














































Superframes Manual

Kilian Evang

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SUPERFRAME	initial-arg2	arg1	arg2	transitory-arg2	target-arg2	Sec.
SITUATION	initial-situator	theme	situator	transitory-situator	target-situator	2.1
ACCOMPANIMENT	initial-accompanier	accompanied	accompanier		target-accompanier	2.2
DEPictive		has-depictive	depictive			2.3
ASSET		has-asset	asset			2.4
ATTRIBute		has-attribute	attribute			2.5
COMPARISON		compared	reference			2.6
CONCESSION		assertion	conceded			2.7
EVENT		undergoer	event			2.8
ACTIVITY		is-active	activity			2.9
EXISTENCE	initial-exists	material	exists		target-exists	2.10
REPRODUCTION		original			copy	2.11
TRANSFORMATION-CREATION		material			created	2.12
EXPERIENCE		experiencer	experienced			2.13
EXPLANATION		explained	explanation			2.14
PURPOSE		has-purpoe	purpose			2.15
IDENTIFICATION	initial-identifier	identified	identifier		target-identifier	2.16
LOCATION	initial-location	has-location	location	transitory-location	target-location	2.17
ADORNMENT-TARNISHMENT	initial-surface	ornament	surface		target-surface	2.18
EXCRETION	excreter	excreted		transitory-location	target-location	2.19
HITTING		hitting	hit			2.20
INGESTION		ingested		transitory-location	ingerster	2.21
UNANCHORED-MOTION		in-motion		transitory-location		2.22
WRAPPING-WEARING	initial-wearer	worn	wearer		target-wearer	2.23
MEANS		has-means	means			2.24
MESSAGE	initial-content	topic	content		target-content	2.25
MODE		has-mode	mode			2.26
NONCOMP		has-noncomp	noncomp			2.27
PART-WHOLE	initial-whole	part	whole		target-whole	2.28
POSSESSION	initial-possessor	possessed	possessor		target-possessor	2.29
QUANTITY	initial-quantity	has-quantity	quantity		target-quantity	2.30
RANK	initial-rank	has-rank	rank		target-rank	2.31
SCENE	initial-scene	participant	scene	transitory-scene	target-scene	2.32
STATE	initial-state	has-state	state		target-state	2.33
QUALITY	initial-quality	has-quality	quality		target-quality	2.34
CLASS	initial-class	has-class	class		target-class	2.35
DESTRUCTION		destroyed				2.36
SENDING		sent	sender			2.37
SEQUENCE		follows	followed			2.38
CAUSATION		result	causer			2.39
CONDITION		has-condition	condition			2.40
EXCEPTION		has-exception	exception			2.41
REACTION		reaction	trigger			2.42
RESULTATIVE		has-resultative	resultative			2.43
SOCIAL-RELATION	initial-social-relation	has-social-relation	social-relation		target-social-relation	2.44
TIME	initial-time	has-time	time		target-time	2.45

Table 1: Hierarchy of Superframes and their Roles

1 Introduction

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

1. Every content word (verb, noun, pronoun, adjective, or adverb) is a *predicate*. Every predicate evokes one of a few dozen *superframes*, which determines its coarse semantic class and the possible role labels for its core arguments.
2. The syntactic *dependents* of a predicate can be *core arguments*, in which case they get one of the role labels defined by the superframe of the predicate, or *external arguments* or *modifiers*, in which case they are treated as evoking their own frame in which the predicate serves as a core argument.
3. There are only two main core role labels per superframe.

4. For predicates denoting change (or lack thereof) over time, some superframes have *aspectual variants* with role variants that allow to distinguish participants before, during, and after an event. This avoids having **Source** and **Target** as roles in their own right, which indicate the time sequence but suppress information about the nature of the relation that is changing.
5. Similarly, Superframes do not have the **Agent** role, which is often in conflict with roles indicating more specifically the agent's relation to other participants.
6. Doubt, ambiguity, and figurativity are systematically treated. If there is not one clear solution, the solution is to give two or more alternative labels.

Table 1 shows the superframes and their roles, sorted into a rough hierarchy. At the top is **SITUATION**. All the main superframes are direct children of **SITUATION**. Some of them have one or more subtypes intended to make the annotation of certain special cases more intuitive and unambiguous.

1.1 Core Arguments

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



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



1.2 Aspect, Mode, and Polarity

Rather than a static relationship between two entities, many verbs (and other predicates) denote a change (or absence of change) in such a relationship. We sort such predicates into a few coarse aspectual classes. For example, initiation (-INIT) means a state is begun or worked towards, deinitiation (-DEINIT) means a state is ended, completed, or its end is worked towards, change (-CHANGE) combines both, where one state is replaced by another, continuation (-CONTINUATION) means a state persists or is even intensified, and (-PREVENTION) means it fails to come about. Accordingly, 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
- (7) Kim lost_{POSSESSION-DEINIT} the house
- (8) Kim sold_{POSSESSION-CHANGE} the house to Sandy
- (9) Kim kept_{POSSESSION-CONTINUATION} the house
- (10) Kim went_{LOCATION-CHANGE} from Chicago via Pittsburgh to Boston
- (11) The vase fell_{LOCATION-CHANGE} to the ground
- (12) The vase broke_{STATE-CHANGE}
- (13) Kim befriended_{SOCIAL-RELATION-INIT} Sandy
- (14) Kim married_{SOCIAL-RELATION-INIT} Sandy
- (15) Kim divorced_{SOCIAL-RELATION-DEINIT} Sandy
- (16) Kim saved_{SITUATION-PREVENTION} Sandy from 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}
- (18) The concert continued_{SCENE-CONTINUATION}
- (19) The concert finished_{SCENE-DEINIT}
- (20) The shouting intensified_{SCENE-CONTINUATION}
- (21) The shouting faded_{SCENE-DEINIT}
- (22) A coup was attempted_{SCENE-INIT}
- (23) Kim finished_{SCENE-DEINIT} their work
- (24) Swift action prevented_{SCENE-PREVENTION} an outbreak
- (25) Kim refrained_{SCENE-PREVENTION} from going
- (26) Kim prevented_{SCENE-PREVENTION} Sandy from going

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

- (27) Change is necessary_{SCENE-NECESSITY}
- (28) Change is possible_{SCENE-POSSIBILITY}
- (29) Kim owes_{POSSESSION-CHANGE-NECESSITY} Sandy money

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

- (30) absence_{EXISTENCE-NEG} of evidence
- (31) That is impossible_{SCENE-POSSIBILITY-NEG}
- (32) They never_{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.



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

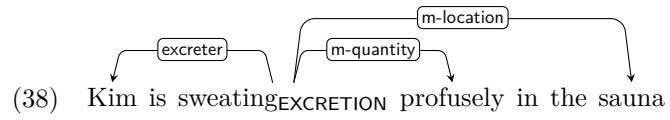


Other non-core arguments are usually rather predicate-specific.



1.4 Modifiers

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



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_{CLASS} in the garden



(40) Kim 's tree_{CLASS}



Event nouns evoke event frames and have arguments:

(41) Kim 's breaking_{STATE-CHANGE} of the vase



Relational nouns evoke relational frames and have arguments:

(42) Kim 's friend_{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_{IDENTIFICATION}

(44) they_{IDENTIFICATION}

Predicate adjectives most typically denote states or qualities.

(45) I am despicable_{QUALITY}



(46) the dog is tired_{STATE}




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

(47) despicable me_{IDENTIFICATION}

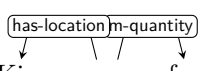


(48) the tired dog_{CLASS}



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

(49) 

(50) 

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_{LOCATION-CHANGE} (subject control)
- (52) Kim used a hammer to smash_{STATE-CHANGE} the vase (subject control)
- (53) Kim persuaded Sandy to come_{LOCATION-CHANGE} (object control)
- (54) Kim seemed to fly_{UNANCHORED-MOTION} (raising)
- (55) Kim entered the room singing_{MESSAGE-INIT} (depictive)
- (56) You're talking me silly_{STATE} (resultative)
- (57) Kim has come to stay_{LOCATION-CONTINUATION} (subjectless adverbial clause)
- (58) Kim left after trashing_{STATE-CHANGE} the room (subjectless adverbial clause)
- (59) Kim is hard to love_{MESSAGE} (*tough* construction)
- (60) the song I like_{MESSAGE} (relative clause)
- (61) the question we raised without answering_{MESSAGE-INIT} (parasitic gap)

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

(63) Kim refused_{MESSAGE-INIT » SCENE} to eat

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

(64) primeval forest_{CLASS}

(65) colored pencil_{CLASS}

(66) to lay_{LOCATION-CHANGE » MESSAGE-DEINIT} aside my drawings

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

2 Superframes Reference

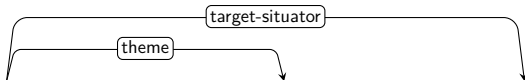
2.1 SITUATION

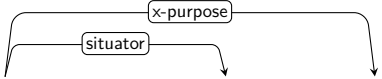
This is the most generic superframe: something (**theme**) is related to something (**situater**). Prototypically, the former is the less central, more mobile element. It is situated in some conceptual space with respect to the situater, or put differently: it undergoes something in connection with the situater. When in doubt, the syntactically less oblique argument is the theme. In more specific superframes, the theme:situater relation takes the shape of e.g., compared:reference, has-location:location, possessed:possessor, part:whole, follows:followed, has-social-relation:social-relation. It can take more abstract shapes as well, e.g. has-quality:quality, where the situater is a predicate that is true of the theme.

