Superframes Manual

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Last updated: June 11, 2024

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Table 1: Hierarchy of Superframes and their Roles

1 Introduction

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

1. Every content word (verb, noun, pronoun, adjective, or adverb) is a *predicate*. Every predicate evokes one of a few dozen *superframes*, which determines its coarse semantic class and the possible role labels for its core arguments.

2. The syntactic *dependents* of a predicate can be *core arguments*, in which case they get one of the role labels defined by the superframe of the predicate, or *external arguments* or *modifiers*, in which case they are treated as evoking their own frame in which the predicate serves as a core argument.

3. There are only two main core role labels per superframe.

4. For predicates denoting change (or lack thereof) over time, some superframes have *aspectual variants* with role variants that allow to distinguish participants before, during, and after an event. This avoids having `Source` and `Target` as roles in their own right, which indicate the time sequence but suppress information about the nature of the relation that is changing.

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

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

Table 1 shows the superframes and their roles, sorted into a rough hierarchy. At the top is 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$_\textsf{STATE}$ [has-state]

(2) Kim is partying$_\textsf{ACTIVITY}$ [is-active]

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

(3) Kim owns$_\textsf{POSSESSION}$ a house [possessor] [possessed]

(4) The house belongs$_\textsf{POSSESSION}$ to Kim [possessed] [possessor]

(5) Kim seems$_\textsf{MESSAGE}$ 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~POSSESSION-INIT~ the house
[target-possessor] [possessed]

(7) Kim lost~POSSESSION-DEINIT~ the house
[initial-possessor] [possessed]

(8) Kim sold~POSSESSION-CHANGE~ the house to Sandy
[initial-possessor] [target-possessor] [possessed]

(9) Kim kept~POSSESSION-CONTINUATION~ the house
[initial-possessor] [possessed]

(10) Kim went~LOCATION-CHANGE~ from Chicago via Pittsburgh to Boston
[has-location] [initial-location] [transitory-location] [target-location]

(11) The vase fell~LOCATION-CHANGE~ to the ground
[has-location] [target-location]

(12) The vase broke~STATE-CHANGE~
[has-state]

(13) Kim befriended~SOCIAL-RELATION-INIT~ Sandy
[has-social-relation] [target-social-relation]

(14) Kim married~SOCIAL-RELATION-INIT~ Sandy
[has-social-relation] [target-social-relation]

(15) Kim divorced~SOCIAL-RELATION-DEINIT~ Sandy
[has-social-relation] [initial-social-relation]

(16) Kim saved~EXPERIENCE-PREVENTION~ Sandy from the dragon
[x-causer] [experiencer] [target-experience]

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_{SCENE-INIT} [target-scene]

(18) The concert continued_{SCENE-CONTINUATION} [initial-scene]

(19) The concert finished_{SCENE-DEINIT} [initial-scene]

(20) The shouting intensified_{SCENE-CONTINUATION} [initial-scene]

(21) The shouting faded_{SCENE-DEINIT} [initial-scene]

(22) A coup was attempted_{SCENE-INIT} [target-scene]

(23) Kim finished_{SCENE-DEINIT} their work [participant] [initial-scene]

(24) Swift action prevented_{SCENE-PREVENTION} an outbreak [x-causer] [target-scene]

(25) Kim refrained_{SCENE-PREVENTION} from going [participant] [target-scene]

(26) Kim prevented_{SCENE-PREVENTION} Sandy from going [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_{SCENE-NECESSITY} [scene]

(28) Change is possible_{SCENE-POSSIBILITY} [scene]

(29) Kim owes_{POSSESSION-CHANGE-NECESSITY} Sandy money [initial-possessor] [target-possessor] [possessed]

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

(30) absence_{EXISTENCE-NEG} of evidence [exists]

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(31) $\overset{\frown}{\text{scene}}$

That is impossible$_{\text{SCENE-POSSIBILITY-NEG}}$

(32) They never$_{\text{TIME-NEG}}$ understand

1.3 Non-core Arguments

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

(33) Kim threw$_{\text{LOCATION-CHANGE}}$ the vase to the ground
[roles: x-causer, has-location, target-location]

(34) Kim broke$_{\text{STATE-CHANGE}}$ the vase
[roles: x-causer, has-state]

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

(35) Kim talked$_{\text{MESSAGE-INIT}}$ to Sandy about Bali
[roles: x-sender, x-experiencer, topic]

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

(36) Kim searched$_{\text{MESSAGE-INIT}}$ the woods for Sandy
[roles: x-experiencer, x-location, topic]

(37) Kim sold$_{\text{POSSESSION-CHANGE}}$ Sandy the house for a million dollars
[roles: initial-possessor, target-possessor, possessed, x-asset]
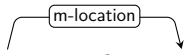
1.4 Modifiers

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$_{\text{EXCRETION}}$ profusely in the sauna
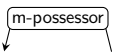[roles: excreter, m-quantity, m-location]

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, 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$_{\mathsf{CLASS}}$ [m-location] in the garden
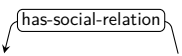
(40)   Kim 's [m-possessor] tree$_{\mathsf{CLASS}}$

Event nouns evoke event frames and have arguments:

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

Relational nouns evoke relational frames and have arguments:

(42)   Kim 's friend$_{\mathsf{SOCIAL\text{-}RELATION}}$ [has-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$_{\mathsf{IDENTIFICATION}}$

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

Predicate adjectives most typically denote states or qualities.

