Superframes Manual

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

1 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 super-frames have *aspectual variants* with role variants that allow to distinguish participants before, during, and after an event. This avoids having `Source` and `Target` as roles in their own right, which indicate the time sequence but suppress information about the nature of the relation that is changing.

5. Similarly, Superframes do not have the `Agent` role, which is often in conflict with roles indicating more specifically the agent's relation to other participants.

6. Doubt, ambiguity, and figurativity are systematically treated. If there is not one clear solution, the solution is to give two or more alternative labels.

Table 1 shows the superframes and their roles.

1.1   Core Arguments

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

(1)   Kim is sleeping_{STATE} [has-state]

(2)   Kim is partying_{ACTIVITY} [is-active]

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

(3)   Kim owns_{POSSESSION} a house [possessor, possessed]

(4)   The house belongs_{POSSESSION} to Kim [possessed, possessor]

(5)   Kim seems_{MESSAGE} happy [topic, content]

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$_{\text{POSSESSION-INIT}}$ the house

    target-possessor → Kim ← *possessed* → the house

(7) Kim lost$_{\text{POSSESSION-DEINIT}}$ the house

    initial-possessor → Kim ← *possessed* → the house

(8) Kim sold$_{\text{POSSESSION-CHANGE}}$ the house to Sandy

    initial-possessor → Kim; *target-possessor*, *possessed* → the house → Sandy

(9) Kim kept$_{\text{POSSESSION-CONTINUATION}}$ the house

    initial-possessor → Kim ← *possessed* → the house

(10) Kim went$_{\text{LOCATION-CHANGE}}$ from Chicago via Pittsburgh to Boston

    has-location → Kim; *initial-location* → Chicago; *transitory-location* → Pittsburgh; *target-location* → Boston

(11) The vase fell$_{\text{LOCATION-CHANGE}}$ to the ground

    has-location → The vase; *target-location* → the ground

(12) The vase broke$_{\text{STATE-CHANGE}}$

    has-state → The vase

(13) Kim befriended$_{\text{SOCIAL-RELATION-INIT}}$ Sandy

    has-social-relation → Kim; *target-social-relation* → Sandy

(14) Kim married$_{\text{SOCIAL-RELATION-INIT}}$ Sandy

    has-social-relation → Kim; *target-social-relation* → Sandy

(15) Kim divorced$_{\text{SOCIAL-RELATION-DEINIT}}$ Sandy

    has-social-relation → Kim; *initial-social-relation* → Sandy

(16) Kim saved$_{\text{EXPERIENCE-PREVENTION}}$ Sandy from the dragon

    x-causer → Kim; *experiencer*, *target-experience* → Sandy → 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$_{\text{SCENE-INIT}}$

    target-scene → The concert

(18) The concert continued$_{\text{SCENE-CONTINUATION}}$

    initial-scene → The concert

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(19) The concert finished$_{\text{SCENE-DEINIT}}$ [arc: initial-scene]

(20) The shouting intensified$_{\text{SCENE-CONTINUATION}}$ [arc: initial-scene]

(21) The shouting faded$_{\text{SCENE-DEINIT}}$ [arc: initial-scene]

(22) A coup was attempted$_{\text{SCENE-INIT}}$ [arc: target-scene]

(23) Kim finished$_{\text{SCENE-DEINIT}}$ their work [arcs: participant, initial-scene]

(24) Swift action prevented$_{\text{SCENE-PREVENTION}}$ an outbreak [arcs: x-causer, target-scene]

(25) Kim refrained$_{\text{SCENE-PREVENTION}}$ from going [arcs: participant, target-scene]

(26) Kim prevented$_{\text{SCENE-PREVENTION}}$ Sandy from going [arcs: x-causer, participant, target-scene]

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

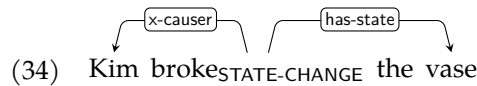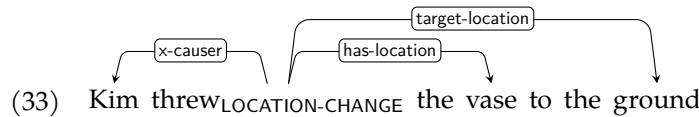(27) Change is necessary$_{\text{SCENE-NECESSITY}}$ [arc: scene]

(28) Change is possible$_{\text{SCENE-POSSIBILITY}}$ [arc: scene]

(29) Kim owes$_{\text{POSSESSION-CHANGE-NECESSITY}}$ Sandy money [arcs: initial-possessor, target-possessor, possessed]

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

(30) absence$_{\text{EXISTENCE-NEG}}$ of evidence [arc: exists]

(31) That is impossible$_{\text{SCENE-POSSIBILITY-NEG}}$ [arc: scene]

(32) They never$_{\text{TIME-NEG}}$ understand
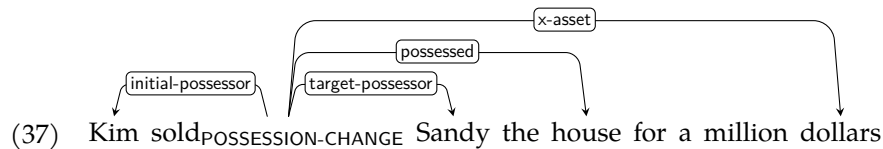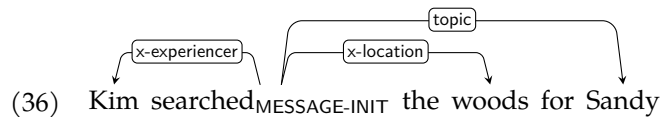
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1.3 Non-core Arguments

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_LOCATION-CHANGE the vase to the ground
[x-causer] [has-location] [target-location]

(34) Kim broke_STATE-CHANGE the vase
[x-causer] [has-state]

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

(35) Kim talked_MESSAGE-INIT to Sandy about Bali
[x-sender] [x-experiencer] [topic]
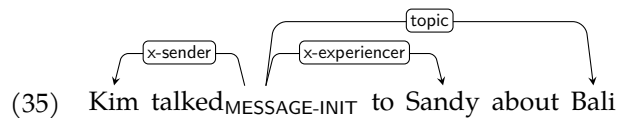
Other non-core arguments are usually rather predicate-specific.

(36) Kim searched_MESSAGE-INIT the woods for Sandy
[x-experiencer] [x-location] [topic]

(37) Kim sold_POSSESSION-CHANGE Sandy the house for a million dollars
[initial-possessor] [target-possessor] [possessed] [x-asset]

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_EXCRETION profusely in the sauna
[excreter] [m-quantity] [m-location]
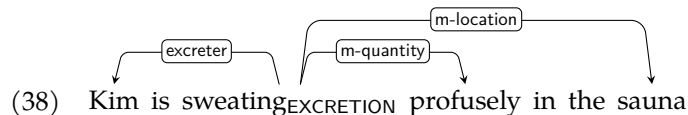
1.5 Nonverbal Predicates

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, mark-

ing 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$_{\text{CLASS}}$ [m-location] in the garden

(40)   Kim 's [m-possessor] tree$_{\text{CLASS}}$

Event nouns evoke event frames and have arguments:

(41)   Kim 's [x-causer] breaking$_{\text{STATE-CHANGE}}$ [has-state] of the vase

Relational nouns evoke relational frames and have arguments:

(42)   Kim 's [has-social-relation] friend$_{\text{SOCIAL-RELATION}}$

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

(43)   Kim$_{\text{IDENTIFICATION}}$

(44)   they$_{\text{IDENTIFICATION}}$

Predicate adjectives most typically denote states or qualities.

(45)   I am [has-quality] despicable$_{\text{QUALITY}}$

(46)   the dog is [has-state] tired$_{\text{STATE}}$
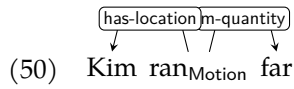
With attributive adjectives, the dependency relation is reversed, and the role label is changed accordingly.

(47)   despicable [m-quality] me$_{\text{IDENTIFICATION}}$
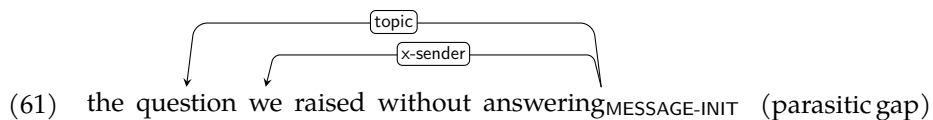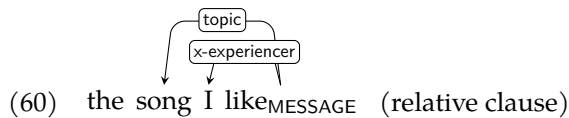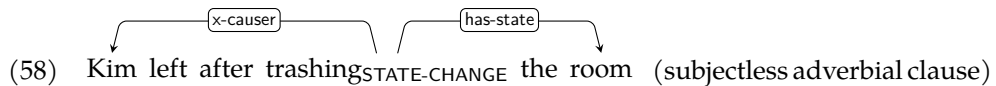
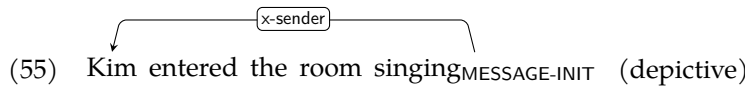(48)   the tired [m-state] dog$_{\text{CLASS}}$

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

(49)   Kim ran$_{\text{Motion}}$ [has-location] [m-quality] fast

(50) $\overset{\boxed{\text{has-location}}\ \boxed{\text{m-quantity}}}{\text{Kim ran}_{\text{Motion}} \text{ far}}$

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.

