

Training Materials for Annotators

FrameNet

August 14, 2002

1 Fillmorean tagging philosophy: lexicographic relevance

The goal in annotating sentences for FrameNet is to provide examples of the canonical semantics and syntax of the target word.¹

Sentences should be semantically informative

The sentences you choose for annotation should be understandable without knowledge of specialized domains. Therefore, sentences like

- (1) [Recent research_{Evidence}] is **demonstrating** [that kin relations are important determinants of relationship patterns in monkey groups_{Proposition}].

are to be preferred over ones like

- (2) In Amalgamemnon , Xorandor , and Verbivore [the fictional or mythic nature of the simulations and abstractions we take to be fact_{Proposition}] is **demonstrated** [by simulations of these simulations which reveal them to be discursive constructs_{Evidence}].

A related idea is that

Sentences should be relatively self-contained

This means that one shouldn't annotate sentences that, for instance, contain a lot of deictic and anaphoric elements such as

- (3) He **promised** to meet her there later.

On the other hand, one can't afford to ignore all sentences with pronouns since there are quite a few idiomatic expressions involving pronouns that we want to be able to identify (*beat it*, *wing it*, etc).

Sentences should contain typical complements and modifiers

¹Notice the following typographic conventions: the names of Frame Elements in the text appear in small caps; target words in example sentences appear in bold-face; the Frame Elements belonging to a target word are enclosed in pairs of angle brackets.

In the example sentences you choose, even when they are semantically informative, try to include mostly ones that have typical complements and modifiers. For example, when annotating the body/body-movement verb *cock*, sentences like the following

- (4) ‘ One – ” [he_{Agent}] **cocked** [a thumb_{Body Part}] ‘ – when you ’re trying to creep out of a castle no one is asleep.

shouldn’t be overrepresented among the sentences you choose. *Cock* normally is used with *head* and *eyebrow(s)* but due to the significant amount of (bad) literature included in the BNC, quite a few unusual uses like *cock a thumb* come up.

Sentences should not be too complex

One measure of complexity is length. Although matches of excessive length get kicked out by the corpus querying software automatically, there are still some sentences left that are quite lengthy. We’ll usually try to avoid such sentences. Here’s an example:

- (5) Above all [he_{Cognizer}] had **conceived** [a mission to ” clean up Cardiff ” by ” fighting The System ” by which the ” slimily cunning oddments of humanity ” , the boarding house keepers , the cafe owners , the Red Lamp proprietors , even the laundrymen , battered on the sailors and their families_{Content}] The Achilles Heel of ” The System ” was , he concluded , the Chinese element in the port , especially when Chinese seamen were brought in from outside and used as blacklegs by the employers .

A related idea is that

Sentences should represent syntactic properties of the target

There are a great number of constructions in which arguments of a vast number of target predicates can participate. It is not part of our job to document this.

For instance, avoiding annotating target words and their Frame Elements in cleft constructions such as 2 and 3 below saves us the use of Null elements for things like *what*, *who*, *it*. Following is a list of constructions that we would rather avoid having in our sentences.

1. **Tough movement**
John is easy to **talk** to.
2. **Wh-clefts**
What I **hate** is when people don’t put the toilet seat down.
3. **It-clefts**
It was John who **stole** the lockbox.
4. **Topicalization**
Beans I **hate**.

5. **Extraction**

The man that I know you **hate** the most was here just a few minutes ago.

6. **What me worry**

Him the next US **president**? It's laughable!

7. **Parentheticals**

The president, it was said, would make an **announcement** within the hour

1.1 Exercises

Here we want you to practice selecting sentences for annotation. You don't actually have to mark these sentences in any way; just tell us which ones you would choose. To do this click on the box at the beginning of the sentences you like.

The sentences are as taken from the BNC. They all have the verb *predict* from the cognition/expectation frame as their target. Here is a very short frame description. The words in this frame have to do with a COGNIZER believing that some PHENOMENON will take place in the future. Sometimes, the EVIDENCE on which the belief is based is mentioned.

- (6) Most European nations **predict** shortages of software specialists.
(y)[This is an ok sentence]
- (7) The expression of SM1 and SM2 isoforms in smooth muscle cells was verified using anti-peptide specific antibodies to the unique amino acid sequences **predicted** from the nucleotide sequence of the corresponding cDNA clones (5,7)
(n)[This sentence is semantically not very informative.]
- (8) At the moment we are unable to **predict** with accuracy who will or will not abuse.
(y)[This is an ok sentence.]
- (9) Although it has confidently been **predicted** by a number of high-ranking orthodox medical practitioners that any research in homoeopathy would rapidly discredit the whole subject , I have not found this to be the case
.
(y)[This is an ok sentence.]
- (10) Similar discrepancies between the start sites **predicted** by S1 mapping and other methods have been noticed in other cases (see for example reference 21).
(n)[This sentence is semantically not informative. It is also not a cognition/expectation use but a cognition/evidence one. Notice the inanimate subject 'S1 mapping and other methods'.]
- (11) As **predicted** from the high sequence homology of Oct-11 with Oct-1 and Oct-2 , Oct-11 can bind sequence specifically to an octamer site in

- vitro (Figure 3) .
 (n)[This sentence is semantically not informative to the average reader.]
- (12) Meanwhile , the International Energy Agency (IEA) **predicted** on Sept. 3 that demand for OPEC oil in the first quarter of 1992 would reach 25,300,000 bpd.
 (y)[No, this is an ok sentence.]
- (13) In it was found that , as **predicted** , the artists were more deviant on certain personality traits .
 (y)[This sentence should be included. Being able to be used as a parenthetical is a lexicographically relevant property—as opposed to occurring in the complement clause of a parenthetical verb.]
- (14) Beer drinkers **predict** more than half of the town 's 28 John Smith landlords will be out of their pubs by the end of the year .
 (y)[This is an ok sentence.]
- (15) Some commentators had **predicted** otherwise , suggesting that larger organizations , pursuing more sophisticated personnel policies , would be more ready to exploit the advantages offered by such employment forms.
 (y)[This is an ok sentence.]
- (16) In practice , therefore , the size of the money multiplier will vary and is thus difficult to **predict** in advance .
 (n)[This sentence includes a tough-predicate.]
- (17) A measurement of would enable us to **predict** with certainty the value of , namely the opposite one.
 (n)[This is a sentence fragment actually found in the BNC. Since it is incoherent, we should ignore it.]
- (18) But the Association of Metropolitan Authorities **predicted** more than two million would complain.
 (y)[This is an ok sentence.]