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

(46)   the dog is tired$_{\mathsf{STATE}}$ [has-state]

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

(47)   despicable me$_{\mathsf{IDENTIFICATION}}$ [m-quality]

(48)   the tired dog$_{\mathsf{CLASS}}$ [m-state]

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

(49) Kim ran_{Motion} fast

Kim ran_{Motion} fast — with links *has-location*, *m-quality*

(49) [has-location] [m-quality]

Kim ran$_\text{Motion}$ fast

(50) [has-location] [m-quality]

Kim ran$_\text{Motion}$ 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) [has-location]

Kim promised Sandy to come$_\text{LOCATION-CHANGE}$ (subject control)

(52) [x-causer] [has-state]

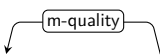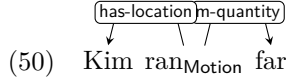Kim used a hammer to smash$_\text{STATE-CHANGE}$ the vase   (subject control)

(53) [has-location]

Kim persuaded Sandy to come$_\text{LOCATION-CHANGE}$ (object control)

(54) [has-location]

Kim seemed to fly$_\text{UNANCHORED-MOTION}$ (raising)

(55) [x-sender]

Kim entered the room singing$_\text{MESSAGE-INIT}$ (depictive)

(56) [has-state]

You're talking me silly$_\text{STATE}$ (resultative)

(57) [has-location]

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

(58) [x-causer] [has-state]

Kim left after trashing$_\text{STATE-CHANGE}$ the room   (subjectless adverbial clause)

(59) [topic]

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

(60) [topic] [x-experiencer]

the song I like$_\text{MESSAGE}$ (relative clause)

(61) [topic] [x-sender]

the question we raised without answering$_\text{MESSAGE-INIT}$ (parasitic gap)

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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_{UNANCHORED-MOTION » SCENE} over the group
with labels: in-motion » scene ; transitory-location » participant

(63) Kim refused_{MESSAGE-INIT » SCENE} to eat
with labels: 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_{CLASS}
with label: m-time » m-noncomp

(65) colored pencil_{CLASS}
with label: m-quality » m-noncomp

(66) to lay_{LOCATION-CHANGE » MESSAGE-DEINIT} aside my drawings
with labels: 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_{MESSAGE-INIT} began_{SCENE-INIT}
with label: target-scene

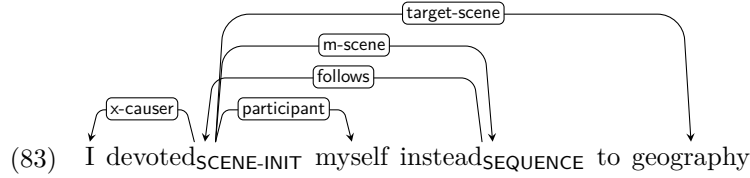(68) The concert_{MESSAGE-INIT} continued_{SCENE-CONTINUATION}
with label: initial-scene

(69) The concert_{MESSAGE-INIT} finished_{SCENE-DEINIT}
with label: initial-scene

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

(82) Fortunately_EXPERIENCE for Sandy , Kim is here_LOCATION

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

(83) I devoted_SCENE-INIT myself instead_SEQUENCE to geography

[arcs: 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_IDENTIFICATION saw a picture

(85) I can distinguish China_IDENTIFICATION from Arizona

[arcs: identified, identifier]

(86) a book called_IDENTIFICATION True Stories from Nature

[arc: identified]

(87) This is Kim_IDENTIFICATION

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

[arc: m-identifier]

(88) the island_CLASS of Pultanella

[arc: m-identifier]

(89) the stallion_CLASS of Rumour

Likewise, *in* has an identifying sense:

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

(90) In answer , he repeated_MESSAGE-INIT : Please, draw me a sheep !

2.3 RANK

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

[arc: m-rank]

(91) Chapter_MESSAGE 1

(92)   my first drawing_MESSAGE

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_CLASS

Indefinite pronouns also evoke CLASS.

(94)   She saw one_CLASS

(95)   Nothing_CLASS about him suggested a child

(96)   Why would anyone_CLASS be frightened by a hat?

(97)   Something_CLASS is broken

(98)   Where I live everything_CLASS is small

2.5   EXISTENCE

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

(99)   I exist_EXISTENCE

(100)   There is_EXISTENCE a hill

(101)   There is_SCENE a hubbub

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_TRANSFORMATION-CREATION my first drawing

(103)   Kim built_TRANSFORMATION-CREATION a castle out of sand

(104) Kim turned$_{\text{TRANSFORMATION-CREATION}}$ straw into gold

Arrows: 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

Arrow: original

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

Arrows: copy, original, x-quality

2.8 QUALITY

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

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

Arrow: m-quality

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

Arrows: x-experiencer, m-quality, topic

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

Arrow: m-quality

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

Arrow: m-quality

2.9 STATE

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

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

Arrows: has-state, x-quantity

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

Arrow: has-state

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

Arrow: has-state

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

Annotations: x-causer, has-state

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

Annotation: x-causer

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

Annotations: 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_{DESTRUCTION}

Annotation: destroyed

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

Annotations: x-causer, destroyed

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

(119) Something was broken_{STATE} in my enginge

Annotations: 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_{EXPERIENCE} in the jungle

Annotations: experiencer, m-location

(121) Kim attacked_{EXPERIENCE} Sandy

Annotations: x-causer, experiencer

(122) I saw_{MESSAGE} a magnificent picture

Annotations: x-experiencer, topic

(123) I pondered_{MESSAGE-INIT} deeply

Annotations: x-experiencer, m-quality

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

Annotations: x-sender, x-experiencer

(125) Kim did$_{\text{SCENE}}$ something nice for Sandy

(126) Kim cooked a meal only to have$_{\text{SCENE}}$ Sandy spurn it

(127) Kim managed$_{\text{EXPERIENCE}}$ with dealing the cards

(128) Die Piroggen waren Maria zu dunkel geraten$_{\text{SCENE-INIT}}$

(129) Das hat mir gerade noch gefehlt$_{\text{EXPERIENCE}}$

(130) they need$_{\text{EXPERIENCE-NECESSITY}}$ 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$_{\text{ACTIVITY}}$

(132) Kim partied$_{\text{ACTIVITY}}$

(133) Kim had sex$_{\text{ACTIVITY}}$

(134) after some work$_{\text{ACTIVITY}}$ with a colored pencil

(135) I devoted myself to geography$_{\text{ACTIVITY}}$

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]

(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

Annotations for (146): has-location, target-location, m-accompanier

(147) Kim danced_{ACTIVITY} with Sandy

Annotations for (147): is-active, x-accompanier

(148) Kim had_{SCENE} sex with Sandy

Annotations for (148): participant, scene, x-accompanier

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

Annotations for (149): x-accompanier, in-motion, transitory-location

(150) Kim accompanied_{ACCOMPANIMENT} Sandy

Annotations for (150): x-accompanier, accompanied

(151) Kim accompanied_{ACCOMPANIMENT} Sandy on the piano

Annotations for (151): 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}

Annotations for (152): has-location, target-location, m-depictive, x-sender

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}

Annotations for (153): compared, reference, has-quality, x-attribute, has-quality

