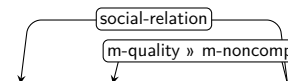
(428) the drawing and its model<sub>MESSAGE</sub>



(429) ein Großteil<sub>PART-WHOLE</sub> des digitalen Übergangs

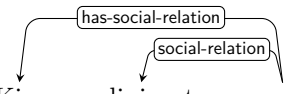
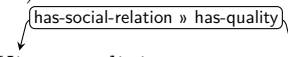


(430) Obama special assistant<sub>SOCIAL-RELATION</sub>



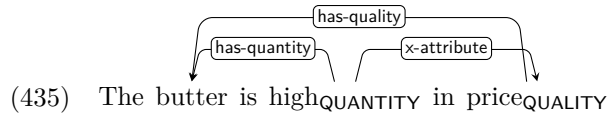
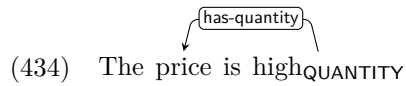
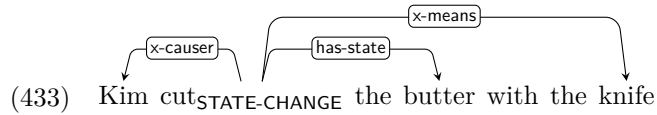
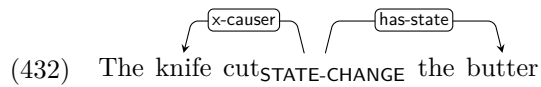
### 3.5 Shadow Arguments in Compounds

Predicates that have the form of compound words sometimes contain one of their arguments. This may inform the choice of frame as well. Although we do not, at present, annotate relations below the word level, try to stay consistent with such an annotation.

- (431) a. Kim war linien treu<sub>SOCIAL-RELATION</sub> (hypothetical sub-word annotation)
- 
- b. Kim war linientreu<sub>SOCIAL-RELATION » QUALITY</sub> (consistent actual annotation)
- 

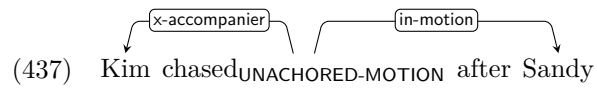
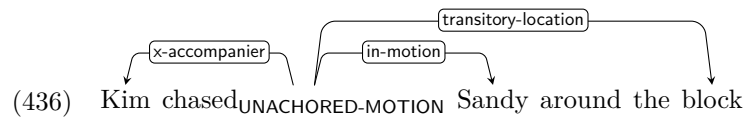
### 3.6 A Participant whose Syntactic Argument Position is Occupied Should Not Be Treated like an Implicit Argument

For example, consider (432). 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 (433). Thus, we treat this as a different framing with a different causer, rather than a more explicit version of the same framing. Likewise, (434) and (435) are two different framings, one with *price* as *has-state*, and one with *butter*.



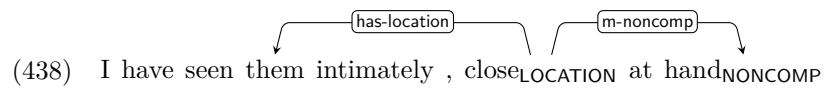
### 3.7 When in Doubt, Treat Different Syntactic Frames of the Same Predicate Consistently

For example, in (436), *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 (437), prefer it.



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

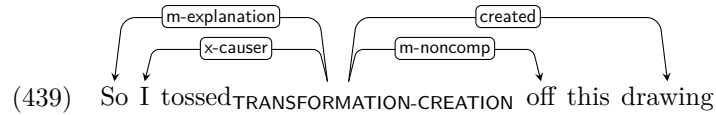
One special case of this is when a predicate occurs as part of an opaque fixed expression, like *hand* in *close at hand*. In this case, *hand* is not annotated with CLASS, but with NONCOMP.