2 Constituency

2.1 Discontinuous Frame Elements

Certain Frame Elements can be instantiated more than once in a sentence. A parade example are SOURCE, PATH, and GOAL in the motion domain.

- (19) She could imagine [it_{Theme}] **clanging** [across the hallway_{Path}] , [onto the landing_{Goal}], [down the stairway_{Path}] , [along the draughty corridors_{Path}] , and landing in the drawing-room².

²Notice that 'in the drawing room' is not annotated here since it is a dependent of 'landing' rather than the target word 'clanging'.

Another example are series of stative time or location expressions which jointly specify a single time or location. Compare:

- (20) When I was a student, I lived [in St. Paul_{Location}], [on the twelfth floor of an apartment building_{Location}].

with

- (21) When I was a student, I lived[on the twelfth floor of an apartment building in St. Paul_{Location}].

Similarly

- (22) [On a cold December day_{Time}], [shortly before noon_{Time}], a man walked into a bar.

is different from

- (23) [Shortly before noon on a cold December day_{Time}], a man walked into a bar.

In cases of zooming in on a place (20) or a time (22), or of paying attention to the segments of a path (19), we want to say that the individual pieces are full instantiations of the Frame Element in their own right, even if one can group them together into larger, meta-Frame Elements.

By contrast, when we talk about discontinuous Frame Elements, we mean situations in which a single instance of the Frame Element is realized in two or more syntactic pieces. The pieces, however, are not understood to have any independent semantic status as Frame Elements.

Following is a list of these discontinuities.

Quotations The Frame Element MESSAGE can be spread around a communication verb.

- (24) [The most remarkable thing_{Msg}], [he_{Spkr}] **adds** [with a descent into realism_{Men}], [is how such a multitude was fed_{Msg}]

- (25) [Anyway_{Msg}], [he_{Spkr}] **added** [to himself_{Add}], as he looked with pity at the little boy, [it was asking for trouble, giving him such a daft name_{Msg}].

Mental Content In the cognition domain, the FE CONTENT can, like the FE MESSAGE with verbs of communication, sometimes be spread around the verb.

- (26) [John_{Content}], [he_{Cognizer}] **assumed**, [would take care of the problem_{Content}].

Arguments of raising predicates We pull apart the subject and the predicate of clauses that are complements of raising predicates and treat them as separate constituents instantiating the same Frame Element.

- (27) [Pat_{Cognizer}] **expects** [it_{Phenomenon}] [to rain._{Phenomenon}]
 (28) [We_{Cognizer}] **anticipate**[full production_{Phenomenon}] [to plateau at 100,000 b/d_{Phenomenon}]

The reason for this practice is not a rejection on our part to the Small Clause analysis of such structures but the simple fact that the subject of the predicate can be passivized and therefore not appear adjacent to the VP complement.

- (29) [It_{Phenomenon}] **was expected** [to rain._{Phenomenon}]
 (30) [Full production_{Phenomenon}] **is anticipated** [to plateau at 100,000 b/d_{Phenomenon}]

Like the proponents of the Small Clause analysis, we believe that the subject NP of the clause does not have a semantic relation to the target verb, unlike in the case of so-called equi verbs, such as *persuade*, *influence*, *etc.*

- (31) [John_{Influencer}] **persuaded** [me_{Influenced}] [to fire the kid_{Action}].

In example (31), the persuadee is in a real semantic relation to the persuader, as can be seen by the fact that a use of the verb still makes sense when the Action is null instantiated:

- (32) [John_{Influencer}] finally **persuaded** [DNI_{Action}] [me_{Influenced}].

By comparison, with a raising verb such as *predict*, it is not possible to null instantiate the VP of the clause following the raising verb. Compare:

- (33) *[I_{Cognizer}] **predict** [Rocky_{Phenomenon}].

to

- (34) [I_{Cognizer}] **predict** [Rocky_{Phenomenon}] [to get a first team start before Christmas_{Phenomenon}].

There was a time when our analysis of raising structures assigned to the “raised” phrase the Frame Element “Null”, which was our way of saying that while such a NP was a syntactic argument of its governing verb, it lacked a semantic relation to that verb. Because of difficulties in deciding where the line could be drawn between (nonfinite) clausal complements

and NP+VP complements, for cases like “make them leave”, “saw someone enter”, as well as “want you to stay”, “prefer it to be you”, we decided to split all of these NP+VP into separate constituents, assigning the same FE label to each part as shown in the following examples:

- (35) [Trudy_{Perceiver}] **saw** [John_{Phenomenon}] [leaving the building_{Phenomenon}].
 (36) [Sue_{Causar}] **made** [John_{Effect}] [join the army_{Effect}].
 (37) [John_{Wanter}] **wanted** [her_{Wish}] [to stay_{Wish}].

We leave it to syntacticians using our data to decide whether they want to re-group such sequences in ways compatible with their theoretical preferences.

Degree expressions Degree expressions can often be discontinuous. For instance, in the case of comparatives if the standard of comparison is mentioned when the adjective is used attributively, it has to follow the target noun.

- (38) [I_{Self-Mover}] [ran_{Support-Verb}] a [faster_{Speed}] **race** [than in Boston_{Speed}].

Similarly, in the case of *so ... that* degree expressions modifying target adjectives, the adjective intervenes between the degree expression *so* and its *that*-clause complement.

- (39) [The hotel_{Goods}] [was_{Support Verb}] [so_{Degree}] **expensive** [that I didn't have money left to register for the conference_{Degree}].

Other discontinuous degree expressions that need to be handled in the same way are *too ... to* and *as ... as*.

- (40) [This house_{Goods}] [is_{SuppV}] [too_{Degree}] **expensive** [to buy_{Degree}].
 (41) [She_{Cognizer}] [is_{SuppV}] [as_{Degree}] **smart** [as her brother_{Degree}].

We also treat *enough ... to* in this way, even though the two pieces are adjacent when they are not modifying a noun as in (43), but an adjective as in (42).

