

# Superframes Manual

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SUPERFRAME	initial-arg2	arg1	arg2	transitory-arg2	target-arg2	Sec.
EVENTUALITY						??
↳ PREDICATION		argument	predicate			??
↳ ACTIVITY		is-active	activity			2.12
↳ CLASS	initial-class	has-class	class		target-class	2.4
↳ EXISTENCE			exists			2.5
↳ TRANSFORMATION-CREATION		material			created	2.6
↳ REPRODUCTION		original			copy	2.7
↳ EXPERIENCE	initial-experience	experiencer	experience	transitory-experience	target-experience	2.11
↳ IDENTIFICATION		identified	identifier			2.2
↳ MODE		has-mode	mode			2.13
↳ QUALITY		has-quality	quality			2.8
↳ RANK		has-rank	rank			2.3
↳ STATE	initial-state	has-state	state		target-state	2.9
↳ DESTRUCTION		destroyed				2.10
↳ RELATION		satellite	nucleus			??
↳ ACCOMPANIMENT		accompanied	accompanier			2.14
↳ DEPICTIVE		has-depictive	depictive			2.15
↳ ASSET		has-asset	asset			2.17
↳ ATTRIBUTE		has-attribute	attribute			2.16
↳ COMPARISON		compared	reference			2.18
↳ CONCESSION		assertion	conceded			2.19
↳ EXPLANATION		explained	explanation			2.20
↳ PURPOSE		has-purpoe	purpose			2.21
↳ LOCATION	initial-location	has-location	location	transitory-location	target-location	2.22
↳ WRAPPING-WEARING		worn	wearer			2.23
↳ ADORNMENT-TARNISHMENT	initial-surface	ornament	surface		target-surface	2.24
↳ HITTING		hitting	hit			2.25
↳ INGESTION		ingested		transitory-location	ingerster	2.26
↳ EXCRETION	excreter	excreted		transitory-location	target-location	2.27
↳ UNANCHORED-MOTION		in-motion		transitory-location		2.28
↳ MEANS		has-means	means			2.29
↳ MESSAGE		topic	content			2.30
↳ NONCOMP		has-noncomp	noncomp			2.43
↳ PART-WHOLE	initial-whole	part	whole		target-whole	2.31
↳ POSSESSION	initial-possessor	possessed	possessor		target-possessor	2.32
↳ QUANTITY		has-quantity	quantity			2.33
↳ SCENE	initial-scene	participant	scene	transitory-scene	target-scene	2.1
↳ SENDING		sent	sender			2.34
↳ SEQUENCE		follows	followed			2.35
↳ CAUSATION		result	causer			2.36
↳ REACTION		reaction	trigger			2.37
↳ RESULTATIVE		has-resultative	resultative			2.38
↳ CONDITION		has-condition	condition			2.39
↳ EXCEPTION		has-exception	exception			2.40
↳ SOCIAL-RELATION	initial-social-relation	has-social-relation	social-relation		target-social-relation	2.41
↳ TIME		has-time	time			2.42

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 **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<sup>STATE</sup>
- (2) Kim is partying<sup>ACTIVITY</sup>

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

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

(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

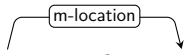
### 1.4 Modifiers

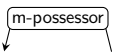
Like non-core arguments, modifiers are assumed to evoke an additional frame, and labeled with the role they fill in that frame, but with a prefix marking them as modifiers: **m-**.

(38) Kim is sweating<sub>EXCRETION</sub> profusely in the sauna

## 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:

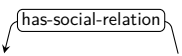
(39)  a tree<sub>CLASS</sub> in the garden

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

Event nouns evoke event frames and have arguments:

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

Relational nouns evoke relational frames and have arguments:

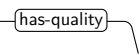
(42)  Kim 's friend<sub>SOCIAL-RELATION</sub>

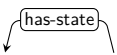
Pronouns and names evoke the **IDENTIFICATION** frame, meaning that they identify their referent as some entity (via naming or anaphora resolution).

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

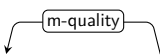
(44) they<sub>IDENTIFICATION</sub>


Predicate adjectives most typically denote states or qualities.

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

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

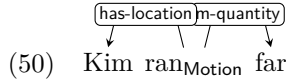
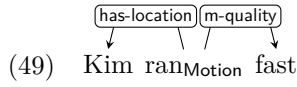
With attributive adjectives, the dependency relation is reversed, and the role label is changed accordingly.

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

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

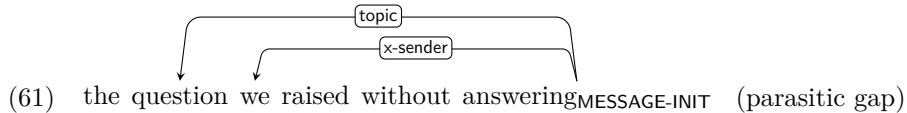
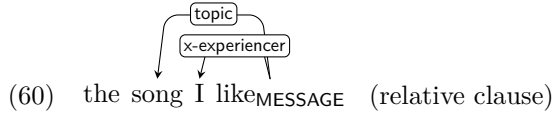
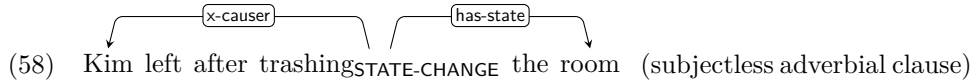
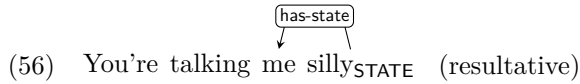
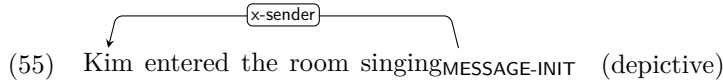
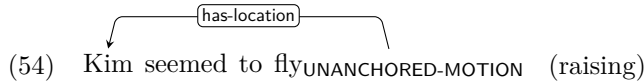
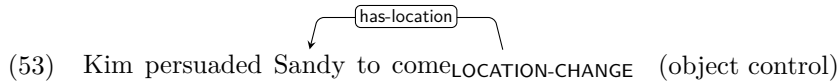
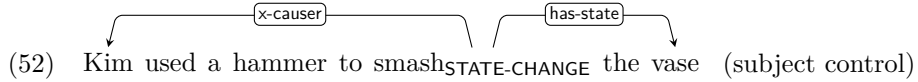
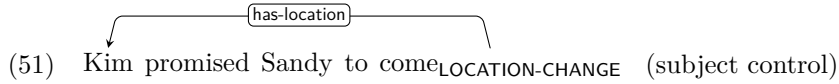
Similarly for adverbs denoting, e.g, manner (**quality**) or extent (**quantity**):





## 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.

(62) A hush passed<sub>UNANCHORED-MOTION » SCENE</sub> over the group

(63) Kim refused<sub>MESSAGE-INIT » SCENE</sub> to eat

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

(64) primeval forest<sub>CLASS</sub>

(65) colored pencil<sub>CLASS</sub>

(66) to lay<sub>LOCATION-CHANGE » MESSAGE-DEINIT</sub> aside my drawings

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

## 2 Superframes Reference

### 2.1 SCENE

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

(67) The concert<sub>MESSAGE-INIT</sub> began<sub>SCENE-INIT</sub>

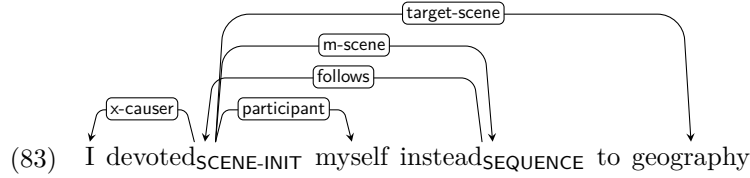
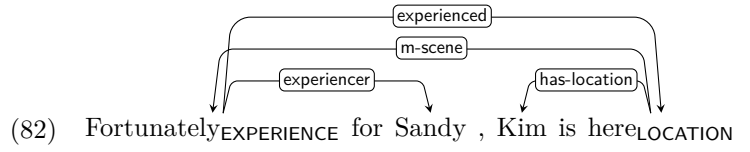
(68) The concert<sub>MESSAGE-INIT</sub> continued<sub>SCENE-CONTINUATION</sub>