### 3.9 Look Up Unfamiliar Words in a Dictionary

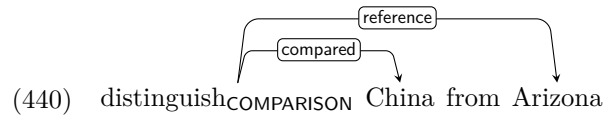
When you come across an unfamiliar predicate, you might not be able to determine what arguments it has, and consequently what the most appropriate superframe is, from this one context alone. Use a dictionary such as Wiktionary in this case. In the following example, I found that *toss off* can mean “to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



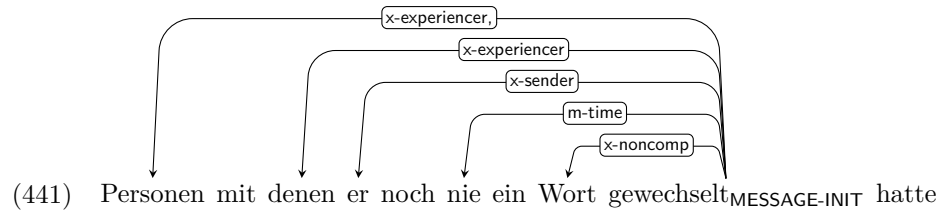
<sup>1</sup>[https://en.wiktionary.org/w/index.php?title=toss\\_off&oldid=77814489](https://en.wiktionary.org/w/index.php?title=toss_off&oldid=77814489), retrieved 2024-05-28

### 3.10 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, where subjects (*nsubj*, *csubj*) are least oblique, followed by direct objects (*obj*), then indirect objects (*iobj*), and oblique arguments (*obl*) are the most oblique.

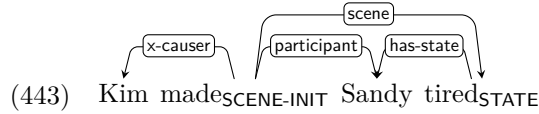
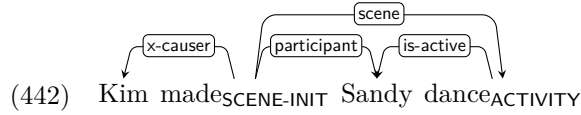


For predicates of mutual communication, choose *x-sender* for the less oblique and *x-experiencer* for the more oblique argument.

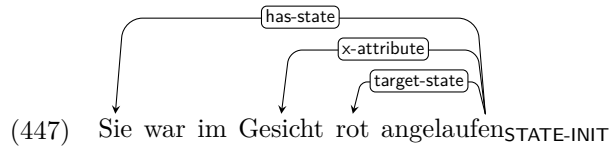
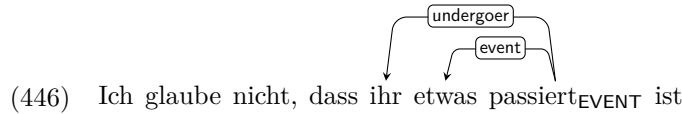
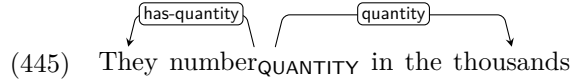
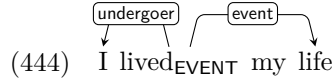


### 3.11 When to Use SCENE

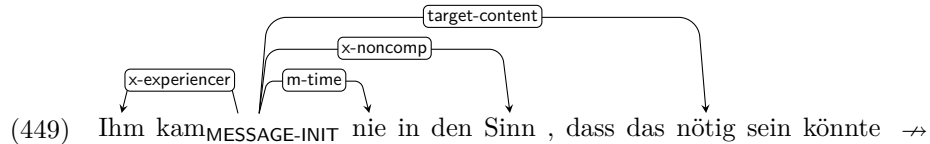
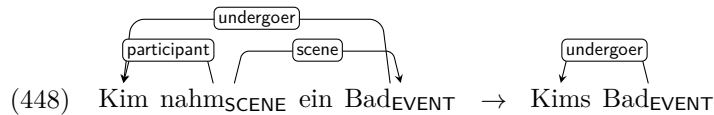
SCENE should definitely be used if a predicate can add aspectual or modal meaning to predicates of more than one type. For example, English *make* can be used with states and activities, so *make* itself should be neither **STATE** nor **ACTIVITY** but **SCENE**.

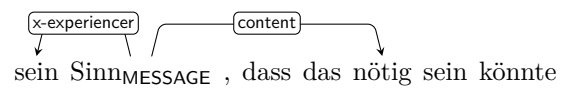


On the other hand, if a predicate is restricted to subordinate predicates of a certain type, it can have the same type.