This generic superframe is useful in cases where the type of relation is not specified further.

(67) Yes_{SITUATION}

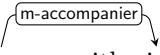

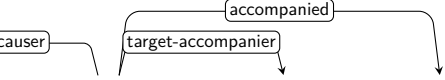

(68) No_{SITUATION-NEG}

(69) 

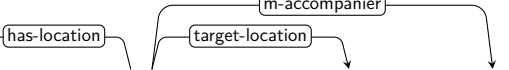
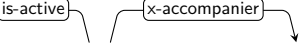
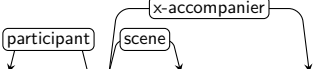
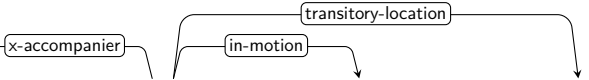

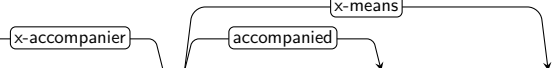
(70) 

2.2 ACCOMPANIMENT

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

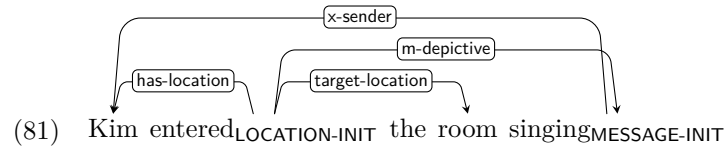
- (71) veggies_{CLASS} with rice

- (72) The veggies come_{ACCOMPANIMENT} with rice

- (73) Kim added_{ACCOMPANIMENT-INIT} rice to the veggies

- (74) Rolling thunder accompanies_{ACCOMPANIMENT} the rain


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

- (75) Kim cycled_{LOCATION-CHANGE} to Rome with Sandy

- (76) Kim danced_{ACTIVITY} with Sandy

- (77) Kim had_{SCENE} sex with Sandy

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

- (79) Kim accompanied_{ACCOMPANIMENT} Sandy

- (80) Kim accompanied_{ACCOMPANIMENT} Sandy on the piano


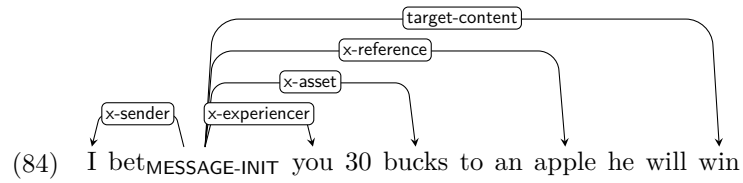
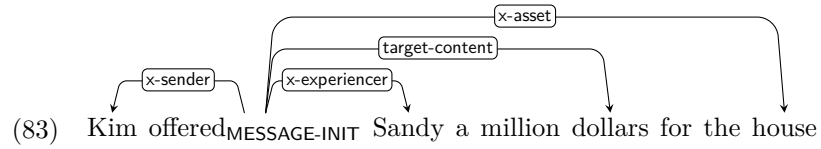
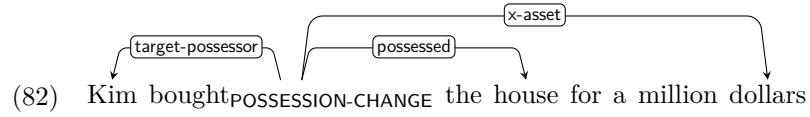
2.3 DEPICTIVE

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



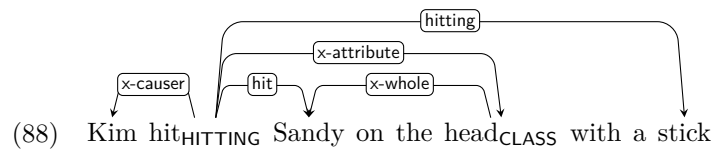
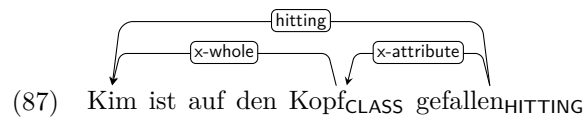
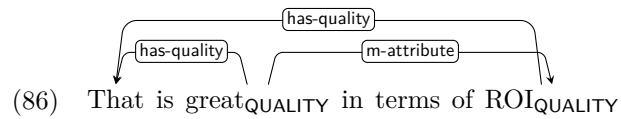
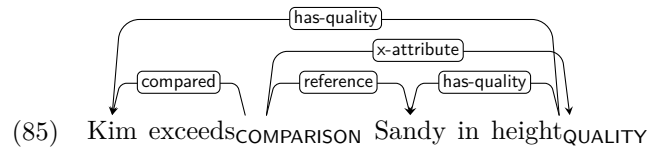
2.4 💰 ASSET

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



2.5 * ATTRIBUTE

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



2.6 COMPARISON

compared is characterized with respect to reference.

Examples of comparing scenes:

- (89) Compared to Sandy, Kim is tall_{QUALITY}
- (90) Sandy is short_{QUALITY} whereas Kim is tall
- (91) They demonize_{MESSAGE-INIT} the left while doing nothing about the right

Examples of comparing non-scene entities:

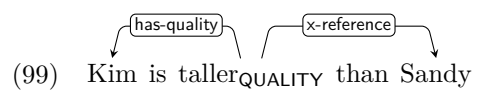
- (92) Kim outranks_{COMPARISON} Sandy
- (93) Kim exceeds_{COMPARISON} Sandy in height
- (94) The Polish restaurant compared_{COMPARISON} favorably to the Spanish one
- (95) Kim compared_{COMPARISON} Coke to Pepsi

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

- (96) The program conforms_{COMPARISON} to the spec
- (97) Kim ran_{COMPARISON-DEINIT} afoul of Fielding 's constraints

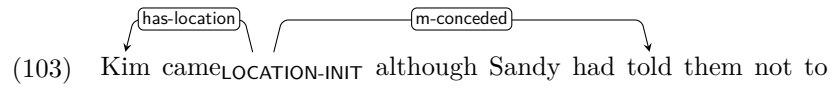
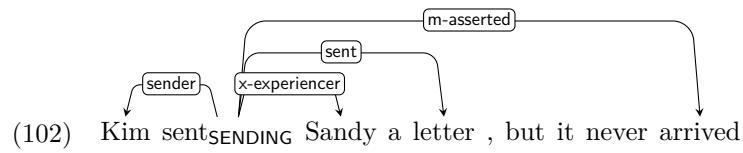
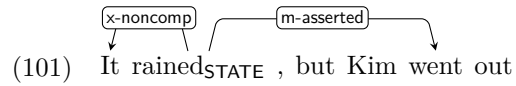
We analyze gradation of adjectives as a valency-changing derivation that adds an x-reference argument.

- (98) more isolated_{SOCIAL-RELATION} than a shipwrecked sailor



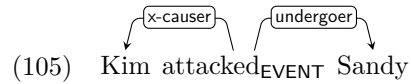
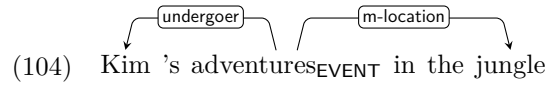
2.7 🔥 CONCESSION

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

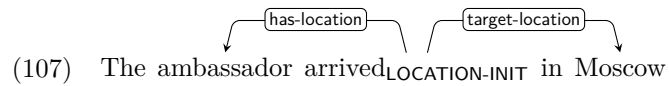
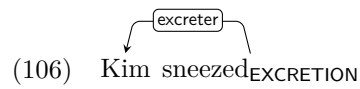


2.8 ✂ EVENT

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



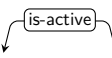
Note that many predicates that denote events in terms of Vendler can be framed differently (as changes):



2.9 🦊 ACTIVITY

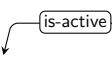
Special case of EVENT where the *undergoer* is active.