(69) The concert<sub>MESSAGE-INIT</sub> finished<sub>SCENE-DEINIT</sub>

- (70) The shouting<sub>MESSAGE-INIT</sub> intensified<sub>SCENE-CONTINUATION</sub>
- (71) The shouting<sub>MESSAGE-INIT</sub> faded<sub>SCENE-DEINIT</sub>
- (72) A coup<sub>EXPERIENCE</sub> was attempted<sub>SCENE-INIT</sub>
- (73) Kim finished<sub>SCENE-DEINIT</sub> their work<sub>ACTIVITY</sub>
- (74) Swift action prevented<sub>SCENE-PREVENTION</sub> an outbreak<sub>SCENE-INIT</sub> of measles<sub>EXPERIENCE</sub>
- (75) Kim refrained<sub>SCENE-PREVENTION</sub> from going<sub>LOCATION-CHANGE</sub>
- (76) Kim prevented<sub>SCENE-PREVENTION</sub> Sandy from going<sub>LOCATION-CHANGE</sub>
- (77) Kim saved<sub>SCENE-PREVENTION</sub> Sandy from the dragon<sub>CLASS</sub>
- (78) Kim plays<sub>SCENE</sub> tennis<sub>ACTIVITY</sub>
- (79) Kim used<sub>SCENE</sub> to plays<sub>SCENE</sub> tennis<sub>ACTIVITY</sub>
- (80) Kim gave<sub>SCENE</sub> Sandy a kick<sub>HITTING</sub>

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.

- (81) the clown<sub>CLASS</sub> I saw<sub>MESSAGE</sub> smiled



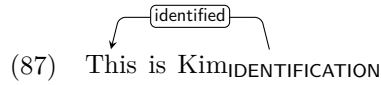
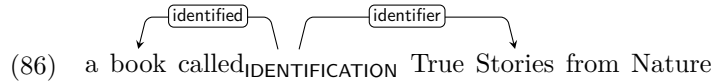
## 2.2 IDENTIFICATION

identifier identifies identified.

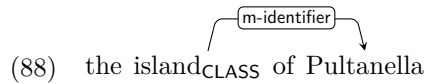
Evoked by definite pronouns, names, and other identifiers, as well as predicates denoting naming relationships.

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

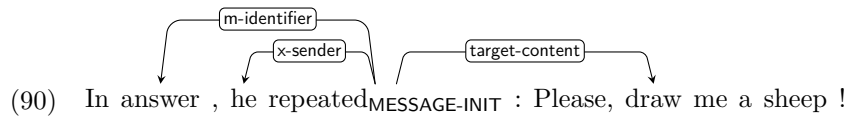
(85) I can distinguish China<sub>IDENTIFICATION</sub> from Arizona



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

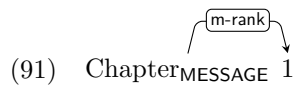


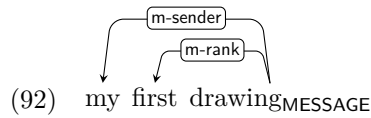
Likewise, in has an identifying sense:



## 2.3 RANK

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





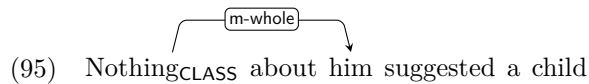
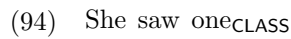
## 2.4 CLASS

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

Most prototypically evoked by common nouns with no arguments.

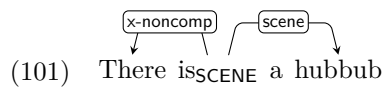
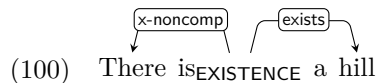
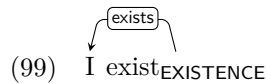


Indefinite pronouns also evoke **CLASS**.



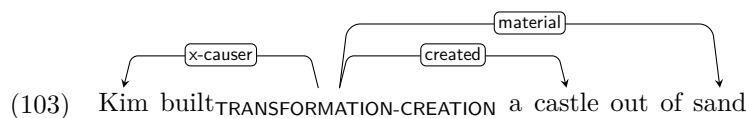
## 2.5 EXISTENCE

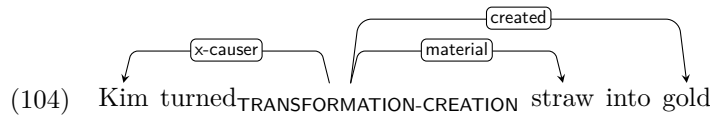
**exists** exists. Use this only for non-scene entities; for scenes, use the **SCENE** frame.



## 2.6 TRANSFORMATION-CREATION

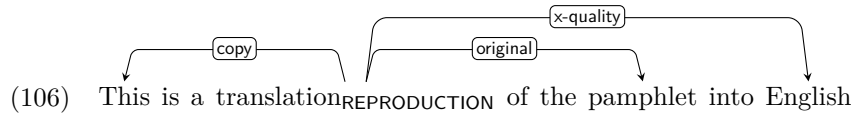
Special case of **EXISTENCE-INIT** where **created** (aka **target-exists**) is newly created from **material**, or **material** is transformed to become **created**.





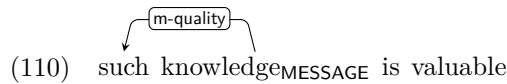
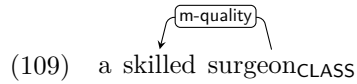
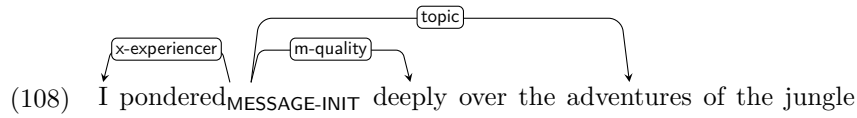
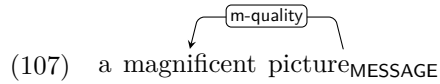
## 2.7 REPRODUCTION

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



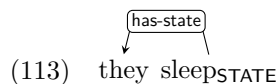
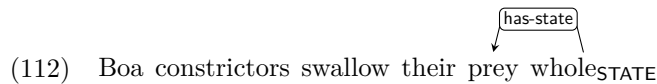
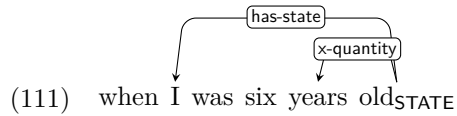
## 2.8 QUALITY

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



## 2.9 STATE

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



- (114) they swallow their prey whole without chewing STATE-CHANGE it
- (115) the six months that they need for digestion STATE-CHANGE
- (116) And that hasn't much improved STATE-CHANGE my opinion of them

## 2.10 DESTRUCTION

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

- (117) Sam 's death DESTRUCTION
- (118) Sam 's destruction DESTRUCTION of the city

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

- (119) Something was broken STATE in my engine

## 2.11 EXPERIENCE

experience indicates an experience that experiencer undergoes.

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

- (120) Kim 's adventures EXPERIENCE in the jungle
- (121) Kim attacked EXPERIENCE Sandy
- (122) I saw MESSAGE a magnificent picture
- (123) I pondered MESSAGE-INIT deeply
- (124) Kim talked MESSAGE-INIT to Sandy

- (125) Kim did<sub>SCENE</sub> something nice for Sandy
- (126) Kim cooked a meal only to have<sub>SCENE</sub> Sandy spurn it
- (127) Kim managed<sub>EXPERIENCE</sub> with dealing the cards
- (128) Die Piroggen waren Maria zu dunkel geraten<sub>SCENE-INIT</sub>
- (129) Das hat mir gerade noch gefehlt<sub>EXPERIENCE</sub>
- (130) they need<sub>EXPERIENCE-NECESSITY</sub> six months for digestion

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

## 2.12 ACTIVITY

is-active actively participates in activity.