To distinguish light verb constructions (LVCs) from verbal idioms (VIDs), determine whether the complement of the verb by itself can denote the described event, e.g., by making the subject a possessive modifier. If this is the case, it is an LVC and should be annotated with **SCENE**. Otherwise, treat the construction as a verbal idiom and annotate it with **NONCOMP** (see Section 2.26). For example, treat *ein Bad nehmen* as an LVC, but *in den Sinn kommen* as a VID:





## 4 Aspect, Mode, and Polarity

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



In (450), 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:

(451) With that, my critic<sup>topic</sup><sub>MESSAGE</sub> sat down again

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

(452) He is a teacher<sup>has-class</sup><sub>CLASS</sub>

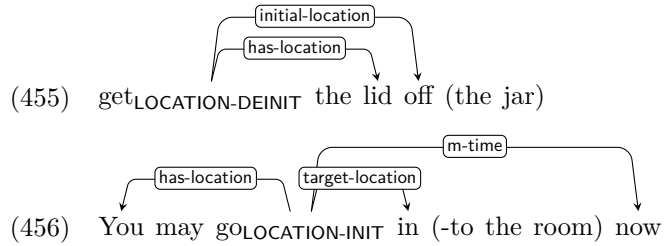
(453) He is our teacher<sup>social-relation</sup><sub>SOCIAL-RELATION</sub>

(454) She is the president<sup>has-social-relation</sup><sub>SOCIAL-RELATION</sub> of our club

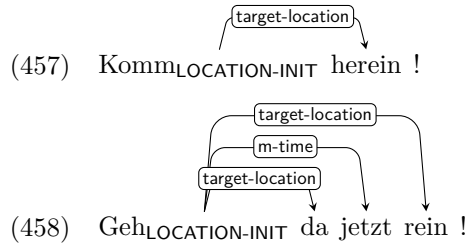
## 5.2 Particle Verbs

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

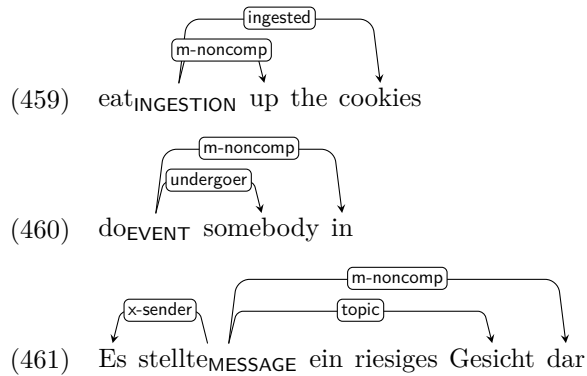
If the particle can be interpreted as an adposition with an elided complement (often the case with spatial meanings), label that relation as the elided complement would be labeled:



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:

(462) The picture was that<sub>MESSAGE</sub> of the boa



(463) I drew a picture of a dog , one<sub>MESSAGE</sub> of a cat , and another<sub>MESSAGE</sub> of a sheep





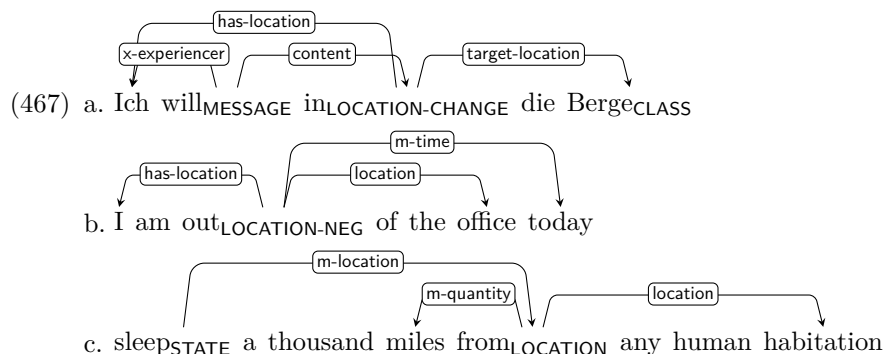
## 5.4 Nominal Copula Constructions

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.

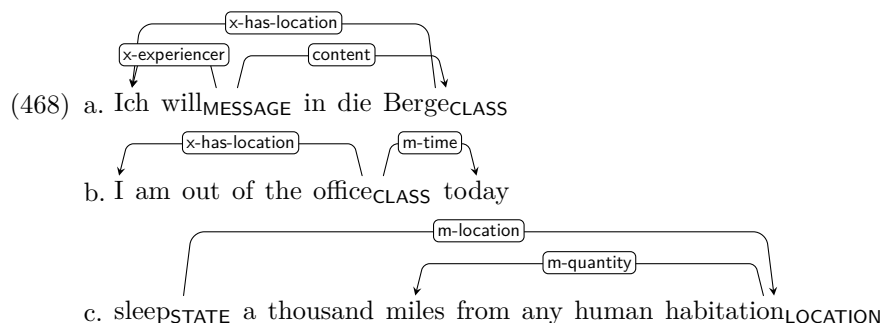
- (464) This is the book<sub>MESSAGE</sub> I like
- (465) My drawing was not a picture<sub>MESSAGE</sub> of a hat
- (466) Unwissenheit ist Stärke<sub>QUALITY</sub>
-

