















































# Superframes Manual

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SUPERFRAME	initial-arg2	arg1	arg2	transitory-arg2	target-arg2	Sec.
EVENTUALITY						2.1
L PREDICATION		argument	predicate			2.2
L ACTIVITY		is-active	activity			2.3
L CLASS	initial-class	has-class	class		target-class	2.4
L EXISTENCE			exists			2.5
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L EXPERIENCE	initial-experience	experiencer	experience	transitory-experience	target-experience	2.8
L IDENTIFICATION		identified	identifier			2.9
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L STATE	initial-state	has-state	state		target-state	2.14
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L ACCOMPANIMENT		accompanied	accompanier			2.17
L DEPICTIVE		has-depictive	depictive			2.18
L ASSET		has-asset	asset			2.19
L ATTRIBUTE		has-attribute	attribute			2.20
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L LOCATION	initial-location	has-location	location	transitory-location	target-location	2.25
L ADORNMENT-TARNISHMENT	initial-surface	ornament	surface		target-surface	2.26
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L MESSAGE		topic	content			2.33
L NONCOMP		has-noncomp	noncomp			2.34
L PART-WHOLE	initial-whole	part	whole		target-whole	2.35
L POSSESSION	initial-possessor	possessed	possessor		target-possessor	2.36
L SCENE	initial-scene	participant	scene	transitory-scene	target-scene	2.37
L SENDING		sent	sender			2.38
L SEQUENCE		follows	followed			2.39
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L SOCIAL-RELATION	initial-social-relation	has-social-relation	social-relation		target-social-relation	2.45
L TIME		has-time	time			2.46

Table 1: Hierarchy of Superframes and their Roles

## 6 TODO

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## 1 Introduction

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

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 predi-

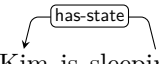
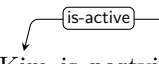
cate, or *external arguments* or *modifiers*, in which case they are treated as evoking their own frame in which the predicate serves as a core argument.

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.

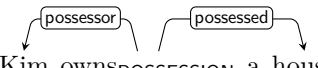
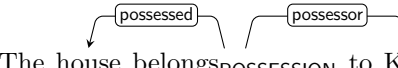
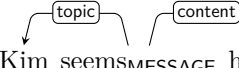
Table 1 shows the superframes and their roles, sorted into a rough hierarchy. At the top is **EVENTUALITY**, with the two subtypes **PREDICATION** and **RELATION**. All the main superframes are direct children of **PREDICATION** or **RELATION**. Some of them have one or more subtypes intended to make 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:

- (1)  Kim is sleeping<sub>STATE</sub>
- (2)  Kim is partying<sub>ACTIVITY</sub>

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

- (3)  Kim owns<sub>POSSESSION</sub> a house
- (4)  The house belongs<sub>POSSESSION</sub> to Kim
- (5)  Kim seems<sub>MESSAGE</sub> happy

### 1.2 Aspect, Mode, and Polarity

Rather than a static relationship between two entities, many verbs (and other predicates) denote a change (or absence of change) in such a relationship. We

sort such predicates into a few coarse aspectual classes. For example, initiation (-INIT) means a state is begun or worked towards, deinitiation (-DEINIT) means a state is ended, completed, or its end is worked towards, change (-CHANGE) combines both, where one state is replaced by another, continuation (-CONTINUATION) means a state persists or is even intensified, and (-PREVENTION) means it fails to come about. Accordingly, roles with prefix **target-** mark participants at or beyond the end of the event, **initial-** marks participants at the beginning of the event, and **transitory-** marks participants at some point during the event.

- (6) Kim got<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
- (16) Kim saved<sub>EXPERIENCE-PREVENTION</sub> Sandy from the dragon

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

The SCENE superframe is often evoked by “light” verbs that contribute

an aspectual or modal meaning. Thus, its aspectual variants are especially common.

- (17) The concert began<sub>SCENE-INIT</sub>
- (18) The concert continued<sub>SCENE-CONTINUATION</sub>
- (19) The concert finished<sub>SCENE-DEINIT</sub>
- (20) The shouting intensified<sub>SCENE-CONTINUATION</sub>
- (21) The shouting faded<sub>SCENE-DEINIT</sub>
- (22) A coup was attempted<sub>SCENE-INIT</sub>
- (23) Kim finished<sub>SCENE-DEINIT</sub> their work
- (24) Swift action prevented<sub>SCENE-PREVENTION</sub> an outbreak
- (25) Kim refrained<sub>SCENE-PREVENTION</sub> from going
- (26) Kim prevented<sub>SCENE-PREVENTION</sub> Sandy from going

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

- (27) Change is necessary<sub>SCENE-NECESSITY</sub>
- (28) Change is possible<sub>SCENE-POSSIBILITY</sub>
- (29) Kim owes<sub>POSSESSION-CHANGE-NECESSITY</sub> Sandy money

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

- (30) absence<sub>EXISTENCE-NEG</sub> of evidence
- (31) That is impossible<sub>SCENE-POSSIBILITY-NEG</sub>
- (32) They never<sub>TIME-NEG</sub> understand

### 1.3 Non-core Arguments

Core arguments always get role labels from the superframe the predicate evokes. But many verbs have more arguments. One common case is a subject that is presented as the causer of the scene. For example, compare (33) with (11). The core scene is the same (same superframe, same arguments). We now assume there is an additional CAUSATION scene with *Kim* as the **causer** and the core scene as the **result**. We denote this by giving *Kim* the **causer** role label, with an *x-* prefix to mark it as a non-core role.

- (33) Kim threw<sub>LOCATION-CHANGE</sub> the vase to the ground
- (34) Kim broke<sub>STATE-CHANGE</sub> the vase

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

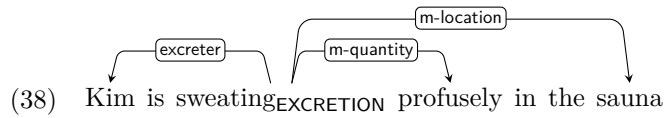
- (35) Kim talked<sub>MESSAGE-INIT</sub> to Sandy about Bali

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

- (36) Kim searched<sub>MESSAGE-INIT</sub> the woods for Sandy
- (37) Kim sold<sub>POSSESSION-CHANGE</sub> Sandy the house for a million dollars

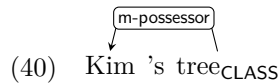
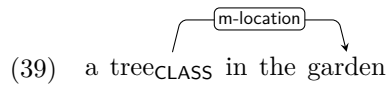
### 1.4 Modifiers

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



## 1.5 Nonverbal Predicates

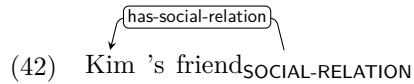
So far, we have only looked at verbal predicates. But of course, there are other types of predicates. An ordinary noun like *tree* evokes the **CLASS** frame, marking the entity it refers to as being a member of a class (in this case: the class of trees). There are no arguments here because the predicate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



Event nouns evoke event frames and have arguments:



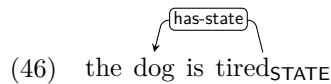
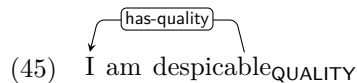
Relational nouns evoke relational frames and have arguments:



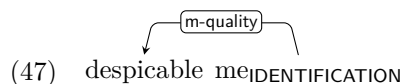
Pronouns and names evoke the **IDENTIFICATION** frame, meaning that they identify their referent as some entity (via naming or anaphora resolution).



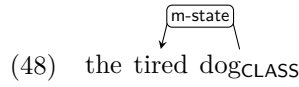
Predicate adjectives most typically denote states or qualities.



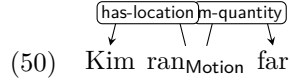
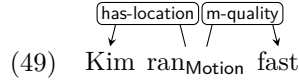
With attributive adjectives, the dependency relation is reversed, and the role label is changed accordingly.