(154) That is great_{QUALITY} in terms of ROI_{QUALITY}

Annotations for (154): has-quality, m-attribute, has-quality

18

(155) Kim ist auf den Kopf$_{\text{CLASS}}$ gefallen$_{\text{HITTING}}$

hitting, x-whole, x-attribute

(156) Kim hit$_{\text{HITTING}}$ Sandy on the head$_{\text{CLASS}}$ with a stick

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

2.17 ASSET

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

(157) Kim bought$_{\text{POSSESSION-CHANGE}}$ the house for a million dollars

target-possessor, possessed, x-asset

(158) Kim offered$_{\text{MESSAGE-INIT}}$ Sandy a million dollars for the house

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

(159) I bet$_{\text{MESSAGE-INIT}}$ you 30 bucks to an apple he will win

x-sender, x-experiencer, x-asset, x-reference, target-content

2.18 COMPARISON

compared is characterized with respect to reference.

Examples of comparing scenes:

(160) Compared to Sandy, Kim is tall$_{\text{QUALITY}}$

m-reference, has-quality

(161) Sandy is short$_{\text{QUALITY}}$ whereas Kim is tall

has-quality, m-comparison

(162) They demonize$_{\text{MESSAGE-INIT}}$ the left while doing nothing about the right

x-sender, topic, m-reference

Examples of comparing non-scene entities:

(163) Kim outranks$_{\text{COMPARISON}}$ Sandy

compared, reference

(164) Kim exceeds$_{\text{COMPARISON}}$ Sandy in height

[compared, reference, x-attribute arcs]

(165) The Polish restaurant compared$_{\text{COMPARISON}}$ favorably to the Spanish one

[compared, x-quality, reference arcs]

(166) Kim compared$_{\text{COMPARISON}}$ Coke to Pepsi

[x-experiencer, compared, reference arcs]

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

(167) The program conforms$_{\text{COMPARISON}}$ to the spec

[compared, reference arcs]

(168) Kim ran$_{\text{COMPARISON-DEINIT}}$ afoul of Fielding 's constraints

[compared, m-noncomp, reference arcs]

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

(169) more isolated$_{\text{SOCIAL-RELATION}}$ than a shipwrecked sailor

[m-quantity, x-reference arcs]

(170) Kim is taller$_{\text{QUALITY}}$ than Sandy

[has-quality, x-reference arcs]

2.19 CONCESSION

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

(171) Kim went$_{\text{LOCATION-CHANGE}}$ out despite the rain

[has-location, target-location, m-conceded arcs]

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

[x-noncomp, m-asserted arcs]

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

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

20

(174) Kim came_LOCATION-INIT although Sandy had told them not to

has-location (arc over "Kim came")
m-conceded (arc from "came" to "to")

2.20 EXPLANATION

explanation explains explained, but is not a cause.

(175) I am stressing_MESSAGE-INIT this because it is important

x-sender (arc)
topic (arc)
m-explanation (arc)

2.21 PURPOSE

Special case of EXPLANATION where explanation is a purpose.

(176) Kim went_LOCATION-CHANGE to town to buy_POSSESSION-CHANGE food

target-possessor (arc)
has-location (arc)
m-explanation (arc)
target-location (arc)
possessed (arc)

(177) drinking_INGESTION water_CLASS

ingested (arc)
m-purpose (arc)

2.22 LOCATION

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

(178) the hat_CLASS in the box

m-location (arc)

(179) Kim lives_LOCATION in Boston

has-location (arc)
location (arc)

(180) Kim went_LOCATION-CHANGE from the living room through the door into the kitchen

target-location (arc)
transitory-location (arc)
has-location (arc)
initial-location (arc)

(181) Kim placed_LOCATION-CHANGE the hat on the table

target-location (arc)
x-causer (arc)
has-location (arc)

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_{WRAPPING-WEARING} a shirt
(with arcs: wearer, wrapper)

(183) Kim is wearing_{WRAPPING-WEARING} glasses
(with arcs: wearer, wrapper)

(184) The shroud wraps_{WRAPPING-WEARING} the scepter
(with arcs: wrapper, wearer)

(185) Kim put_{WRAPPING-WEARING-INIT} on a sweater
(with arcs: target-wearer, wrapper)

(186) Kim took_{WRAPPING-WEARING-DEINIT} off their glasses
(with arcs: initial-wearer, wrapper)

2.24 ADORNMENT-TARNISHMENT

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

Kim decorated_{ADORNMENT-TARNISHMENT} the balcony with fairy lights
(with arcs: x-causer, surface, ornament)

Kim splashed_{ADORNMENT-TARNISHMENT-INIT} Sandy with water
(with arcs: x-causer, surface, ornament)

Kim washed_{ADORNMENT-TARNISHMENT-DEINIT} the dirt off Sandy
(with arcs: x-causer, ornament, initial-surface)

Kim washed_{ADORNMENT-TARNISHMENT-DEINIT} Sandy
(with arcs: 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
(with arcs: x-causer, hit)

(188) Kim hit_{HITTING} Sandy with a stick
(with arcs: x-causer, hit, hitting)

(189) The stick hit_{HITTING} Sandy
(with arcs: hitting, hit)