## 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:



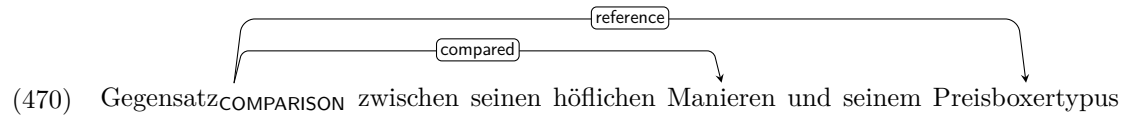
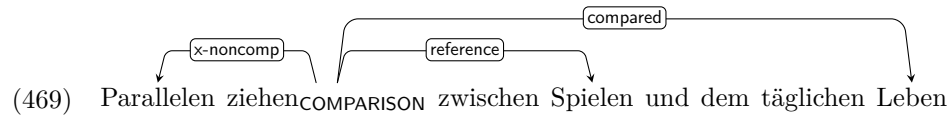
But since we don't treat adpositions as predicates, we are forced to choose the following, more opaque and less detailed annotation:



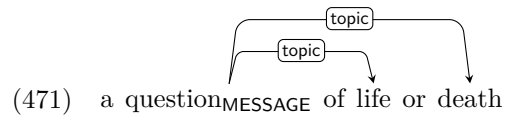
In (468-a) and (468-b), we are forced to give *Berge* and *office* an *x-has-location* role, which is not part of the frame evoked by these words alone; we have to assume it is added by adding the adposition. We also do not have a way to indicate that the additional superframe introduced by the non-core subject is *LOCATION-INIT* and *LOCATION-NEG*, respectively. In (468-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.

## 5.6 Coordination

Coordinated dependents are annotated separately. In most cases, conjuncts will have the same role, but they may also differ.



Coordination is even split in cases where semantically it does not really make sense because the coordinated phrase fills a role as a whole, not each individual conjunct. In these cases, assign the same role to all conjuncts:



## 5.7 Participles vs. Adjectives

When in doubt whether something is an adjective or a verb participle, treat it as the latter. This is relevant for aspect annotation, e.g., compare the annotation for the adjective *rot* with that for the participle *gerötet*:

(472) Sein Gesicht ist rot<sub>STATE</sub>

A diagram showing a rounded rectangle labeled 'has-state' with two lines extending downwards from it. The left line ends in an arrow pointing to 'Sein Gesicht', and the right line ends in an arrow pointing to 'rot'.

(473) Sein Gesicht ist gerötet<sub>STATE-INIT</sub>

A diagram showing a rounded rectangle labeled 'has-state' with two lines extending downwards from it. The left line ends in an arrow pointing to 'Sein Gesicht', and the right line ends in an arrow pointing to 'gerötet'.

## 6 TODO

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?

## References

- Baker, C. F., Fillmore, C. J., and Lowe, J. B. (1998). The Berkeley FrameNet project. In *COLING 1998 Volume 1: The 17th International Conference on Computational Linguistics*.
- Di Fabio, A., Conia, S., and Navigli, R. (2019). VerbAtlas: a novel large-scale verbal semantic resource and its application to semantic role labeling. In Inui, K., Jiang, J., Ng, V., and Wan, X., editors, *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing (EMNLP-IJCNLP)*, pages 627–637, Hong Kong, China. Association for Computational Linguistics.
- Feng, L., Williamson, G., He, H., and Choi, J. D. (2022). Widely Interpretable Semantic Representation: Frameless Meaning Representation for Broader Applicability.
- Kipper Schuler, K. (2005). *VerbNet: A broad-coverage, comprehensive verb lexicon*. PhD thesis, University of Pennsylvania.
- Palmer, M., Gildea, D., and Kingsbury, P. (2005). The Proposition Bank: An annotated corpus of semantic roles. *Computational Linguistics*, 31(1):71–106.
- Pustejovsky, J. (1995). *The Generative Lexicon*. MIT Press, Cambridge, MA.