(108) Kim partied_{ACTIVITY}



```
graph TD; A[is-active] --> B[Kim]; A --> C[partied]
```


(109) Kim had sex_{ACTIVITY}




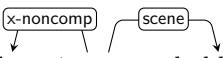
```
graph TD; A[is-active] --> B[Kim]; A --> C[sex]
```

2.10 ✨ EXISTENCE

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

(110)  I exist_{EXISTENCE}

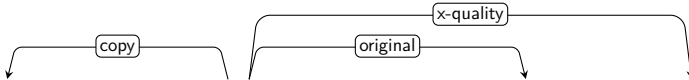
(111)  There is_{EXISTENCE} a hill

(112)  There is_{SCENE} a hubbub

2.11 REPRODUCTION

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

(113) Here is a  copy_{REPRODUCTION} of the drawing

(114) This is a  translation_{REPRODUCTION} of the pamphlet into English

2.12 ✨ TRANSFORMATION-CREATION

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

(115) I succeeded in making^{TRANSFORMATION-CREATION} my first drawing

(116) Kim built^{TRANSFORMATION-CREATION} a castle out of sand

(117) Kim turned^{TRANSFORMATION-CREATION} straw into gold

2.13 EXPERIENCE

experiencer experiences experienced.

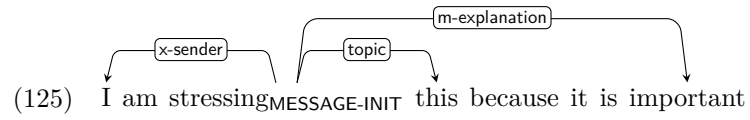
In connection with a MESSAGE frame in the experienced role, used for sensory and mental perception as well as addressees in communication. Also use for beneficiaries, and for “bystander” roles.

- (118) I saw_{MESSAGE} a magnificent picture
- (119) I pondered_{MESSAGE-INIT} deeply
- (120) Kim talked_{MESSAGE-INIT} to Sandy
- (121) Kim did_{SCENE} something nice for Sandy
- (122) Kim cooked a meal only to have_{SCENE} Sandy spurn it
- (123) Die Piroggen waren Maria zu dunkel geraten_{SCENE-INIT}
- (124) Das hat mir gerade noch gefehlt_{EXPERIENCE}

For more uses, see the examples for MESSAGE in Section 2.25.

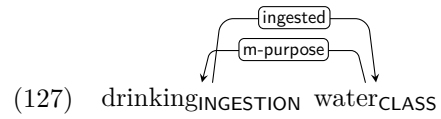
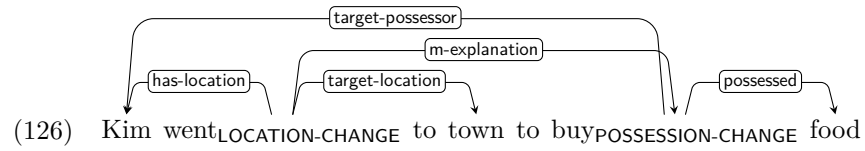
2.14 ! EXPLANATION

explanation explains explained, but is not a cause.



2.15 PURPOSE

Special case of EXPLANATION where explanation is a purpose.



2.16 IDENTIFICATION


identifier identifies identified.

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

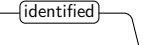
(128) I_{IDENTIFICATION} saw a picture

(129) I can distinguish China_{IDENTIFICATION} from Arizona

(130) a book called_{IDENTIFICATION} True Stories from Nature

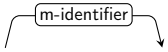


(131) This is Kim_{IDENTIFICATION}



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

(132) the island_{CLASS} of Pultanella




(133) the stallion_{CLASS} of Rumour



Likewise, *in* has an identifying sense:

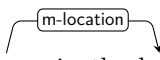
(134) In answer , he repeated_{MESSAGE-INIT} : Please, draw me a sheep !



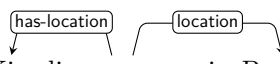
2.17 📍 LOCATION

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

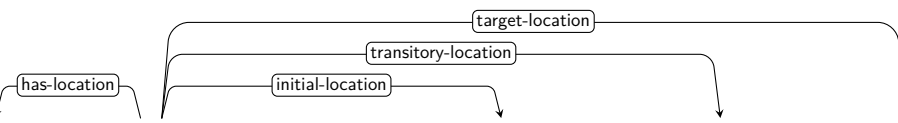
(135) the hat_{CLASS} in the box



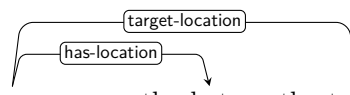
(136) Kim lives_{LOCATION} in Boston



(137) Kim went_{LOCATION-CHANGE} from the living room through the door into the kitchen

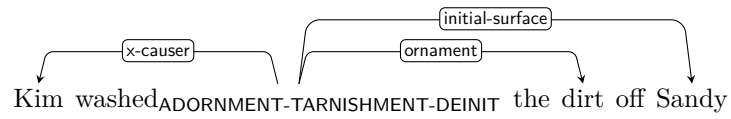
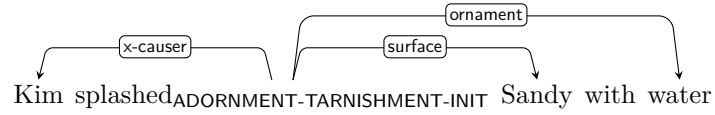
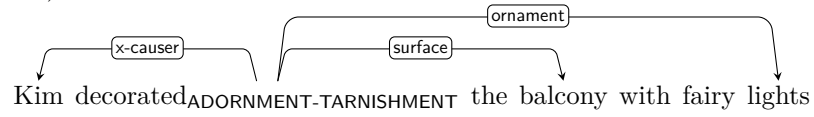


(138) Kim placed_{LOCATION-CHANGE} the hat on the table



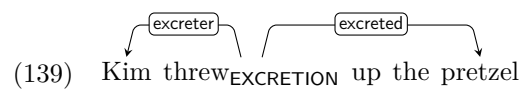
2.18 ADORNMENT-TARNISHMENT

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



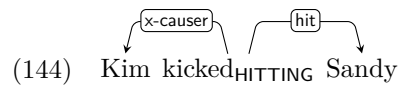
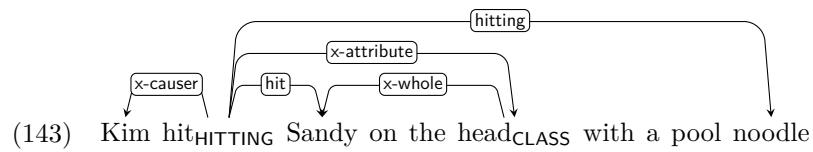
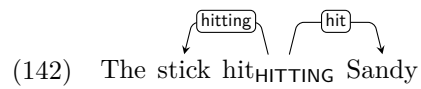
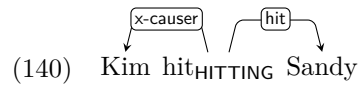
2.19 EXCRETION

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



2.20 🖋️ HITTING


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



2.21 🍴 INGESTION

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

(145) Kim ate_{INGESTION} an apple



The diagram for (145) shows two boxes, 'ingerter' and 'ingested', positioned above the words 'ate' and 'an' respectively. An arrow points from 'ingerter' to 'Kim', and another arrow points from 'ingested' to 'an apple'.

(146) Kim nibbled_{INGESTION} on the pretzel



The diagram for (146) shows two boxes, 'ingerter' and 'ingested', positioned above the words 'nibbled' and 'on' respectively. An arrow points from 'ingerter' to 'Kim', and another arrow points from 'ingested' to 'on the pretzel'.