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

- (131) Kim worked<sub>ACTIVITY</sub>
- (132) Kim partied<sub>ACTIVITY</sub>
- (133) Kim had sex<sub>ACTIVITY</sub>
- (134) after some work<sub>ACTIVITY</sub> with a colored pencil
- (135) I devoted myself to geography<sub>ACTIVITY</sub>



## 2.13 MODE

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

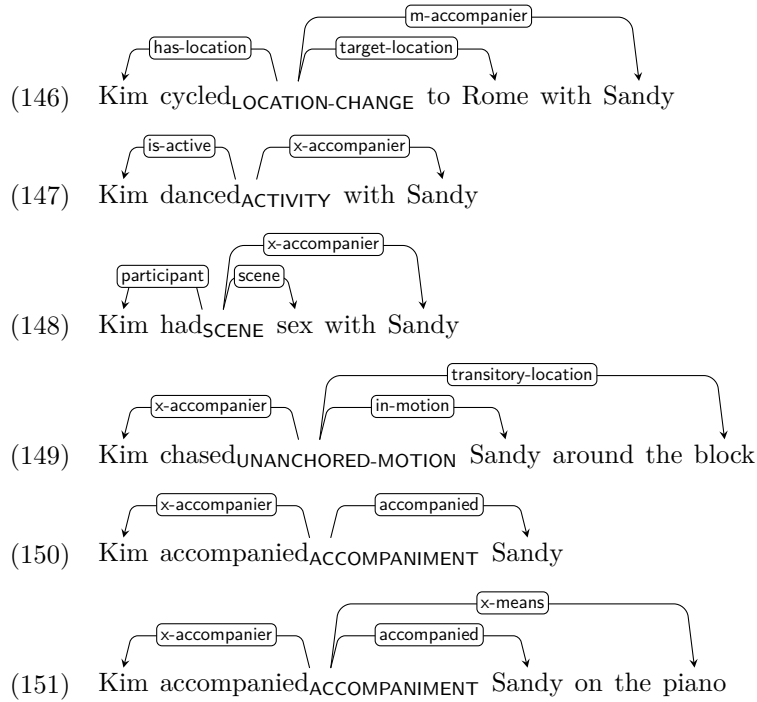
- (136) Even Kim<sub>IDENTIFICATION</sub> did n't know that
- (137) They only rinsed<sub>ADORNMENT-TARNISHMENT-DEINIT</sub> the dishes
- (138) Passt<sub>COMPARISON</sub> das eh ?
- (139) Kim probably knows<sub>MESSAGE</sub> that
- (140) That 's really great<sub>QUALITY</sub>
- (141) Kim is not here<sub>LOCATION</sub>

## 2.14 ACCOMPANIMENT

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

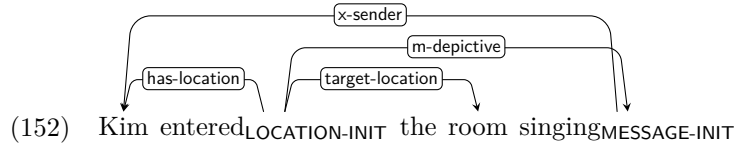
- (142) veggies<sub>CLASS</sub> with rice
- (143) The veggies come<sub>ACCOMPANIMENT</sub> with rice
- (144) Kim added<sub>ACCOMPANIMENT-INIT</sub> rice to the veggies
- (145) Rolling thunder accompanies<sub>ACCOMPANIMENT</sub> the rain

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



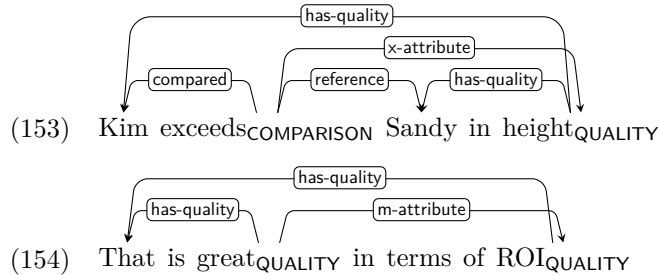
## 2.15 DEPICTIVE

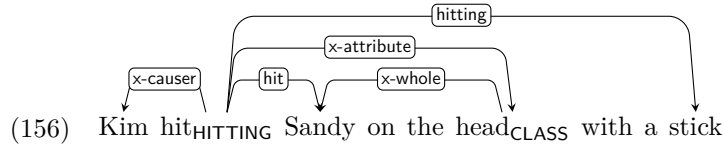
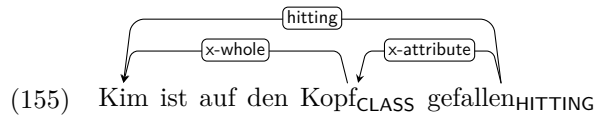
Special case of ACCOMPANIMENT where depictive (aka accompanier) assigns a participant of has-depictive (aka accompanied) a role (cf. Sec. 1.6).



## 2.16 ATTRIBUTE

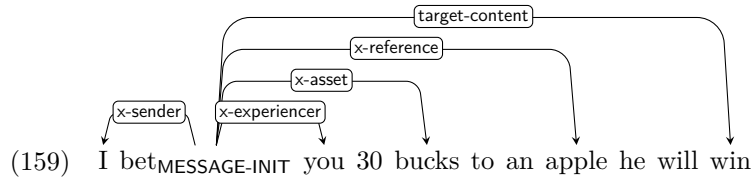
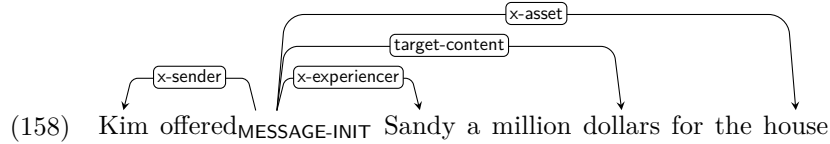
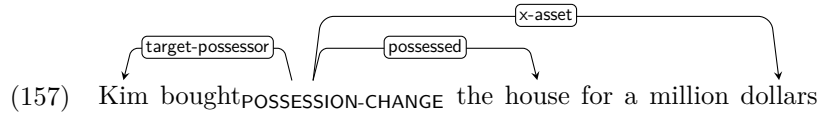
In a scene has-attribute, attribute is the part or attribute of one or more participants that is most directly involved in the scene. Add a dependency link between the participant and its attribute to indicate which participant(s) have the attribute.





## 2.17 ASSET

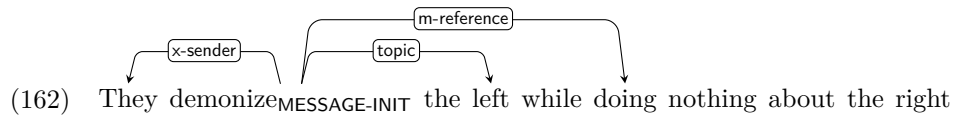
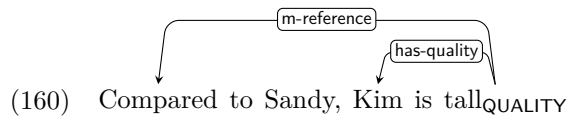
In a scene **has-asset**, asset is given or offered in an exchange or wager.



