Superframes Manual

Kilian Evang

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Contents

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 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.

SCENE		participant	scene	
SCENE-INIT		participant		target-scene
SCENE-DEINIT	initial-scene	participant		
SCENE-CONTINUATION	initial-scene	participant		
SCENE-PREVENTION		participant		target-scene
SCENE-NECESSITY		participant		target-scene
SCENE-POSSIBILITY		participant		target-scene
IDENTIFICATION		identified	identifier	
ORDER		has-order	order	
CLASS		has-class	class	
Transformation-Creation		material		created
Reproduction		original		copy
SUBCLASS		has-subclass	subclass	
QUALITY		has-quality	quality	
STATE		has-state	state	
STATE-CHANGE		has-state		target-state
Destruction		destroyed		
EXPERIENCE		experiencer	experienced	
ACTIVITY		is-active	activity	
ASPECT		has-aspect	aspect	
ACCOMPANIMENT		accompanied	accompanier	
Depictive		has-depictive	depictive	
ASSET		has-asset	asset	
CAUSATION		caused	causer	
Resultative		has-resultative	resultative	
COMPARISON		compared	reference	
Concession		assertion	conceded	
EXPLANATION		explained	explanation	
Purpose		has-purpose	purpose	
LOCATION		has-location	location	
Wrapping-Wearing		worn	wearer	
Wrapping-Wearing-Init		worn		target-wearer
Wrapping-Wearing-Deinit	initial-wearer	worn		
Adornment-Tarnishment		ornament	surface	
Adornment-Tarnishment-Init		ornament		target-surface
Adornment-Tarnishment-Deinit	initial-surface	ornament		
LOCATION-INIT		has-location	transitory-location	target-location
Ingestion		ingested	transitory-location	ingester
Hitting		hitting		hit
LOCATION-DEINIT	initial-location	has-location	transitory-location	
Excretion	excreter	excreted	transitory-location	
LOCATION-CHANGE	initial-location	has-location	transitory-location	target-location
Motion		has-location	transitory-location	
MEANS		has-means	means	
MESSAGE		topic	content	
MESSAGE-INIT		topic		target-message
MESSAGE-DEINIT	initial-message	topic		
PART-WHOLE		part	whole	
POSSESSION		possessed	possessor	
POSSESSION-INIT		possessed		target-possessor
POSSESSION-DEINIT	initial-possessor	possessed		
POSSESSION-CHANGE	initial-possessor	possessed	target-possessor	
POSSESSION-CHANGE-NECESSITY	initial-possessor	possessed	target-possessor	
POSSESSION-CONTINUATION	initial-possessor	possessed		
QUANTITY		has-quantity	quantity	
SENDING		sent	sender	
SEQUENCE		follows	followed	
SOCIAL-RELATION		has-social-relation	social-relation	
SOCIAL-RELATION-INIT		has-social-relation		target-social-relation
SOCIAL-RELATION-DEINIT	initial-social-relation	has-social-relation		
TIME		has-time	time	
NONCOMP		has-noncomp	noncomp	

Table 1: The superframes and their roles.

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.

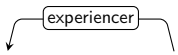
5. Similarly, Superframes do not have the `Agent` role, which is often in conflict with roles indicating more specifically the agent's relation to other participants.

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.

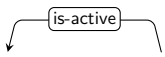
Table 1 shows the superframes and their roles.

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 an experience or an activity:



(1) Kim is sleeping$_{\text{EXPERIENCE}}$



(2) Kim is partying$_{\text{ACTIVITY}}$

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

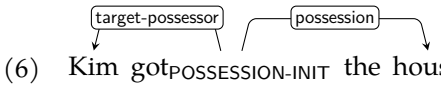
(3) Kim owns$_{\text{POSSESSION}}$ a house

(4) The house belongs$_{\text{POSSESSION}}$ to Kim

(5) Kim seems$_{\text{MESSAGE}}$ happy

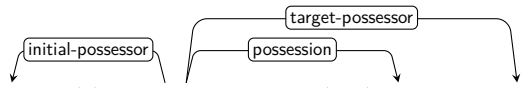
1.2 Aspect

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, and continuation (-CONT) means a state persists or is even intensified. Accordingly, roles with target-, initial-, or transitory- mark participants at/beyond the end of, at the beginning of, or at some point during the event, respectively.