2.22 🧠 UNANCHORED-MOTION

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

(147) Kim is running^{in-motion}UNANCHORED-MOTION^{transitory-location} along the river


(148) I learned to pilot^{x-causer}UNANCHORED-MOTION^{in-motion} airplanes

(149) Kim is dancing^{in-motion}UNANCHORED-MOTION^{m-accompanion} around the room with Sandy


(150) Kim is an avid unicyclist^{in-motion}UNANCHORED-MOTION^{m-quality}

2.23 WRAPPING-WEARING

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

(151) Kim is wearing  WRAPPING-WEARING a shirt

(152) Kim is wearing  WRAPPING-WEARING glasses

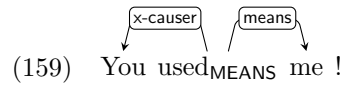
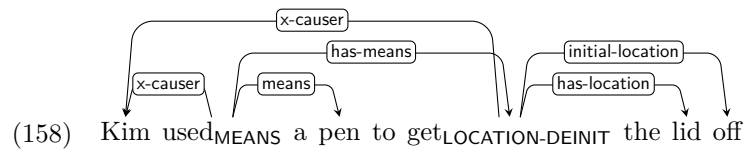
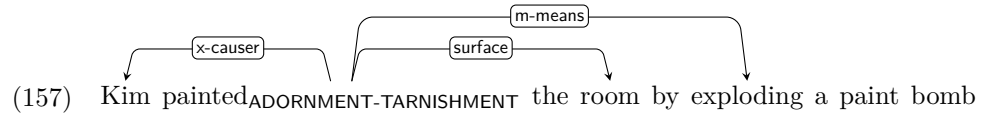
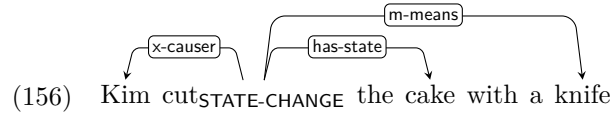
(153) The shroud wraps  WRAPPING-WEARING the scepter

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

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

2.24 🛠️ MEANS

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



2.25 MESSAGE

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

Predicates of expression use **MESSAGE-INIT**:

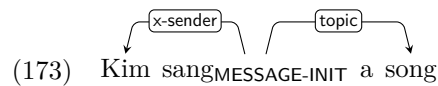
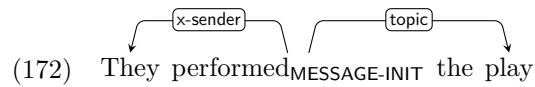
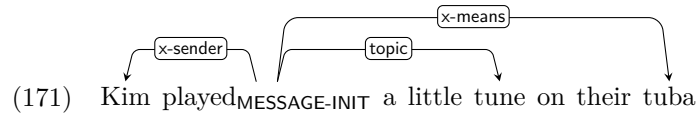
- (160) Kim yelled_{MESSAGE-INIT}
- (161) Kim said_{MESSAGE-INIT} : it 's fine
- (162) Kim said_{MESSAGE-INIT} it was fine
- (163) Kim called_{MESSAGE-INIT} Sandy a liar_{MESSAGE}
- (164) Kim told_{MESSAGE-INIT} Sandy a secret
- (165) Kim talked_{MESSAGE-INIT} about Sandy
- (166) Kim talked_{MESSAGE-INIT} shit_{MESSAGE} about Sandy
- (167) Kim and Sandy conversed_{MESSAGE-INIT}
- (168) Kim conversed_{MESSAGE-INIT} with Sandy

Gesture is a kind of expression, too:

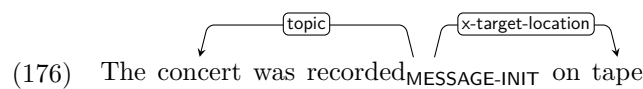
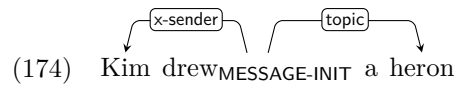
- (169) Kim curtseyed_{MESSAGE-INIT} to the Queen
- (170) Kim shook_{UNANCHORED-MOTION » MESSAGE-INIT} their head no

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

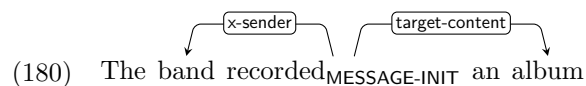
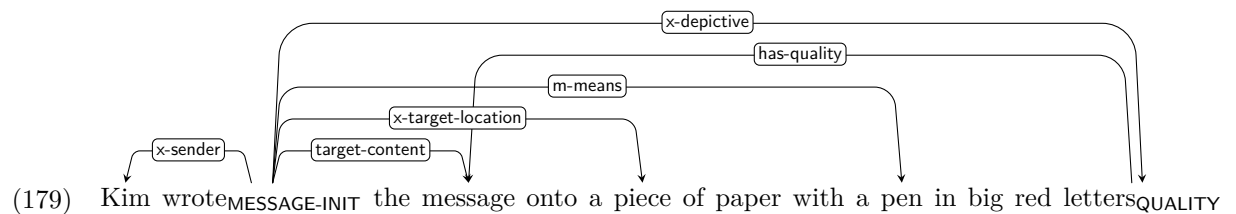
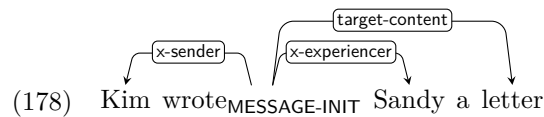
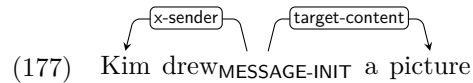
the topic:



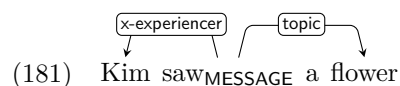
What is depicted gets the **topic** role:



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



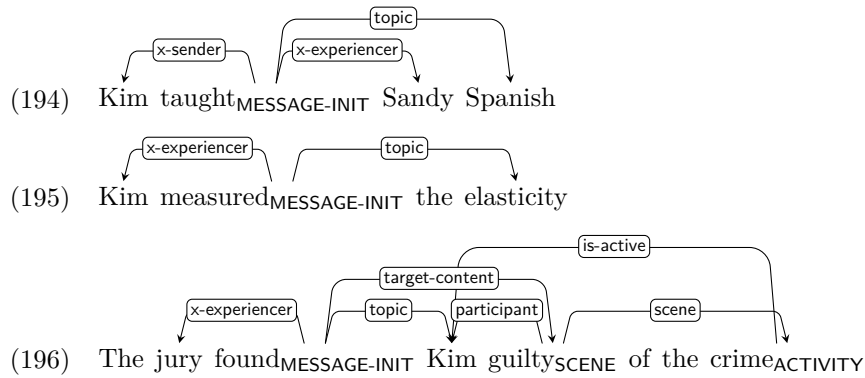
Predicates of perception use **MESSAGE**, including mental perception:



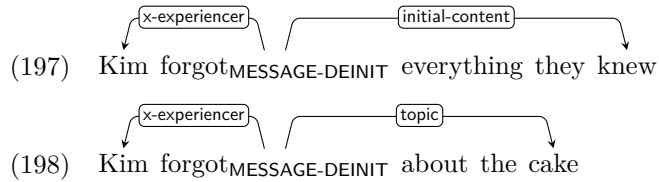
- (182) Kim found_{MESSAGE} the flower beautiful_{QUALITY}
- (183) Kim thinks_{MESSAGE} Sandy is a liar
- (184) Kim thinks_{MESSAGE} Sandy a liar_{MESSAGE}
- (185) Kim saw_{MESSAGE} Sandy swim_{UNANCHORED-MOTION}
- (186) Kim wants_{MESSAGE} to swim_{UNANCHORED-MOTION}
- (187) Kim wants_{MESSAGE} Sandy to swim_{UNANCHORED-MOTION}
- (188) Kim seems_{MESSAGE} happy_{MESSAGE}
- (189) Kim seems_{MESSAGE} happy_{MESSAGE} to Sandy
- (190) Sandy is a professor_{MESSAGE} of linguistics

Predicates that denote the initiation of perception (e.g., by acquiring knowledge, or observation, or reasoning), use **MESSAGE-INIT**:

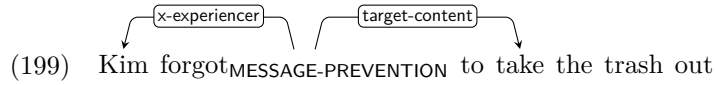
- (191) The Thought Police observed_{MESSAGE-INIT} Winston
- (192) Kim studies_{MESSAGE-INIT} linguistics
- (193) Kim noticed_{MESSAGE-INIT} the bird



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



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



2.26 ? MODE


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

- (200) Even Kim_{IDENTIFICATION} did n't know that
- (201) They only rinsed_{ADORNMENT-TARNISHMENT-DEINIT} the dishes
- (202) Passt_{COMPARISON} das eh ?
- (203) Kim probably knows_{MESSAGE} that
- (204) That 's really great_{QUALITY}
- (205) Kim is not here_{LOCATION}

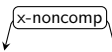
2.27 NONCOMP

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.