(51) Kim promised Sandy to come$_{\text{LOCATION-CHANGE}}$ (subject control) [has-location]

(52) Kim used a hammer to smash$_{\text{STATE-CHANGE}}$ the vase (subject control) [x-causer] [has-state]

(53) Kim persuaded Sandy to come$_{\text{LOCATION-CHANGE}}$ (object control) [has-location]

(54) Kim seemed to fly$_{\text{UNANCHORED-MOTION}}$ (raising) [has-location]

(55) Kim entered the room singing$_{\text{MESSAGE-INIT}}$ (depictive) [x-sender]

(56) You're talking me silly$_{\text{STATE}}$ (resultative) [has-state]

(57) Kim has come to stay$_{\text{LOCATION-CONTINUATION}}$ (subjectless adverbial clause) [has-location]

(58) Kim left after trashing$_{\text{STATE-CHANGE}}$ the room (subjectless adverbial clause) [x-causer] [has-state]

(59) Kim is hard to love$_{\text{MESSAGE}}$ (*tough* construction) [topic]

(60) the song I like$_{\text{MESSAGE}}$ (relative clause) [topic] [x-experiencer]

(61) the question we raised without answering$_{\text{MESSAGE-INIT}}$ (parasitic gap) [topic] [x-sender]

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$_{\text{UNANCHORED-MOTION » SCENE}}$ over the group

with annotations: in-motion » scene, transitory-location » participant

(63) Kim refused$_{\text{MESSAGE-INIT » SCENE}}$ to eat

with annotations: x-sender » participant, topic » scene

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

(64) primeval forest$_{\text{CLASS}}$

with annotation: m-time » m-noncomp

(65) colored pencil$_{\text{CLASS}}$

with annotation: m-quality » m-noncomp

(66) to lay$_{\text{LOCATION-CHANGE » MESSAGE-DEINIT}}$ aside my drawings

with annotations: has-location » topic, target-location » x-noncomp

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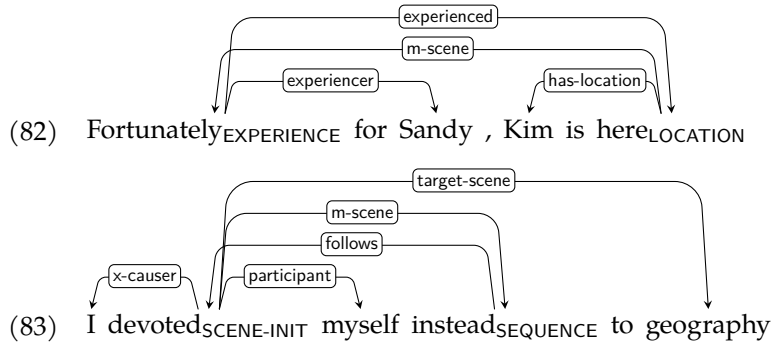
2 Superframes Reference

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$_{\text{MESSAGE-INIT}}$ began$_{\text{SCENE-INIT}}$

with annotation: target-scene

(68) The concert$_{\text{MESSAGE-INIT}}$ continued$_{\text{SCENE-CONTINUATION}}$

with annotation: initial-scene

(69) The concert$_{\text{MESSAGE-INIT}}$ finished$_{\text{SCENE-DEINIT}}$

with annotation: initial-scene

(70) The shouting$_{\text{MESSAGE-INIT}}$ intensified$_{\text{SCENE-CONTINUATION}}$

with annotation: initial-scene

(71) The shouting$_{\text{MESSAGE-INIT}}$ faded$_{\text{SCENE-DEINIT}}$
[initial-scene]

(72) A coup$_{\text{EXPERIENCE}}$ was attempted$_{\text{SCENE-INIT}}$
[target-scene]

(73) Kim finished$_{\text{SCENE-DEINIT}}$ their work$_{\text{ACTIVITY}}$
[is-active] [participant] [initial-scene]

(74) Swift action prevented$_{\text{SCENE-PREVENTION}}$ an outbreak$_{\text{SCENE-INIT}}$ of measles$_{\text{EXPERIENCE}}$
[x-causer] [target-scene] [target-scene]

(75) Kim refrained$_{\text{SCENE-PREVENTION}}$ from going$_{\text{LOCATION-CHANGE}}$
[has-location] [participant] [target-scene]

(76) Kim prevented$_{\text{SCENE-PREVENTION}}$ Sandy from going$_{\text{LOCATION-CHANGE}}$
[x-causer] [target-scene] [participant] [has-location]

(77) Kim saved$_{\text{SCENE-PREVENTION}}$ Sandy from the dragon$_{\text{CLASS}}$
[x-causer] [target-scene] [participant] [x-experiencer]

(78) Kim plays$_{\text{SCENE}}$ tennis$_{\text{ACTIVITY}}$
[is-active] [participant] [scene]

(79) Kim used$_{\text{SCENE}}$ to play$_{\text{SCENE}}$ tennis$_{\text{ACTIVITY}}$
[is-active] [participant] [participant] [scene] [scene]

(80) Kim gave$_{\text{SCENE}}$ Sandy a kick$_{\text{HITTING}}$
[x-causer] [scene] [participant] [hit]

The modifier relation m-scene is used when a syntactic dependeny points from an argument to a predicate, as, e.g., with relative clauses or sentence adverbs.
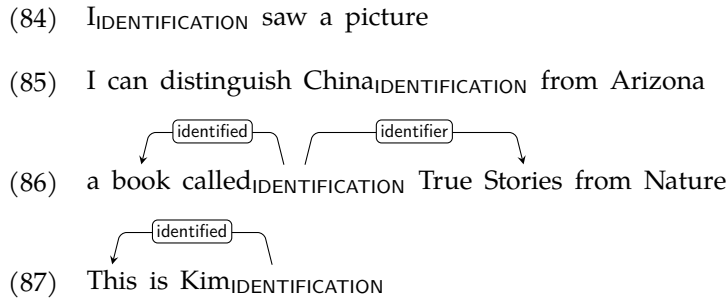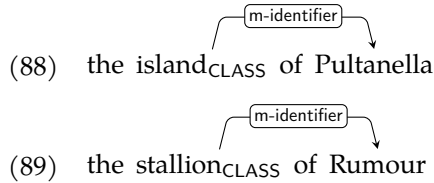
(81) the clown$_{\text{CLASS}}$ I saw$_{\text{MESSAGE}}$ smiled
[m-scene] [topic] [x-experiencer]

11

(82) Fortunately_{EXPERIENCE} for Sandy , Kim is here_{LOCATION}

(82) Fortunately$_{\text{EXPERIENCE}}$ for Sandy , Kim is here$_{\text{LOCATION}}$

[diagram with arcs labeled: experienced, m-scene, experiencer, has-location]

(83) I devoted$_{\text{SCENE-INIT}}$ myself instead$_{\text{SEQUENCE}}$ to geography

[diagram with arcs labeled: target-scene, m-scene, follows, x-causer, participant]
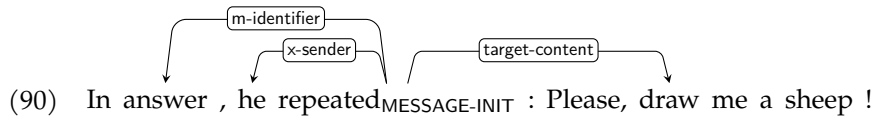
2.2 IDENTIFICATION

identifier identifies identified.

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

(84) I$_{\text{IDENTIFICATION}}$ saw a picture

(85) I can distinguish China$_{\text{IDENTIFICATION}}$ from Arizona

[diagram with arcs labeled: identified, identifier]

(86) a book called$_{\text{IDENTIFICATION}}$ True Stories from Nature

[diagram with arc labeled: identified]

(87) This is Kim$_{\text{IDENTIFICATION}}$

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

[diagram with arc labeled: m-identifier]

(88) the island$_{\text{CLASS}}$ of Pultanella

[diagram with arc labeled: m-identifier]

(89) the stallion$_{\text{CLASS}}$ of Rumour

Likewise, *in* has an identifying sense:

[diagram with arcs labeled: m-identifier, x-sender, target-content]

(90) In answer , he repeated$_{\text{MESSAGE-INIT}}$: Please, draw me a sheep !

2.3 RANK

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

[diagram with arc labeled: m-rank]

(91) Chapter$_{\text{MESSAGE}}$ 1

(92) my first drawing$_{\text{MESSAGE}}$
with edges: m-sender, m-rank
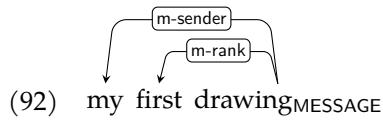
2.4 CLASS

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

Most prototypically evoked by common nouns with no arguments.

(93) swallowing an animal$_{\text{CLASS}}$

Indefinite pronouns also evoke CLASS.

(94) She saw one$_{\text{CLASS}}$

(95) Nothing$_{\text{CLASS}}$ about him suggested a child
with edge: m-whole

(96) Why would anyone$_{\text{CLASS}}$ be frightened by a hat?

(97) Something$_{\text{CLASS}}$ is broken

(98) Where I live everything$_{\text{CLASS}}$ is small

2.5 EXISTENCE

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

(99) I exist$_{\text{EXISTENCE}}$
with edge: exists

(100) There is$_{\text{EXISTENCE}}$ a hill
with edges: x-noncomp, exists

(101) There is$_{\text{SCENE}}$ a hubbub
with edges: x-noncomp, scene

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.
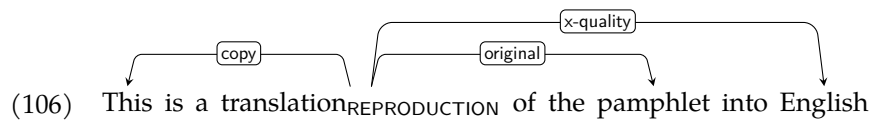
(102) I succeeded in making$_{\text{TRANSFORMATION-CREATION}}$ my first drawing
with edges: x-causer, created

(103) Kim built$_{\text{TRANSFORMATION-CREATION}}$ a castle out of sand
with edges: x-causer, created, material

(104) Kim turned$_{\text{TRANSFORMATION-CREATION}}$ straw into gold
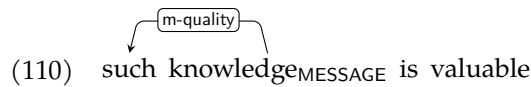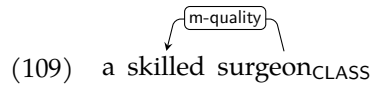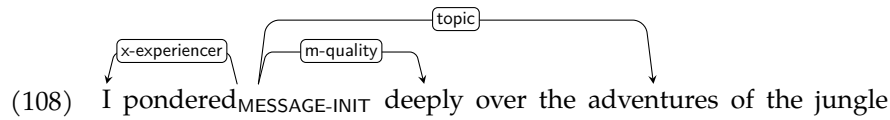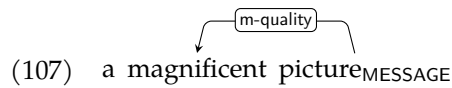
diagram labels: x-causer, material, created

2.7 REPRODUCTION

Special case of EXISTENCE-INIT where original continues to exist, and a (modified) copy (aka target-exists) comes into existence.
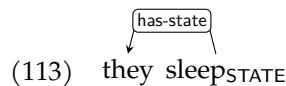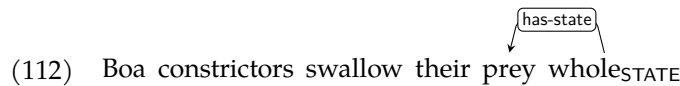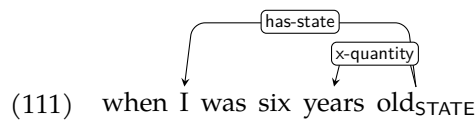
(105) Here is a copy$_{\text{REPRODUCTION}}$ of the drawing

diagram label: original

(106) This is a translation$_{\text{REPRODUCTION}}$ of the pamphlet into English

diagram labels: copy, original, x-quality

2.8 QUALITY

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

(107) a magnificent picture$_{\text{MESSAGE}}$

diagram label: m-quality

(108) I pondered$_{\text{MESSAGE-INIT}}$ deeply over the adventures of the jungle

diagram labels: x-experiencer, m-quality, topic

(109) a skilled surgeon$_{\text{CLASS}}$

diagram label: m-quality

(110) such knowledge$_{\text{MESSAGE}}$ is valuable

diagram label: m-quality

2.9 STATE

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

(111) when I was six years old$_{\text{STATE}}$

diagram labels: has-state, x-quantity

(112) Boa constrictors swallow their prey whole$_{\text{STATE}}$

diagram label: has-state

(113) they sleep$_{\text{STATE}}$

diagram label: has-state

14

(114) they swallow their prey whole without chewing$_{\text{STATE-CHANGE}}$ it
[x-causer, has-state]