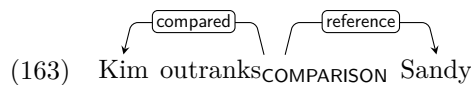
## 2.18 COMPARISON

**compared** is characterized with respect to **reference**.

Examples of comparing scenes:



Examples of comparing non-scene entities:



- (164) Kim exceeds<sub>COMPARISON</sub> Sandy in height
- (165) The Polish restaurant compared<sub>COMPARISON</sub> favorably to the Spanish one
- (166) Kim compared<sub>COMPARISON</sub> Coke to Pepsi

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

- (167) The program conforms<sub>COMPARISON</sub> to the spec
- (168) Kim ran<sub>COMPARISON-DEINIT</sub> afoul of Fielding 's constraints

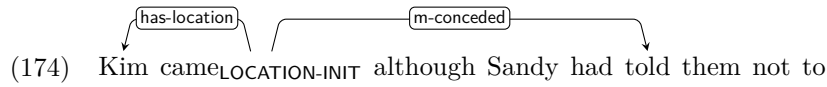
We analyze gradation of adjectives as a valency-changing derivation that adds an x-reference argument.

- (169) more isolated<sub>SOCIAL-RELATION</sub> than a shipwrecked sailor
- (170) Kim is taller<sub>QUALITY</sub> than Sandy

## 2.19 CONCESSION

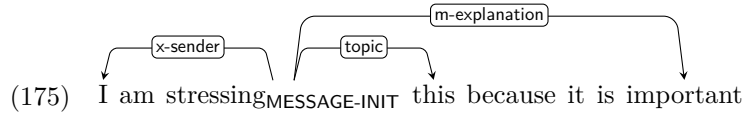
Special case of **COMPARISON**, where **compared** is what's asserted and **reference** is what's conceded.

- (171) Kim went<sub>LOCATION-CHANGE</sub> out despite the rain
- (172) It rained<sub>STATE</sub> , but Kim went out
- (173) Kim sent<sub>SENDING</sub> Sandy a letter , but it never arrived



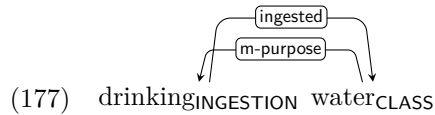
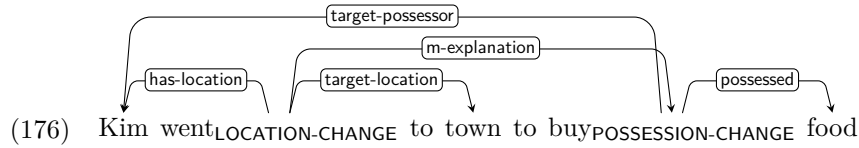
## 2.20 EXPLANATION

explanation explains explained, but is not a cause.



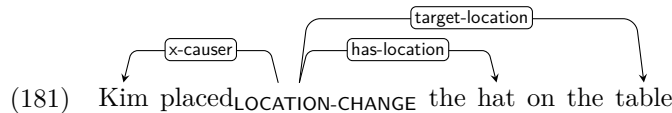
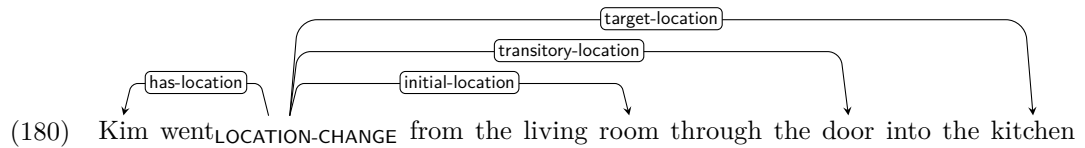
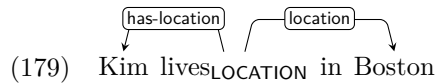
## 2.21 PURPOSE

Special case of EXPLANATION where explanation is a purpose.



## 2.22 LOCATION

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



## 2.23 WRAPPING-WEARING

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

- (182) Kim is wearing<sub>WRAPPING-WEARING</sub> a shirt
- (183) Kim is wearing<sub>WRAPPING-WEARING</sub> glasses
- (184) The shroud wraps<sub>WRAPPING-WEARING</sub> the scepter
- (185) Kim put<sub>WRAPPING-WEARING-INIT</sub> on a sweater
- (186) Kim took<sub>WRAPPING-WEARING-DEINIT</sub> off their glasses

## 2.24 ADORNMENT-TARNISHMENT

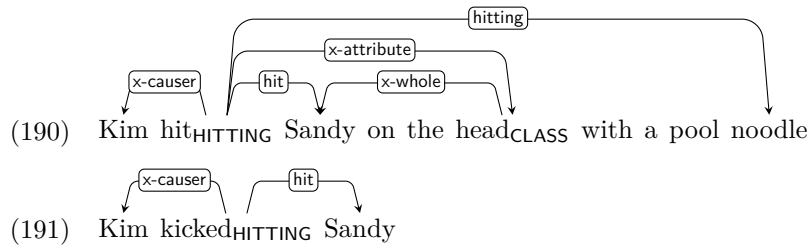
Special case of LOCATION where ornament (aka has-location) sits on surface (aka location).

- Kim decorated<sub>ADORNMENT-TARNISHMENT</sub> the balcony with fairy lights
- Kim splashed<sub>ADORNMENT-TARNISHMENT-INIT</sub> Sandy with water
- Kim washed<sub>ADORNMENT-TARNISHMENT-DEINIT</sub> the dirt off Sandy
- Kim washed<sub>ADORNMENT-TARNISHMENT-DEINIT</sub> Sandy

## 2.25 HITTING

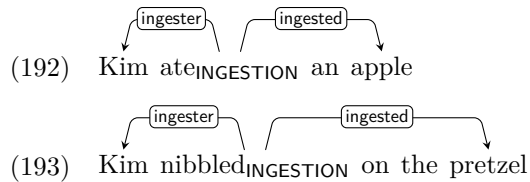
Special case of LOCATION-INIT where hitting (aka has-location) comes into contact with hit (aka target-location).

- (187) Kim hit<sub>HITTING</sub> Sandy
- (188) Kim hit<sub>HITTING</sub> Sandy with a stick
- (189) The stick hit<sub>HITTING</sub> Sandy



## 2.26 INGESTION

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



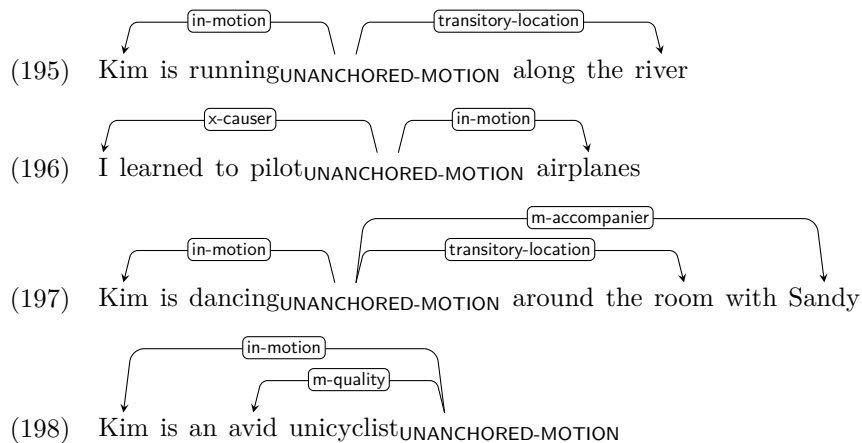
## 2.27 EXCRETION

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



## 2.28 UNANCHORED-MOTION

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



## 2.29 MEANS

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

- (199) Kim cut<sub>STATE-CHANGE</sub> the cake with a knife
- (200) Kim painted<sub>ADORNMENT-TARNISHMENT</sub> the room by exploding a paint bomb
- (201) Kim used<sub>MEANS</sub> a pen to get<sub>LOCATION-DEINIT</sub> the lid off
- (202) You used<sub>MEANS</sub> me !