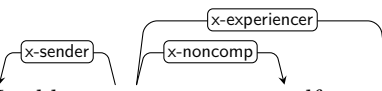
(206) Kim kicked_{DESTRUCTION} the bucket



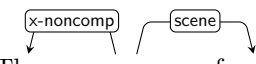
(207) It is raining_{STATE}



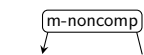
(208) I address_{MESSAGE-INIT} myself to you



(209) There was_{SCENE} a famine



(210) fountain pen_{CLASS}

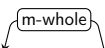


Light verbs, on the other hand, are treated with **SCENE**, see Section 2.32.

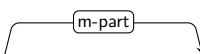
2.28 🧩 PART-WHOLE

part is part of whole.

(211) Kim 's leg_{CLASS}




(212) a man_{CLASS} with a mustache



(213) part_{PART-WHOLE} of the year



(214) wheat contains_{PART-WHOLE} gluten



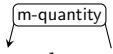
2.29 🐶 POSSESSION


possessor possesses or controls the possessed.

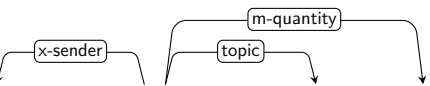
- (215) Kim 's house_{CLASS}
- (216) Kim owns_{POSSESSION} a house
- (217) The house belongs_{POSSESSION} to Kim
- (218) the owner_{POSSESSION} of the house
- (219) Kim has_{POSSESSION} Sandy 's phone
- (220) Kim bought_{POSSESSION-CHANGE} a house from Sandy
- (221) Sandy sold_{POSSESSION-CHANGE} Kim the house
- (222) Kim kept_{POSSESSION-CONTINUATION} the house
- (223) Kim lost_{POSSESSION-DEINIT} the house
- (224) Caesar conquered_{POSSESSION-INIT} Gaul
- (225) Caesar 's conquest_{POSSESSION-INIT} of Gaul
- (226) Kim owes_{POSSESSION-CHANGE-NECESSITY} Sandy money

2.30 QUANTITY

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

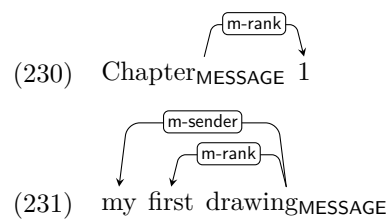
(227) 
 three burgersCLASS

(228) 
 three litersQUANTITY of coke

(229) 
 We discourageMESSAGE-INIT this emphatically

2.31 🏆 RANK

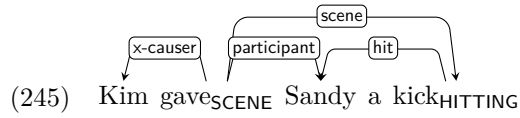
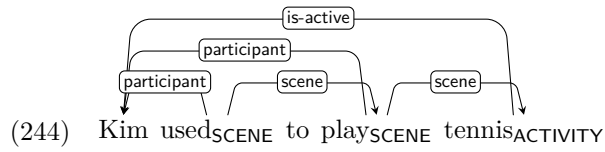
rank indicates the order that has-rank has in some sequence.



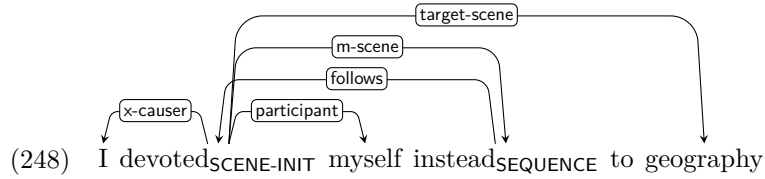
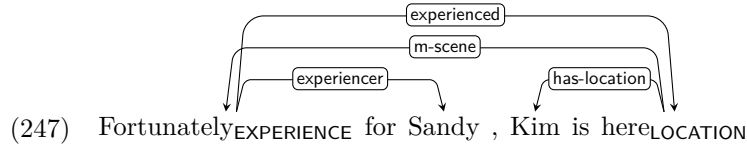
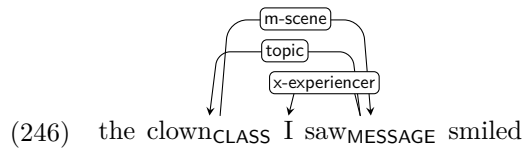
2.32 🧑🏫 SCENE

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

- (232) The concert_{MESSAGE-INIT} began_{SCENE-INIT}
- (233) The concert_{MESSAGE-INIT} continued_{SCENE-CONTINUATION}
- (234) The concert_{MESSAGE-INIT} finished_{SCENE-DEINIT}
- (235) The shouting_{MESSAGE-INIT} intensified_{SCENE-CONTINUATION}
- (236) The shouting_{MESSAGE-INIT} faded_{SCENE-DEINIT}
- (237) A coupe_{EVENT} was attempted_{SCENE-INIT}
- (238) Kim finished_{SCENE-DEINIT} their work_{ACTIVITY}
- (239) Swift action prevented_{SCENE-PREVENTION} an outbreak_{SCENE-INIT} of measles_{EVENT}
- (240) Kim refrained_{SCENE-PREVENTION} from going_{LOCATION-CHANGE}
- (241) Kim prevented_{SCENE-PREVENTION} Sandy from going_{LOCATION-CHANGE}
- (242) Kim saved_{SCENE-PREVENTION} Sandy from the dragon_{CLASS}
- (243) Kim plays_{SCENE} tennis_{ACTIVITY}

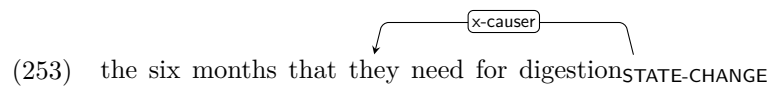
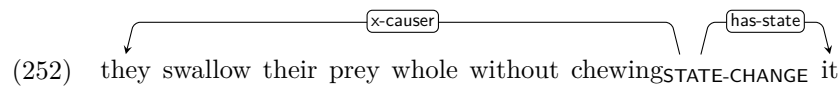
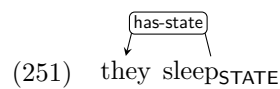
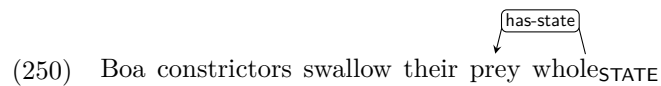
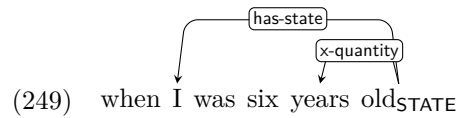


The modifier relation **m-scene** is used when a syntactic dependency points from an argument to a predicate, as, e.g., with relative clauses or sentence adverbs.



2.33 STATE

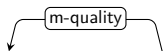
state indicates a state of **has-state**. Typically used with predicates that do not, in fact, have a **state** role, because the state is already incorporated into the meaning of the predicate.



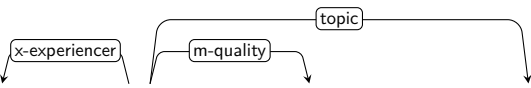
2.34 🍎 QUALITY

Special case of STATE – a quality is a bit more permanent than a state; the has-quality (aka has-state) is not expected to change back and forth between qualitys (aka states) regularly. Also used to describe qualities of events, i.e., manners.

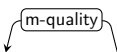
(255) a magnificent pictureMESSAGE



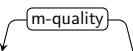
(256) I ponderedMESSAGE-INIT deeply over the adventures of the jungle



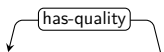
(257) a skilled surgeonCLASS



(258) such knowledgeMESSAGE is valuable



(259) The leaves reddenedQUALITY-INIT

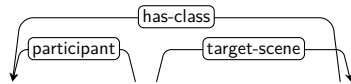


2.35 🌳 CLASS

Special case of QUALITY – a class is even more permanent, in the sense that if the **has-class** (aka **has-state**) takes on a new class (aka **state**), it becomes a new kind of entity.