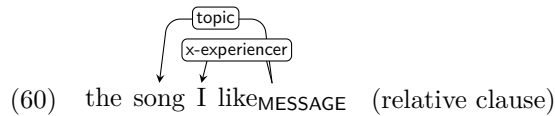
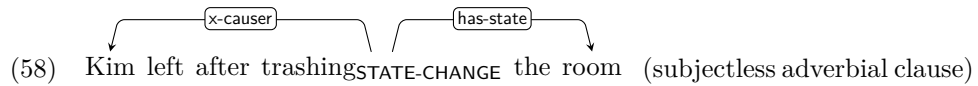
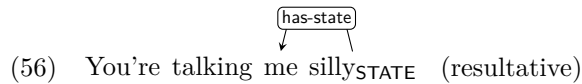
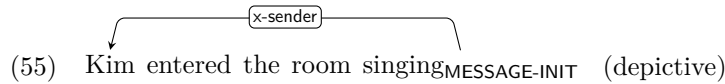
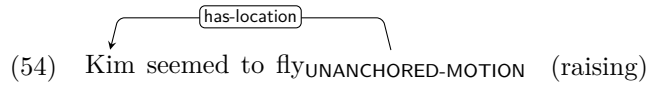
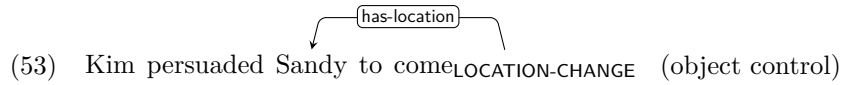
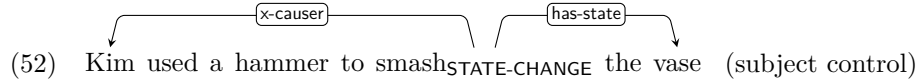
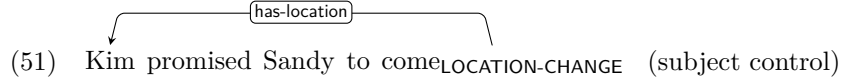


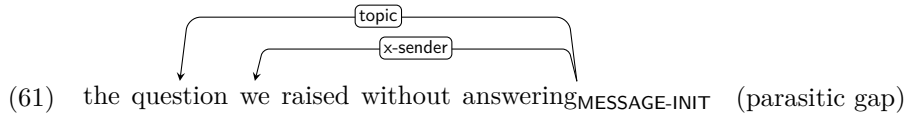
Similarly for adverbs denoting, e.g, manner (**quality**) or extent (**quantity**):



## 1.6 Control Relations

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



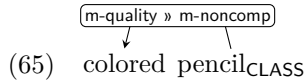
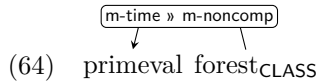


## 1.7 Figurativity, Idiomaticity, and Uncertainty

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



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



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

## 2 Superframes Reference

### 2.1 ■ EVENTUALITY

This is the most generic superframe. Use it only for sentential predicates with no discernible arguments, such as interjections.


(67) YesEVENTUALITY

(68) NoEVENTUALITY-NEG

(69) WhatIDENTIFICATION » EVENTUALITY ?

## 2.2 PREDICATION

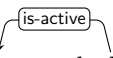
The **predicate** is true of the **argument**. Normally, there should be no reason to use this superframe; instead, use one of the more specific subtypes. Directly use this superframe only when none of the more specific subtypes seems to fit (currently, there are no known cases of this, so there are no examples). For **PREDICATION** and all of its subtypes, **arg2** is typically a shadow argument, that is, it is incorporated into the predicate and not realized as a syntactic argument. This makes sense, because the predicate is already the predicate. However, there are cases where a semantic predicate is jointly realized by the syntactic predicate and its **arg2**. An example is shown in (70).

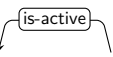
- (70) They number<sub>QUANTITY</sub> in the thousands
- 

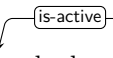
## 2.3 ACTIVITY

**is-active** actively participates in **activity**.

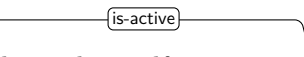
Used for dynamic scenes where **is-active** has agency and that cannot well be framed as a state change.

- (71) Kim worked<sub>ACTIVITY</sub>
- 

- (72) Kim partied<sub>ACTIVITY</sub>
- 

- (73) Kim had sex<sub>ACTIVITY</sub>
- 

- (74) after some work<sub>ACTIVITY</sub> with a colored pencil
- 

- (75) I devoted myself to geography<sub>ACTIVITY</sub>
- 

## 2.4 CLASS

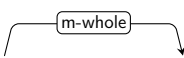
**class** indicates the class of entity that **has-class** represents.

Most prototypically evoked by common nouns with no arguments.

- (76) swallowing an animal<sub>CLASS</sub>

Indefinite pronouns also evoke **CLASS**.

- (77) She saw one<sub>CLASS</sub>

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

- (79) Why would anyone<sub>CLASS</sub> be frightened by a hat?
- (80) Something<sub>CLASS</sub> is broken
- (81) Where I live everything<sub>CLASS</sub> is small

## 2.5 ✨ EXISTENCE

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

- (82) I exist<sub>EXISTENCE</sub>
- (83) There is<sub>EXISTENCE</sub> a hill
- (84) There is<sub>SCENE</sub> a hubbub

## 2.6 📝 REPRODUCTION

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

- (85) Here is a copy<sub>REPRODUCTION</sub> of the drawing
- (86) This is a translation<sub>REPRODUCTION</sub> of the pamphlet into English

## 2.7 ✨ TRANSFORMATION-CREATION

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

- (87) I succeeded in making<sub>TRANSFORMATION-CREATION</sub> my first drawing
- (88) Kim built<sub>TRANSFORMATION-CREATION</sub> a castle out of sand
- (89) Kim turned<sub>TRANSFORMATION-CREATION</sub> straw into gold

## 2.8 EXPERIENCE

experience indicates an experience that experiencer undergoes.

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

- (90) Kim 's adventures<sub>EXPERIENCE</sub> in the jungle
- (91) Kim attacked<sub>EXPERIENCE</sub> Sandy
- (92) I saw<sub>MESSAGE</sub> a magnificent picture
- (93) I pondered<sub>MESSAGE-INIT</sub> deeply
- (94) Kim talked<sub>MESSAGE-INIT</sub> to Sandy
- (95) Kim did<sub>SCENE</sub> something nice for Sandy
- (96) Kim cooked a meal only to have<sub>SCENE</sub> Sandy spurn it
- (97) Kim managed<sub>EXPERIENCE</sub> with dealing the cards
- (98) Die Piroggen waren Maria zu dunkel geraten<sub>SCENE-INIT</sub>
- (99) Das hat mir gerade noch gefehlt<sub>EXPERIENCE</sub>
- (100) they need<sub>EXPERIENCE-NECESSITY</sub> six months for digestion

For more uses, see the examples for MESSAGE in Section 2.33.

## 2.9 IDENTIFICATION


identifier identifies identified.

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

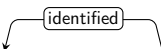
(101) I<sub>IDENTIFICATION</sub> saw a picture

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

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

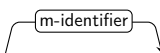


(104) This is Kim<sub>IDENTIFICATION</sub>



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

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




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



Likewise, *in* has an identifying sense:

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




## 2.10 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.

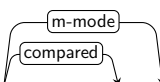
(108) Even Kim<sub>IDENTIFICATION</sub> did n't know that



(109) They only rinsed<sub>ADORNMENT-TARNISHMENT-DEINIT</sub> the dishes



(110) Passt<sub>COMPARISON</sub> das eh ?



- (111) Kim probably knows<sub>MESSAGE</sub> that
- (112) That 's really great<sub>QUALITY</sub>
- (113) Kim is not here<sub>LOCATION</sub>

## 2.11 🍎 QUALITY

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

- (114) a magnificent picture<sub>MESSAGE</sub>
- (115) I pondered<sub>MESSAGE-INIT</sub> deeply over the adventures of the jungle
- (116) a skilled surgeon<sub>CLASS</sub>
- (117) such knowledge<sub>MESSAGE</sub> is valuable

## 2.12 📊 QUANTITY

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

- (118) three burgers<sub>CLASS</sub>
- (119) three liters<sub>QUANTITY</sub> of coke
- (120) We discourage<sub>MESSAGE-INIT</sub> this emphatically

## 2.13 🏆 RANK

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

- (121) ChapterMESSAGE 1
- (122) my first drawingMESSAGE

## 2.14 🚧 STATE

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

- (123) when I was six years oldSTATE
- (124) Boa constrictors swallow their prey wholeSTATE
- (125) they sleepSTATE
- (126) they swallow their prey whole without chewingSTATE-CHANGE it
- (127) the six months that they need for digestionSTATE-CHANGE
- (128) And that hasn't much improvedSTATE-CHANGE my opinion of them

## 2.15 💀 DESTRUCTION

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

- (129) Sam 's deathDESTRUCTION
- (130) Sam 's destructionDESTRUCTION of the city

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

- (131) Something was brokenSTATE in my engine

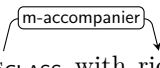

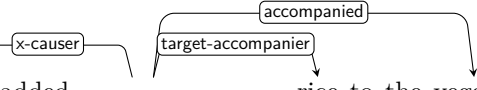



## 2.16 RELATION

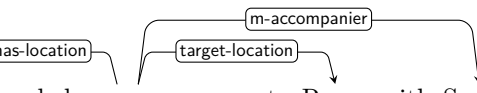
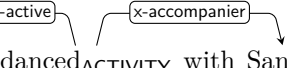
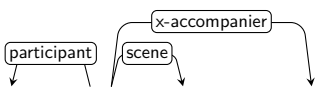
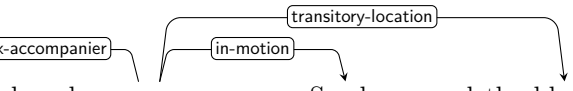

There is a relation between **satellite** and **nucleus**, where the latter is more central, and the former more peripheral, if any such hierarchy can be established. Normally, there should be no reason to use this superframe; instead, use one of the more specific subtypes. Directly use this superframe only when none of the more specific subtypes seems to fit (currently, there are no known cases of this, so there are no examples).