22

(190) Kim hit$_{\text{HITTING}}$ Sandy on the head$_{\text{CLASS}}$ with a pool noodle

diagram labels: hitting, x-attribute, x-causer, hit, x-whole

(191) Kim kicked$_{\text{HITTING}}$ Sandy

diagram labels: x-causer, hit

2.26 INGESTION

Special case of LOCATION-INIT where ingester (aka target-location) ingests ingested (aka has-location).
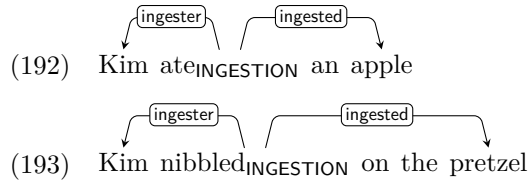
(192) Kim ate$_{\text{INGESTION}}$ an apple

diagram labels: ingester, ingested

(193) Kim nibbled$_{\text{INGESTION}}$ on the pretzel

diagram labels: ingester, ingested

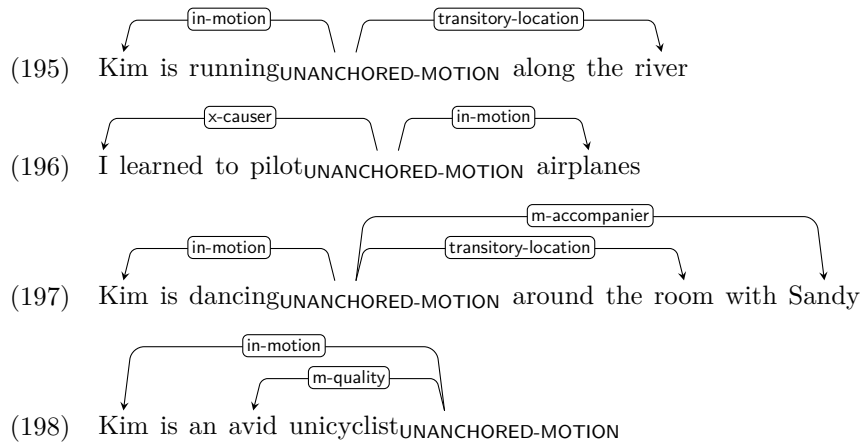## 2.27 EXCRETION

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

(194) Kim threw$_{\text{EXCRETION}}$ up the pretzel

diagram labels: excreter, excreted

2.28 UNANCHORED-MOTION

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

(195) Kim is running$_{\text{UNANCHORED-MOTION}}$ along the river

diagram labels: in-motion, transitory-location

(196) I learned to pilot$_{\text{UNANCHORED-MOTION}}$ airplanes

diagram labels: x-causer, in-motion

(197) Kim is dancing$_{\text{UNANCHORED-MOTION}}$ around the room with Sandy

diagram labels: m-accompanier, in-motion, transitory-location

(198) Kim is an avid unicyclist$_{\text{UNANCHORED-MOTION}}$

diagram labels: in-motion, m-quality

2.29 MEANS

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

(199) Kim cut$_{\text{STATE-CHANGE}}$ the cake with a knife

Arcs: x-causer, has-state, m-means

(200) Kim painted$_{\text{ADORNMENT-TARNISHMENT}}$ the room by exploding a paint bomb

Arcs: x-causer, surface, m-means

(201) Kim used$_{\text{MEANS}}$ a pen to get$_{\text{LOCATION-DEINIT}}$ the lid off

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

(202) You used$_{\text{MEANS}}$ me !
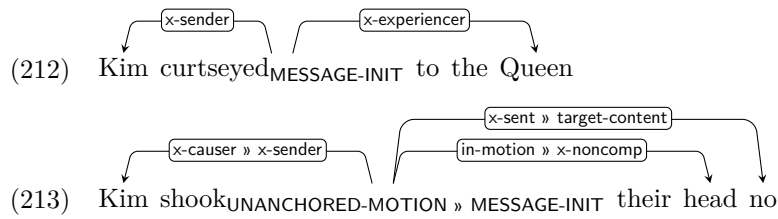
Arcs: x-causer, means

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

Arcs: x-sender

(204) Kim said$_{\text{MESSAGE-INIT}}$: it 's fine

Arcs: x-sender, target-content

(205) Kim said$_{\text{MESSAGE-INIT}}$ it was fine

Arcs: x-sender, target-content

(206) Kim called$_{\text{MESSAGE-INIT}}$ Sandy a liar$_{\text{MESSAGE}}$

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

(207) Kim told$_{\text{MESSAGE-INIT}}$ Sandy a secret

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

(208) Kim talked$_{\text{MESSAGE-INIT}}$ about Sandy

Arcs: x-sender, topic

(209) Kim talked$_{\text{MESSAGE-INIT}}$ shit$_{\text{MESSAGE}}$ about Sandy

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

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

with arcs labeled x-sender, x-sender

(210) Kim and Sandy conversed$_{\text{MESSAGE-INIT}}$

(211) Kim conversed$_{\text{MESSAGE-INIT}}$ with Sandy

arcs: x-sender, x-accompanier

2.30.2 Gesture

(212) Kim curtseyed$_{\text{MESSAGE-INIT}}$ to the Queen

arcs: x-sender, x-experiencer

(213) Kim shook$_{\text{UNANCHORED-MOTION » MESSAGE-INIT}}$ their head no

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

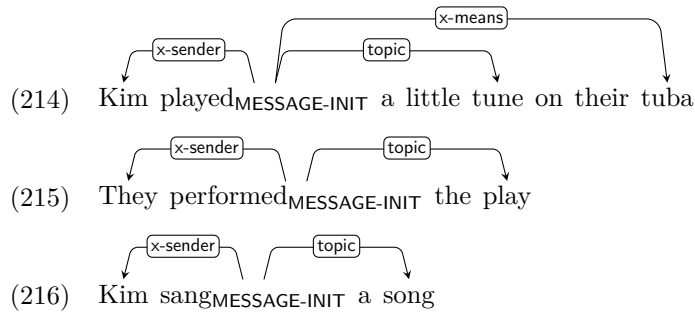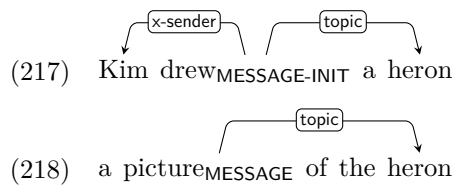### 2.30.3 Performance

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

(214) Kim played$_{\text{MESSAGE-INIT}}$ a little tune on their tuba

arcs: x-sender, topic, x-means

(215) They performed$_{\text{MESSAGE-INIT}}$ the play

arcs: x-sender, topic

(216) Kim sang$_{\text{MESSAGE-INIT}}$ a song

arcs: x-sender, topic

2.30.4 Depiction

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

arcs: x-sender, topic

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

arcs: topic

2.30.5 Recording

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

arcs: x-sender, target-content

(220) Kim wrote$_{\text{MESSAGE-INIT}}$ Sandy a letter

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

(221) Kim wrote~MESSAGE-INIT~ the message onto a piece of paper with a pen in big red letters~QUALITY~