Most prototypically evoked by common nouns with no arguments.

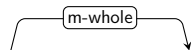
(260) swallowing an animal_{CLASS}



(261) Kim became_{SCENE-INIT} a teacher_{CLASS}

Indefinite pronouns also evoke CLASS.

(262) She saw one_{CLASS}



(263) Nothing_{CLASS} about him suggested a child

(264) Why would anyone_{CLASS} be frightened by a hat?

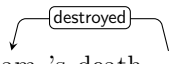
(265) Something_{CLASS} is broken

(266) Where I live everything_{CLASS} is small


2.36 🦴 DESTRUCTION

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

(267) Sam 's death_{DESTRUCTION}

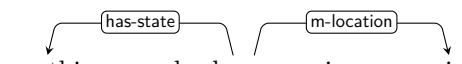


(268) Sam 's destruction_{DESTRUCTION} of the city



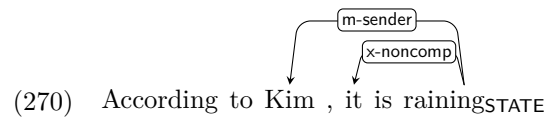
When something is broken but not completely destroyed, use STATE.

(269) Something was broken_{STATE} in my engine



2.37 🚩 SENDING

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




For more uses, see MESSAGE (Section 2.25).

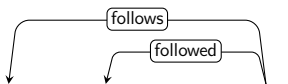
2.38 ➡ SEQUENCE

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


(271) Form followsSEQUENCE function




(272) Cook is Jobs 's successorSEQUENCE



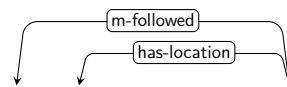
(273) Das fußtSEQUENCE auf einer falschen Vorstellung



(274) Kim deducedSEQUENCE the truth from the clues



(275) Given that I 'm tired , I wo n't be thereLOCATION



2.39 CAUSATION

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

(276) Kim broke_{STATE-CHANGE} the glass

(277) The knife cut_{STATE-CHANGE} the bread

(278) Kim cut_{STATE-CHANGE} the bread with a knife

(279) The war caused_{CAUSATION} a famine

(280) There was_{SCENE} a famine because of the war

(281) Der Wasserdruck stieg_{QUANTITY-CHANGE} , wodurch der Brunnen überfloss

(282) Die Qualität ist der Motivation geschuldet_{CAUSATION}

(283) Kim went_{LOCATION-CHANGE} to town because they wanted to buy food

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

(284) Kim went_{LOCATION-CHANGE} to town to buy food

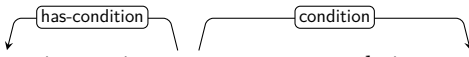
2.40 📜 CONDITION

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

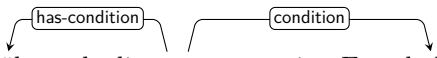
(285) I will join_{SOCIAL-RELATION-INIT} the club if they ask me



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

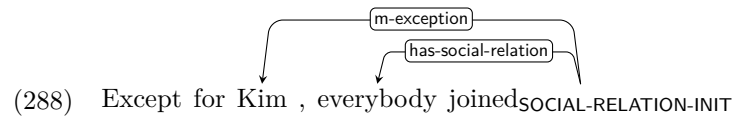


(287) Eine Aussöhung bedingt_{SEQUENCE} eine Entschuldigung



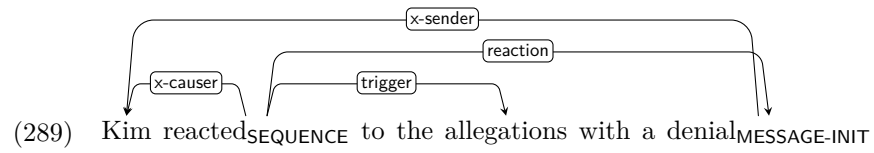
2.41 EXCEPTION

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



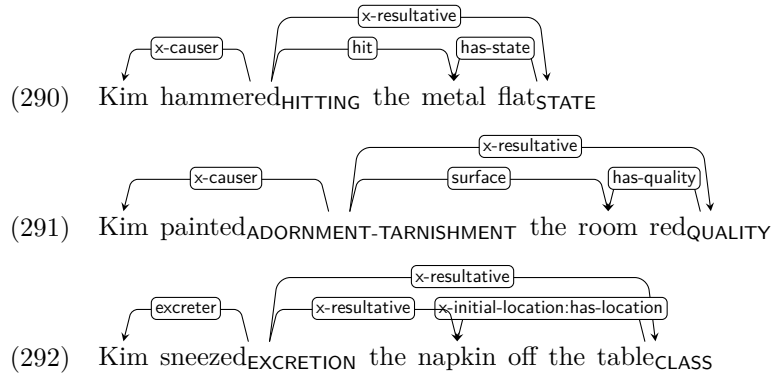
2.42 🌟 REACTION

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



2.43 🤨 RESULTATIVE

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



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.

2.44 🍷 SOCIAL-RELATION

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

- (293) Kim 's friends_{SOCIAL-RELATION}
- (294) Kim is my cousin_{SOCIAL-RELATION}
- (295) Kim and Sandy are friends_{SOCIAL-RELATION}
- (296) Kim is friends_{SOCIAL-RELATION} with Sandy
- (297) Kim works_{SOCIAL-RELATION} at Google
- (298) Kim works_{SOCIAL-RELATION} for Sandy
- (299) Kim emcees_{SOCIAL-RELATION}
- (300) Kim is hosting_{SOCIAL-RELATION} the party
- (301) Kim is under house arrest_{SOCIAL-RELATION}
- (302) Kim 's sentences_{SOCIAL-RELATION} was suspended
- (303) Kim married_{SOCIAL-RELATION-INIT} Sandy
- (304) The official married_{SOCIAL-RELATION-INIT} Kim to Sandy
- (305) The official married_{SOCIAL-RELATION-INIT} Kim and Sandy
- (306) Kim divorced_{SOCIAL-RELATION-DEINIT} Sandy

- (307) Kim befriended_{SOCIAL-RELATION-INIT} Sandy
- (308) Kim took_{SOCIAL-RELATION-INIT} the job
- (309) Kim joined_{SOCIAL-RELATION-INIT} Google
- (310) Kim joined_{SOCIAL-RELATION-INIT} a union
- (311) Sandy fired_{SOCIAL-RELATION-DEINIT} Kim from their job
- (312) Kim left_{SOCIAL-RELATION-DEINIT} Google
- (313) Kim assumed_{SOCIAL-RELATION-INIT} office
- (314) The judge sentenced_{SOCIAL-RELATION-INIT} Kim to three days in prison
- (315) Kim was pardoned_{SOCIAL-RELATION-DEINIT}


2.45 TIME

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

(316) Kim swims_{UNANCHORED-MOTION} on Monday



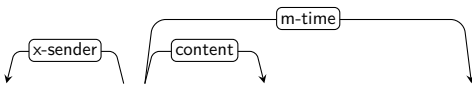
(317) Kim sneezed_{EXCRETION} twice



(318) Kim swam_{UNANCHORED-MOTION} for an hour



(319) Kim says_{MESSAGE-INIT} hello whenever I meet them



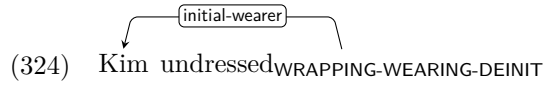
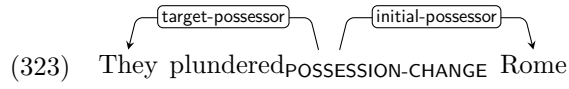
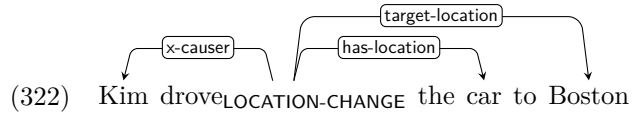
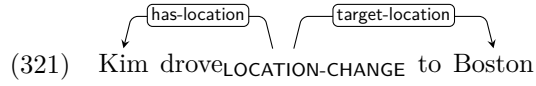
(320) Once_{TIME} when I was six years old