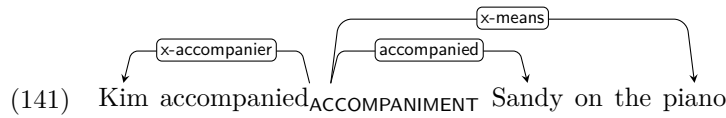
## 2.17 ACCOMPANIMENT

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

- (132) veggies<sub>CLASS</sub> with rice  

- (133) The veggies come<sub>ACCOMPANIMENT</sub> with rice  

- (134) Kim added<sub>ACCOMPANIMENT-INIT</sub> rice to the veggies  

- (135) Rolling thunder accompanies<sub>ACCOMPANIMENT</sub> the rain  


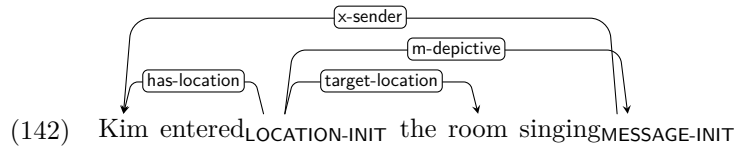
Often, the accompanier denotes not the accompanying scene but an entity participating in it, and must be metonymically understood as the scene.

- (136) Kim cycled<sub>LOCATION-CHANGE</sub> to Rome with Sandy  

- (137) Kim danced<sub>ACTIVITY</sub> with Sandy  

- (138) Kim had<sub>SCENE</sub> sex with Sandy  

- (139) Kim chased<sub>UNANCHORED-MOTION</sub> Sandy around the block  

- (140) Kim accompanied<sub>ACCOMPANIMENT</sub> Sandy  




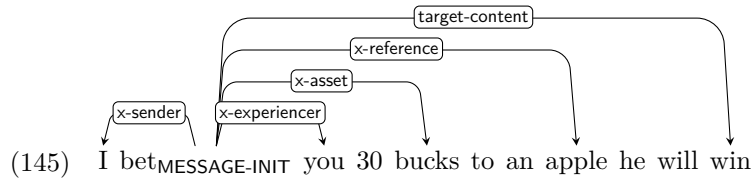
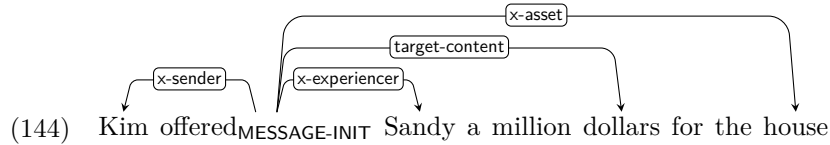
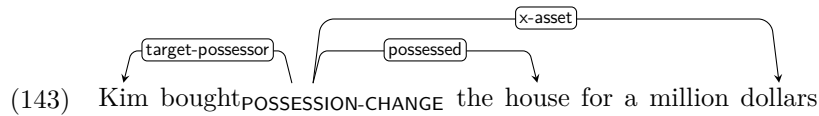
## 2.18 DEPICTIVE

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



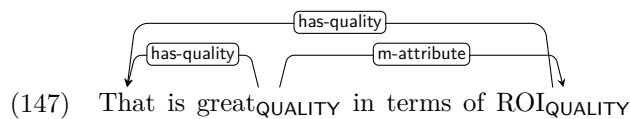
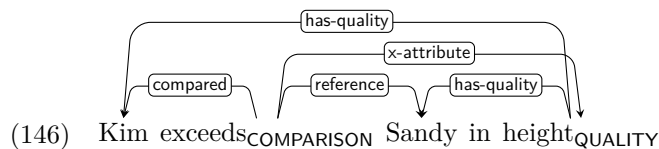
## 2.19 ASSET

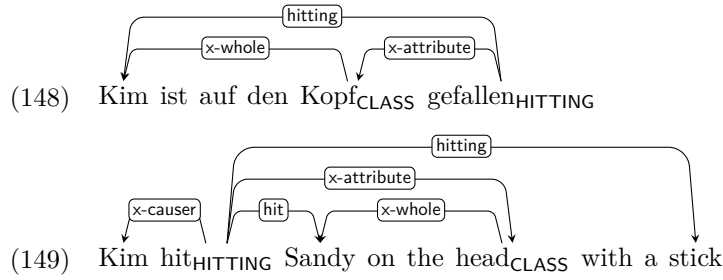
In a scene **has-asset**, **asset** is given or offered in an exchange or wager.



## 2.20 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.

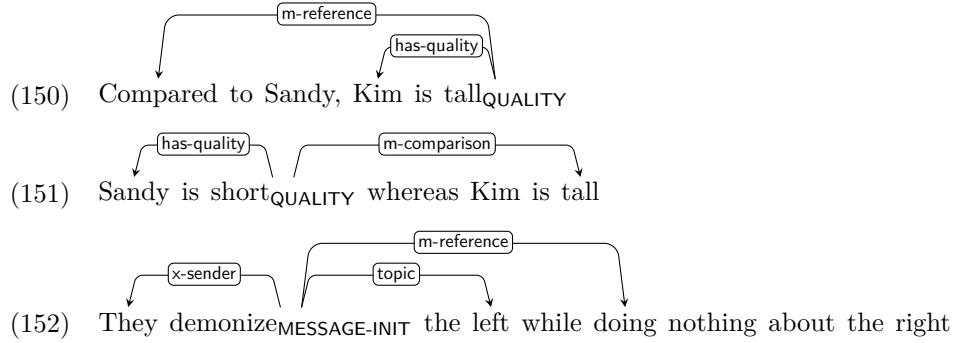




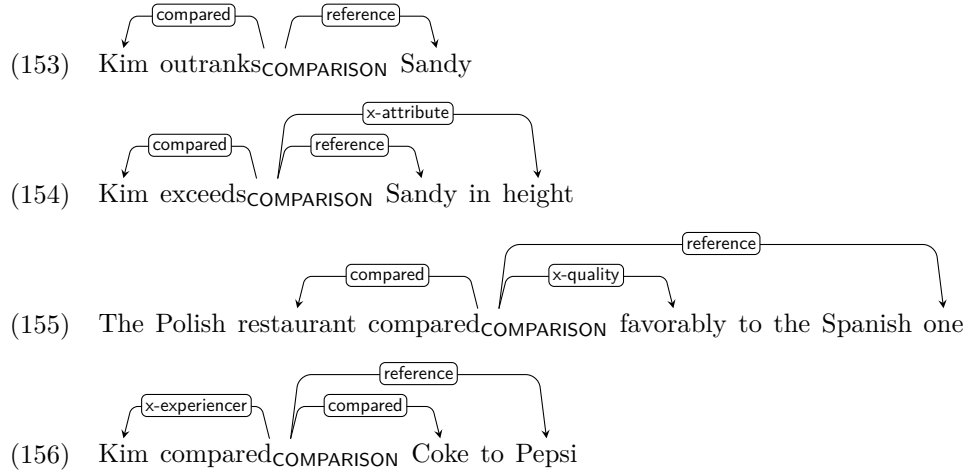
## 2.21 COMPARISON

compared is characterized with respect to reference.

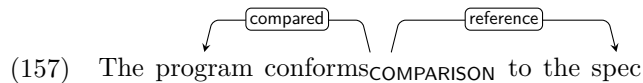
Examples of comparing scenes:

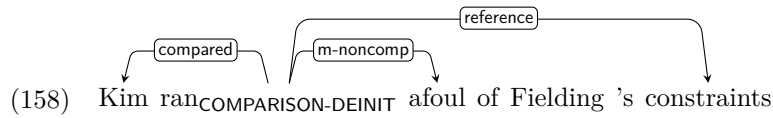


Examples of comparing non-scene entities:

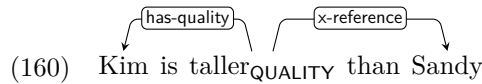


The reference need not be an entity similar to the compared, it can also be an abstract constraint:



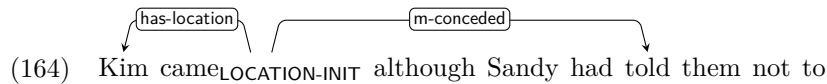
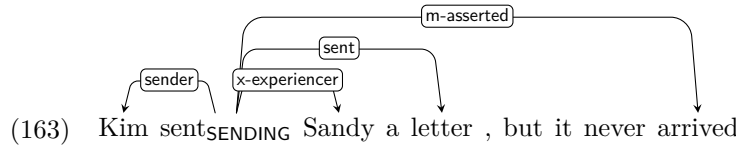
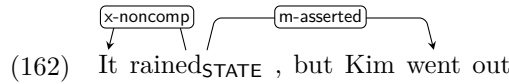


We analyze gradation of adjectives as a valency-changing derivation that adds an x-reference argument.