(222) The concert was recorded~MESSAGE-INIT~ on tape

(223) The band recorded~MESSAGE-INIT~ an album
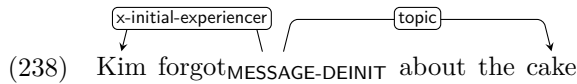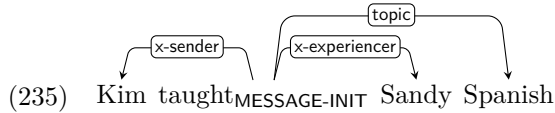
2.30.6 Perception

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

(224) Kim saw~MESSAGE~ a flower

(225) Kim found~MESSAGE~ the flower beautiful~QUALITY~

(226) Kim thinks~MESSAGE~ Sandy is a liar

(227) Kim thinks~MESSAGE~ Sandy a liar~MESSAGE~

(228) Kim saw~MESSAGE~ Sandy swim~UNANCHORED-MOTION~

(229) Kim wants~MESSAGE~ to swim~UNANCHORED-MOTION~

(230) Kim wants~MESSAGE~ Sandy to swim~UNANCHORED-MOTION~

(231) Kim seems~MESSAGE~ happy~MESSAGE~

(232) Kim seems_MESSAGE happy_MESSAGE to Sandy

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.
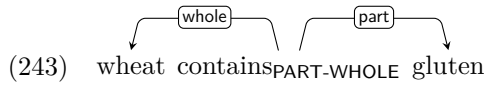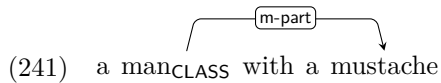
(233) The Thought Police observed_MESSAGE-INIT Winston

(234) Kim noticed_MESSAGE-INIT the bird

(235) Kim taught_MESSAGE-INIT Sandy Spanish

(236) Kim measured_MESSAGE-INIT the elasticity

(237) Kim forgot_MESSAGE-DEINIT everything they knew

(238) Kim forgot_MESSAGE-DEINIT about the cake

(239) Kim forgot_MESSAGE-PREVENTION to take the trash out

2.31 PART-WHOLE

part is part of whole.

(240) Kim 's leg_CLASS

(241) a man_CLASS with a mustache

(242) part_PART-WHOLE of the year

(243) wheat contains_PART-WHOLE gluten

2.32 POSSESSION

possessor possesses or controls the possessed.

(244) Kim 's house$_\text{CLASS}$ — [m-possessor]

(245) Kim owns$_\text{POSSESSION}$ a house — [possessor] [possessed]

(246) The house belongs$_\text{POSSESSION}$ to Kim — [possessed] [possessor]

(247) the owner$_\text{POSSESSION}$ of the house — [possessed]

(248) Kim has$_\text{POSSESSION}$ Sandy 's phone — [possessor] [possessed]

(249) Kim bought$_\text{POSSESSION-CHANGE}$ a house from Sandy — [target-possessor] [possessed] [initial-possessor]

(250) Sandy sold$_\text{POSSESSION-CHANGE}$ Kim the house — [initial-possessor] [target-possessor] [possessed]

(251) Kim kept$_\text{POSSESSION-CONTINUATION}$ the house — [initial-possessor] [possessed]

(252) Kim lost$_\text{POSSESSION-DEINIT}$ the house — [initial-possessor] [possessed]

(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] [target-possessor] [possessed]

2.33 QUANTITY

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

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

(257) three liters_{QUANTITY} of coke

[m-quantity, has-quantity arrows]

(257) three liters$_{\text{QUANTITY}}$ of coke

(258) We discourage$_{\text{MESSAGE-INIT}}$ this emphatically

[x-sender, topic, m-quantity arrows]

2.34 SENDING

sender originates a message, **sent**, that can be experienced.
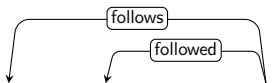
[m-sender, x-noncomp arrows]

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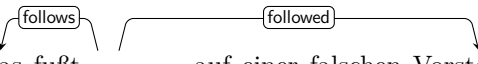
For more uses, see MESSAGE (Section 2.30).

2.35 SEQUENCE

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

[follows, followed arrows]

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

[follows, followed arrows]

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

[follows, followed arrows]

(262) Das fußt$_{\text{SEQUENCE}}$ auf einer falschen Vorstellung

[x-experiencer, follows, followed arrows]

(263) Kim deduced$_{\text{SEQUENCE}}$ the truth from the clues

[m-followed, has-location arrows]

(264) Given that I 'm tired , I wo n't be there$_{\text{LOCATION}}$

2.36 CAUSATION

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

[x-causer, has-state arrows]

(265) Kim broke$_{\text{STATE-CHANGE}}$ the glass

[x-causer, has-state arrows]

(266) The knife cut$_{\text{STATE-CHANGE}}$ the bread

(267) Kim cut$_{\text{STATE-CHANGE}}$ the bread with a knife

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

(268) The war caused$_{\text{CAUSATION}}$ a famine

Diagram labels: causer, result

(269) There was$_{\text{SCENE}}$ a famine because of the war

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

(270) Der Wasserdruck stieg$_{\text{QUANTITY-CHANGE}}$, wodurch der Brunnen überfloss

Diagram labels: has-quantity, m-result

(271) Die Qualität ist der Motivation geschuldet$_{\text{CAUSATION}}$

Diagram labels: result, causer

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

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

2.37 REACTION

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

(274) Kim reacted$_{\text{SEQUENCE}}$ to the allegations with a denial$_{\text{MESSAGE-INIT}}$

Diagram labels: x-sender, x-causer, reaction, 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$_{\text{HITTING}}$ the metal flat$_{\text{STATE}}$