(115) the six months that they need for digestion$_{\text{STATE-CHANGE}}$
[x-causer]

(116) And that hasn't much improved$_{\text{STATE-CHANGE}}$ my opinion of them
[x-causer, has-state]

2.10 DESTRUCTION

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

(117) Sam 's death$_{\text{DESTRUCTION}}$
[destroyed]

(118) Sam 's destruction$_{\text{DESTRUCTION}}$ of the city
[x-causer, destroyed]

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

(119) Something was broken$_{\text{STATE}}$ in my enginge
[has-state, m-location]

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$_{\text{EXPERIENCE}}$ in the jungle
[experiencer, m-location]

(121) Kim attacked$_{\text{EXPERIENCE}}$ Sandy
[x-causer, experiencer]

(122) I saw$_{\text{MESSAGE}}$ a magnificent picture
[x-experiencer, topic]

(123) I pondered$_{\text{MESSAGE-INIT}}$ deeply
[x-experiencer, m-quality]

(124) Kim talked$_{\text{MESSAGE-INIT}}$ to Sandy
[x-sender, x-experiencer]

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

Annotations: participant, scene, m-experiencer

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

Annotations: x-experiencer, scene, participant

(127) Kim managed_{EXPERIENCE} with dealing the cards

Annotations: experiencer, experienced

(128) Die Piroggen waren Maria zu dunkel geraten_{SCENE-INIT}

Annotations: participant, x-experiencer, target-scene

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

Annotations: experienced, x-noncomp, experiencer, x-noncomp, x-noncomp

(130) they need_{EXPERIENCE-NECESSITY} six months for digestion

Annotations: experiencer, x-explanation, experienced

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

2.12 ACTIVITY

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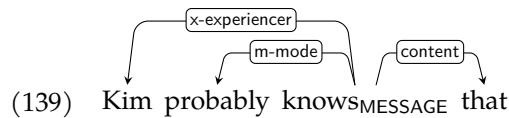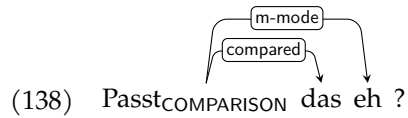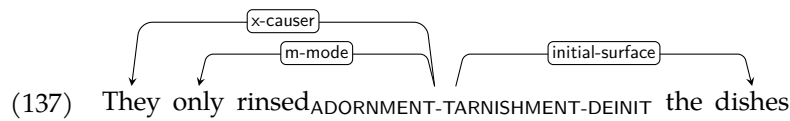
Used for dynamic scenes where is-active has agency and that cannot well be framed as a state change.

(131) Kim worked_{ACTIVITY}

Annotation: is-active

(132) Kim partied_{ACTIVITY}

Annotation: is-active

(133) Kim had sex_{ACTIVITY}

Annotation: is-active

(134) after some work_{ACTIVITY} with a colored pencil

Annotation: m-means

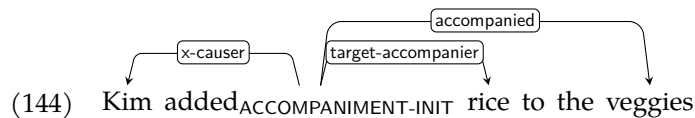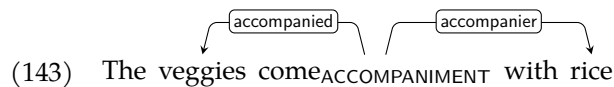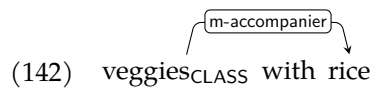(135) I devoted myself to geography_ACTIVITY

is-active
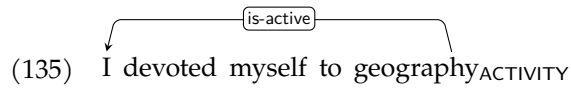
2.13 MODE

Used for adverbial modifiers that have no arguments other than the phrase they modify, and that, rouhgly speaking, indicate the modal strength of what is expressed and/or its relation to the discourse.
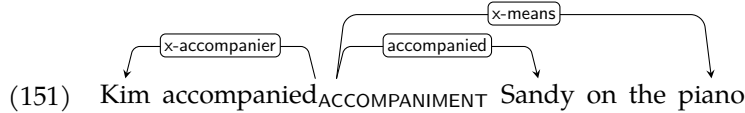
(136) Even Kim_IDENTIFICATION did n't know that

m-mode

(137) They only rinsed_ADORNMENT-TARNISHMENT-DEINIT the dishes

x-causer *m-mode* *initial-surface*

(138) Passt_COMPARISON das eh ?

m-mode *compared*

(139) Kim probably knows_MESSAGE that

x-experiencer *m-mode* *content*

(140) That 's really great_QUALITY

has-quality *m-mode*

(141) Kim is not here_LOCATION
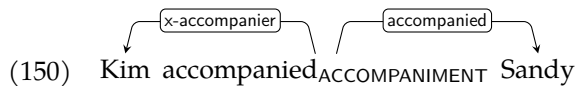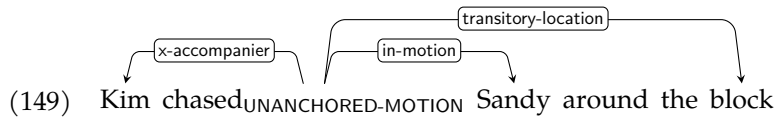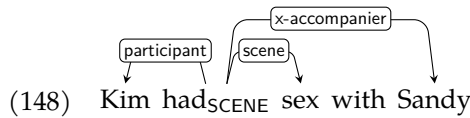
has-location *m-mode*
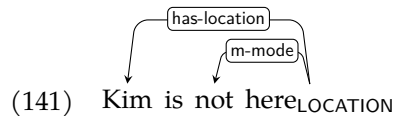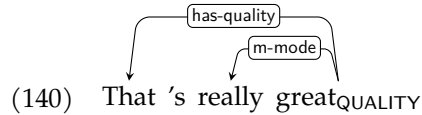
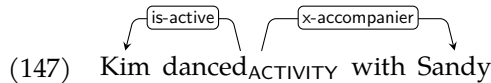## 2.14 ACCOMPANIMENT

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

(142) veggies_CLASS with rice

m-accompanier

(143) The veggies come_ACCOMPANIMENT with rice

accompanied *accompanier*

(144) Kim added_ACCOMPANIMENT-INIT rice to the veggies

x-causer *target-accompanier* *accompanied*

17

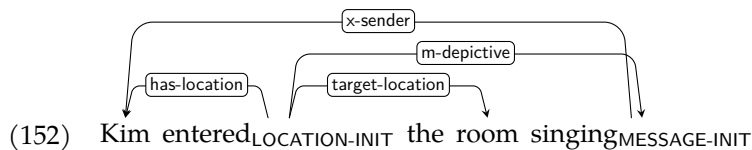(145) Rolling thunder accompanies_ACCOMPANIMENT the rain
[accompanier, accompanied]

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

(146) Kim cycled_LOCATION-CHANGE to Rome with Sandy
[has-location, target-location, m-accompanier]

(147) Kim danced_ACTIVITY with Sandy
[is-active, x-accompanier]

(148) Kim had_SCENE sex with Sandy
[participant, scene, x-accompanier]

(149) Kim chased_UNANCHORED-MOTION Sandy around the block
[x-accompanier, in-motion, transitory-location]

(150) Kim accompanied_ACCOMPANIMENT Sandy
[x-accompanier, accompanied]

(151) Kim accompanied_ACCOMPANIMENT Sandy on the piano
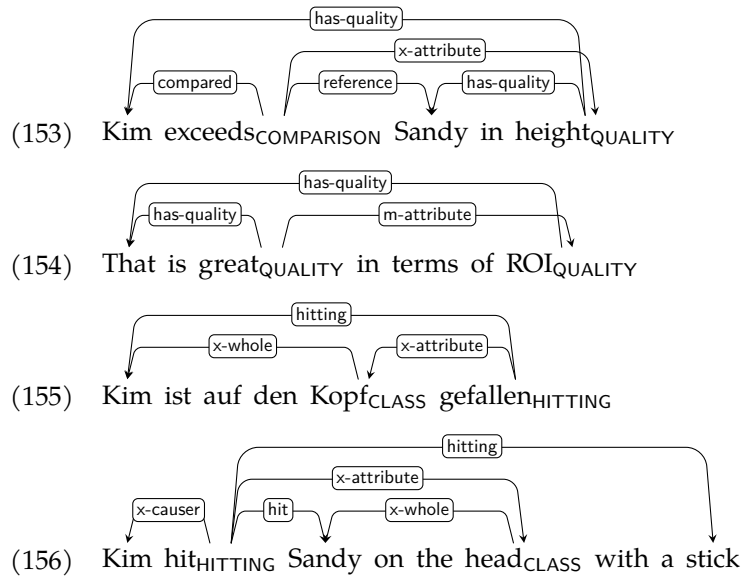[x-accompanier, accompanied, x-means]

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).