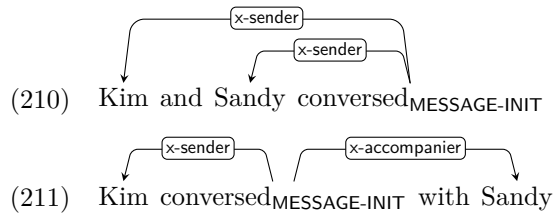
### 2.30 MESSAGE

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

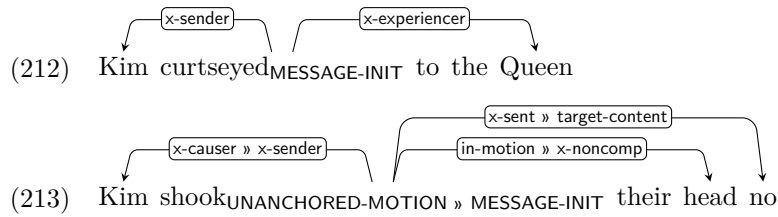
#### 2.30.1 Expression

- (203) Kim yelled<sub>MESSAGE-INIT</sub>
- (204) Kim said<sub>MESSAGE-INIT</sub> : it 's fine
- (205) Kim said<sub>MESSAGE-INIT</sub> it was fine
- (206) Kim called<sub>MESSAGE-INIT</sub> Sandy a liar<sub>MESSAGE</sub>
- (207) Kim told<sub>MESSAGE-INIT</sub> Sandy a secret
- (208) Kim talked<sub>MESSAGE-INIT</sub> about Sandy
- (209) Kim talked<sub>MESSAGE-INIT</sub> shit<sub>MESSAGE</sub> about Sandy



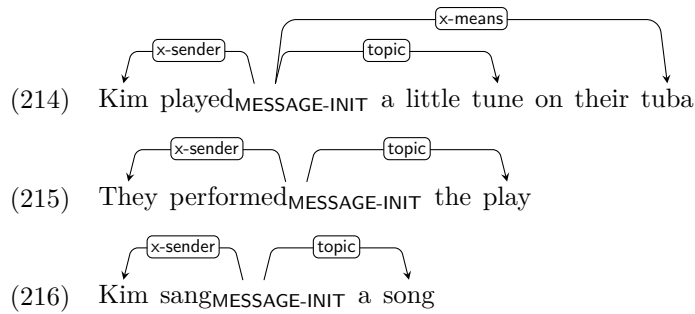


### 2.30.2 Gesture

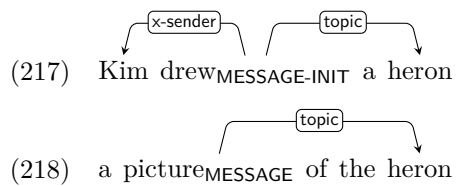


### 2.30.3 Performance

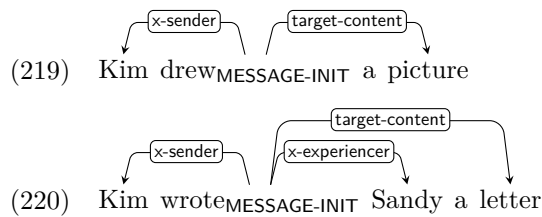
Performance of a work of art is framed as **MESSAGE** where the work of art is the **topic**.

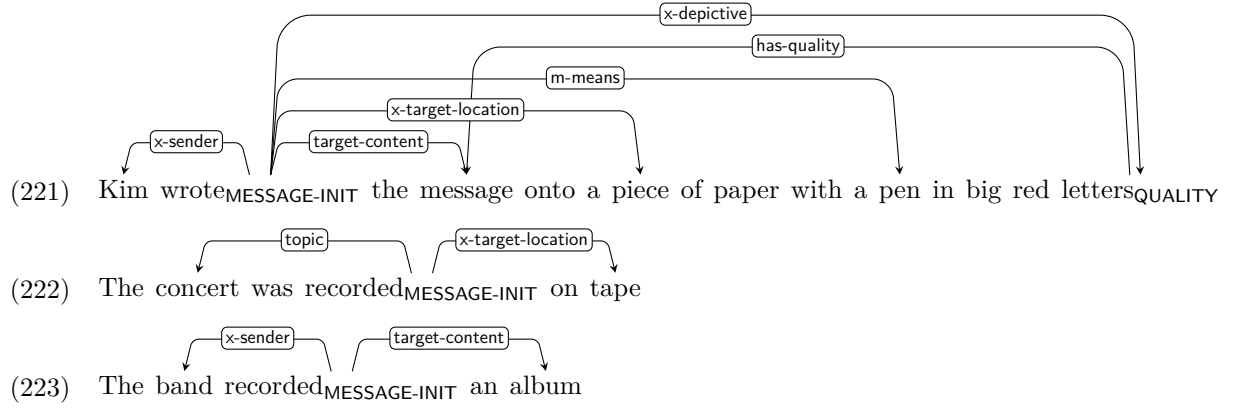


### 2.30.4 Depiction



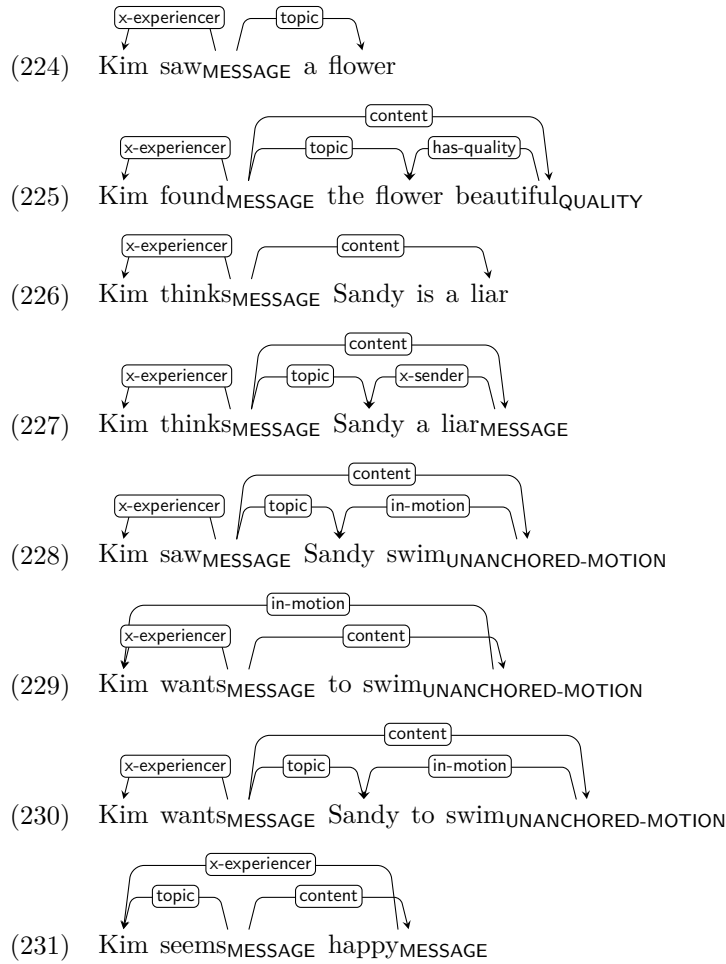
### 2.30.5 Recording

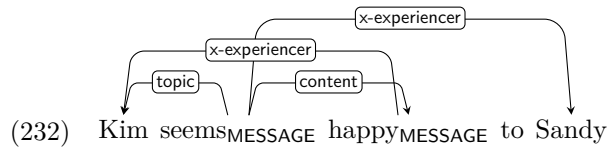




### 2.30.6 Perception

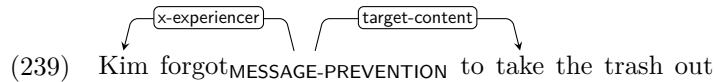
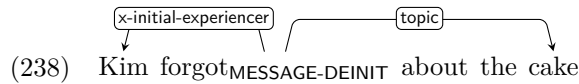
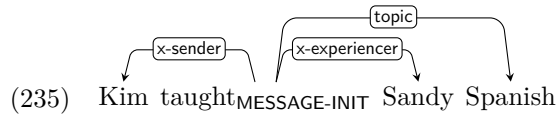
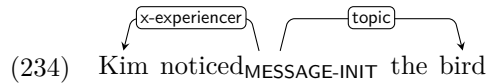
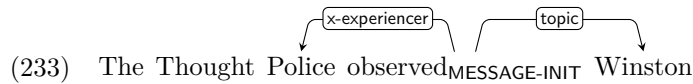
We also frame perception as MESSAGE, including mental and volitional perception.