- (42) [Smithers_{Cognizer}] [was_{SuppV}] **smart** [enough_{Degree}] [to quit smoking_{Degree}].
 (43) [James_{Speaker}] [made_{SuppV}] [enough_{Degree}] [negative_{Message}] **comments** [about Jim_{Topic}] [to earn himself a good slap on the wrist_{Degree}].

2.2 Relative clauses

Frame element recognition when the target word is inside a relative clause requires special action. But first, this is a case where consideration of “lexicographic relevance” ought to apply. We can easily assume that there aren’t many argument-bearing words in our language that exhibit idiosyncratic behavior when they are in relative clauses, so we’re probably not learning anything important about a word by noticing that one of its frame elements is realized as a relative pronoun. Thus, in the NP “The platform onto which Shelley **bounded** ...” we find that there is an *onto* phrase at the beginning of the relative clause, to the left of the subject. The possibility of creating a structure of this kind has everything to do with the grammar of English, and nothing to do with the lexicographically relevant properties of the verb *bound*. If there are other sentences in the corpus that show an *onto* phrase with this word inside the VP headed by *bound*, it would be more important to choose one of those sentences for annotation rather than the one where the target word is inside a relative clause.

However, if the target word is rare, and the corpus does not offer enough examples for adequate documentation of all of the major combinatory possibilities, or if you find a sentence that is simply too precious (cute, witty, artistic) to ignore, you will have to follow some tricky rules for FE selection. The rule is that we annotate, not only the relative pronoun (with or without prepositional marking), but also its immediately preceding antecedent.

Thus, in (44) we mark the sequence *The man from whom* rather than just the PP *from whom*, which is the actual syntactic argument of *bought*.

- (44) [The man from whom_{Seller}] [John_{Buyer}] **bought** [the car_{Goods}] never told him about the accident he had had with it.

In cases of zero relative pronoun as in (45), we still mark the antecedent.

- (45) [The car_{Goods}] [John_{Buyer}] **bought** was a lemon.

If PREPOSITION STRANDING occurs, we tag the antecedent and the relative pronoun as well as the stranded preposition.³

- (46) a. [The man that_{Seller}] [John_{Buyer}] **bought** [the car_{Goods}] [from_{Seller}] never told him about the accident.
 b. [The man_{Seller}] [John_{Buyer}] **bought** [the car_{Goods}] [from_{Seller}] never told him about the accident.

If we were working with a parsed corpus in which coreference was indicated, then we would not need to do this, at least for relative clauses that had relative pronouns. One of the reasons for including the antecedent is that we want to be able to retrieve from the database information about the head nouns in NPs or the head nouns in NPs contained in PPs, for given frame elements. Thus, we

³Note, though, that if you have a choice, you shouldn’t annotate such sentences (Fillmore Principle).

would like to recognize “platform” as a possible object of “onto” and show that it has occurred in such a context in connection with the verb “bound”.

A reason for preferring NOT to include such examples is that this is one place where the FrameNet method of segmenting sentences will not correspond to the phrase-marking provided by any typical parser. Another is that the FrameNet classifier has to go beyond the usual kind of chunk parsing: it will have to recognize “the platform onto which” as a PP headed by “onto” and it will have to recover “platform” as the (semantic) object of “onto”.

2.3 Apposition

In nominal appositions, two or more phrases refer separately or jointly to the same item. In example (48), *Max Bleck* IS *Raytheon’s president*.

- (47) Shop stewards at Broughton have written to Raytheon’s president, Max Bleck, to ask him to meet them.

When appositions are Frame Elements of our target words we include all of the elements of the apposition in the Frame Element tag. Thus gets tagged as a follows if our target is *write*.

- (48) [Shop stewards at Broughton_{Speaker}] have **written** [to Raytheon’s president, Max Bleck_{Addressee}].

Notice that we treat all appositions in this way regardless of whether they are non-restrictive as in (48); restrictive as in (49) and (50)

- (49) [_{Experiencer}] **like** [Mr Campbell the doctor_{Content}] but I hate his brother, who is a lawyer.
- (50) [My brother_{Perceiver}] **saw** [the famous lawyer Alan Dershowitz_{Phenomenon}] at a party last night.

or whether they involve such indicators of apposition as *namely, in other words, including*

- (51) [People of all ages, including children as well as seniors_{Experiencer}] will greatly **enjoy** [using our product_{Content}].

When you are not sure whether something should be included in a Frame Element as part of an apposition, then by the Fillmore principle, it’s probably best to just skip the whole sentence. If you really, really need the sentence, then err on the side of being generous and include the doubtful element in the Frame Element.

2.4 Exercises

Check if the relative clauses in the sentences below are properly marked.

- (52) [Willi_{Self-Mover}] **bustled** [over to the dresser that stretched along one side of the room_{Goal}] and picked up a huge basket of flowers.
(y)[Yes, the constituent boundaries are correct.]
- (53) [He_{Self-Mover}] **conducted** [us_{Co-theme}] [to a new restaurant , the Hungry Horse_{Goal}] which was pronouncedly ‘ gay ’ , with all the young waiters in tight-fitting cotton trousers of small blue-and-white checks.
(n)[The relative clause beginning with *which* and the apposition beginning with *with all* should also be included within the noun phrase headed by *restaurant* and thereby in the goal-PP.]
- (54) But [I_{Self-Mover}] walked round the barbed wire and **crawled** [inside the little ground that lay beyond_{Goal}].
(y)[Yes, the constituent boundaries are correct.]
- (55) After tea , [the schoolchildren_{Self-Mover}] **dance** [round a short maypole that had been erected on the green for the occasion_{Path}].
(y)[Yes, the constituent boundaries are correct.]
- (56) [The animal_{Self-Mover}] crouched ready for an attack and then **dashed** [across its cage floor_{Path}] [towards the corner in which Leyhausen was standing_{Path}].
(y)[Yes, the constituent boundaries are correct.]
- (57) She finally found her voice , screaming as [she_{Self-Mover}] **bolted** [from the hideous life-form that was shaping even as she watched into the form, the outward appearance of a dead human_{Source}].
(y)[Yes, the constituent boundaries are correct. One may think for a moment, though, that *even as she watched* is the beginning of a new constituent.]
- (58) The appointment of a chaperone enabled [four women teachers_{Self-Mover}] to **accompany** [this early party which spent eight strenuous days completing walking climbs of twenty miles or so_{Co-theme}] and evenings listening to lectures on Ruskin and places of interest.
(n)[The part of the sentence following *or so* is conjoined with *eight days* ... *or so* and should be part of the relative clause.]