(152) Kim entered_LOCATION-INIT the room singing_MESSAGE-INIT
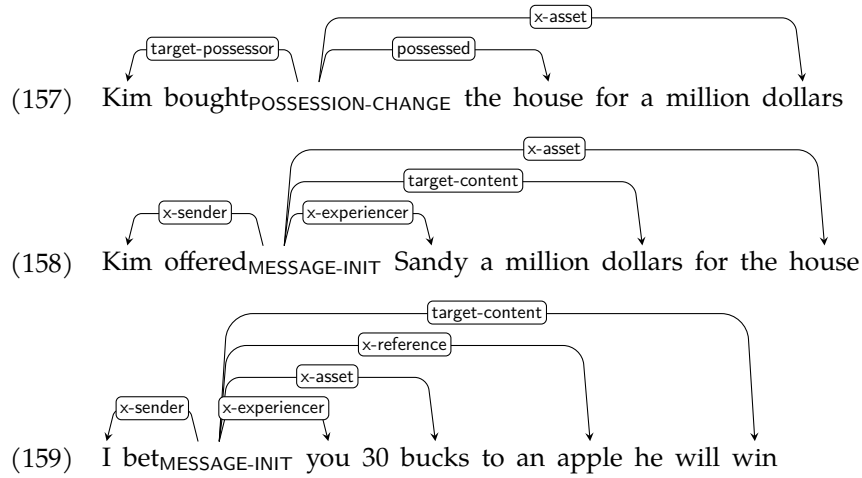[x-sender, m-depictive, has-location, target-location]

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 wich participant(s) have the attribute.
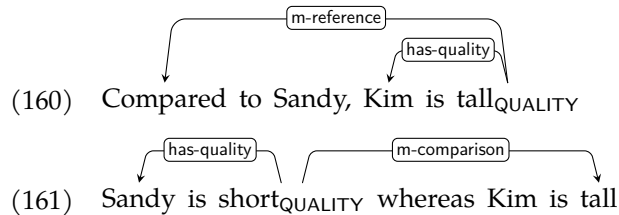
(153) Kim exceeds_COMPARISON Sandy in height_QUALITY

Arcs: has-quality, x-attribute, compared, reference, has-quality

(154) That is great_QUALITY in terms of ROI_QUALITY

Arcs: has-quality, has-quality, m-attribute

(155) Kim ist auf den Kopf_CLASS gefallen_HITTING

Arcs: hitting, x-whole, x-attribute

(156) Kim hit_HITTING Sandy on the head_CLASS with a stick

Arcs: hitting, x-attribute, x-causer, hit, x-whole

2.17 ASSET

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

(157) Kim bought_POSSESSION-CHANGE the house for a million dollars

Arcs: x-asset, target-possessor, possessed

(158) Kim offered_MESSAGE-INIT Sandy a million dollars for the house

Arcs: x-asset, target-content, x-sender, x-experiencer

(159) I bet_MESSAGE-INIT you 30 bucks to an apple he will win

Arcs: target-content, x-reference, x-asset, x-sender, x-experiencer
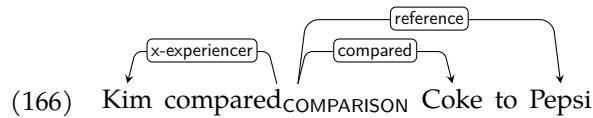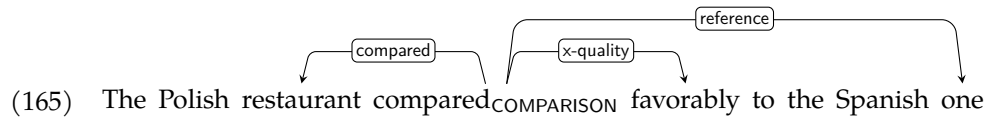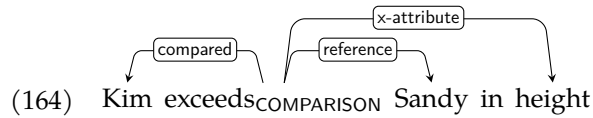
2.18 COMPARISON
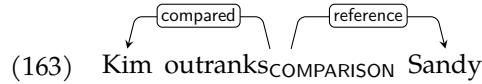
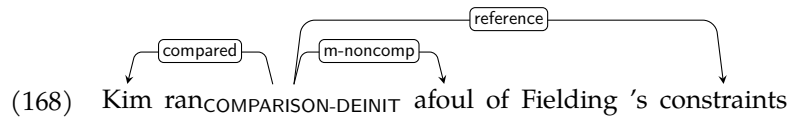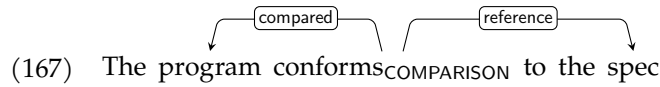compared is characterized with respect to reference.

Examples of comparing scenes:

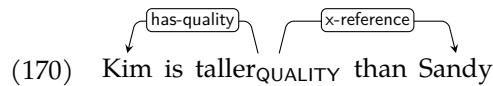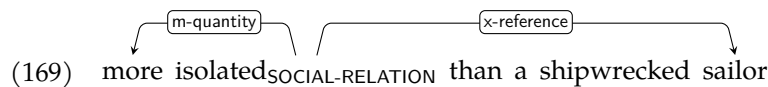(160) Compared to Sandy, Kim is tall_QUALITY

Arcs: m-reference, has-quality

(161) Sandy is short_QUALITY whereas Kim is tall

Arcs: has-quality, m-comparison

(162) They demonize~MESSAGE-INIT~ the left while doing nothing about the right
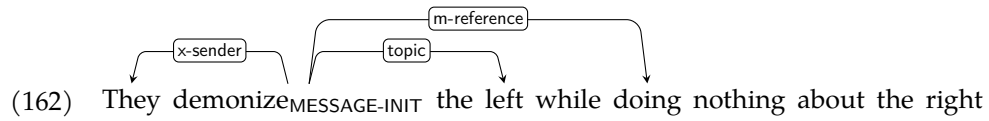
Examples of comparing non-scene entities:

(163) Kim outranks~COMPARISON~ Sandy

(164) Kim exceeds~COMPARISON~ Sandy in height

(165) The Polish restaurant compared~COMPARISON~ favorably to the Spanish one

(166) Kim compared~COMPARISON~ 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~COMPARISON~ to the spec

(168) Kim ran~COMPARISON-DEINIT~ afoul of Fielding 's constraints

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

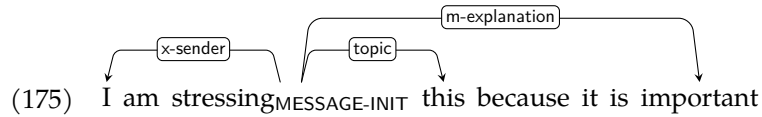(169) more isolated~SOCIAL-RELATION~ than a shipwrecked sailor

(170) Kim is taller~QUALITY~ than Sandy

2.19 CONCESSION

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

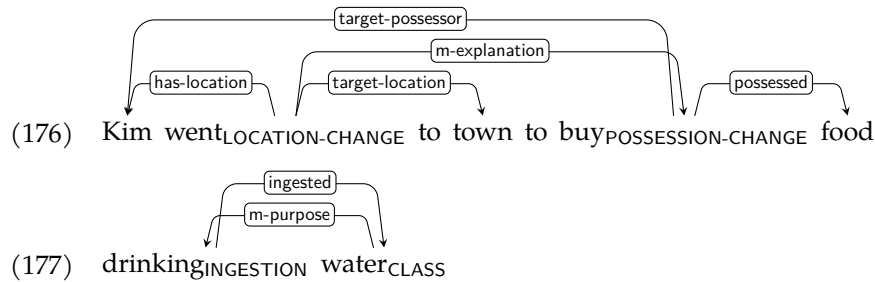(171) Kim went~LOCATION-CHANGE~ out despite the rain

(172) It rained$_{STATE}$, but Kim went out

[x-noncomp, m-asserted]

(173) Kim sent$_{SENDING}$ Sandy a letter , but it never arrived

[sender, sent, x-experiencer, m-asserted]

(174) Kim came$_{LOCATION\text{-}INIT}$ although Sandy had told them not to

[has-location, m-conceded]
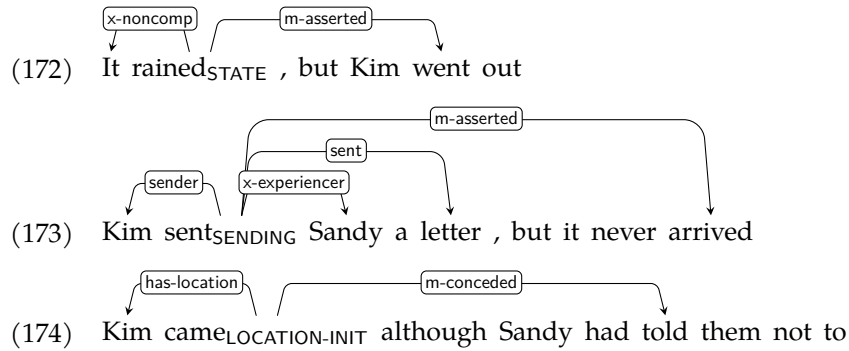
2.20 EXPLANATION

explanation explains explained, but is not a cause.

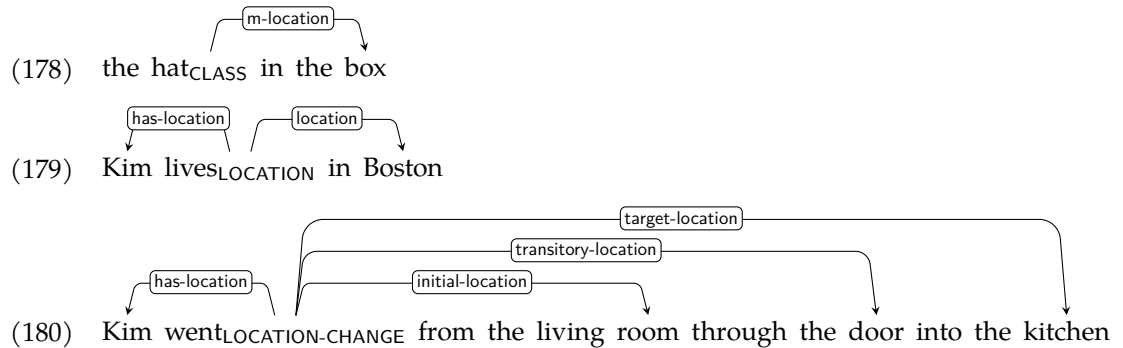(175) I am stressing$_{MESSAGE\text{-}INIT}$ this because it is important

[x-sender, topic, m-explanation]

2.21 PURPOSE

Special case of EXPLANATION where explanation is a purpose.

(176) Kim went$_{LOCATION\text{-}CHANGE}$ to town to buy$_{POSSESSION\text{-}CHANGE}$ food

[target-possessor, has-location, m-explanation, target-location, possessed]

(177) drinking$_{INGESTION}$ water$_{CLASS}$

[ingested, m-purpose]

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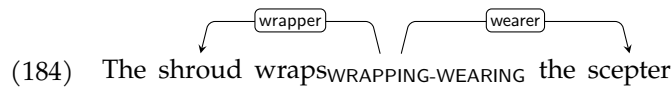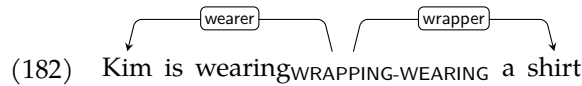
Describes has-location as located or moving wrt. respect to location.