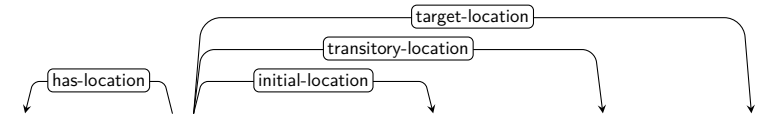
(6) Kim got$_{\text{POSSESSION-INIT}}$ the house

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

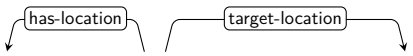


(8) Kim sold$_{\text{POSSESSION-CHANGE}}$ the house to Sandy

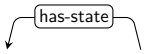
(9) Kim kept$_{\text{POSSESSION-CONT}}$ the house



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



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



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

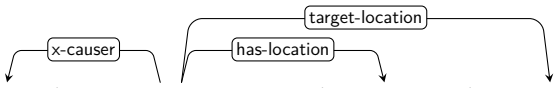
(13) Kim befriended$_{\text{SOCIAL-RELATION-INIT}}$ Sandy

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

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

1.3 Non-core Arguments

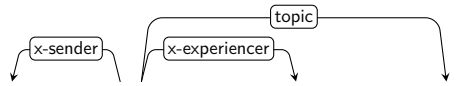
Core arguments always get role labels from the superframe the predicate evokes. But many verbs have more arguments. One common case is a subject that is presented as the causer of the scene. For example, compare (16) with (11). The core scene is the same (same superframe, same arguments). We now assume there is an additional CAUSATION scene with *Kim* as the causer and the core scene as the caused. We denote this by giving *Kim* the caused role label, with an x- prefix to mark it as a non-core role.



(16) Kim threw$_{\text{LOCATION-CHANGE}}$ the vase to the ground

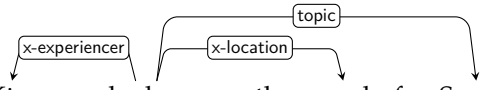
(17) Kim broke$_{\text{STATE-CHANGE}}$ the vase

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

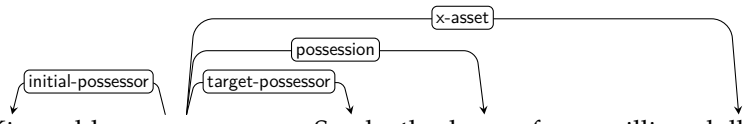


(18) Kim talked$_{\text{MESSAGE}}$ to Sandy about Bali

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



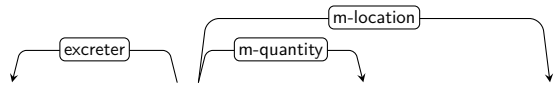
(19) Kim searched$_{\text{MESSAGE}}$ the woods for Sandy



(20) Kim sold$_{\text{POSSESSION-CHANGE}}$ Sandy the house for a million dollars

1.4 Modifiers

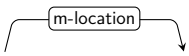
Like non-core arguments, modifiers are assumed to evoke an additional frame, and labeled with the role they fill in that frame, but with a prefix marking them as modifiers: m-.



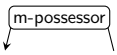
(21) Kim is sweating$_{\text{EXCRETION}}$ profusely in the sauna

1.5 Nonverbal Predicates

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



(22) a tree$_{\text{CLASS}}$ in the garden

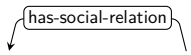


(23) Kim 's tree$_{\text{CLASS}}$

Event nouns evoke event frames and have arguments:

(24) Kim 's breaking$_{\text{STATE-CHANGE}}$ of the vase

Relational nouns evoke relational frames and have arguments:



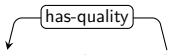
(25) Kim 's friend$_{\text{SOCIAL-RELATION}}$

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

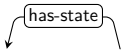
(26) Kim$_{\text{IDENTIFICATION}}$

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

Predicate adjectives most typically denote states or qualities.

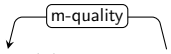


(28) I am despicable$_{\text{QUALITY}}$



(29) the dog is tired$_{\text{STATE}}$

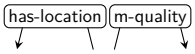
With attributive adjectives, the dependency relation is reversed, and the role label is changed accordingly.



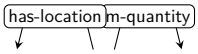
(30) despicable me$_{\text{IDENTIFICATION}}$

(31) the tired dog$_{\text{CLASS}}$

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



(32) Kim ran$_{\text{Motion}}$ fast

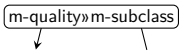


(33) Kim ran$_{\text{Motion}}$ far

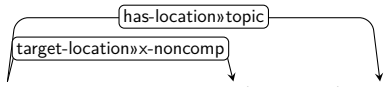
1.6 Figurativity and Idiomaticity

Difficulties in choosing frames often arise because 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.

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



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



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

2 Superframes Reference

3 Memos

3.1 Prefer Core over Non-core Arguments

References

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