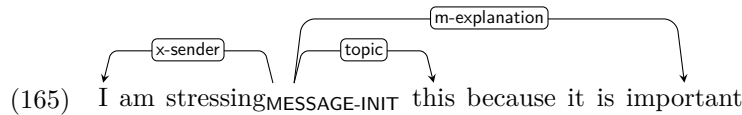
## 2.22 🔥 CONCESSION

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



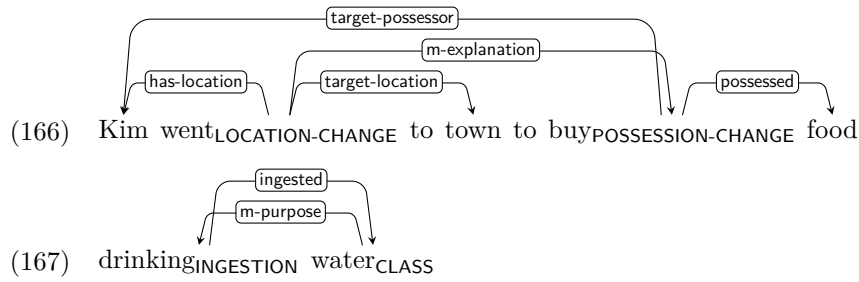
## 2.23 ! EXPLANATION

explanation explains explained, but is not a cause.



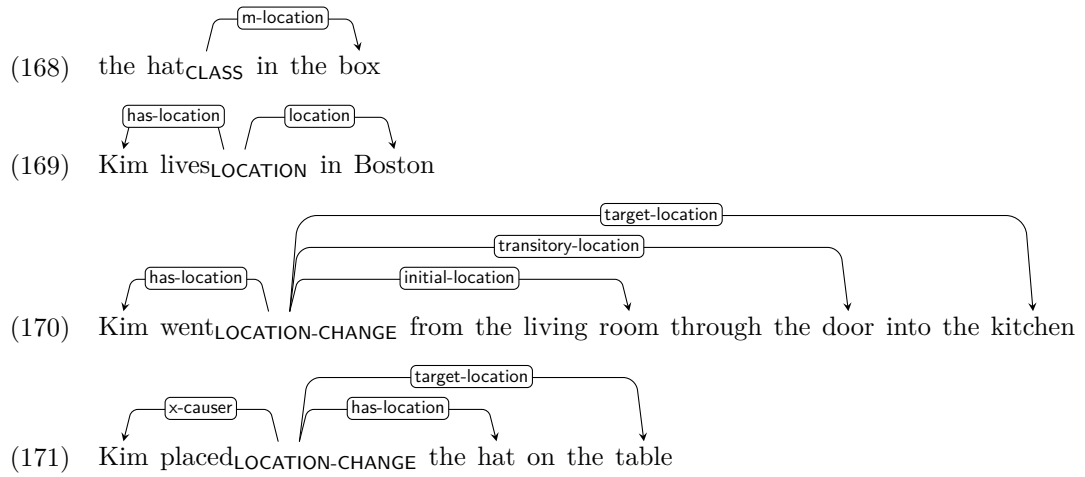
## 2.24 🎯 PURPOSE

Special case of EXPLANATION where explanation is a purpose.



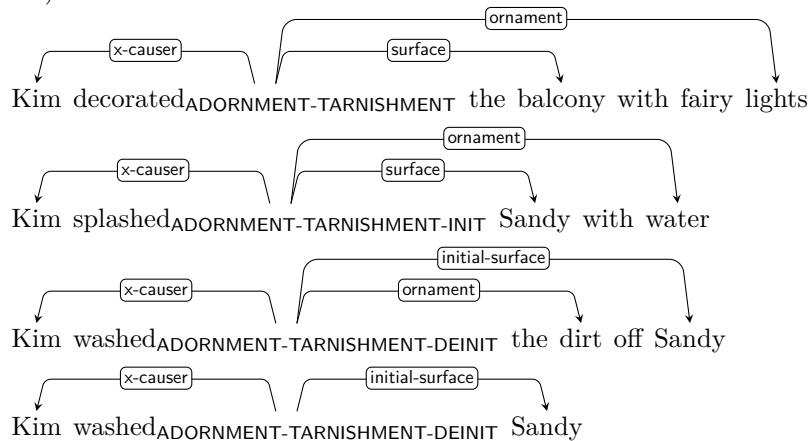
## 2.25 📍 LOCATION

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



## 2.26 💎 ADORNMENT-TARNISHMENT

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



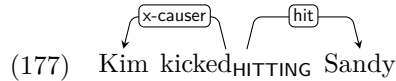
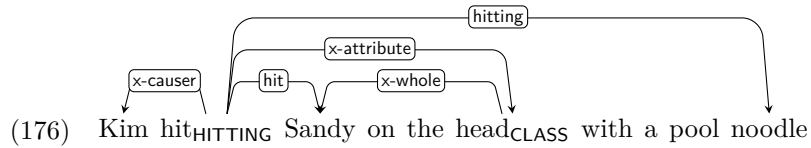
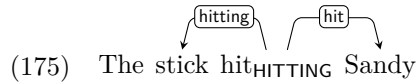
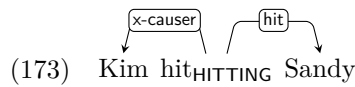
## 2.27 EXCRETION

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



## 2.28 HITTING

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



## 2.29 INGESTION

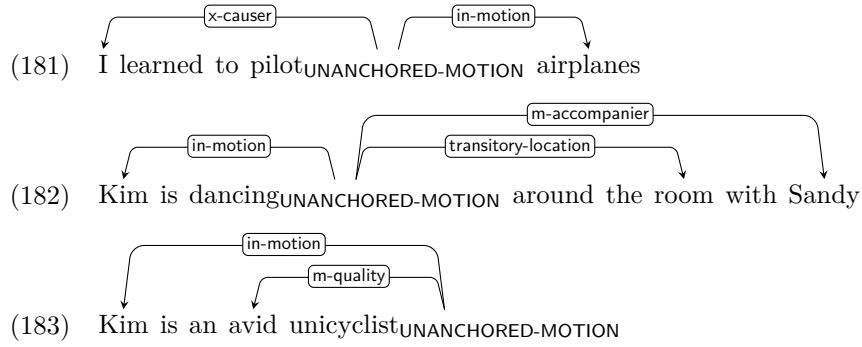
Special case of LOCATION-INIT where ingester (aka target-location) ingests ingested (aka has-location).



## 2.30 UNANCHORED-MOTION

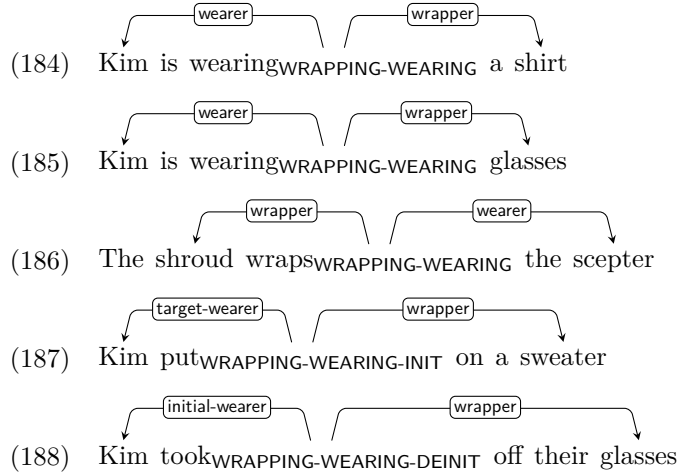
Special case of LOCATION-CHANGE where no initial or target location is indicated.