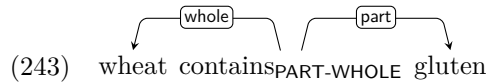
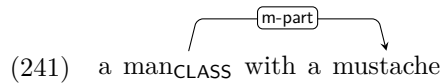
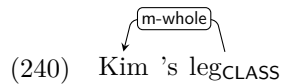
### 2.30.7 Beginning and Ending Perception

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



## 2.31 PART-WHOLE

part is part of whole.



## 2.32 POSSESSION


possessor possesses or controls the possessed.

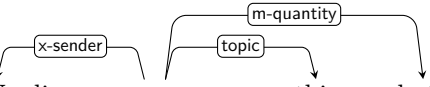
- (244) Kim 's house<sub>CLASS</sub>
- (245) Kim owns<sub>POSSESSION</sub> a house
- (246) The house belongs<sub>POSSESSION</sub> to Kim
- (247) the owner<sub>POSSESSION</sub> of the house
- (248) Kim has<sub>POSSESSION</sub> Sandy 's phone
- (249) Kim bought<sub>POSSESSION-CHANGE</sub> a house from Sandy
- (250) Sandy sold<sub>POSSESSION-CHANGE</sub> Kim the house
- (251) Kim kept<sub>POSSESSION-CONTINUATION</sub> the house
- (252) Kim lost<sub>POSSESSION-DEINIT</sub> the house
- (253) Caesar conquered<sub>POSSESSION-INIT</sub> Gaul
- (254) Caesar 's conquest<sub>POSSESSION-INIT</sub> of Gaul
- (255) Kim owes<sub>POSSESSION-CHANGE-NECESSITY</sub> Sandy money

## 2.33 QUANTITY

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

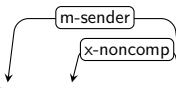
- (256) three burgers<sub>CLASS</sub>

(257)  three liters<sub>QUANTITY</sub> of coke

(258)  We discourage<sub>MESSAGE-INIT</sub> this emphatically

### 2.34 SENDING


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

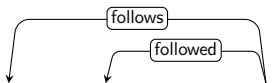
(259)  According to Kim , it is raining<sub>STATE</sub>

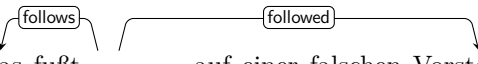
For more uses, see MESSAGE (Section 2.30).


### 2.35 SEQUENCE

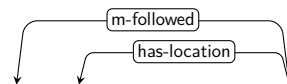
follows follows followed, e.g., temporally, logically, by rank, as heir, etc.

(260)  Form follows<sub>SEQUENCE</sub> function

(261)  Cook is Jobs 's successor<sub>SEQUENCE</sub>


(262)  Das fußt<sub>SEQUENCE</sub> auf einer falschen Vorstellung


(263)  Kim deduced<sub>SEQUENCE</sub> the truth from the clues

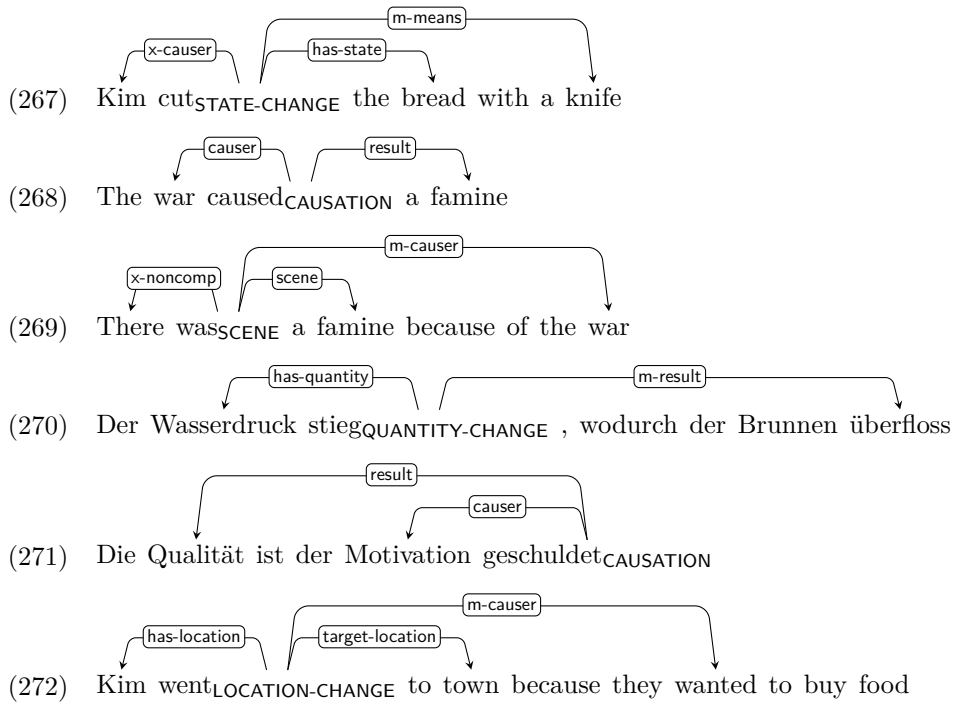
(264)  Given that I 'm tired , I wo n't be there<sub>LOCATION</sub>

### 2.36 CAUSATION

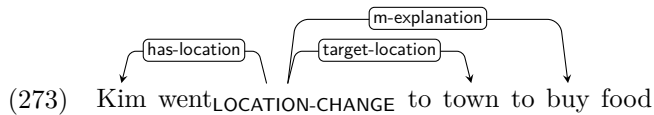
Special case of SEQUENCE where **causer** (aka followed) causes **result** (aka follows).

(265)  Kim broke<sub>STATE-CHANGE</sub> the glass

(266)  The knife cut<sub>STATE-CHANGE</sub> the bread

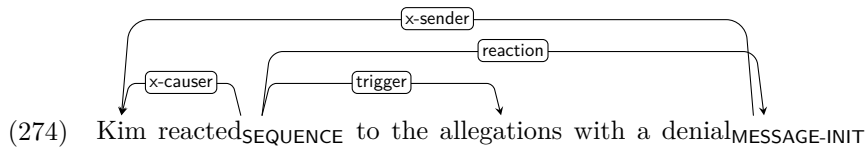


Note how the last example expresses a purpose, but expresses it as a cause, so m-causer is the right label to use. Compare this to construal as a purpose:



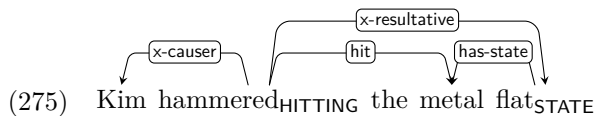
## 2.37 REACTION

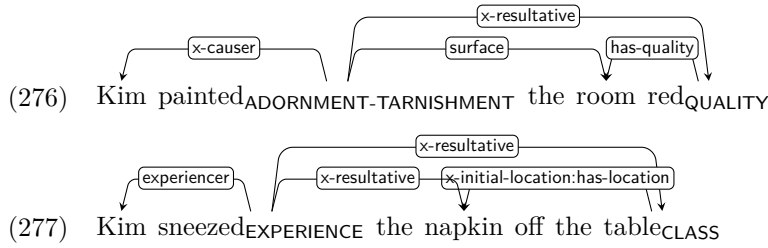
Special case of CAUSATION where trigger (aka causer) triggers a reaction (aka result) in the x-causer.