3 Argument Structure and Frame Choice

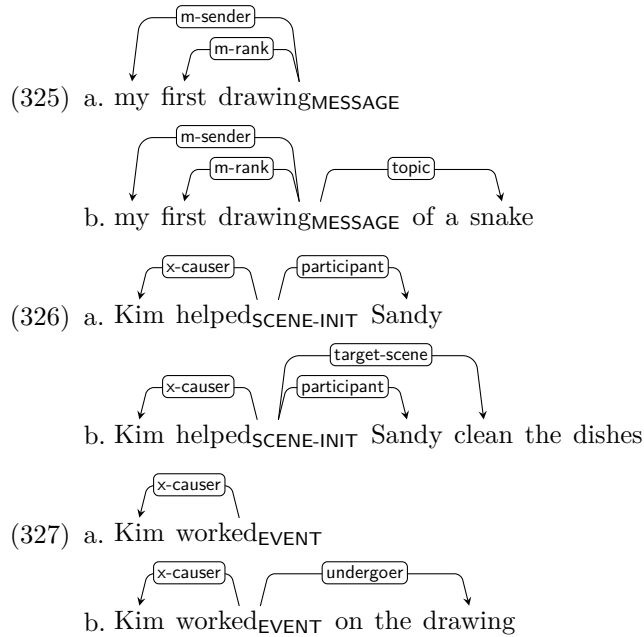
3.1 Prefer Core over Non-core Arguments

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



3.2 Arguments Determine Frames


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



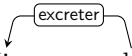
3.3 Shadow and Default Arguments

Arguments that determine a predicate’s superframe include *shadow arguments* and *default arguments* (Pustejovsky, 1995; Di Fabio et al., 2019), i.e., arguments that do not appear in the syntactic argument structure because they are incorporated into the predicate or logically implied, like the bones in (328), mucus and air in (329), groceries in (330), or sun in (331).

(328) Kim deboned_{PART-WHOLE-DEINIT} the fish



(329) Kim sneezed_{EXCRETION}



(330) Our local supermarket delivers_{LOCATION-INIT}



(331) at sunrise_{LOCATION-CHANGE » TIME}

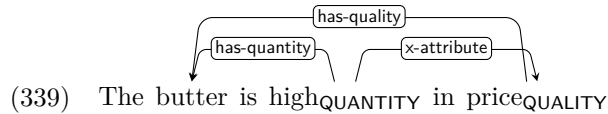
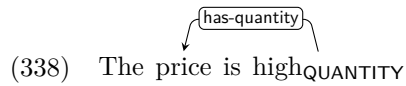
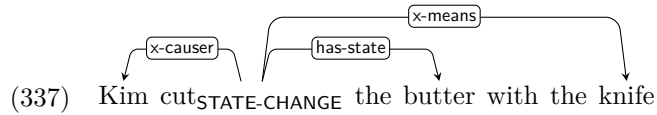
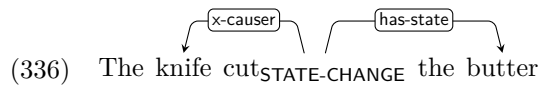
3.4 Predicates that Refer to a Shadow Argument

A special case of shadow argument are those that the predicate itself refers to. For example, the predicate *friend* evokes a **SOCIAL-RELATION** frame, but also refers to the filler of that frame's **social-relation** role. And the predicate *model* evokes a **MESSAGE** frame, but also refers to the filler of that frame's **topic** role, and so on.

- (332) Kim 's friends_{SOCIAL-RELATION}
- (333) the drawing and its model_{MESSAGE}
- (334) ein Großteil_{PART-WHOLE} des digitalen Übergangs
- (335) Obama special assistant_{SOCIAL-RELATION}

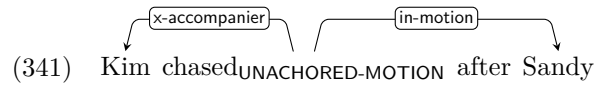
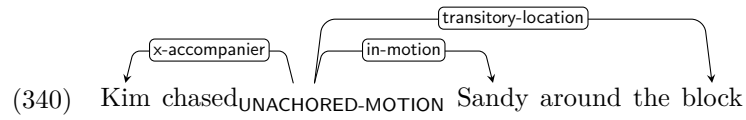
3.5 A Participant whose Syntactic Argument Position is Occupied Should Not Be Treated like an Implicit Argument

For example, consider (336). Here, *The knife* occupies the subject position and should be treated as the causer of the cutting. We could add the person handling the knife as the causer, and treat the knife as an instrument. However, to add the former to the sentence, we would not merely have to add another realized argument, but also change the syntactic argument structure so that the subject position goes to that causer, as in (337). Thus, we treat this as a different framing with a different causer, rather than a more explicit version of the same framing. Likewise, (338) and (339) are two different framings, one with *price* as *has-state*, and one with *butter*.



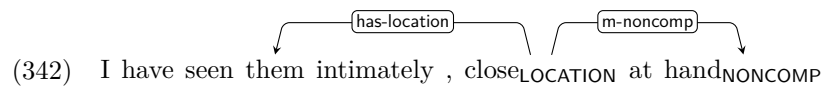
3.6 When in Doubt, Treat Different Syntactic Frames of the Same Predicate Consistently

For example, in (340), *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 (341), prefer it.



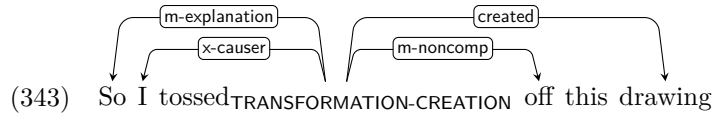
3.7 However, Different Senses of a Predicate Can Have Different Arguments and Therefore Different Superframes

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



3.8 Look Up Unfamiliar Words in a Dictionary

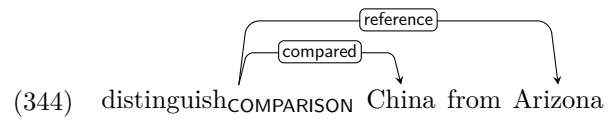
When you come across an unfamiliar predicate, you might not be able to determine what arguments it has, and consequently what the most appropriate superframe is, from this one context alone. Use a dictionary such as Wiktionary in this case. In the following example, I found that *toss off* can mean “to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



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

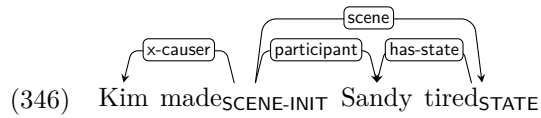
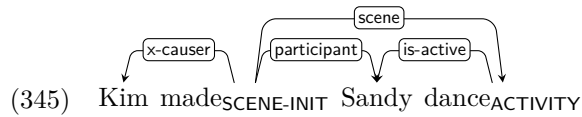
3.9 Symmetric Argument Pairs

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

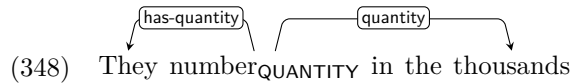
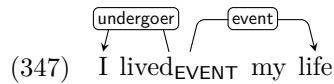


3.10 When to Use SCENE

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



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



4 Aspect, Mode, and Polarity

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



In (349), 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:

(350) With that, my critic^{topic}_{MESSAGE} sat down again

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

(351) He is a teacher^{has-class}_{CLASS}

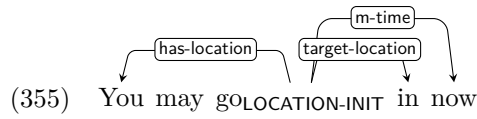
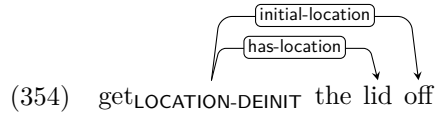
(352) He is our teacher^{social-relation}_{SOCIAL-RELATION}

(353) She is the president^{has-social-relation}_{SOCIAL-RELATION} of our club

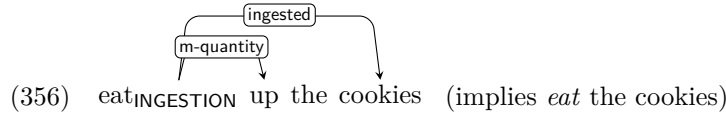
5.2 Particle Verbs

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).

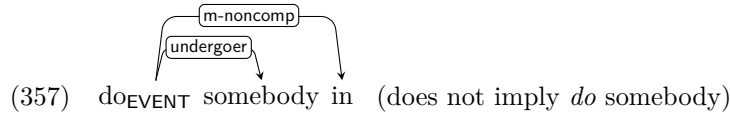
In UD, particle verbs are connected to their particle via the `compound:prt` relation. If the meaning is spatial, this dependency is labeled with `initial-location` or `target-location`.