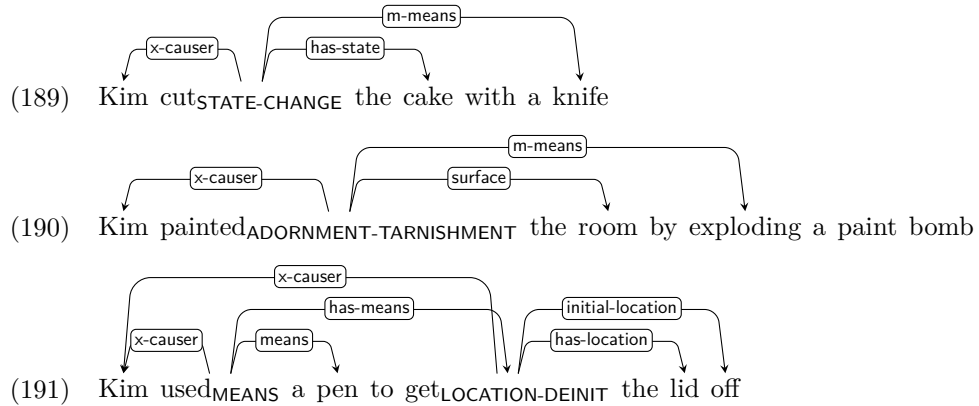
### 2.31 WRAPPING-WEARING

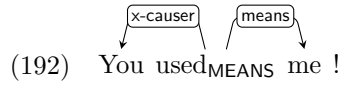
Special case of LOCATION where wearer (aka location) wears or is wrapped in wrapper (aka has-location).



### 2.32 MEANS

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

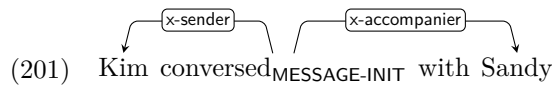
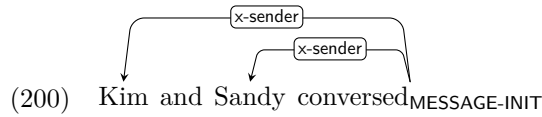
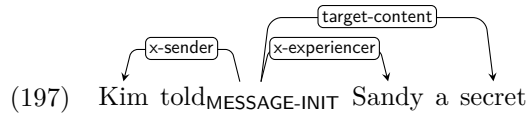
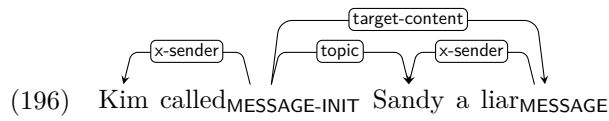
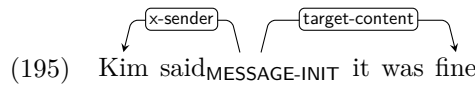
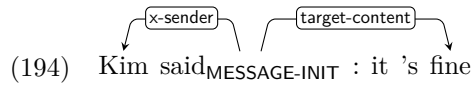
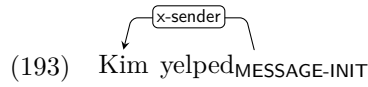




## 2.33 MESSAGE

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

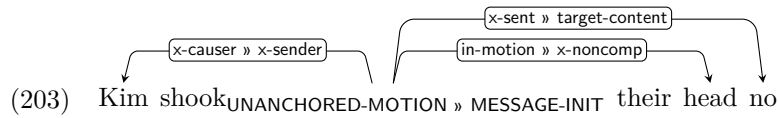
### 2.33.1 Expression



### 2.33.2 Gesture

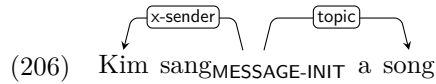
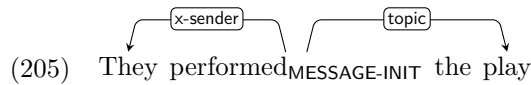




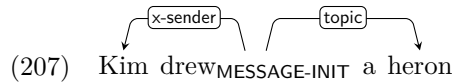


### 2.33.3 Performance

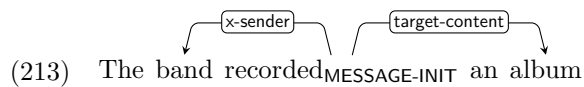
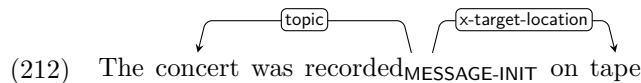
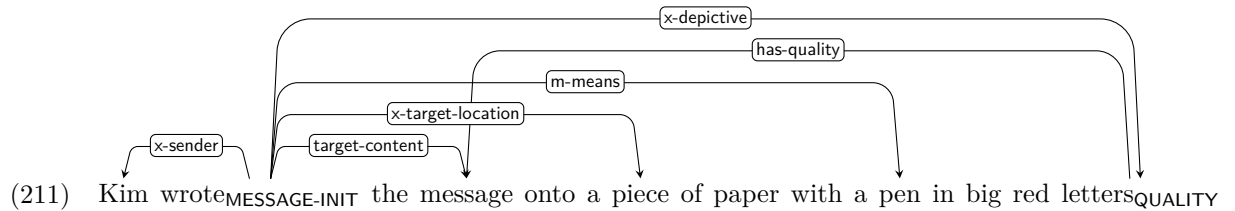
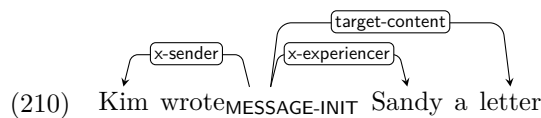
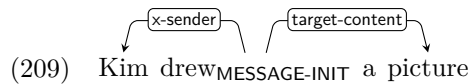
Performance of a work of art is framed as MESSAGE where the work of art is the topic.



### 2.33.4 Depiction



### 2.33.5 Recording



### 2.33.6 Perception

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

- (214) Kim saw<sub>MESSAGE</sub> a flower
- (215) Kim found<sub>MESSAGE</sub> the flower beautiful<sub>QUALITY</sub>
- (216) Kim thinks<sub>MESSAGE</sub> Sandy is a liar
- (217) Kim thinks<sub>MESSAGE</sub> Sandy a liar<sub>MESSAGE</sub>
- (218) Kim saw<sub>MESSAGE</sub> Sandy swim<sub>UNANCHORED-MOTION</sub>
- (219) Kim wants<sub>MESSAGE</sub> to swim<sub>UNANCHORED-MOTION</sub>
- (220) Kim wants<sub>MESSAGE</sub> Sandy to swim<sub>UNANCHORED-MOTION</sub>
- (221) Kim seems<sub>MESSAGE</sub> happy<sub>MESSAGE</sub>
- (222) Kim seems<sub>MESSAGE</sub> happy<sub>MESSAGE</sub> to Sandy

### 2.33.7 Beginning and Ending Perception

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

- (223) The Thought Police observed<sub>MESSAGE-INIT</sub> Winston

- (224) Kim noticed<sub>MESSAGE-INIT</sub> the bird
- (225) Kim taught<sub>MESSAGE-INIT</sub> Sandy Spanish
- (226) Kim measured<sub>MESSAGE-INIT</sub> the elasticity
- (227) Kim forgot<sub>MESSAGE-DEINIT</sub> everything they knew
- (228) Kim forgot<sub>MESSAGE-DEINIT</sub> about the cake
- (229) Kim forgot<sub>MESSAGE-PREVENTION</sub> to take the trash out

### 2.34 NONCOMP

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

- (230) Kim kicked<sub>DESTRUCTION</sub> the bucket
- (231) It is raining<sub>STATE</sub>
- (232) I address<sub>MESSAGE-INIT</sub> myself to you
- (233) There was<sub>SCENE</sub> a famine
- (234) fountain pen<sub>CLASS</sub>

Light verbs, on the other hand, are treated with **SCENE**, see Section 2.37.

### 2.35 PART-WHOLE

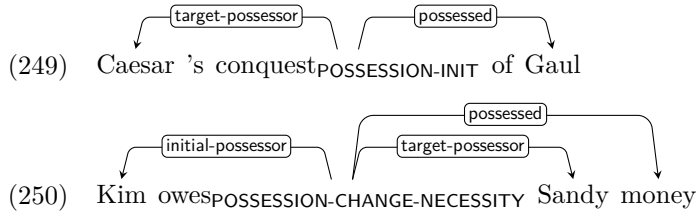
part is part of whole.