Diagram labels: x-causer, x-resultative, hit, has-state

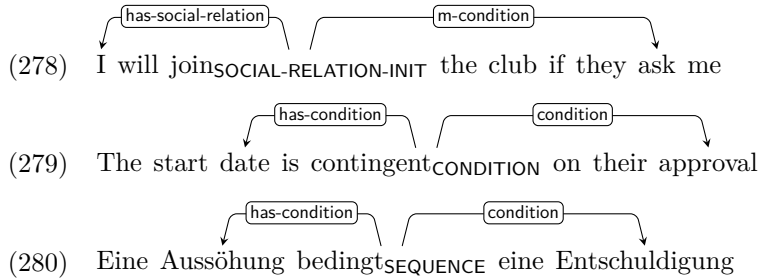(276) Kim painted_{ADORNMENT-TARNISHMENT} the room red_{QUALITY}

with arcs: x-causer, x-resultative, surface, has-quality

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

with arcs: experiencer, x-resultative, 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.
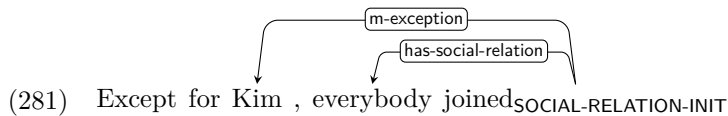
2.39 CONDITION

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

with arcs: has-social-relation, m-condition

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

with arcs: has-condition, condition

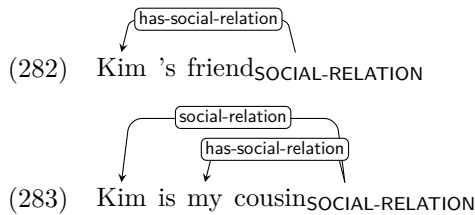(280) Eine Aussöhung bedingt_{SEQUENCE} eine Entschuldigung

with arcs: 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}

with arcs: m-exception, has-social-relation

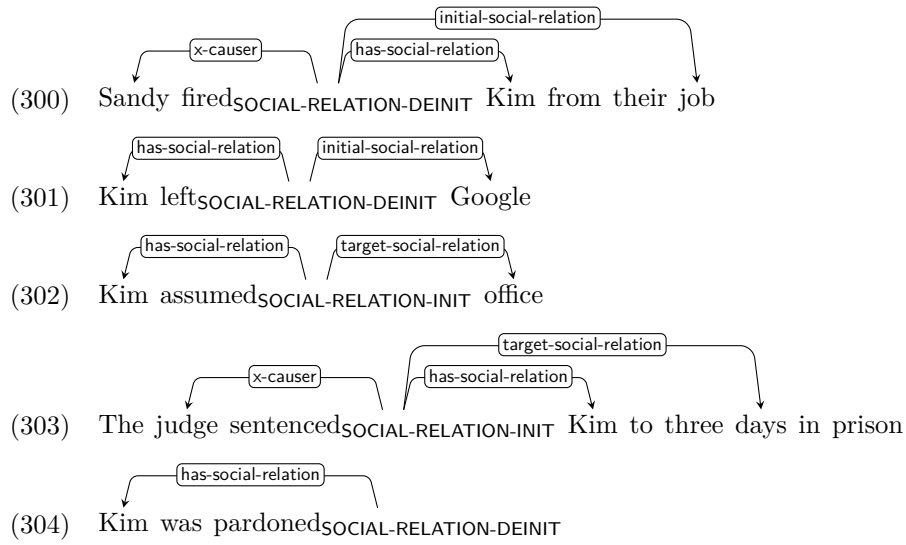## 2.41 SOCIAL-RELATION

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.
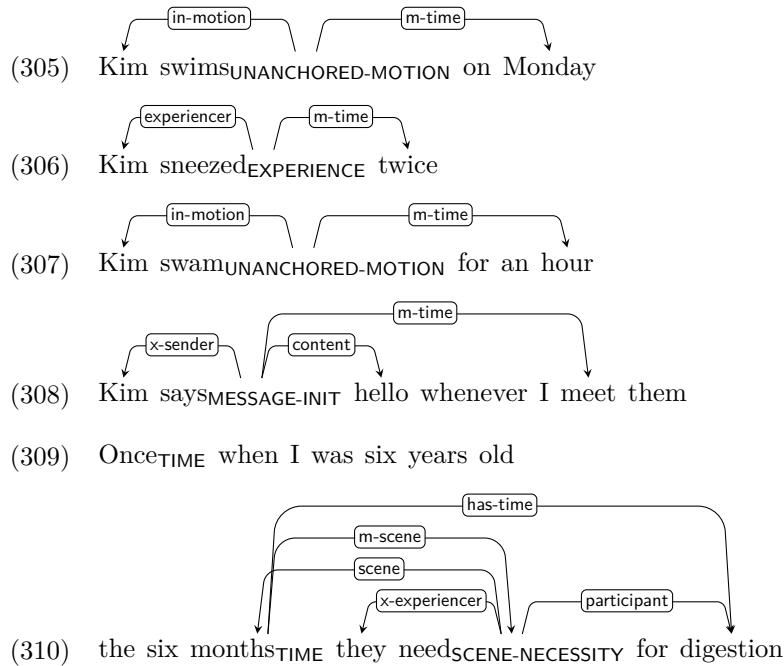
(282) Kim 's friend_{SOCIAL-RELATION}

with arc: has-social-relation

(283) Kim is my cousin_{SOCIAL-RELATION}

with arcs: social-relation, has-social-relation

(284) Kim and Sandy are friends_{SOCIAL-RELATION}
[arc: social-relation]

(285) Kim is friends_{SOCIAL-RELATION} with Sandy
[arcs: has-social-relation, social-relation]

(286) Kim works_{SOCIAL-RELATION} at Google
[arcs: has-social-relation, social-relation]

(287) Kim works_{SOCIAL-RELATION} for Sandy
[arcs: has-social-relation, social-relation]

(288) Kim emcees_{SOCIAL-RELATION}
[arc: has-social-relation]

(289) Kim is hosting_{SOCIAL-RELATION} the party
[arcs: has-social-relation, social-relation]

(290) Kim is under house arrest_{SOCIAL-RELATION}
[arc: has-social-relation]

(291) Kim 's sentence_{SOCIAL-RELATION} was suspended
[arc: has-social-relation]

(292) Kim married_{SOCIAL-RELATION-INIT} Sandy
[arcs: has-social-relation, target-social-relation]