## 2.38 RESULTATIVE

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

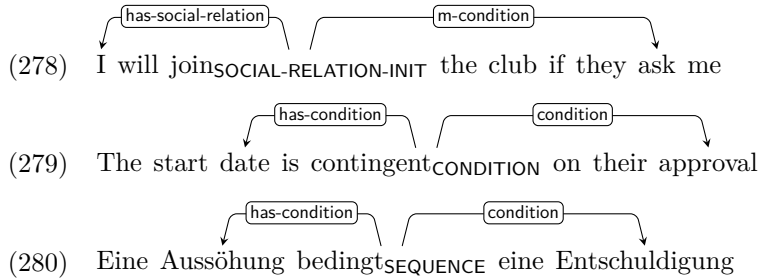




In the last example, we use `x-initial-location:has-location` to specify not only the role of the napkin in the resulting event (`has-location`) but also that of the table (`initial-location`). Using `x-has-location` would be imprecise because we would then assume that the table has location.

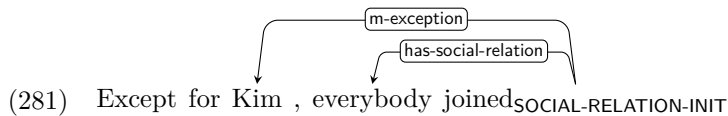
### 2.39 CONDITION

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



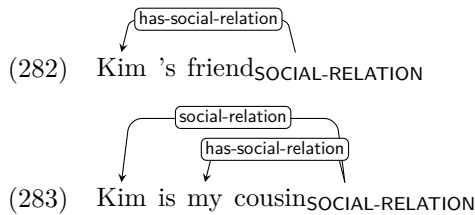
### 2.40 EXCEPTION

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



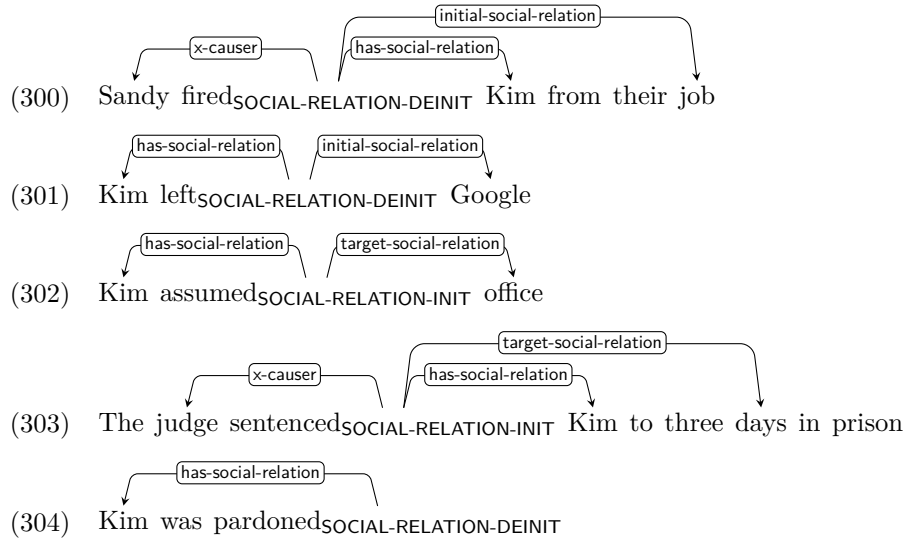
### 2.41 SOCIAL-RELATION

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



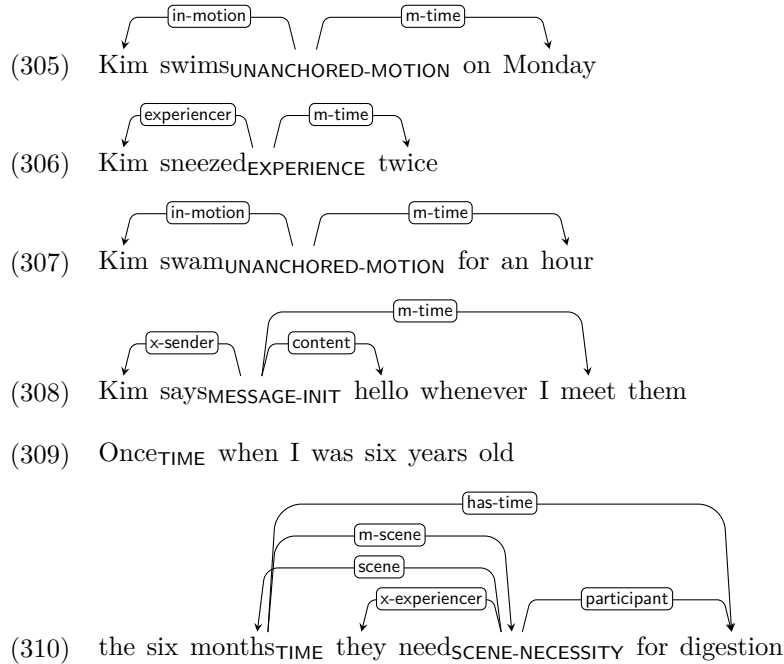
- (284) Kim and Sandy are friends<sub>SOCIAL-RELATION</sub>
- (285) Kim is friends<sub>SOCIAL-RELATION</sub> with Sandy
- (286) Kim works<sub>SOCIAL-RELATION</sub> at Google
- (287) Kim works<sub>SOCIAL-RELATION</sub> for Sandy
- (288) Kim emceed<sub>SOCIAL-RELATION</sub>
- (289) Kim is hosting<sub>SOCIAL-RELATION</sub> the party
- (290) Kim is under house arrest<sub>SOCIAL-RELATION</sub>
- (291) Kim 's sentences<sub>SOCIAL-RELATION</sub> was suspended
- (292) Kim married<sub>SOCIAL-RELATION-INIT</sub> Sandy
- (293) The official married<sub>SOCIAL-RELATION-INIT</sub> Kim to Sandy
- (294) The official married<sub>SOCIAL-RELATION-INIT</sub> Kim and Sandy
- (295) Kim divorced<sub>SOCIAL-RELATION-DEINIT</sub> Sandy
- (296) Kim befriended<sub>SOCIAL-RELATION-INIT</sub> Sandy
- (297) Kim took<sub>SOCIAL-RELATION-INIT</sub> the job
- (298) Kim joined<sub>SOCIAL-RELATION-INIT</sub> Google
- (299) Kim joined<sub>SOCIAL-RELATION-INIT</sub> a union





## 2.42 TIME

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



## 2.43 NONCOMP

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

(311) Kim kicked<sub>DESTRUCTION</sub> the bucket

(312) It is raining<sub>STATE</sub>

(313) I address<sub>MESSAGE-INIT</sub> myself to you

(314) There was<sub>SCENE</sub> a famine

(315) fountain pen<sub>CLASS</sub>

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

### 3 Memos

#### 3.1 Argument Structure and Frame Choice

##### 3.1.1 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.

(316) Kim drove<sub>LOCATION-CHANGE</sub> to Boston

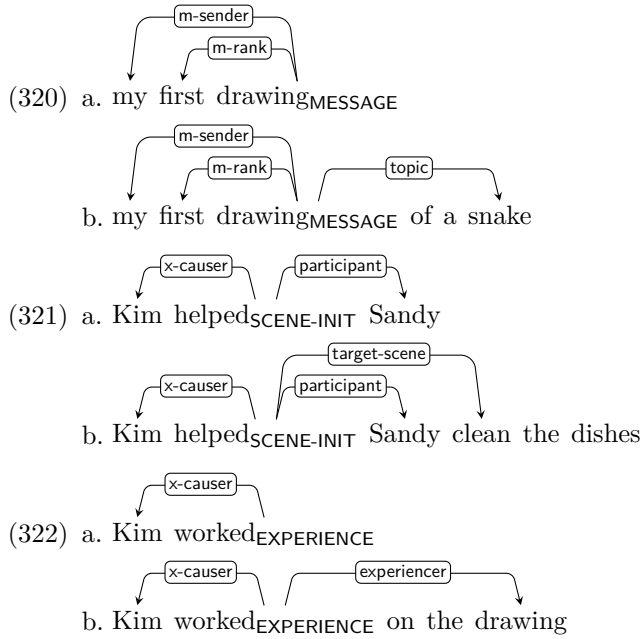
(317) Kim drove<sub>LOCATION-CHANGE</sub> the car to Boston