- (235) Kim 's leg<sub>CLASS</sub>
- (236) a man<sub>CLASS</sub> with a mustache
- (237) part<sub>PART-WHOLE</sub> of the year
- (238) wheat contains<sub>PART-WHOLE</sub> gluten

## 2.36 🐕 POSSESSION

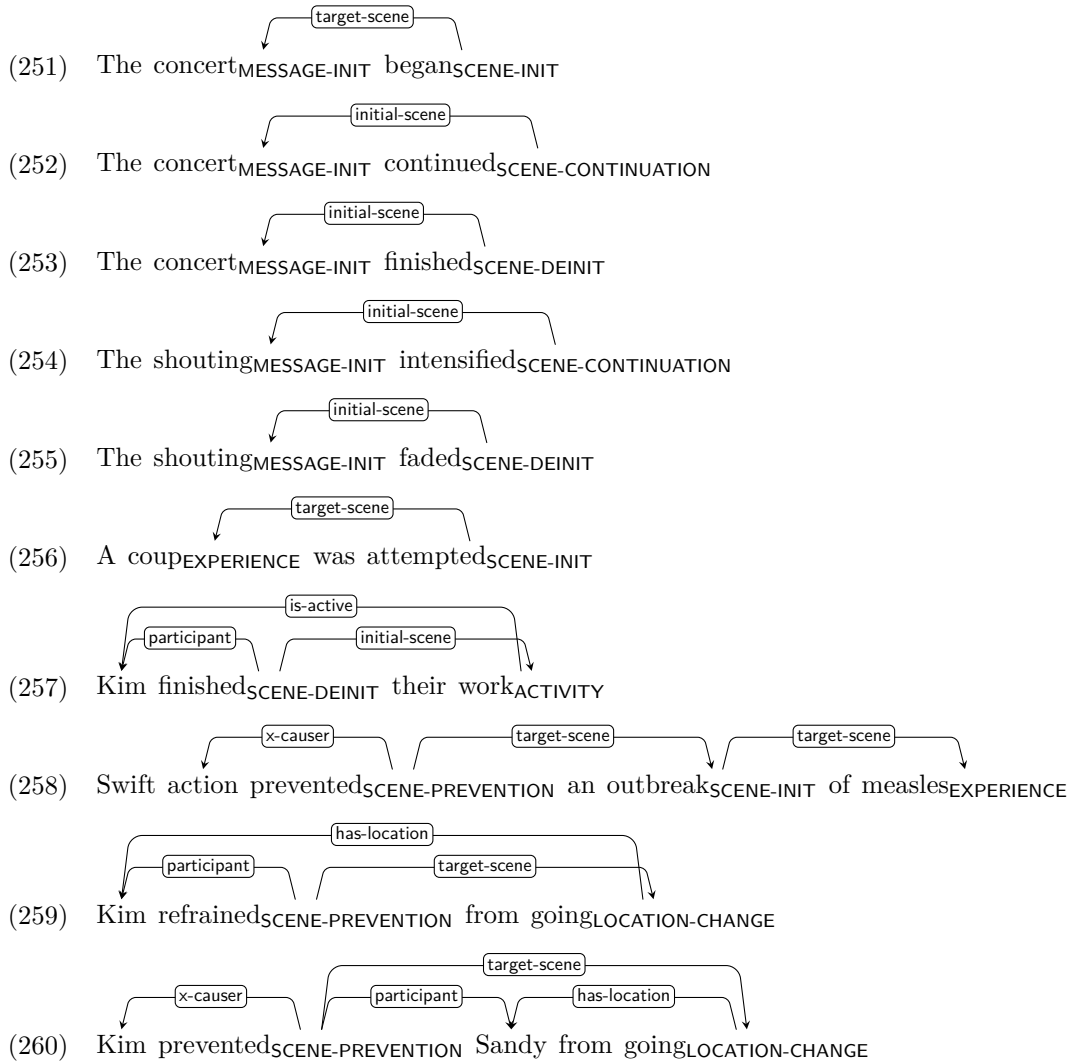
possessor possesses or controls the possessed.

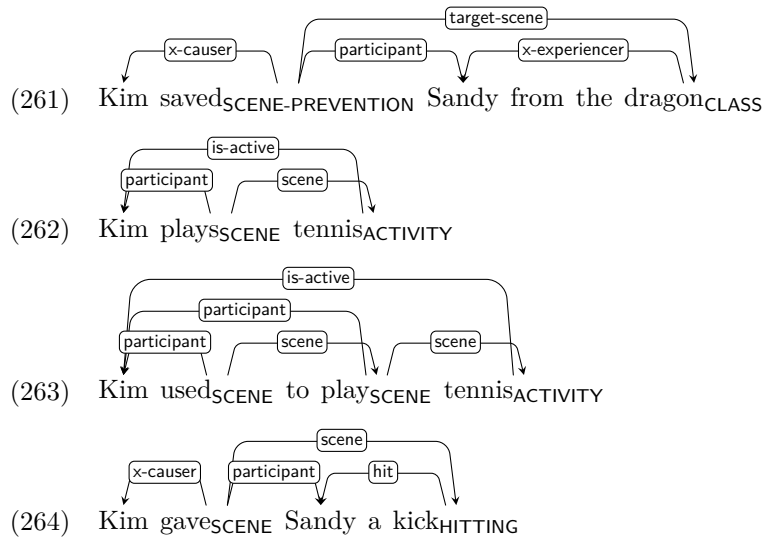
- (239) Kim 's house<sub>CLASS</sub>
- (240) Kim owns<sub>POSSESSION</sub> a house
- (241) The house belongs<sub>POSSESSION</sub> to Kim
- (242) the owner<sub>POSSESSION</sub> of the house
- (243) Kim has<sub>POSSESSION</sub> Sandy 's phone
- (244) Kim bought<sub>POSSESSION-CHANGE</sub> a house from Sandy
- (245) Sandy sold<sub>POSSESSION-CHANGE</sub> Kim the house
- (246) Kim kept<sub>POSSESSION-CONTINUATION</sub> the house
- (247) Kim lost<sub>POSSESSION-DEINIT</sub> the house
- (248) Caesar conquered<sub>POSSESSION-INIT</sub> Gaul



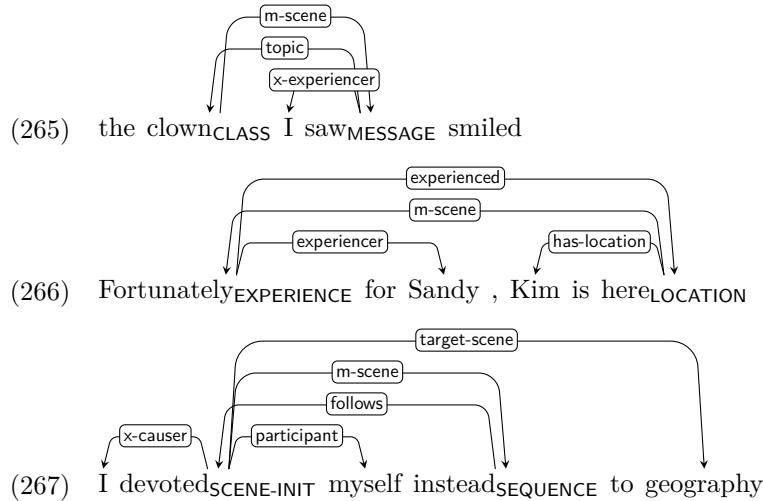
## 2.37 🧑🏽 SCENE

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.



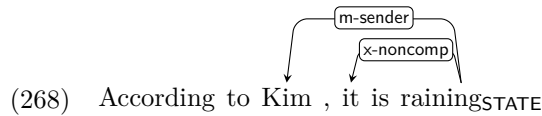


The modifier relation **m-scene** is used when a syntactic dependency points from an argument to a predicate, as, e.g., with relative clauses or sentence adverbs.



## 2.38 SENDING

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



For more uses, see **MESSAGE** (Section 2.33).

## 2.39 SEQUENCE

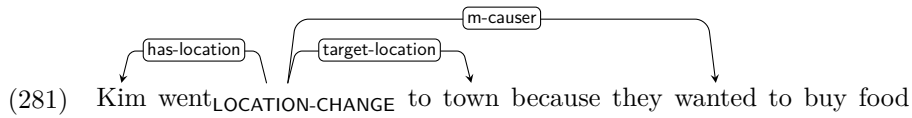
follows follows followed, e.g., temporally, logically, by rank, as heir, etc.

- (269) Form follows<sub>SEQUENCE</sub> function
- (270) Cook is Jobs 's successor<sub>SEQUENCE</sub>
- (271) Das fußt<sub>SEQUENCE</sub> auf einer falschen Vorstellung
- (272) Kim deduced<sub>SEQUENCE</sub> the truth from the clues
- (273) Given that I 'm tired , I wo n't be there<sub>LOCATION</sub>

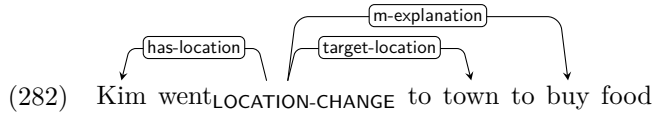
## 2.40 CAUSATION

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

- (274) Kim broke<sub>STATE-CHANGE</sub> the glass
- (275) The knife cut<sub>STATE-CHANGE</sub> the bread
- (276) Kim cut<sub>STATE-CHANGE</sub> the bread with a knife
- (277) The war caused<sub>CAUSATION</sub> a famine
- (278) There was<sub>SCENE</sub> a famine because of the war
- (279) Der Wasserdruck stieg<sub>QUANTITY-CHANGE</sub> , wodurch der Brunnen überfloss
- (280) Die Qualität ist der Motivation geschuldet<sub>CAUSATION</sub>