3 Tagging external arguments

The arguments of a predicator X (where X = N, V, A) that are part of the phrase that the predicator heads (i.e., part of the XP) are easy to find and need no further syntactic justification. Since we are interested in making information available in our database about the kinds of constituents that instantiate particular frame elements, including the kinds of lexical heads found in those phrases, we also want to tag those that are external to the VP, NP or AP that contains our target word.

In the case of a finite verb, its “subject” is typically close by and has an obvious syntactic relation. Thus, in *The baby crawled onto the balcony* there

is no hesitation in tagging *The baby* as bearing the Self-Mover FE in relation to the verb *crawl*. Or in the NP *my brother's decision not to marry*, we note that the decision-maker is expressed in the possessive phrase, and it too is easy to spot and tag. (Notice that the possessive clitic is included, analogously to including prepositions in prepositionally marked arguments.)

In other cases our search for a relevant constituent must reach out further, and we need to have criteria for deciding when something external to the phrase headed by the target word should be annotated as a frame element for that word. The rule we follow is a syntactic one: if a constituent is necessarily construed as a part of the semantic structure of the target word and both it and the target are governed by the same governor, that constituent needs to be tagged according to the appropriate frame element.

In *John decided to speak to me*, *John* is necessarily the subject of *decide* and *speak* is the head of its complement. Therefore we tag *John* as Speaker and the GF introduced by the classifier will be Ext. (Notice: *John* is the Speaker in relation to the verb *speak*, not in relation to the verb *decide*. Things would be different if we chose that sentence for *decide* as target.)

In *John persuaded Bill to speak to me*, *Bill* is the object of *persuade* and *speak* is the head of its complement. Therefore *Bill* will be tagged Speaker (with respect to the verb *speak*) and will be classified as Ext. (This example shows the special function of the category EXT and the reason why we do not use SUBJECT as one of our GF's. A parsing of the sentence would call *Bill* a direct object - of *persuade* - and would have to call on a theory of control to show that it can be construed as the subject of *speak*.)

In *John's decision to speak to me*, *John's* is an FE of *decision* and *speak* is the head of its complement. Therefore we would tag *John's* as the Speaker for the target *speak*.

There are cases where the interpreter of a sentence knows what constituents provide information about how an argument of a predicate is construed, but where that information is not provided in a way that satisfies our syntactic criterion. Thus, in *John is diabetic; eating that much chocolate wouldn't have been a good idea*, we can know that it's John's eating behavior which is at issue; but in this case we would not tag *John* as the eater. We want the annotator's job to be fixed, and easy. One shouldn't have to look around in neighboring sentences to find out who's doing what. And lastly, *John disapproves of eating chocolate* has *John* and *eating* in the appropriate syntactic relation to each other, but this sentence does not, by virtue of the meaning of *disapprove* in this construction, require the identity of the disapprover and the eater, so here too nothing in the sentence would receive the tag that would be appropriate to the eater.

Support Verb

In some cases a governing verb that connects an argument with the frame structure of a target word (in this case, nouns and adjectives) exists mainly for the purpose of showing that relationship. The verbs with this function are called

SUPPORT VERBS, or LIGHT VERBS. The italicized verbs in the following examples are support verbs with respect to the target nouns in bold face.

- (59) John *gave* me **advice** on how to speak to a bishop.
- (60) John *made* the **offer** to introduce me to his boss.
- (61) John *said* a **prayer** to his god.
- (62) John *had* an **argument** with his sister.

In FrameNet we are a bit more generous in the verbs we recognize as support verbs, including verbs that are more specialized than *give*, *have*, *make*, etc. Thus we would include the italicized verbs in the following examples:

- (63) John *submitted* a **complaint** to the committee,
- (64) John *performed* an **operation**.
- (65) John *underwent* an **operation**.

Notice that in the last two examples, the subjects of the support verb have different roles in the Operation frame. It should be clear that the verb in *John witnessed an operation* there is no support verb. In that sentence, the subject of *witness* is not (necessarily) a participant in the Operation event.

Finally, presentational/existential structures like the following do not contain a Support Verb but rather the Existential verb *be* and a Null subject *there*.

- (66) [There_{Null}] [are_{Existential}], compared to many countries, few positive **statements** [regarding the powers and duties of the organs of government_{Topic}].

3.1 Exercises

For the following sentences with the target words *statement* and *proposal*, we want you to decide whether the verbs we marked as such really are support verbs (and consequently whether the subjects of these verbs are SPEAKERS in the frames evoked by *statement* and *proposal*). Here is a short frame description for the communication/statement frame, from which the target words are taken. The frame contains verbs and nouns that communicate the act of a SPEAKER to address a MESSAGE to some ADDRESSEE using language. The communication need not involve a particular MESSAGE but can be about a general TOPIC. Sometimes, it is mentioned in which MEDIUM the MESSAGE is conveyed.

- (67) And surely, [nobody in his right mind_{Speaker}] would take a few days ' vacation and miss out on the opportunity of [selling_{SuppV}] his own plans and **proposals** [to the President of the Corporation_{Addressee}] ?
 (n) [In this case the 'seller' of the proposal happens to be the one who came up with it but that need not be the case: I can sell your proposal to the boss. With true support verbs, however, the subject of the support verbs is necessarily a participant in the event denoted by the noun.]

- (68) We certainly hope that [both schools and teachers_{Speaker}] will [adopt_{SuppV}] the **proposals** [in the report_{Medium}].
 (n)[Adopting proposals is a separate act from making them. The *schools and teacher* are not **SPEAKERS** here.]
- (69) [The trade body for the insurance industry , the Association of British Insurers_{Speaker}] [produced_{SuppV}] **proposals** in 1991 [for a new basis on which shareholders ' profits from long term insurance business might be recognised_{Message}]
 (n)[*Producing a proposal* relates to making plans not necessarily to communicating them.]
- (70) As is usual in these cases, [both parties_{Speaker}] agreed to [make_{SuppV}] no further **statements** [on the matter_{Topic}].
 (y)[The maker of a statement is necessarily the Speaker.]
- (71) [He_{Speaker}] even [postponed_{SuppV}] , on his own responsibility , a **proposal** [for a mediatory broadcast by the Archbishop of Canterbury (Randall Davidson) , which the Government itself would have found very difficult to forbid_{Message}].
 (n)[Postponing making a statement is not the same act as making the statement and therefore we wouldn't treat *postponed* as a support verb.]
- (72) [The EC Commission_{Speaker}] has just [put forward_{SuppV}] **proposals** [to this effect_{Message}].
 (y)[Putting forward a proposal is making that proposal, *put forward* is a support verb.]
- (73) [Williams_{Speaker}] [denied_{SuppV}] the **allegations** [_{in his letter to the court}]
 (n)[Denying allegations is separate from making them and usually two different people are involved.]
- (74) I am having the matter looked into, and [I_{Speaker}] shall [make_{SuppV}] a **statement** [about it_{Topic}] in a few minutes.
 (y)[This is a clear example of a support verb.]