(318) They plundered<sub>POSSESSION-CHANGE</sub> Rome

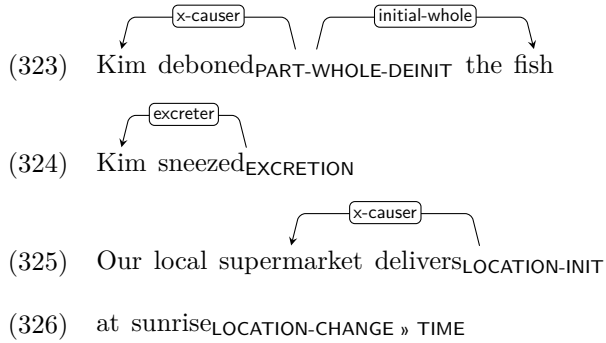
(319) Kim undressed<sub>WRAPPING-WEARING-DEINIT</sub>

##### 3.1.2 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 (323), mucus and air in (324), groceries in (325), or sun in (326).



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

For example, consider (327), Here, The knife occupies the subject position and should be treated as the causer of the cutting. We could add the person handling the knife as the causer, and treat the knife as an instrument. However, to add the former to the sentence, we would not merely have to add another realized argument, but also change the syntactic argument structure so that the the subject position goes to that causer, as in (328). Thus, we treat this as a different framing with a different causer, rather than a more explicit version of the same framing. Likewise, (329) and (330) are two different framings, one with price as **has-state**, and one with butter.

- (327) The knife cut<sub>STATE-CHANGE</sub> the butter
- (328) Kim cut<sub>STATE-CHANGE</sub> the butter with the knife
- (329) The price is high<sub>QUANTITY</sub>
- (330) The butter is high<sub>QUANTITY</sub> in price<sub>QUALITY</sub>

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

For example, in (331-a), 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 (331-b), prefer it.

- (331) a. Kim chased<sub>UNACHORED-MOTION</sub> Sandy around the block
- b. Kim chased<sub>UNACHORED-MOTION</sub> after Sandy

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

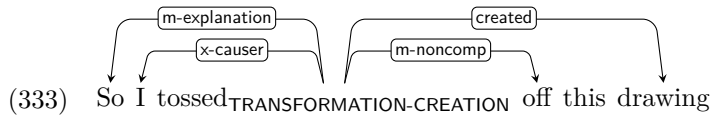
One special case of this is when a predicate occurs as part of an opaque fixed expression, like hand in close at hand. In this case, hand is not annotated with CLASS, but with NONCOMP.

- (332) I have seen them intimately, close<sub>LOCATION</sub> at hand<sub>NONCOMP</sub>

### 3.1.6 Look Up Unfamiliar Words in a Dictionary

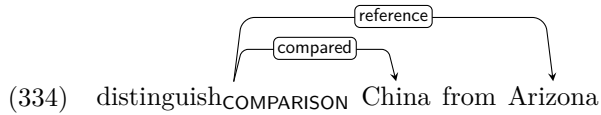
When you come across an unfamiliar predicate, you might not be able to determine what arguments it has, and consequently what the most appropriate superframe is, from this one context alone. Use a dictionary such as Wiktionary in this case. In the following example, I found that toss off can mean “to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

<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



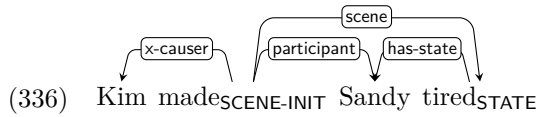
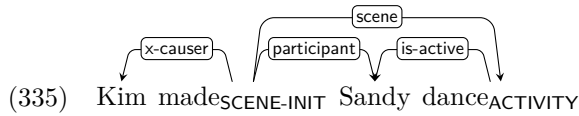
### 3.1.7 Symmetric Argument Pairs

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

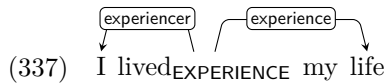


### 3.1.8 When to Use **SCENE**

**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**.

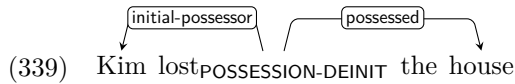


On the other hand, if a predicate is restricted to subordinate predicates of a certain type, it can have the same type.



## 3.2 Aspect, Mode, and Polarity

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



In (339), 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).

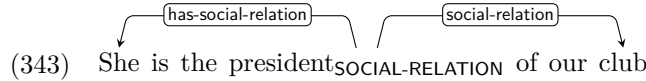
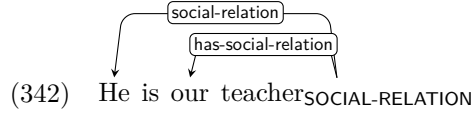
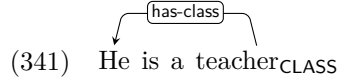
### 3.3 Construction-specific Guidelines

#### 3.3.1 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:



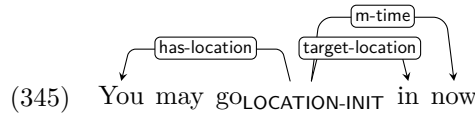
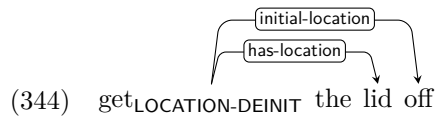
In other cases, such nouns rather denote a person's profession or expertise or their role in a social context:



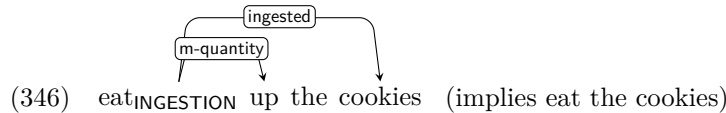
#### 3.3.2 Particle Verbs

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).

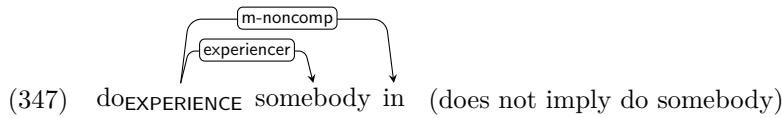
In UD, particle verbs are connected to their particle via the `compound:prt` relation. If the meaning is spatial, this dependency is labeled with `initial-location` or `target-location`.



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

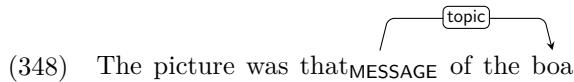


In fully non-compositional particle verbs, where the meaning is not predictable, use `m-noncomp`.



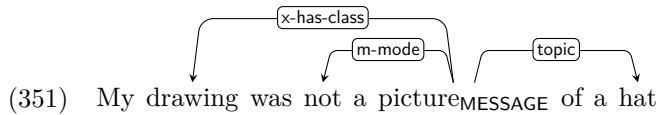
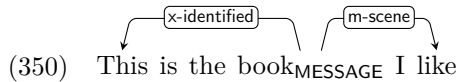
### 3.3.3 Pronouns with Arguments

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:



### 3.3.4 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.



## 4 TODO

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

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

Speaker-oriented adverbs: **MESSAGE**? erstaunlicherweise, geheimnisvollerweise, glücklicherweise, möglicherweise, notwendigerweise, tragischerweise, unglaublicherweise (**MESSAGE-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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