(178) the hat$_{CLASS}$ in the box

[m-location]

(179) Kim lives$_{LOCATION}$ in Boston

[has-location, location]

(180) Kim went$_{LOCATION\text{-}CHANGE}$ from the living room through the door into the kitchen

[has-location, target-location, transitory-location, initial-location]

(181) Kim placed$_{\text{LOCATION-CHANGE}}$ the hat on the table

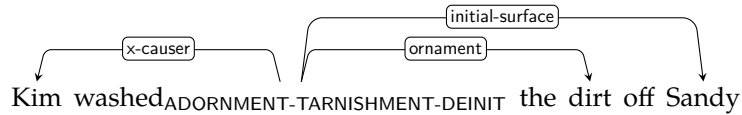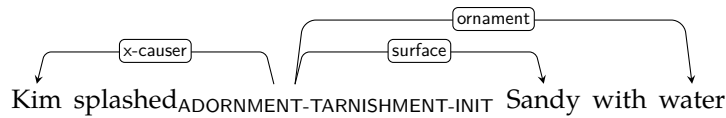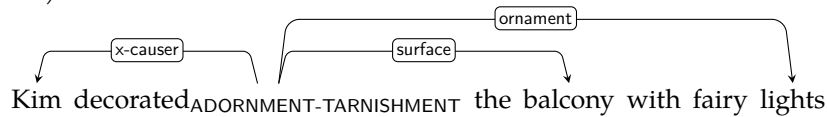*[diagram: x-causer, has-location, target-location]*
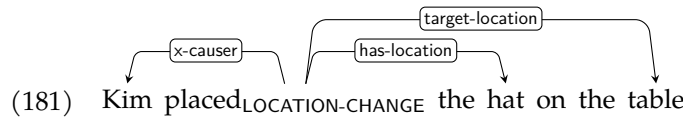
2.23 WRAPPING-WEARING

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

(182) Kim is wearing$_{\text{WRAPPING-WEARING}}$ a shirt

[diagram: wearer, wrapper]

(183) Kim is wearing$_{\text{WRAPPING-WEARING}}$ glasses

[diagram: wearer, wrapper]

(184) The shroud wraps$_{\text{WRAPPING-WEARING}}$ the scepter

[diagram: wrapper, wearer]

(185) Kim put$_{\text{WRAPPING-WEARING-INIT}}$ on a sweater

[diagram: target-wearer, wrapper]

(186) Kim took$_{\text{WRAPPING-WEARING-DEINIT}}$ off their glasses

[diagram: initial-wearer, wrapper]

2.24 ADORNMENT-TARNISHMENT

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

Kim decorated$_{\text{ADORNMENT-TARNISHMENT}}$ the balcony with fairy lights

[diagram: x-causer, surface, ornament]

Kim splashed$_{\text{ADORNMENT-TARNISHMENT-INIT}}$ Sandy with water

[diagram: x-causer, surface, ornament]

Kim washed$_{\text{ADORNMENT-TARNISHMENT-DEINIT}}$ the dirt off Sandy

[diagram: x-causer, ornament, initial-surface]

Kim washed$_{\text{ADORNMENT-TARNISHMENT-DEINIT}}$ Sandy

[diagram: x-causer, initial-surface]

2.25 HITTING

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

(187) Kim hit_HITTING Sandy

(188) Kim hit_HITTING Sandy with a stick

(189) The stick hit_HITTING Sandy

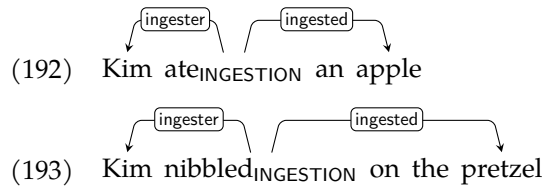(190) Kim hit_HITTING Sandy on the head_CLASS with a pool noodle

(191) Kim kicked_HITTING Sandy
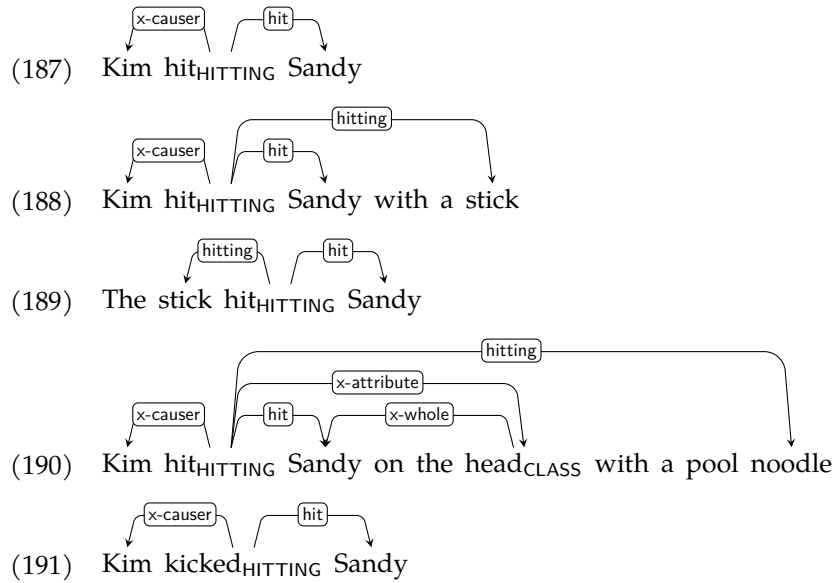
2.26 INGESTION

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

(192) Kim ate_INGESTION an apple

(193) Kim nibbled_INGESTION on the pretzel

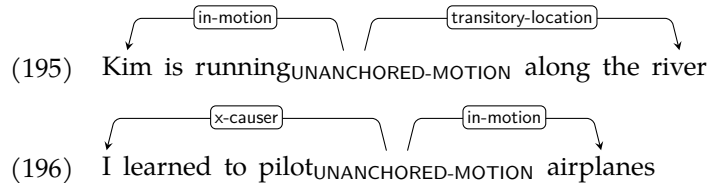## 2.27 EXCRETION

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

(194) Kim threw_EXCRETION up the pretzel
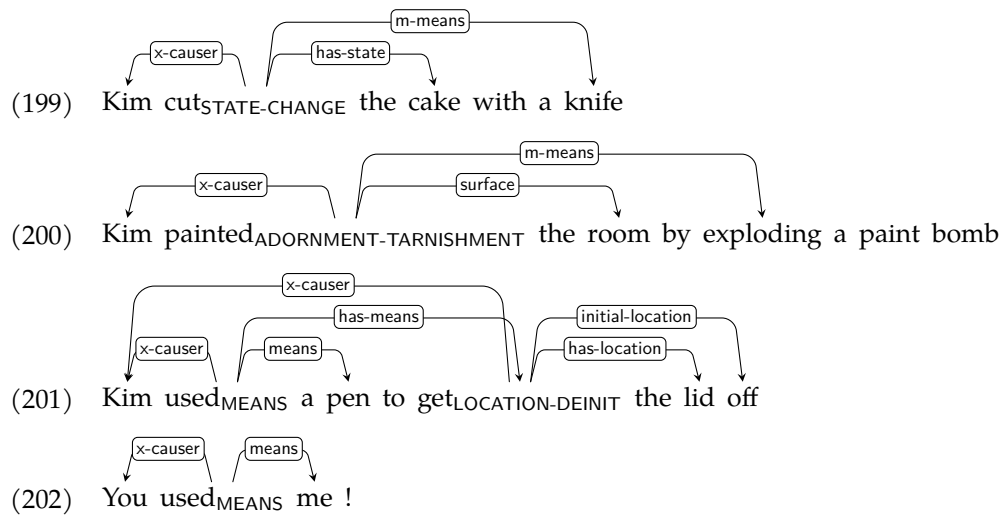
2.28 UNANCHORED-MOTION

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

(195) Kim is running_UNANCHORED-MOTION along the river

(196) I learned to pilot_UNANCHORED-MOTION airplanes

23

(197) Kim is dancing_UNANCHORED-MOTION around the room with Sandy

in-motion, transitory-location, m-accompanier

(198) Kim is an avid unicyclist_UNANCHORED-MOTION

in-motion, m-quality
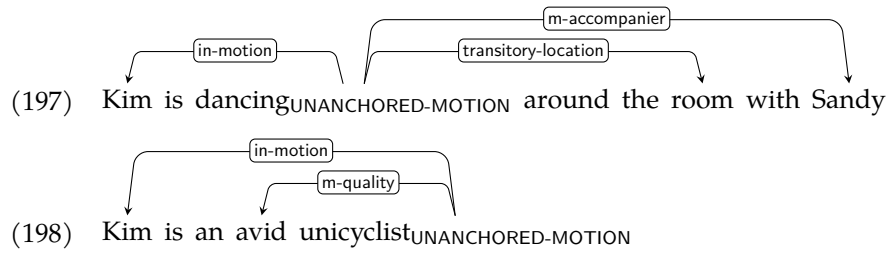
2.29 MEANS

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

(199) Kim cut_STATE-CHANGE the cake with a knife

x-causer, has-state, m-means

(200) Kim painted_ADORNMENT-TARNISHMENT the room by exploding a paint bomb

x-causer, surface, m-means

(201) Kim used_MEANS a pen to get_LOCATION-DEINIT the lid off

x-causer, x-causer, has-means, means, initial-location, has-location

(202) You used_MEANS me !

x-causer, means

2.30 MESSAGE

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

2.30.1 Expression

(203) Kim yelped_MESSAGE-INIT

x-sender

(204) Kim said_MESSAGE-INIT : it 's fine

x-sender, target-content

(205) Kim said_MESSAGE-INIT it was fine

x-sender, target-content
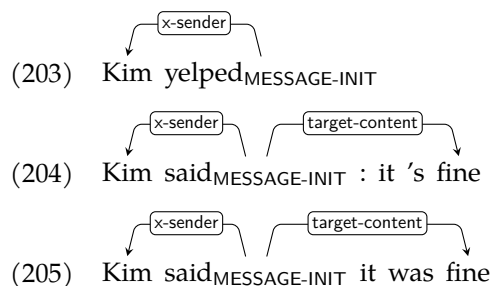
(206) Kim called_{MESSAGE-INIT} Sandy a liar_{MESSAGE}