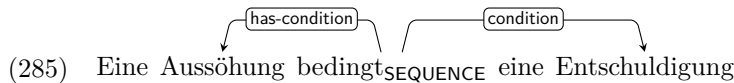
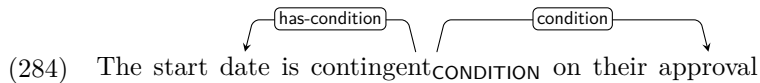


Note how the last example expresses a purpose, but expresses it as a cause, so m-causer is the right label to use. Compare this to construal as a purpose:



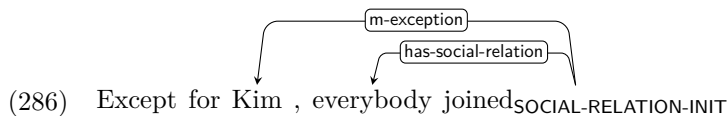
## 2.41 📄 CONDITION

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



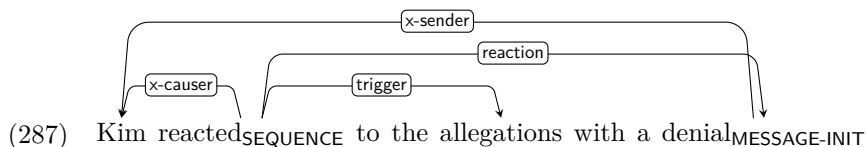
## 2.42 🚫 EXCEPTION

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



## 2.43 💥 REACTION

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

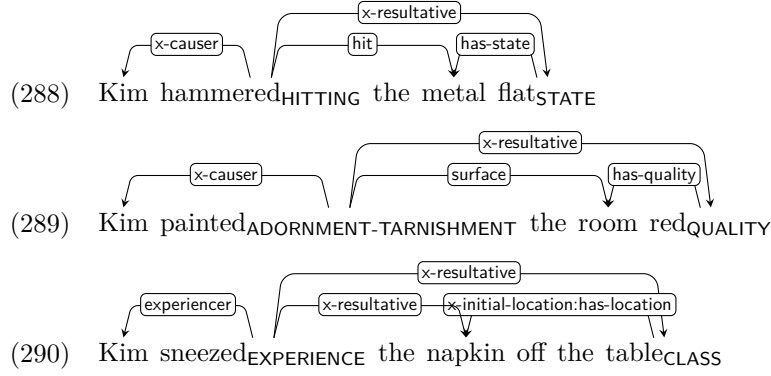


## 2.44 😡 RESULTATIVE

Special case of CAUSATION where resultative (aka result) assigns an argument of has-resultative (aka causer) a role. We treat the English resultative construction



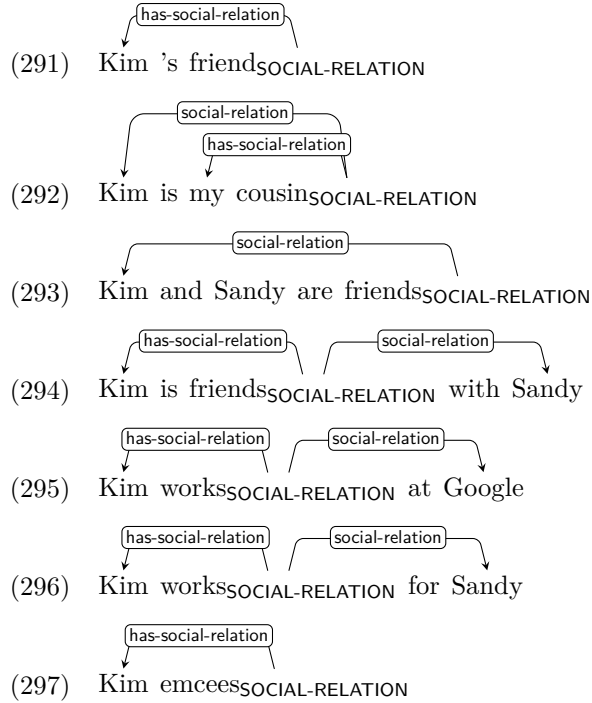
as a valency-changing operation that adds one or two arguments to the matrix predicate, so we use **x-resultative** rather than **m-resultative**.



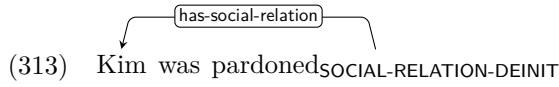
In the last example, we use **x-initial-location:has-location** to specify not only the role of the napkin in the resulting event (**has-location**) but also that of the table (**initial-location**). Using **x-has-location** would be imprecise because we would then assume that the table has location.

## 2.45 🤝 SOCIAL-RELATION

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

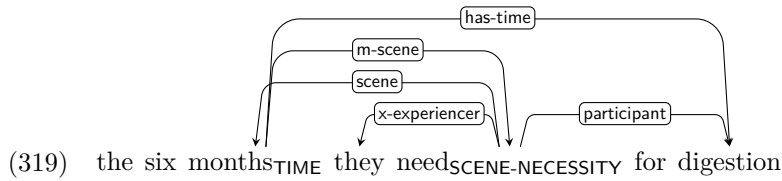
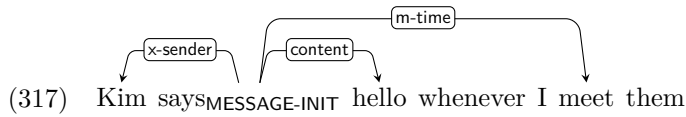
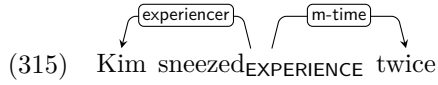


- (298) Kim is hosting<sup>has-social-relation</sup>SOCIAL-RELATION the party<sup>social-relation</sup>
- (299) Kim is under house arrest<sup>has-social-relation</sup>SOCIAL-RELATION
- (300) Kim 's sentences<sup>has-social-relation</sup>SOCIAL-RELATION was suspended
- (301) Kim married<sup>has-social-relation</sup>SOCIAL-RELATION-INIT Sandy<sup>target-social-relation</sup>
- (302) The official married<sup>x-causer</sup>SOCIAL-RELATION-INIT Kim to Sandy<sup>target-social-relation</sup>  
<sup>has-social-relation</sup>
- (303) The official married<sup>x-causer</sup>SOCIAL-RELATION-INIT Kim and Sandy<sup>has-social-relation</sup>
- (304) Kim divorced<sup>has-social-relation</sup>SOCIAL-RELATION-DEINIT Sandy<sup>initial-social-relation</sup>
- (305) Kim befriended<sup>has-social-relation</sup>SOCIAL-RELATION-INIT Sandy<sup>target-social-relation</sup>
- (306) Kim took<sup>has-social-relation</sup>SOCIAL-RELATION-INIT the job<sup>target-social-relation</sup>
- (307) Kim joined<sup>has-social-relation</sup>SOCIAL-RELATION-INIT Google<sup>target-social-relation</sup>
- (308) Kim joined<sup>has-social-relation</sup>SOCIAL-RELATION-INIT a union<sup>target-social-relation</sup>
- (309) Sandy fired<sup>x-causer</sup>SOCIAL-RELATION-DEINIT Kim from their job<sup>initial-social-relation</sup>  
<sup>has-social-relation</sup>
- (310) Kim left<sup>has-social-relation</sup>SOCIAL-RELATION-DEINIT Google<sup>initial-social-relation</sup>
- (311) Kim assumed<sup>has-social-relation</sup>SOCIAL-RELATION-INIT office<sup>target-social-relation</sup>
- (312) The judge sentenced<sup>x-causer</sup>SOCIAL-RELATION-INIT Kim to three days in prison<sup>target-social-relation</sup>  
<sup>has-social-relation</sup>



## 2.46 TIME

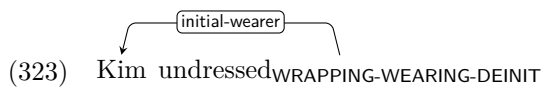
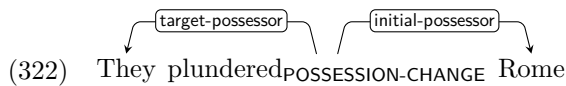
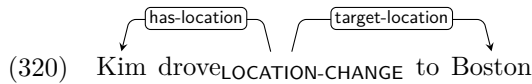
time indicates when, how often, or for how long **has-time** takes place. Also evoked by time expressions without arguments.