4 Null instantiation

Null instantiation represents the opposite problem to what we have looked at so far.⁴ While the issue with External arguments and Support Verbs was whether we can annotate words that are in the sentence and that seem to be Frame Elements, Null Instantiation (NI) has to do with whether we can say something about Frame Elements that are not expressed in the sentence but that we know something about anyway.

There are a few conditions under which we annotate Frame Elements that have no syntactic expression.

⁴The phenomenon of Null Instantiation is also referred to as Argument Omission or Implicit Arguments.

The first one, CONSTRUCTIONAL NULL INSTANTIATION (CNI) concerns omissions that are licensed by grammatical constructions. A good example of this type of omission are the *by*-phrases of passive sentences. They are omissible regardless of which verb is passivized.

- (75) [The Masai_{addressee}] were elusive, even when constantly **told** [CNI_{Speaker}]
[they had nothing to fear_{Message}].

Notice in this context that if a sentence containing a support verb is passivized, then we will mark its missing *by*-phrase as a case of CNI as well, even though the passive construction does not specifically relate to the actual target, the noun.

- (76) Several important **announcements** [CNI_{Speaker}] were [made_{SuppV}] at the meeting.

Another example of CNI are the subjects of imperatives:

- (77) **Tell** [me_{addressee}] [where you've been_{Message}]!

Besides CNI, there are two kinds of omissions that are only possible with specific lexical items. The first is called ANAPHORIC, DEFINITE, or DISCOURSE NULL INSTANTIATION (DNI). The second is called EXISTENTIAL or INDEFINITE NULL INSTANTIATION (INI). Both kinds can be exemplified with the verb *contribute*.

- (78) [I_{Giver}] **contributed** [\$ 20_{Gift}] [to the Red Cross_{Recipient}].
(79) [I_{Giver}] **contributed** [\$20_{Gift}] [DNI_{Recipient}].
(80) [I_{Giver}] **contributed** [INI_{Gift}] [to the Red Cross_{Recipient}].
(81) [I_{Giver}] already **contributed** [INI_{Gift}] [DNI_{Recipient}].

In sentence (78), all Frame Elements are spelled out, the GIFT, the RECIPIENT, and the GIVER. In sentence (79), the recipient is missing but in order for this to be felicitous, the addressee or reader of this sentence has to already know from prior discourse (or real world context) which charity is meant. By comparison, in order to use sentence (80) felicitously, the speaker/writer need never mention the donation, i.e. how much they contributed. What's known is only that the kind of thing that was contributed is money. Both omissions occur simultaneously in sentence (81) and the interpretations of the two omissions are still the same: the charity must be given in the discourse or real world, whereas the only thing one needs to know about the donation is that it consisted of money.

Notice that cases of CNI can be more like INI or like DNI. For instance, a passive can be used when the agent is unknown (82) as well as when he or she is given in the discourse (83).

- (82) My credit card was stolen.
(83) A: Did you do the dishes? B: Yup, the dishes are done.

4.1 Exercises

For the following sentences, decide whether the missing element (marked as XNI) is a case of CNI, DNI, or INI.

- (84) [The most fêted boxer of all time, Muhammad Ali_{Content}] was **adored** [XNI_{Judge}] [because of the skill he brought to the ring_{Reason}].
(Judge CNI)[passive-construction]
- (85) [The blueprint_{Evaluee}] was reported to have been well received by the President , although **criticized** [XNI_{Reason}] [by many senior military officers_{Judge}].
(Reason INI)[The reasons need not be mentioned ever.]
- (86) Against this background Baldwin in November felt under some pressure from his backbenches , particularly as his speech had been preceded by a **denunciation** [XNI_{Evaluee}] , at once contrived and powerful , [from Churchill_{Judge}].
(Evaluee DNI)[It must be known in the context who was denounced; here it looks as if Baldwin is the one who was denounced.]
- (87) [Luke_{Judge}] [was_{SuppV}] [openly_{Manner}] **contemptuous** [XNI_{Evaluee}].
(Evaluee DNI)[It must be known in the context who the target of Luke's contempt is.]
- (88) [People_{Judge}] can be very shy about [giving_{SuppV}] **compliments** [XNI_{Evaluee}] [for your looks_{Reason}].
(Evaluee DNI)[This is a generic context and we treat generics as DNI.]
- (89) By **chastising** [XNI_{Reason}] [a horse_{Evaluee}], [we_{Speaker}] only make a tense situation worse.
(Reason INI)[The reasons are not relevant and need never be mentioned.]
- (90) Official US censure came amid [strong_{Manner}] **condemnation** [XNI_{Reason}] [of the group_{Evaluee}] [from Capitol Hill_{Judge}].
(Reason DNI)[*Condemnation* requires a specific reason. The Reason may actually only be specified in the following discourse in this case.]
- (91) She has decided that [pretty_{Manner}] **compliments** [XNI_{Reason}] [DNI_{Evaluee}] [from members of the opposite sex_{Judge}] are what, after all, is important in this life.
(Reason INI)[With *compliments* it need not be known what they are made for.]
- (92) In particular , [they_{Evaluee}] have been **censured** [XNI_{Judge}] [for failing sufficiently to take into account the needs of local people_{Reason}].
(Judge CNI)[passive-construction]
- (93) And the growth of an emerging democracy over the past two years provides an outlet for [his critics '_{Judge}] **denunciations** [XNI_{Evaluee}] [INI_{Reason}].

(**Evaluee** DNI)[It must be known in context who was criticized. Interestingly, here the relevant linguistic context is the possessive phrase *his critics*: the *he* referred to by *his* is the target of the criticism/denunciations.]