relations: x-sender, target-content, topic, x-sender

(207) Kim told_{MESSAGE-INIT} Sandy a secret

relations: x-sender, target-content, x-experiencer

(208) Kim talked_{MESSAGE-INIT} about Sandy

relations: x-sender, topic

(209) Kim talked_{MESSAGE-INIT} shit_{MESSAGE} about Sandy

relations: x-sender, topic, target-content, topic

(210) Kim and Sandy conversed_{MESSAGE-INIT}

relations: x-sender, x-sender

(211) Kim conversed_{MESSAGE-INIT} with Sandy

relations: x-sender, x-accompanier

2.30.2 Gesture

(212) Kim curtseyed_{MESSAGE-INIT} to the Queen

relations: x-sender, x-experiencer

(213) Kim shook_{UNANCHORED-MOTION » MESSAGE-INIT} their head no

relations: x-causer » x-sender, x-sent » target-content, in-motion » x-noncomp

2.30.3 Performance

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

(214) Kim played_{MESSAGE-INIT} a little tune on their tuba

relations: x-sender, topic, x-means

(215) They performed_{MESSAGE-INIT} the play

relations: x-sender, topic

(216) Kim sang_{MESSAGE-INIT} a song

relations: x-sender, topic

25

2.30.4 Depiction

(217) Kim drew$_{\text{MESSAGE-INIT}}$ a heron

      x-sender — topic

(218) a picture$_{\text{MESSAGE}}$ of the heron

      topic

2.30.5 Recording
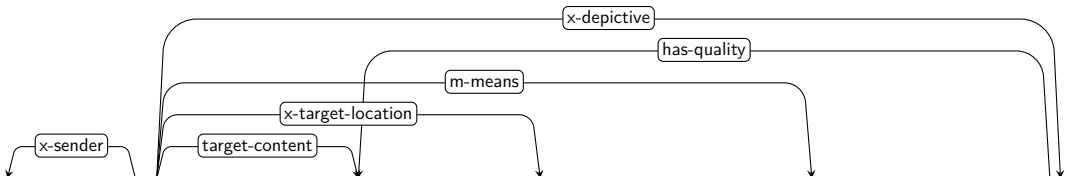
(219) Kim drew$_{\text{MESSAGE-INIT}}$ a picture

      x-sender — target-content
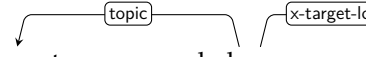
(220) Kim wrote$_{\text{MESSAGE-INIT}}$ Sandy a letter

      x-sender / target-content / x-experiencer

(221) Kim wrote$_{\text{MESSAGE-INIT}}$ the message onto a piece of paper with a pen in big red letters$_{\text{QUALITY}}$

      x-sender / target-content / x-target-location / m-means / has-quality / x-depictive

(222) The concert was recorded$_{\text{MESSAGE-INIT}}$ on tape

      topic / x-target-location
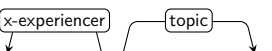
(223) The band recorded$_{\text{MESSAGE-INIT}}$ an album

      x-sender / target-content
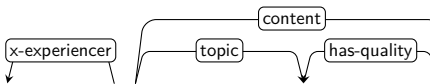
2.30.6 Perception

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

(224) Kim saw$_{\text{MESSAGE}}$ a flower

      x-experiencer / topic
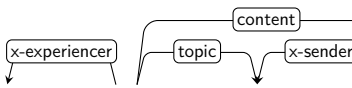
(225) Kim found$_{\text{MESSAGE}}$ the flower beautiful$_{\text{QUALITY}}$

      x-experiencer / topic / has-quality / content

(226) Kim thinks$_{\text{MESSAGE}}$ Sandy is a liar

      x-experiencer / content

(227) Kim thinks$_{\text{MESSAGE}}$ Sandy a liar$_{\text{MESSAGE}}$

      x-experiencer / topic / x-sender / content

(228) Kim saw$_{\text{MESSAGE}}$ Sandy swim$_{\text{UNANCHORED-MOTION}}$
[x-experiencer, topic, content, in-motion]

(229) Kim wants$_{\text{MESSAGE}}$ to swim$_{\text{UNANCHORED-MOTION}}$
[x-experiencer, in-motion, content]

(230) Kim wants$_{\text{MESSAGE}}$ Sandy to swim$_{\text{UNANCHORED-MOTION}}$
[x-experiencer, topic, content, in-motion]

(231) Kim seems$_{\text{MESSAGE}}$ happy$_{\text{MESSAGE}}$
[x-experiencer, topic, content]

(232) Kim seems$_{\text{MESSAGE}}$ happy$_{\text{MESSAGE}}$ to Sandy
[x-experiencer, x-experiencer, topic, content]

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.

(233) The Thought Police observed$_{\text{MESSAGE-INIT}}$ Winston
[x-experiencer, topic]

(234) Kim noticed$_{\text{MESSAGE-INIT}}$ the bird
[x-experiencer, topic]

(235) Kim taught$_{\text{MESSAGE-INIT}}$ Sandy Spanish
[x-sender, topic, x-experiencer]

(236) Kim measured$_{\text{MESSAGE-INIT}}$ the elasticity
[x-experiencer, topic]

(237) Kim forgot$_{\text{MESSAGE-DEINIT}}$ everything they knew
[x-initial-experiencer, initial-content]

(238) Kim forgot$_{\text{MESSAGE-DEINIT}}$ about the cake
[x-initial-experiencer, topic]

(239) Kim forgot$_{\text{MESSAGE-PREVENTION}}$ to take the trash out
[x-experiencer, target-content]

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2.31 PART-WHOLE

part is part of whole.

(240) Kim 's leg_{CLASS}　　[m-whole]

(241) a man_{CLASS} with a mustache　　[m-part]

(242) part_{PART-WHOLE} of the year　　[whole]

(243) wheat contains_{PART-WHOLE} gluten　　[whole] [part]

2.32 POSSESSION

possessor possesses or controls the possessed.

(244) Kim 's house_{CLASS}　　[m-possessor]

(245) Kim owns_{POSSESSION} a house　　[possessor] [possessed]

(246) The house belongs_{POSSESSION} to Kim　　[possessed] [possessor]

(247) the owner_{POSSESSION} of the house　　[possessed]

(248) Kim has_{POSSESSION} Sandy 's phone　　[possessor] [possessed]

(249) Kim bought_{POSSESSION-CHANGE} a house from Sandy　　[target-possessor] [possessed] [initial-possessor]

(250) Sandy sold_{POSSESSION-CHANGE} Kim the house　　[initial-possessor] [target-possessor] [possessed]

(251) Kim kept_{POSSESSION-CONTINUATION} the house　　[initial-possessor] [possessed]

(252) Kim lost_{POSSESSION-DEINIT} the house　　[initial-possessor] [possessed]

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(253) Caesar conquered$_{\text{POSSESSION-INIT}}$ Gaul
target-possessor · possessed

(254) Caesar 's conquest$_{\text{POSSESSION-INIT}}$ of Gaul
target-possessor · possessed

(255) Kim owes$_{\text{POSSESSION-CHANGE-NECESSITY}}$ Sandy money
initial-possessor · possessed · target-possessor
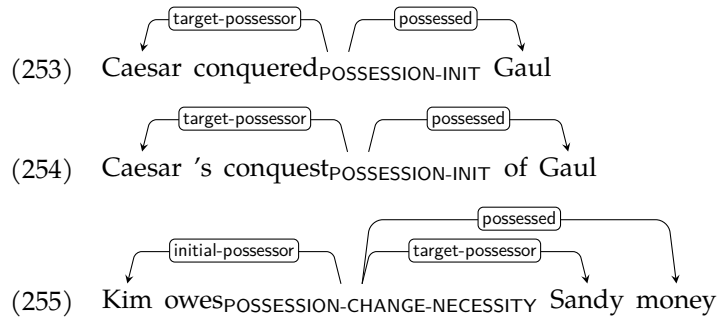
2.33 QUANTITY

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

(256) three burgers$_{\text{CLASS}}$
m-quantity

(257) three liters$_{\text{QUANTITY}}$ of coke
m-quantity · has-quantity

(258) We discourage$_{\text{MESSAGE-INIT}}$ this emphatically
x-sender · topic · m-quantity
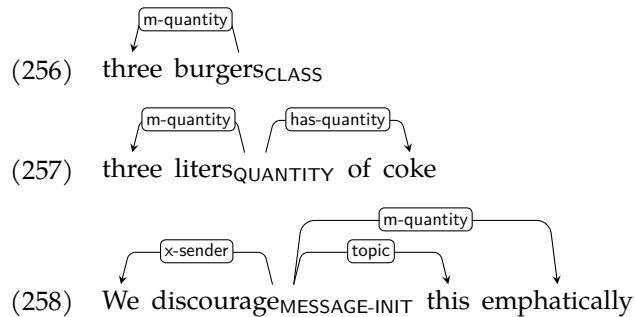
2.34 SENDING

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

(259) According to Kim , it is raining$_{\text{STATE}}$
m-sender · x-noncomp
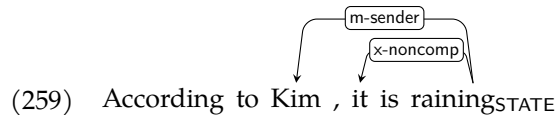
For more uses, see MESSAGE (Section 2.30).

2.35 SEQUENCE

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

(260) Form follows$_{\text{SEQUENCE}}$ function
follows · followed

(261) Cook is Jobs 's successor$_{\text{SEQUENCE}}$
follows · followed

(262) Das fußt$_{\text{SEQUENCE}}$ auf einer falschen Vorstellung
follows · followed
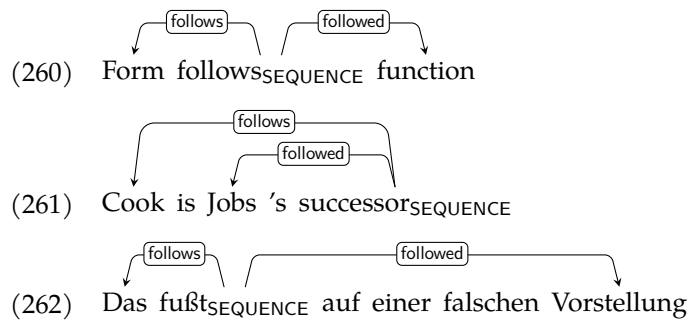
(263) Kim deduced_SEQUENCE the truth from the clues

[Diagram labels: x-experiencer, follows, followed]

(264) Given that I 'm tired , I wo n't be there_LOCATION

[Diagram labels: m-followed, has-location]

2.36 CAUSATION

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

(265) Kim broke_STATE-CHANGE the glass

[Diagram labels: x-causer, has-state]

(266) The knife cut_STATE-CHANGE the bread

[Diagram labels: x-causer, has-state]

(267) Kim cut_STATE-CHANGE the bread with a knife

[Diagram labels: x-causer, has-state, m-means]

(268) The war caused_CAUSATION a famine

[Diagram labels: causer, result]

(269) There was_SCENE a famine because of the war

[Diagram labels: x-noncomp, scene, m-causer]

(270) Der Wasserdruck stieg_QUANTITY-CHANGE , wodurch der Brunnen überfloss

[Diagram labels: has-quantity, m-result]

(271) Die Qualität ist der Motivation geschuldet_CAUSATION

[Diagram labels: result, causer]

(272) Kim went_LOCATION-CHANGE to town because they wanted to buy food

[Diagram labels: has-location, target-location, m-causer]