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

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

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

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

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

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

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

(300) Sandy fired_SOCIAL-RELATION-DEINIT Kim from their job
(with arcs: x-causer, has-social-relation, initial-social-relation)

(301) Kim left_SOCIAL-RELATION-DEINIT Google
(with arcs: has-social-relation, initial-social-relation)

(302) Kim assumed_SOCIAL-RELATION-INIT office
(with arcs: has-social-relation, target-social-relation)

(303) The judge sentenced_SOCIAL-RELATION-INIT Kim to three days in prison
(with arcs: x-causer, has-social-relation, target-social-relation)

(304) Kim was pardoned_SOCIAL-RELATION-DEINIT
(with arc: 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
(with arcs: in-motion, m-time)

(306) Kim sneezed_EXPERIENCE twice
(with arcs: experiencer, m-time)

(307) Kim swam_UNANCHORED-MOTION for an hour
(with arcs: in-motion, m-time)

(308) Kim says_MESSAGE-INIT hello whenever I meet them
(with 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
(with 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$_{\textsf{DESTRUCTION}}$ the bucket

[destroyed] [x-noncomp]

(312) It is raining$_{\textsf{STATE}}$

[x-noncomp]

(313) I address$_{\textsf{MESSAGE-INIT}}$ myself to you

[x-sender] [x-experiencer] [x-noncomp]

(314) There was$_{\textsf{SCENE}}$ a famine

[x-noncomp] [scene]

(315) fountain pen$_{\textsf{CLASS}}$

[m-noncomp]

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

3 Argument Structure and Frame Choice

3.1 Prefer Core over Non-core Arguments

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

(316) Kim drove$_{\textsf{LOCATION-CHANGE}}$ to Boston

[has-location] [target-location]

(317) Kim drove$_{\textsf{LOCATION-CHANGE}}$ the car to Boston

[x-causer] [target-location] [has-location]

(318) They plundered$_{\textsf{POSSESSION-CHANGE}}$ Rome

[target-possessor] [initial-possessor]

(319) Kim undressed$_{\textsf{WRAPPING-WEARING-DEINIT}}$

[initial-wearer]

3.2 Arguments Determine Frames

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

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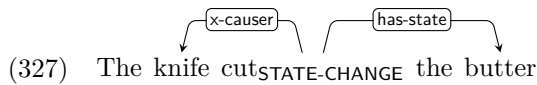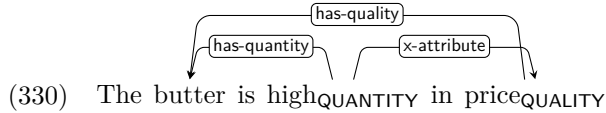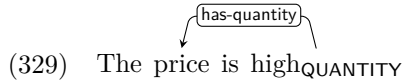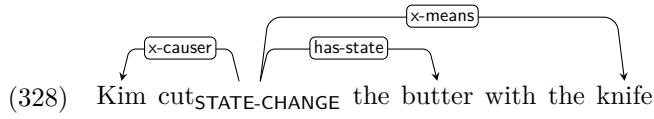
[m-sender] [m-rank]

b. my first drawing$_\text{MESSAGE}$ of a snake

$\overset{\frown}{\text{m-sender}}$ $\overset{\frown}{\text{m-rank}}$ $\overset{\frown}{\text{topic}}$

(321) a. Kim helped$_\text{SCENE-INIT}$ Sandy

$\overset{\frown}{\text{x-causer}}$ $\overset{\frown}{\text{participant}}$

b. Kim helped$_\text{SCENE-INIT}$ Sandy clean the dishes

$\overset{\frown}{\text{x-causer}}$ $\overset{\frown}{\text{participant}}$ $\overset{\frown}{\text{target-scene}}$

(322) a. Kim worked$_\text{EXPERIENCE}$

$\overset{\frown}{\text{x-causer}}$

b. Kim worked$_\text{EXPERIENCE}$ on the drawing

$\overset{\frown}{\text{x-causer}}$ $\overset{\frown}{\text{experiencer}}$

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$_\text{PART-WHOLE-DEINIT}$ the fish

$\overset{\frown}{\text{x-causer}}$ $\overset{\frown}{\text{initial-whole}}$

(324) Kim sneezed$_\text{EXCRETION}$

$\overset{\frown}{\text{excreter}}$

(325) Our local supermarket delivers$_\text{LOCATION-INIT}$

$\overset{\frown}{\text{x-causer}}$

(326) at sunrise$_\text{LOCATION-CHANGE » TIME}$

3.3 A Participant whose Syntactic Argument Position is Occupied Should Not Be Treated like an Implicit Argument
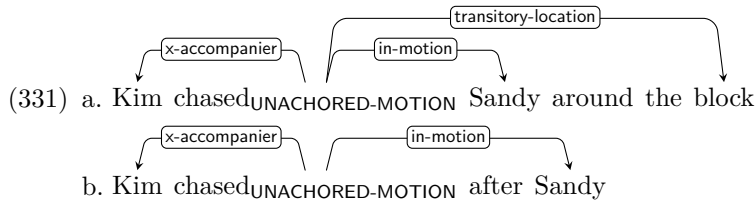
For example, consider (327), Here, *The knife* occupies the subject position and should be treated as the causer of the cutting. We could add the person handling the knife as the causer, and treat the knife as an instrument. However, to add the former to the sentence, we would not merely have to add 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$_\text{STATE-CHANGE}$ the butter

$\overset{\frown}{\text{x-causer}}$ $\overset{\frown}{\text{has-state}}$

(328)   Kim cut$_{\text{STATE-CHANGE}}$ the butter with the knife

(329)   The price is high$_{\text{QUANTITY}}$

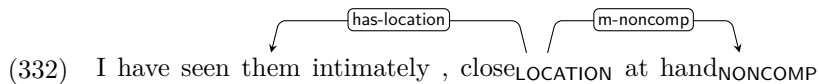(330)   The butter is high$_{\text{QUANTITY}}$ in price$_{\text{QUALITY}}$