- (94) [People_{Evaluee}] are rarely **castigated** [XNI_{Judge}] in public [for selling individual plots_{Reason}] because such complaints would be counterproductive. (**Judge** CNI)[passive construction]
- (95) He reacted to [my_{Judge}] [mute_{Manner}] **accusations** [XNI_{Evaluee}] [INI_{Reason}] by growing sullen and brooding.
(**Evaluee** DNI)[The evaluee must be known in the context. Note that it need not be the referent of *He*.]

5 Making sense distinctions

The job of annotating sentences would be easier if words had only one sense that we could assign to some frame that we have defined. Unfortunately, many words are polysemous and so we have to tell the different senses apart. The heuristic we use for identifying cases of polysemy is this: a word has only one sense in a given frame. If you think that some use of a target word doesn't belong in the frame in which you're annotating the target word, try to formulate a frame description for a new sense. If you cannot come up with a coherent frame description, that might indicate that the use really is not a separate sense after all.

5.1 Metaphor & Metonymy

Much of the polysemy that we encounter involves metaphorical or metonymical relationships between the senses. The verb *roar*, for instance, can be used as a verb of speaking (96); as a noise verb (97); and as a verb of motion (98).

- (96) You must be jokin' , Mister Mayor , " **roared** Jake , ' Them 's guilty , o'course , guilty as guilty can be !
- (97) The gun **roared** angrily again and the inoffensive family man slumped sideways against the treacherous door , minus the top of his skull , which had been blasted out through the open side window.
- (98) He tumbled to the pavement , feeling Lou Hanvey's shaking body below his. The car **roared** past, then continued out of sight.

Since so many noise verbs can be used in the motion and the communication domain, we actually created motion/noise and communication/noise frames. However, if a word allows for an isolated metaphorical/metonymical use that is not shared by other words in the same frame, then you probably just want to tag the sentence where such a use occurs with the Metaphor label. Consider the following use of the verb *catapult*:

- (99) [Hillary_{Theme}] was **catapulted** [CNI_{Agent}] [to stardom_{Goal}] and his life has never been the same since.

This sentence is understandable because English has a metaphor ‘States are Locations’. However, this use of *catapult* seems a lot less conventional than the use of the verb *move* in emotional contexts:

- (100) I was **moved** by her kindness.

Another, though not by itself compelling indication for not viewing the use of *catapult* in (99) as a separate sense is the fact that none of the major dictionaries (e.g. American Heritage, Webster) list a second, non-concrete sense for *catapult*. By contrast, there is an emotion-sense listed for *move* in these dictionaries.

5.2 Syntactic Alternations

There are quite a few cases in English where a verb’s arguments can be realized syntactically in multiple ways and where these different realizations correspond to slight differences in meaning. Two examples are:

1. **LOAD/SPRAY** alternation. In the case of the load/spray alternation, an arrangement of **THEME** before **GOAL** as in (101-a) lacks the holism implication that the arrangement of **GOAL** before **THEME** as in (101-b) seems to have.

- (101) a. [He_{Agent}] **loaded** [paving stones_{Theme}] [in his wheelbarrow_{Goal}] before running straight through a plate glass window at the B superstore. [non-holistic reading: barrow need not be full]
 b. [He_{Agent}] **loaded** [the barrow_{Goal}] [with paving stones_{Theme}] before running straight through a plate glass window at the B superstore in SouthShields. [holistic reading: barrow is full]

2. **LOCATIVE** alternation Certain verbs of motion (e.g. *crawl*) or noise (e.g. *buzz*), can have an **AREA** as their subject, resulting in a holistic interpretation that the **THEME**-subject uses of these verbs lack.

- (102) a. [Bugs_{Theme}] were **crawling** [on the kitchen floor_{Area}]. [non-holistic reading: maybe just a few bugs]
 b. [The kitchen floor_{Area}] was **crawling** [with bugs_{Theme}]. [holistic reading: the floor is acrawl with bugs]

In the syntactic literature it is a contested issue whether the meaning differences observed in the sentence pairs above result from different lexical entries or whether they are predictable from other, independent principles. FrameNet takes no position on this issue. However, in the interest of allowing our users to

find out which words participate in such alternations, we will treat the alternates as separate senses in different frames.

For annotators, the existence of alternations means that they need to be ready to distinguish or discover these syntactic alternates.

5.3 Polysemy in the same frame

Perspective

With a very small number of words the same lemma may be used in two senses in the same frame. For instance, in the commercial transaction frame, the words *rent* and *lease* can talk about the event from two different points of view. In (103), the rental agreement is talked about from the point of view of the owner of the rented item, whereas in (104) the agreement is talked about from the point of view of the user.

(103) [Joe_{Seller}] **rented** [a garage_{Goods}] [to me_{Buyer}].

(104) [I_{Buyer}] **rented** [a garage_{Goods}] [from Joe_{Seller}].

5.4 Conventional Uses & Idioms

Conventional Uses

Certain uses of a target word may deserve singling out even though they are covered by a more general description. For instance, the use of the verb *load* in

(105) The local people naturally defend their crops, usually with totally inadequate weapons such as ancient shotguns **loaded** with buckshot

is special since *loading a gun* means getting it ready for use not just filling its chamber with ammunition.

Another case of a conventional use that deserves singling out is the use of the verb *propose* in the marriage context.

(106) But instead of panicking, he **proposed** to his girlfriend , who sat with him throughout the ordeal .

(107) Shaunagh revealed that before he **proposed** to her, he asked her if she believed in divorce.

Evidence for considering *propose_{Marriage}* as different from normal *propose* comes from the fact that only *propose_{Marriage}* allows (and normally requires) null instantiation of the MESSAGE, whereas normal *propose* does not allow null instantiation.

(108) A. So, will Paul go along with this idea?

B. *Well, I proposed to him but he says he hasn't decided yet.

Annotators should create a new entry for such conventional uses and do so within the same frame as the more general use.

Idioms

Thanks to their largely non-compositional semantics, many idioms are much easier to spot than conventional uses. The old favorite *kick the bucket* is a case in point. Its meaning has nothing to do with actual kicking or actual buckets. However, there are also idioms that look a lot more like regular uses. For instance, the idiom *preaching to the converted* doesn't just mean 'doing something unnecessary', it specifically requires that somebody is using his rhetorical skills on people that have already been won over. This closeness to the regular communication contexts, makes the idiom more difficult to recognize.