Note how the last example expresses a purpose, but expresses it as a cause, so m-causer lis the right label to use. Compare this to construal as a purpose:
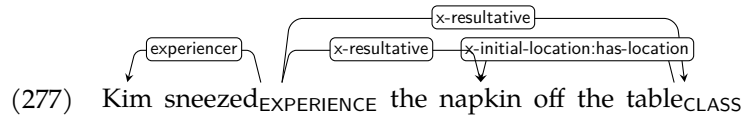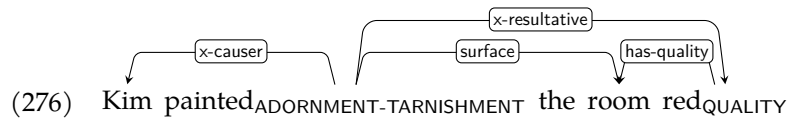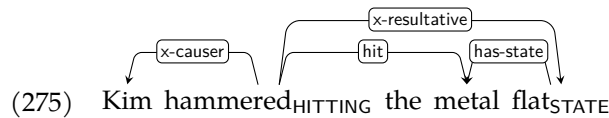
(273) Kim went_LOCATION-CHANGE to town to buy food

[Diagram labels: has-location, target-location, m-explanation]

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2.37 REACTION

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

(274) Kim reacted_{SEQUENCE} to the allegations with a denial_{MESSAGE-INIT}

[Dependency diagram with labels: x-sender, reaction, x-causer, trigger]
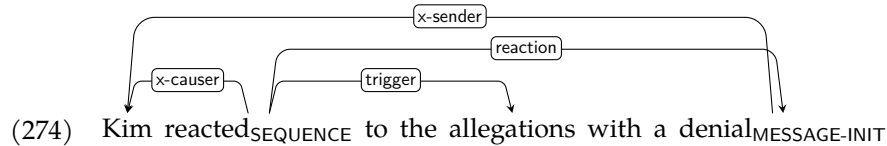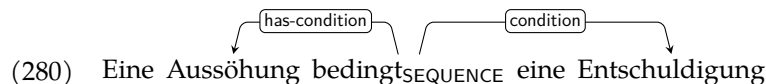
2.38 RESULTATIVE

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.

(275) Kim hammered_{HITTING} the metal flat_{STATE}

[Dependency diagram with labels: x-resultative, x-causer, hit, has-state]

(276) Kim painted_{ADORNMENT-TARNISHMENT} the room red_{QUALITY}

[Dependency diagram with labels: x-resultative, x-causer, surface, has-quality]

(277) Kim sneezed_{EXPERIENCE} the napkin off the table_{CLASS}

[Dependency diagram with labels: x-resultative, experiencer, x-resultative, x-initial-location:has-location]

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.
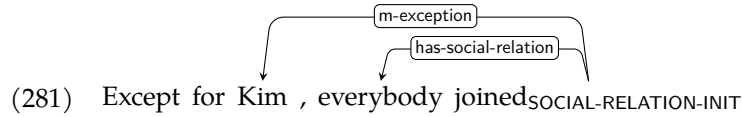
2.39 CONDITION

Special case of SEQUENCE where condition (aka followed) is a condition to has-condition (aka follows).
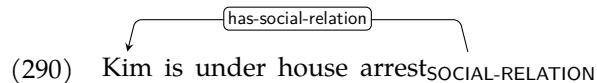
(278) I will join_{SOCIAL-RELATION-INIT} the club if they ask me

[Dependency diagram with labels: has-social-relation, m-condition]

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

[Dependency diagram with labels: has-condition, condition]

(280) Eine Aussöhung bedingt_{SEQUENCE} eine Entschuldigung

[Dependency diagram with labels: has-condition, condition]
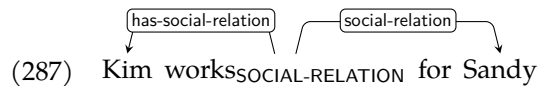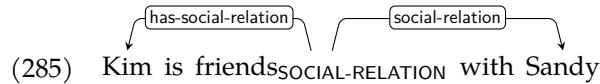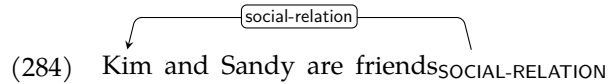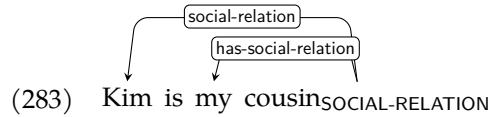
2.40 EXCEPTION

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

(281) Except for Kim , everybody joined_{SOCIAL-RELATION-INIT}

[diagram: m-exception, has-social-relation]

(281) Except for Kim , everybody joined$_\text{SOCIAL-RELATION-INIT}$

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.

(282) Kim 's friend$_\text{SOCIAL-RELATION}$

(283) Kim is my cousin$_\text{SOCIAL-RELATION}$

(284) Kim and Sandy are friends$_\text{SOCIAL-RELATION}$

(285) Kim is friends$_\text{SOCIAL-RELATION}$ with Sandy

(286) Kim works$_\text{SOCIAL-RELATION}$ at Google

(287) Kim works$_\text{SOCIAL-RELATION}$ for Sandy

(288) Kim emcees$_\text{SOCIAL-RELATION}$

(289) Kim is hosting$_\text{SOCIAL-RELATION}$ the party

(290) Kim is under house arrest$_\text{SOCIAL-RELATION}$

(291) Kim 's sentence$_\text{SOCIAL-RELATION}$ was suspended

(292) Kim married$_\text{SOCIAL-RELATION-INIT}$ Sandy

(293) The official married_{SOCIAL-RELATION-INIT} Kim to Sandy
    [x-causer] [has-social-relation] [target-social-relation]

(294) The official married_{SOCIAL-RELATION-INIT} Kim and Sandy
    [x-causer] [has-social-relation]

(295) Kim divorced_{SOCIAL-RELATION-DEINIT} Sandy
    [has-social-relation] [initial-social-relation]

(296) Kim befriended_{SOCIAL-RELATION-INIT} Sandy
    [has-social-relation] [target-social-relation]

(297) Kim took_{SOCIAL-RELATION-INIT} the job
    [has-social-relation] [target-social-relation]

(298) Kim joined_{SOCIAL-RELATION-INIT} Google
    [has-social-relation] [target-social-relation]

(299) Kim joined_{SOCIAL-RELATION-INIT} a union
    [has-social-relation] [target-social-relation]

(300) Sandy fired_{SOCIAL-RELATION-DEINIT} Kim from their job
    [x-causer] [has-social-relation] [initial-social-relation]

(301) Kim left_{SOCIAL-RELATION-DEINIT} Google
    [has-social-relation] [initial-social-relation]

(302) Kim assumed_{SOCIAL-RELATION-INIT} office
    [has-social-relation] [target-social-relation]

(303) The judge sentenced_{SOCIAL-RELATION-INIT} Kim to three days in prison
    [x-causer] [has-social-relation] [target-social-relation]

(304) Kim was pardoned_{SOCIAL-RELATION-DEINIT}
    [has-social-relation]

2.42 TIME

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

(305) Kim swims_{UNANCHORED-MOTION} on Monday
    [in-motion] [m-time]

(306) Kim sneezed_EXPERIENCE twice

arcs: experiencer, m-time

(307) Kim swam_UNANCHORED-MOTION for an hour

arcs: in-motion, m-time

(308) Kim says_MESSAGE-INIT hello whenever I meet them

arcs: x-sender, content, m-time

(309) Once_TIME when I was six years old

(310) the six months_TIME they need_SCENE-NECESSITY for digestion

arcs: has-time, m-scene, scene, x-experiencer, participant

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_DESTRUCTION the bucket

arcs: destroyed, x-noncomp

(312) It is raining_STATE

arc: x-noncomp

(313) I address_MESSAGE-INIT myself to you

arcs: x-sender, x-experiencer, x-noncomp

(314) There was_SCENE a famine

arcs: x-noncomp, scene

(315) fountain pen_CLASS

arc: m-noncomp

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

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3 Memos

3.1 Argument Structure and Frame Choice

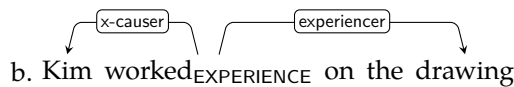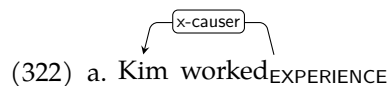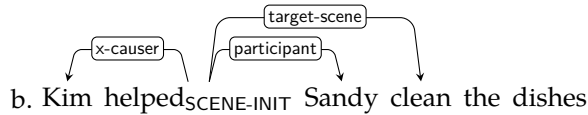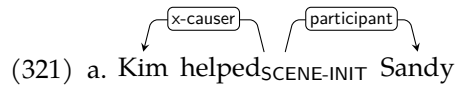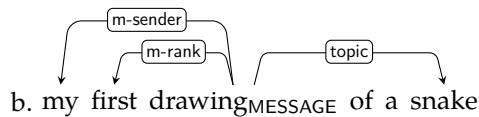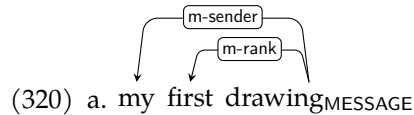### 3.1.1 Prefer Core over Non-core Arguments

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

(316) Kim drove$_{\text{LOCATION-CHANGE}}$ to Boston
         [has-location] [target-location]

(317) Kim drove$_{\text{LOCATION-CHANGE}}$ the car to Boston
         [x-causer] [has-location] [target-location]

(318) They plundered$_{\text{POSSESSION-CHANGE}}$ Rome
         [target-possessor] [initial-possessor]

(319) Kim undressed$_{\text{WRAPPING-WEARING-DEINIT}}$
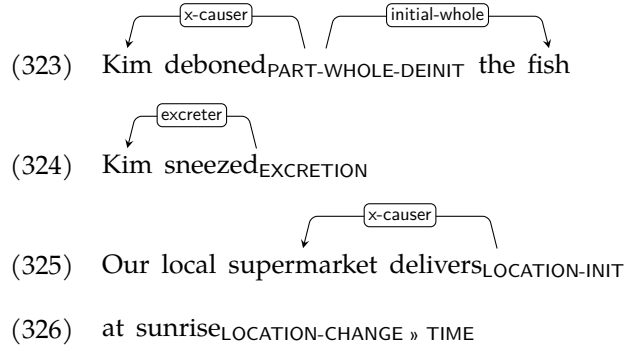   [initial-wearer]
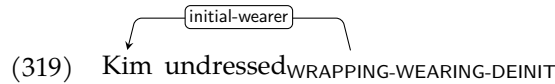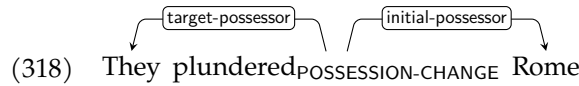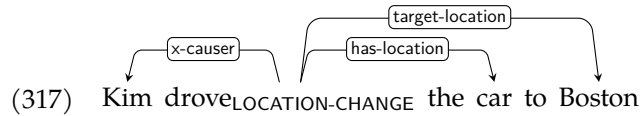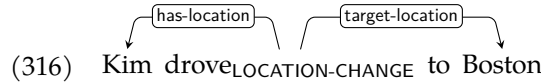
3.1.2 Arguments Determine Frames

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.