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




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




5.3 Pronouns with Arguments

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

(358) The picture was that_{MESSAGE} of the boa

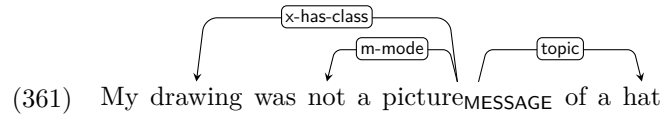
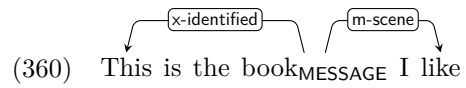


(359) I drew a picture of a dog , one_{MESSAGE} of a cat , and another_{MESSAGE} of a sheep



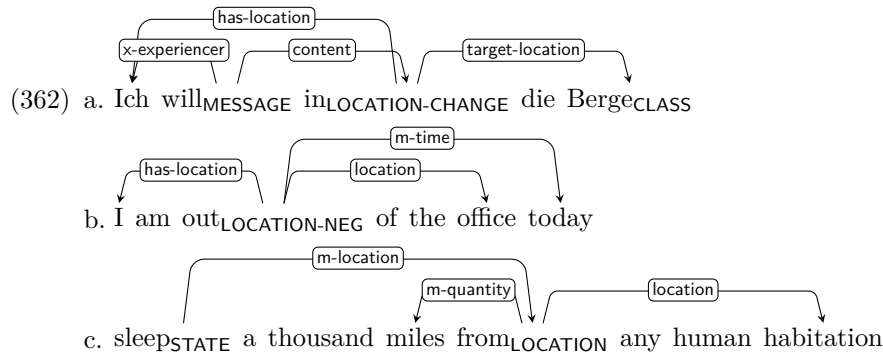
5.4 Nominal Copula Constructions

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.

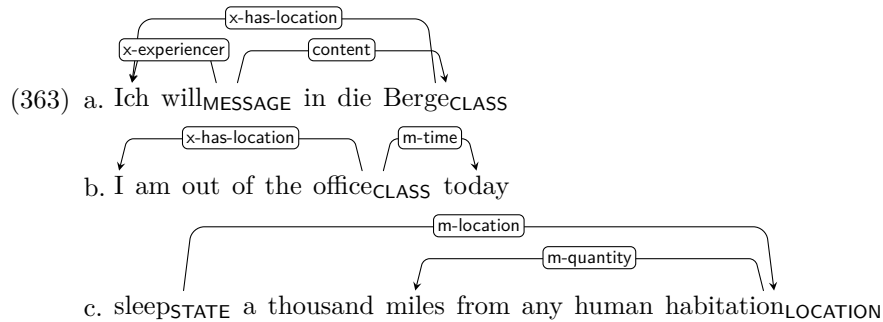


5.5 Predicative Adpositions

At the moment, Superframes follows UD's principle of treating adpositions like case markers, dependent on their objects. This greatly simplifies the annotation of adpositional arguments. On the other hand, it sometimes creates problems. An adposition, added to a noun, can cause a new superframe to be evoked, which it would be simpler to annotate if we could just label the adposition with it. Consider the following examples, where we nonstandardly treat the adpositions *in*, *out of*, and *from* as adpositions. The annotation is quite natural:



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



In (363-a) and (363-b), we are forced to give *Berge* and *office* an *x-has-location* role, which is not part of the frame evoked by these words alone; we have to assume it is added by adding the adposition. We also do not have a way to indicate that the additional superframe introduced by the non-core subject is *LOCATION-INIT* and *LOCATION-NEG*, respectively. In (363-c), there is an even more severe problem: the quantity modifier *a thousand miles* semantically modifies the *LOCATION* frame evoked by the adposition *from*, but we have to attach it to *habitation*, which evokes a *different LOCATION* frame which does not have a quantity modifier. Confusion ensues, but for now we have to live with these issues.

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.

References

- Baker, C. F., Fillmore, C. J., and Lowe, J. B. (1998). The Berkeley FrameNet project. In *COLING 1998 Volume 1: The 17th International Conference on Computational Linguistics*.
- Di Fabio, A., Conia, S., and Navigli, R. (2019). VerbAtlas: a novel large-scale verbal semantic resource and its application to semantic role labeling. In Inui, K., Jiang, J., Ng, V., and Wan, X., editors, *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing (EMNLP-IJCNLP)*, pages 627–637, Hong Kong, China. Association for Computational Linguistics.
- Feng, L., Williamson, G., He, H., and Choi, J. D. (2022). Widely Interpretable Semantic Representation: Frameless Meaning Representation for Broader Applicability.
- Kipper Schuler, K. (2005). *VerbNet: A broad-coverage, comprehensive verb lexicon*. PhD thesis, University of Pennsylvania.
- Palmer, M., Gildea, D., and Kingsbury, P. (2005). The Proposition Bank: An annotated corpus of semantic roles. *Computational Linguistics*, 31(1):71–106.
- Pustejovsky, J. (1995). *The Generative Lexicon*. MIT Press, Cambridge, MA.
- Ramisch, C., Cordeiro, S. R., Savary, A., Vincze, V., Barbu Mititelu, V., Bhatia, A., Buljan, M., Candito, M., Gantar, P., Giouli, V., Güngör, T., Hawwari, A., Iñurrieta, U., Kovalevskaitė, J., Krek, S., Lichte, T., Liebeskind, C., Monti, J., Parra Escartín, C., QasemiZadeh, B., Ramisch, R., Schneider, N., Stoyanova, I., Vaidya, A., and Walsh, A. (2018). Edition 1.1 of the PARSEME shared task on automatic identification of verbal multiword expressions. In Savary, A., Ramisch, C., Hwang, J. D., Schneider, N., Andresen, M., Pradhan, S., and Petruck, M. R. L., editors, *Proceedings of the Joint Workshop on Linguistic Annotation, Multiword Expressions and Constructions (LAW-MWE-CxG-2018)*, pages 222–240, Santa Fe, New Mexico, USA. Association for Computational Linguistics.

- Ramisch, C., Savary, A., Guillaume, B., Waszczuk, J., Candito, M., Vaidya, A., Barbu Mititelu, V., Bhatia, A., Iñurrieta, U., Giouli, V., Güngör, T., Jiang, M., Lichte, T., Liebeskind, C., Monti, J., Ramisch, R., Stymne, S., Walsh, A., and Xu, H. (2020). Edition 1.2 of the PARSEME shared task on semi-supervised identification of verbal multiword expressions. In Markantonatou, S., McCrae, J., Mitrović, J., Tiberius, C., Ramisch, C., Vaidya, A., Osenova, P., and Savary, A., editors, *Proceedings of the Joint Workshop on Multiword Expressions and Electronic Lexicons*, pages 107–118, online. Association for Computational Linguistics.
- Savary, A., Ben Khelil, C., Ramisch, C., Giouli, V., Barbu Mititelu, V., Hadj Mohamed, N., Krstev, C., Liebeskind, C., Xu, H., Stymne, S., Güngör, T., Pickard, T., Guillaume, B., Bejček, E., Bhatia, A., Candito, M., Gantar, P., Iñurrieta, U., Gatt, A., Kovalevskaite, J., Lichte, T., Ljubešić, N., Monti, J., Parra Escartín, C., Shamsfard, M., Stoyanova, I., Vincze, V., and Walsh, A. (2023). PARSEME corpus release 1.3. In Bhatia, A., Evang, K., Garcia, M., Giouli, V., Han, L., and Taslimipoor, S., editors, *Proceedings of the 19th Workshop on Multiword Expressions (MWE 2023)*, pages 24–35, Dubrovnik, Croatia. Association for Computational Linguistics.
- Savary, A., Ramisch, C., Cordeiro, S., Sangati, F., Vincze, V., QasemiZadeh, B., Candito, M., Cap, F., Giouli, V., Stoyanova, I., and Doucet, A. (2017). The PARSEME shared task on automatic identification of verbal multiword expressions. In Markantonatou, S., Ramisch, C., Savary, A., and Vincze, V., editors, *Proceedings of the 13th Workshop on Multiword Expressions (MWE 2017)*, pages 31–47, Valencia, Spain. Association for Computational Linguistics.