- (109) But they will still usually be only the party faithful , so he will find himself **preaching** to the converted .

Idioms don't require any special action but are simply marked by putting the IDIOM tag on the sentence nubbie. Also, it's ok to miss idioms since FrameNet is not primarily concerned with them.

5.5 Exercises

Same or different? *Lecture*

Consider the uses of the verb *lecture* in the sentences below, which were extracted from the corpus for annotating *lecture* as a communication/talk-about-topic verb. Do the sentences below exemplify that sense? If not, can you describe what other sense(s) there is/are?

- (110) He is a demonstrator for Daler-Rowney , **lecturing** and tutoring to art societies.
(Same)[This is a regular use of the verb in the talk-about-topic frame.]
- (111) Besides which he never really **lectured**, he was more pure research.
(Same)[This is a regular use of the verb in the talk-about-topic frame.]
- (112) He **lectured** and exhibited and published his photographs in a series of successful books.
(Same)[This is a regular use of the verb in the talk-about-topic frame.]
- (113) Sitting by her bedroom window later that night , Laura **lectured** herself for having been so nave as to have been upset by the remarks he had originally made on the dance-floor.
(Different)[This is not a use of the verb in the talk-about-topic frame. Rather *lecture* is used here with an evaluative meaning.]
- (114) He **lectured** and wrote extensively , his best-known work being the novel , James Woodford , Carpenter and Chartist (1881).
(Same)[Talk-on-topic use.]
- (115) Robert Saxton , in these pages , recently denied that there was any longer a problem with contemporary music , and instead **lectured** the audience about paying closer attention.

- (Different)[This looks like an evaluative use. It could also be a talk-about-topic use given the right context. However, note that *lecture* is ambiguous between these two interpretations, not just vague.]
- (116) He is Robert Harrold , Chairman of the National Dance branch of the Imperial Society of Teachers of Dancing – a very experienced teacher who **lectures** and examines in many parts of the world.
(Same)[This is a talk-about-topic use.]
- (117) I do not need the hon. Member for Gordon to **lecture** me about my affinity with the mining industry.
(Different)[This is an evaluative context.]
- (118) A woman who was **lecturing** there came up to us afterwards and said, ‘ You know , if you ’re doing A levels why do n’t you consider doing applied science ? ’
(Same)[This is a talk-about-topic use.]

Same or different? *Respond*

Following are some sentences for the communication/response verb *respond*. Do the sentences below all fit into that frame? Here’s the frame description: This frame deals with communicating a reply or response to some prior communication or action. The frame elements for this frame are the well-known communication domain FEs **SPEAKER**, **ADDRESSEE**, **MESSAGE**, **TOPIC**, **MEDIUM**, plus the FE **TRIGGER** (Kim answered *my question*) .

- (119) ‘ No , I do not agree with you ,’ **responded** another officer to the CEO .
(Same)[This is a regular communication use.]
- (120) For example , when asked to explain what a shadow is , many young children **responded** with ‘ I do n’t know’.
(Same)[This is a regular communication use.]
- (121) The plan was designed to create a streamlined force capable of **responding** rapidly to ‘ global crises ’
(Different)[This does not necessarily refer to communication. It means something similar to *react* and should be in a separate frame that is as of yet still undefined.]
- (122) ‘ And will get darker , ’ **responded** Finn.
(Same)[This is a regular communication use.]
- (123) The Home Office **responded** by stating that the same arguments which pertained ten years ago when General Horwood wished to ban the Communist party still stood today.
(Different)[This could be a regular communication use but looks more like a *react* use: saying/stating something is the way the Home Office did react.]

- (124) Blanche coughed and **responded** that the police were talking to everyone who had been at the farewell party on the sixth floor , including Parkin and Pargeter.
(Same)[This is a regular communication use.]
- (125) The subjects **responded** Yes or No as fast as possible with the preferred index finger.
(Different)[Although this looks a lot like a communication use, it probably involves response to an experimental stimulus rather than to previous communication. It should be treated as a *react*-kind of use.]
- (126) ‘ Thank you ,’ he **responded** drily .
(Same)[This is a regular communication use.]

Same or different? *Suggest*

The verb *suggest* has a use in the frame communication/statement, which contains verbs and nouns that communicate the act of a Speaker to address a Message to some Addressee using language. A number of the words in that frame can be used performatively, for instance, *declare* and *suggest*. Are all the uses of *suggest* below in the communication/statement frame? If not, what are they like?

- (127) You don’t believe me , so I **suggest** you go out to bat with this and see how you get on.
(Same)[This is a clear communication/statement use.]
- (128) The pharmacist can also **suggest** medicines to help reduce your symptoms . If your symptoms persist for more than a few days , then contact your doctor for advice.
(Same)[This is a communication/statement use.]
- (129) The third annual report for 1990/91 , subtitled ‘ Bringing it Home’ was published on 21 June this year . Official figures **suggest** that ACET provided care at home for up to one in four of all those who died of AIDS in the UK last year . 24,000 pupils were also seen by ACET educators.
(Different)[This use belongs to the cognition/evidence frame.]
- (130) In the light of these partial versions of reality , I **suggest** there is a need to look beyond the surface presentation , whether handed out in the form of a press release or in the crime statistics which senior officers consistently use as an indication of social mayhem.
(Different)[Suggesting to take a particular point of view or to believe something seems different from suggesting to take some action. Notice that *propose* has no sense ‘suggest-for-belief’.]
- (131) She even had the audacity to **suggest** that I might have been ‘ carrying on’ with Sir Vivien .
(Different)[This is a case of ‘suggest-for-belief’.]