(320) a. my first drawing$_{\text{MESSAGE}}$
         [m-sender] [m-rank]

    b. my first drawing$_{\text{MESSAGE}}$ of a snake
         [m-sender] [m-rank] [topic]

(321) a. Kim helped$_{\text{SCENE-INIT}}$ Sandy
         [x-causer] [participant]

    b. Kim helped$_{\text{SCENE-INIT}}$ Sandy clean the dishes
         [x-causer] [participant] [target-scene]

(322) a. Kim worked$_{\text{EXPERIENCE}}$
         [x-causer]

    b. Kim worked$_{\text{EXPERIENCE}}$ on the drawing
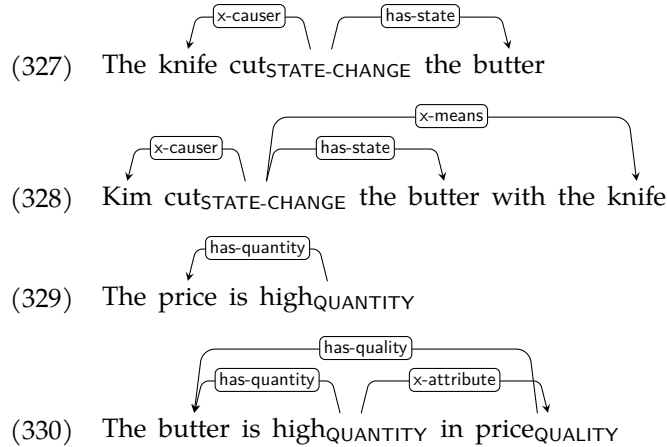   [x-causer] [experiencer]

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).

(323) Kim deboned_PART-WHOLE-DEINIT the fish
    [x-causer] [initial-whole]

(324) Kim sneezed_EXCRETION
    [excreter]

(325) Our local supermarket delivers_LOCATION-INIT
    [x-causer]

(326) at sunrise_LOCATION-CHANGE » TIME

3.1.3 A Participant whose Syntactic Argument Position is Occupied Should Not Be Treated like an Implicit Argument
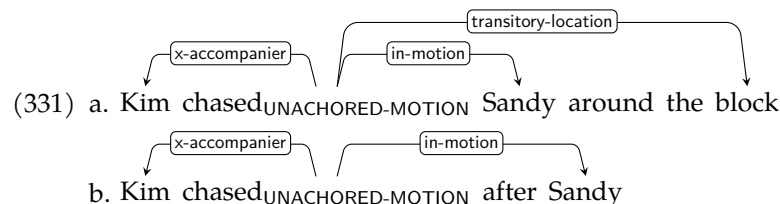
For example, consider (327), Here, *The knife* occupies the subject position and should be treated as the causer of the cutting. We could add the person handling the knife as the causer, and treat the knife as an instrument. However, to add the former to the sentence, we would not merely have to add 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_STATE-CHANGE the butter
    [x-causer] [has-state]

(328) Kim cut_STATE-CHANGE the butter with the knife
    [x-causer] [has-state] [x-means]

(329) The price is high_QUANTITY
    [has-quantity]

(330) The butter is high_QUANTITY in price_QUALITY
    [has-quality] [has-quantity] [x-attribute]

3.1.4 When in Doubt, Treat Different Syntactic Frames of the Same Predicate Consistently
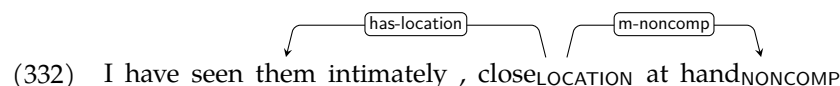
For example, in (331-a), *chase* could be framed as caused motion with Kim as x-causer or as accompanied motion with Kim as x-accompanier. Because the latter

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works for other syntactic frames of *chase* as well, as in (331-b), prefer it.

(331) a. Kim chased$_{\text{UNACHORED-MOTION}}$ Sandy around the block
[x-accompanier, transitory-location, in-motion]

b. Kim chased$_{\text{UNACHORED-MOTION}}$ after Sandy
[x-accompanier, in-motion]

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$_{\text{LOCATION}}$ at hand$_{\text{NONCOMP}}$
[has-location, m-noncomp]

3.1.6 Look Up Unfamiliar Words in a Dictionary

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

(333) So I tossed$_{\text{TRANSFORMATION-CREATION}}$ off this drawing
[m-explanation, x-causer, created, m-noncomp]

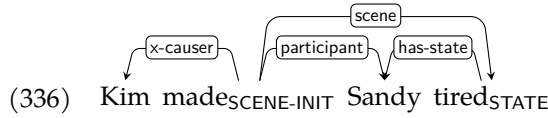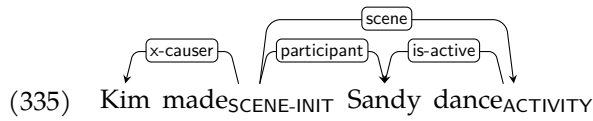### 3.1.7 Symmetric Argument Pairs

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

(334) distinguish$_{\text{COMPARISON}}$ China from Arizona
[reference, compared]
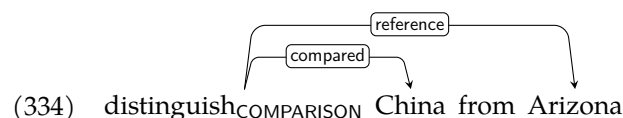
3.1.8 When to Use SCENE

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.

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

(335) Kim made$_{\text{SCENE-INIT}}$ Sandy dance$_{\text{ACTIVITY}}$

(336) Kim made$_{\text{SCENE-INIT}}$ Sandy tired$_{\text{STATE}}$

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

(337) I lived$_{\text{EXPERIENCE}}$ my life

(338) They number$_{\text{QUANTITY}}$ in the thousands
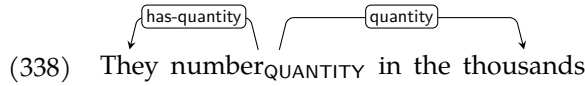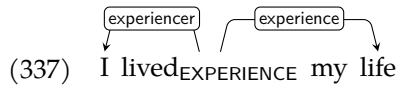
3.2 Aspect, Mode, and Polarity

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

(339) Kim lost$_{\text{POSSESSION-DEINIT}}$ the house
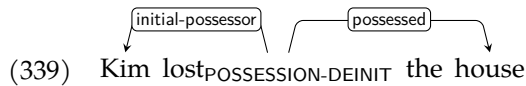
In (339), losing is framed as POSSESSION-DEINIT because a state of possession ends. POSSESSION-INIT would be incorrect because although a losing event begins, the state that the superframe POSSESSION describes ends. In general, aspectual suffixes modify superframes, they do not necessarily indicate the aspectual class of the predicate (here: *lost*).
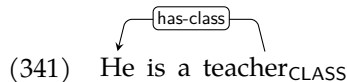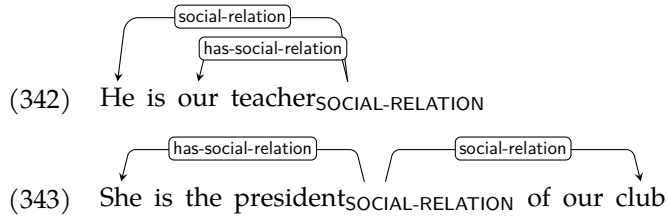
3.3 Construction-specific Guidelines

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:

(340) With that, my critic$_{\text{MESSAGE}}$ sat down again

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

(341) He is a teacher$_{\text{CLASS}}$

(342)

```
        ┌──social-relation──┐
        │  ┌has-social-relation┐
        ↓  │              ↓
He   is   our   teacher_SOCIAL-RELATION
```

(343)

```
    ┌has-social-relation┐   ┌──social-relation──┐
    │                ↓      │                 ↓
She   is   the   president_SOCIAL-RELATION   of   our   club
```
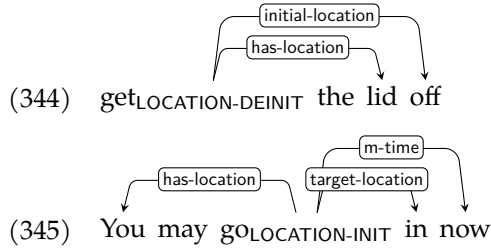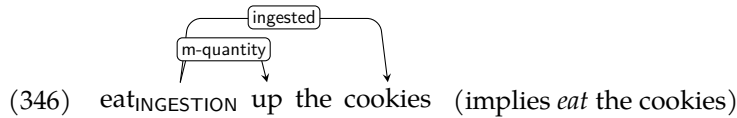
3.3.2 Particle Verbs

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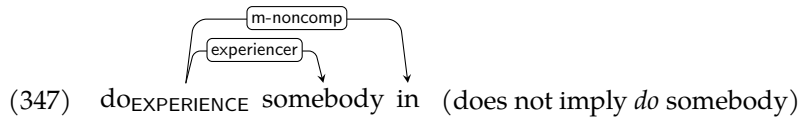
In UD, particle verbs are connected to their particle via the `compound:prt` relation. If the meaning is spatial, this dependency is labeled with initial-location or target-location.

(344)

```
        ┌──initial-location──┐
        │  ┌has-location┐    │
        ↓  │          ↓      ↓
get_LOCATION-DEINIT   the   lid   off
```

(345)

```
            ┌has-location┐  ┌─────m-time─────┐
            │          ↓    │ ┌target-location┐ │
            ↓               ↓ │            ↓   ↓
You   may   go_LOCATION-INIT   in   now
```

In semi-non-compositional particle verbs, where the particle adds a partially predictable but nonspatial meaning to the verb, use an appropriate role.
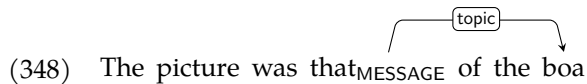
(346)

```
        ┌──ingested──┐
        │ ┌m-quantity┐ │
        ↓ │        ↓   ↓
eat_INGESTION   up   the   cookies   (implies *eat* the cookies)
```

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

(347)

```
        ┌──m-noncomp──┐
        │ ┌experiencer┐ │
        ↓ │         ↓   ↓
do_EXPERIENCE   somebody   in   (does not imply *do* somebody)
```

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 antecendent's super-frame:

(348)

```
                    ┌topic┐
                    │    ↓
The   picture   was   that_MESSAGE   of   the   boa
```

(349) I drew a picture of a dog , one$_{\text{MESSAGE}}$ of a cat , and another$_{\text{MESSAGE}}$ of a sheep

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.

(350) This is the book$_{\text{MESSAGE}}$ I like

(351) My drawing was not a picture$_{\text{MESSAGE}}$ of a hat

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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