## 3 Argument Structure and Frame Choice

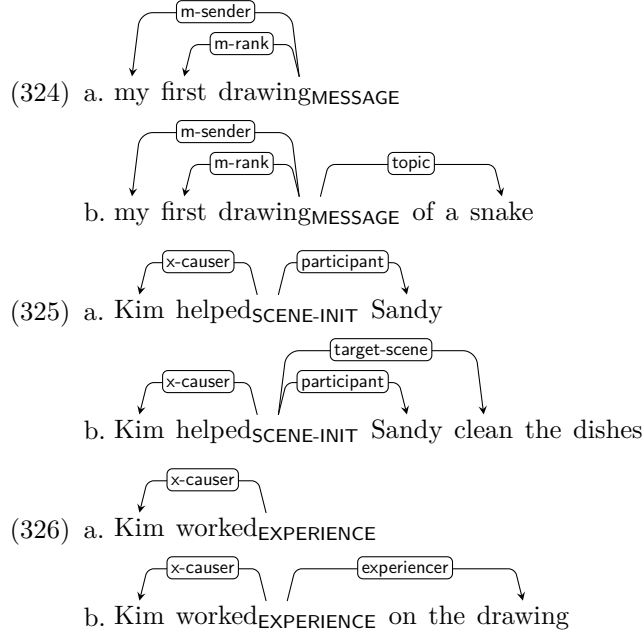
### 3.1 Prefer Core over Non-core Arguments

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

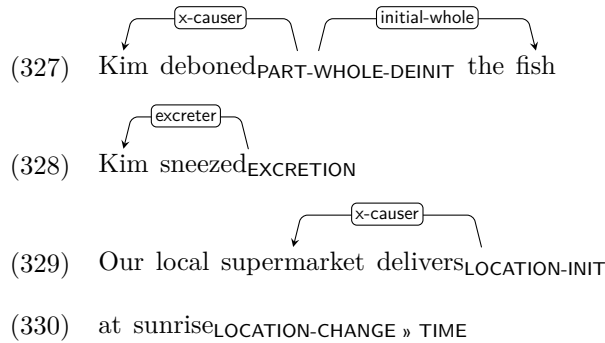


### 3.2 Arguments Determine Frames

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

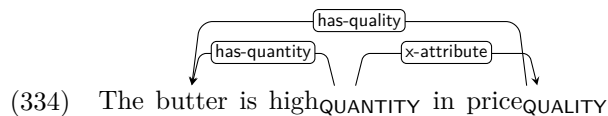
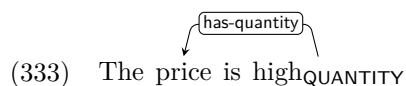
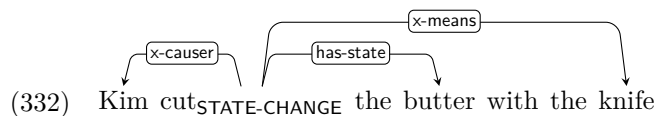
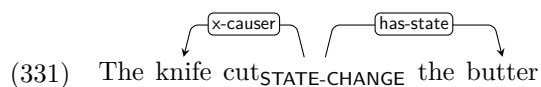


This logic extends to *shadow arguments* and *default arguments* (Pustejovsky, 1995; Di Fabio et al., 2019), i.e., arguments that do not appear in the syntactic argument structure because they are incorporated into the predicate or logically implied, like the bones in (327), mucus and air in (328), groceries in (329), or sun in (330).



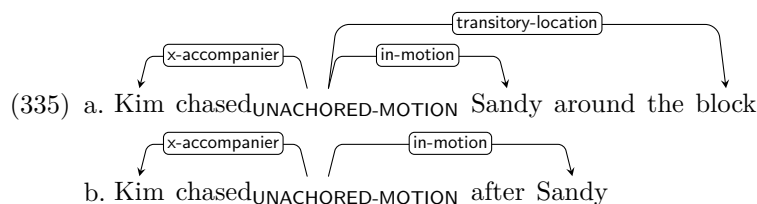
### 3.3 A Participant whose Syntactic Argument Position is Occupied Should Not Be Treated like an Implicit Argument

For example, consider (331). 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 (332). Thus, we treat this as a different framing with a different causer, rather than a more explicit version of the same framing. Likewise, (333) and (334) are two different framings, one with *price* as *has-state*, and one with *butter*.



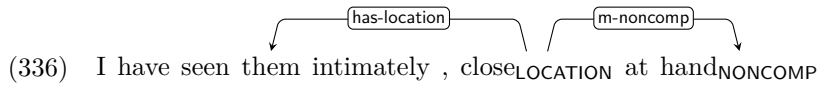
### 3.4 When in Doubt, Treat Different Syntactic Frames of the Same Predicate Consistently

For example, in (335-a), *chase* could be framed as caused motion with Kim as x-causer or as accompanied motion with Kim as x-accompanioner. Because the latter works for other syntactic frames of *chase* as well, as in (335-b), prefer it.



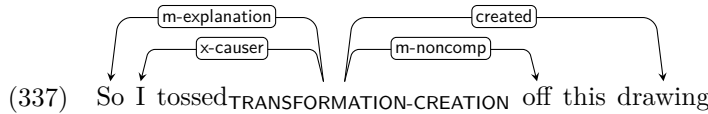
### 3.5 However, Different Senses of a Predicate Can Have Different Arguments and Therefore Different Superframes

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.



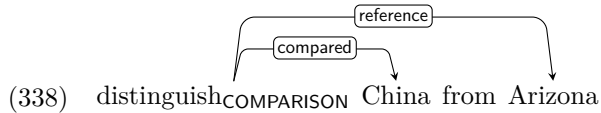
### 3.6 Look Up Unfamiliar Words in a Dictionary

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.



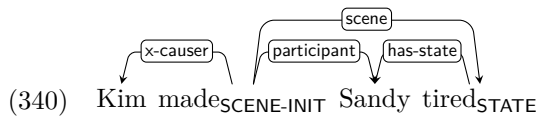
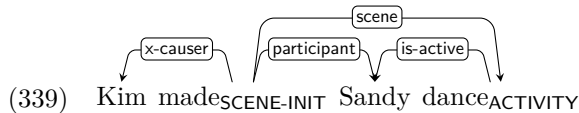
### 3.7 Symmetric Argument Pairs

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

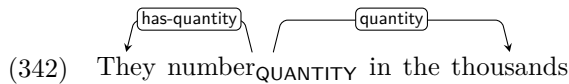
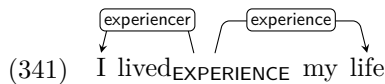


### 3.8 When to Use SCENE

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



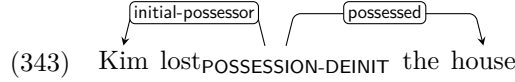
On the other hand, if a predicate is restricted to subordinate predicates of a certain type, it can have the same type.



<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

## 4 Aspect, Mode, and Polarity

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



In (343), losing is framed as `POSESSION-DEINIT` because a state of possession ends. `POSESSION-INIT` would be incorrect because although a losing event begins, the state that the superframe `POSESSION` describes ends. In general, aspectual suffixes modify superframes, they do not necessarily indicate the aspectual class of the predicate (here: *lost*).

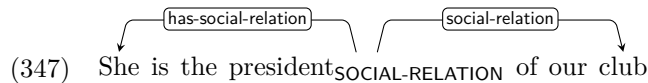
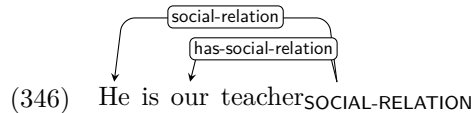
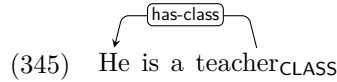
## 5 Construction-specific Guidelines

### 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:



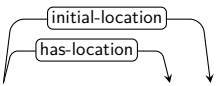
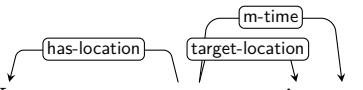
In other cases, such nouns rather denote a person’s profession or expertise or their role in a social context:




### 5.2 Particle Verbs

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

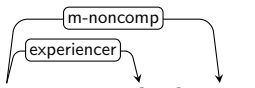
In UD, particle verbs are connected to their particle via the `compound:prt` relation. If the meaning is spatial, this dependency is labeled with `initial-location` or `target-location`.

- (348) 
- (349) 

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

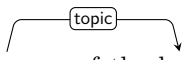
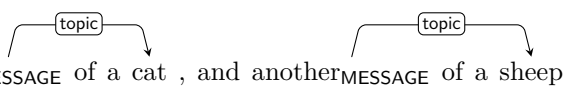
- (350)  (implies *eat* the cookies)

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

- (351)  (does not imply *do* somebody)

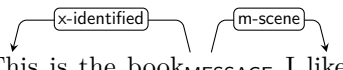
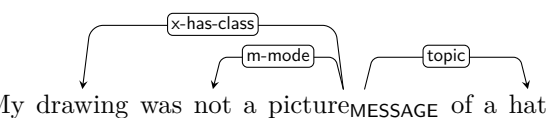
### 5.3 Pronouns with Arguments

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:

- (352) 
- (353) 

### 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.

- (354) 
- (355) 



## 6 TODO

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

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

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

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

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