- (132) Mythological stories about them **suggest** they are necessarily seen in this simplistic way to reaffirm to ‘ real polises ’ that it is they who are the true inhabitants of the pragmatic world of conflict and action .
(Different)[A cognition/evidence use.]
- (133) Vardon ’s caddie calmly replied , ‘ Might I **suggest** the four o’clock train , sir ?’
(Same)[A communication/statement, suggest-for-action use.]
- (134) Could you **suggest** some helpful books for a keen amateur gardener who would like to know more about plants ?
(Same)[A suggest-for-action use.]
- (135) He was indisputably a loyal servant of Edward II , but he was not the will-less , visionless opportunist which his skilful pragmatism may **suggest** .
(Different)[Cognition/evidence]
- (136) Successive studies of family and community life in different areas of the country found , as one might expect , different relationships between nuclear and extended family . Most of them **suggest** , however , that most members of families in Britain have some contact with their wider kin .
(Different)[Cognition/evidence]
- (137) Can you **suggest** why she behaves in this way and how I can prevent injury to everybody in the family !
(Different)[A suggest-for-belief use.]
- (138) Nobody can seriously **suggest** that we turn back the clock entirely and return to the world of Constable ’s Haywain , where there was a good deal of misery and hunger amidst all that beauty.
(Same)[A regular communication/statement, suggest-for-action use]
- (139) Macfarlane and colleagues **suggest** that the rise in incidence in Scotland in younger men could be due to a 40% increase in alcohol consumption in the United Kingdom as a whole .
(Different)[This is a suggest-for-belief use.]

6 Problems involving Frame Elements

As we just saw, one kind of problem that we face in annotation has to do with keeping target word senses apart, which usually means making the right frame distinctions. Another set of problems has to do with telling what Frame Element role a constituent fills.

6.1 Undefined Frame Elements

Sometimes you may find syntactic constituents of certain types re-occurring in the example sentences but you don’t have a good FE label available to assign

to these constituents.

If that happens, you may have discovered a frame element that is part of the frame but that the vanguard just wasn't aware of when they developed the frame description. The solution in such cases is (for who??) to create a new frame element tag and document its use.

FEs that were discovered by annotators include `DISTANCE` in the motion domain, and `MEDIUM` in the communication domain.

One FE that still awaits naming are the 'joint'-expressions that occur with words such as *bend*, *cross* in the body/body-movement frame.

- (140) Raise both legs in the air , **crossing** [`CNIAgent`] [`themBodyPart`] [at the ankles_{Undefined}] ; bend your legs a little.

6.2 Making finer distinctions

You might decide that something that you could annotate with one of the existing FE labels really has a special status in the frame and should get its own FE label. For example, when we started annotating words in the motion frames, we did not have a Frame Element `SPEED`. At that point, expressions like *quickly* or *at 40 mph* were simply tagged as `MANNER`. But later on we decided that it would be useful to record information about speed separately since it has a special relevance in motion frames.

Another case in which a Frame Element could be, but so far has not been split into two occurs with `ADDRESSEE`. Normally, this FE is realized as a PP headed by *to*.

- (141) Once , [a dealer at Harvard Securities_{Speaker}] **admitted** [to a director_{Addressee}] [that he had been paid twice_{Message}] , and the director sniggered.

However, when the addressee consists of a person or a group of people in some official capacity, then it is possible to find the `ADDRESSEE` expressed by a PP headed by *before*.

- (142) [`HisSpeaker`] sole purpose was to defend his stewardship and **reaffirm** [`his policyMessage`] egfeAddresseebefore the audience of the loyal in the ballroom of the Winter Gardens .

One might want to call this kind of addressee `AUDIENCE`.

6.3 FE distinctions

In the work done by FrameNet so far, there have come up a few pairs of Frame Elements that are difficult to distinguish. One notorious case is the distinction between Message and Topic in the Communication domain. The problematic cases are *about*-phrases that, though they syntactically look like Topics, are semantically more like Messages. Consider:

- (143) Despite describing a happy childhood , [she_{Speaker}] **told** [her therapist_{Addressee}] [about how she had been brought up in a family where she felt unappreciated and undervalued_{Message}].

In (143), the phrase *about . . . undervalued* encodes something like the ‘gist’ of the patient’s talk, which arguably is a different notion than the topic ‘childhood’ and more similar to the propositional notion Message.

Another pair of Frame Elements that are difficult to distinguish are Focus and Content within the Emotion domain. Again the problem has to do with the fact that one FE seems to occur with the syntactic trappings of the other. While at-phrases usually occur with Focus FE’s (people who cause emotional responses), they sometimes also occur with Content FE’s (denoting situations/properties) as in the following example:

- (144) [She_{Experiencer}] paused , **annoyed** [at her own gaucheness_{Content}].

then we would face the problem that we could not assign *my*

6.4 Incorporation

There are many verb frames which involve a particular kind of entity, in general, but for which there are some words which incorporate information about a particular entity type in their meaning. If we consider verbs of body movement, a typical case is a verb which is expected to co-occur with the name of a bodypart, even when the identity of the body part is clear from the meaning of the verb. A dog *wags* its tail, people *arch* their brows, *bat* their eyes, *purse* their lips, etc., but in the case of smile, grimace, frown, pout, and scowl, the affected body-part is not separately presented. We say that it is incorporated. Some verbs in this frame can take it or leave it: we can say either *She blinked* or *She blinked her eyes*.

7 Punctuation

The only punctuation which is included inside tags is that punctuation which falls entirely within the scope of the constituent being tagged. This excludes all sentence-level punctuation which happens to come at the end of a constituent. Here are some example sentences with constituents tagged:

- (145) I **told** my friends [about the play].
 (146) Did I ever **tell** my friends [about that play]!
 (147) He asked, “Did you **tell** your friends [about the play] ?”

In all these cases, the punctuation marks at the end are excluded from the constituent being tagged, because the scope of relevance of the punctuation in each case is larger than the constituent.

Commas, too, are excluded when they occur at the end of a constituent:

(148) I **told** my friends [about the play], but they weren't interested.

Two types of punctuation which are commonly included in tagged constituents are apostrophes (see section on contraction) and **quotation marks**:

(149) I **told** my friends [about the play "Some Kind of Alaska"].

(150) He **yelled**, ["Let's get out of here!"]

In sentence (150), the scope of relevance of the quotation marks is entirely inside the tagged constituent. In the second sentence, the scope of the quotation marks corresponds exactly to the tagged constituent. In both cases the punctuation is included within the boundaries of the tag.

Contractions When using the Support Verb and Copula tags it is sometimes necessary to mark a verbal element which is expressed orthographically as part of a contraction. In this situation, the apostrophe is included within the boundaries of the tag. Here are some examples:

(151) My **intention** [’s] to run for President.

(152) It [’s] **great** that you won the election.

In example (152), “ ’s ” should be assigned the Copula tag. In example (153), it should be assigned the Support Verb tag.