3.4   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$_{\text{UNACHORED-MOTION}}$ Sandy around the block

      b. Kim chased$_{\text{UNACHORED-MOTION}}$ after Sandy

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

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

(332)   I have seen them intimately , close$_{\text{LOCATION}}$ at hand$_{\text{NONCOMP}}$

3.6   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

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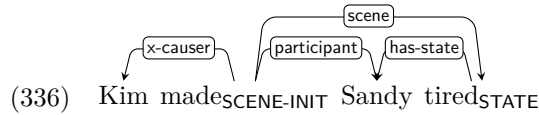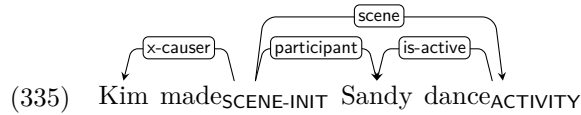
3.7 Symmetric Argument Pairs

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

(334)   distinguish$_{\text{COMPARISON}}$ China from Arizona
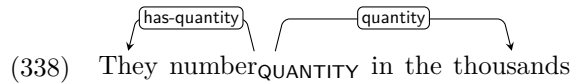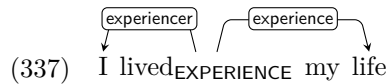[reference / compared]

3.8 When to Use SCENE

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

(335)   Kim made$_{\text{SCENE-INIT}}$ Sandy dance$_{\text{ACTIVITY}}$
[x-causer / scene / participant / is-active]

(336)   Kim made$_{\text{SCENE-INIT}}$ Sandy tired$_{\text{STATE}}$
[x-causer / scene / participant / has-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
[experiencer / experience]

(338)   They number$_{\text{QUANTITY}}$ in the thousands
[has-quantity / quantity]

4 Aspect, Mode, and Polarity

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

(339)   Kim lost$_{\text{POSSESSION-DEINIT}}$ the house
[initial-possessor / possessed]

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*).
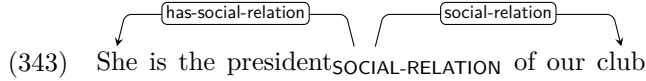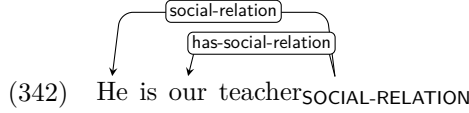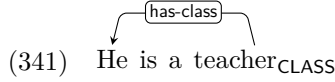
5 Construction-specific Guidelines

5.1 Participant Nouns

Some nouns denote a person who participates in a specific type of scene in a specific role. In such cases, use the most appropriate frame for that scene. For example, in a narrative where the narrator has just been criticized by a stranger, you could annotate as follows:
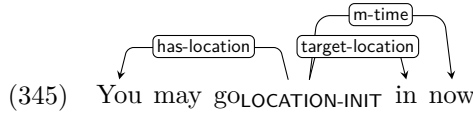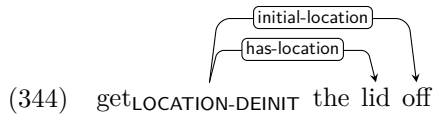
(340)   With that, my critic_MESSAGE sat down again
[topic]

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_CLASS
[has-class]

(342)   He is our teacher_SOCIAL-RELATION
[social-relation] [has-social-relation]

(343)   She is the president_SOCIAL-RELATION of our club
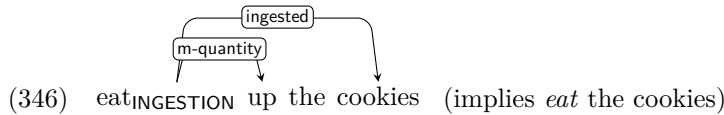[has-social-relation] [social-relation]

5.2 Particle Verbs

We follow the PARSEME classification of particle verbs into spatial, semi-non-compositional, and fully non-compositional ones (Savary et al., 2017; Ramisch et al., 2018, 2020; Savary et al., 2023).
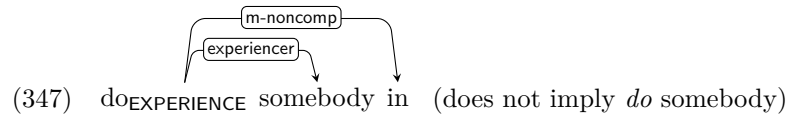
In UD, particle verbs are connected to their particle via the `compound:prt` relation. If the meaning is spatial, this dependency is labeled with initial-location or target-location.

(344)   get_LOCATION-DEINIT the lid off
[initial-location] [has-location]

(345)   You may go_LOCATION-INIT in now
[has-location] [target-location] [m-time]

In semi-non-compositional particle verbs, where the particle adds a partially predictable but nonspatial meaning to the verb, use an appropriate role.
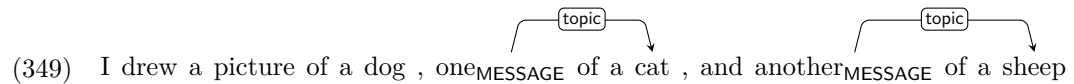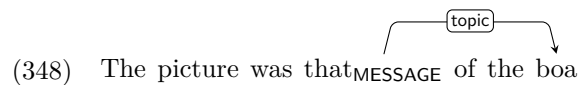
(346)   eat_INGESTION up the cookies   (implies *eat* the cookies)
[ingested] [m-quantity]

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

(347)   do_EXPERIENCE somebody in   (does not imply *do* somebody)

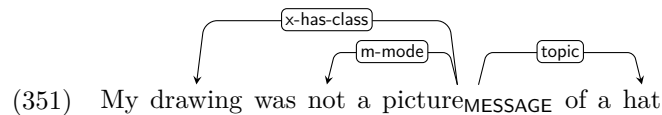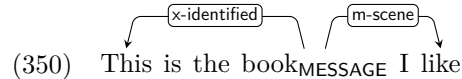## 5.3   Pronouns with Arguments

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

(348)   The picture was that_MESSAGE of the boa

(349)   I drew a picture of a dog , one_MESSAGE of a cat , and another_MESSAGE of a sheep

5.4   Nominal Copula Constructions

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

(350)   This is the book_MESSAGE I like

(351)   My drawing was not a picture_MESSAGE of a hat

6   TODO

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

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

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

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

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