

The FrameNet Project:
Tools for Lexicon Building

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Preface

Acknowledgements

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Charles J. Fillmore
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Typographic Conventions

We use the following typographic conventions in this text.

- The first mention of a technical term appears in **bold face**:

A **semantic frame** is a script-like structure.

- Data not set off from the text appear in *italics*:

Note that *the children take naps* is not treated as a clause.

- In the text, names of Frame Elements are capitalized:

A Speaker communicates a Message to an Addressee in some Medium.

- In example sentences set off from the text, target words are in **bold face**:

Bob **told** a story.

- Constituents which represent frame elements are in square brackets:

[Bob] **told** [a story].

This shows that *Bob* and *a story* are elements in the frame evoked by the target word *told*.

Chapter 1

Introduction to the Project

The Berkeley FrameNet project is creating an online lexical resource for English, based on **frame semantics** and supported by corpus evidence. The ‘starter lexicon’ will be available to the public by May, 2000, and will contain at least 2000 items – verbs, nouns, and adjectives – representative of a wide range of semantic domains. The aim is to document the range of semantic and syntactic combinatory possibilities (valences) of each word in each of its senses, through manual annotation of example sentences and automatic capture and organization of the annotation results. The FrameNet database is in a platform-independent format, and can be displayed and queried via the web and other interfaces.

A **semantic frame**, henceforth **frame** is a script-like structure of inferences, linked by linguistic convention to the meanings of linguistic units – in our case, lexical items. Each frame identifies a set of **frame elements (FEs)** – participants and props in the frame. A frame semantic description of a lexical item identifies the frames which underlie a given meaning and specifies the ways in which FEs, and constellations of FEs, are realized in structures headed by the word.

Valence descriptions provide, for each word sense, information about the sets of combinations of FEs, **grammatical functions** and **phrase types** attested in the corpus.

The annotated sentences are the building blocks of the database. These are marked up in XML and form the basis of the lexical entries. This format supports searching by **lemma**, frame, frame element, and combinations of these.

The FrameNet database acts both as a dictionary and a thesaurus. The dictionary features include definitions (from the Concise Oxford Dictionary, 10th Edition, courtesy of Oxford University Press), tables showing how frame elements are syntactically expressed in sentences containing each word, annotated examples from the corpus, and an alphabetical index. Like a thesaurus, words are linked to the semantic frames in which they participate, and frames, in turn, are linked to wordlists and to related frames.

The FrameNet corpus is the 100-million-word British National Corpus (BNC), used through the courtesy of Oxford University Press (OUP). The semantic an-

notation is carried out using the Alembic Workbench (MITRE Corporation). The syntactic annotation, which adds grammatical function and phrase type to each annotated phrase, is handled by an in-house tagging program. Each FrameNet entry will provide links to other lexical resources, including WordNet synsets and the COMLEX subcategorization frames.

The project's deliverables will consist of the FrameNet database itself:

- lexical entries for individual word senses
- descriptions of frames and frame elements, and
- annotated subcorpora

(Researchers interested in obtaining tools for doing similar annotation work should contact the FrameNet Project directly.)

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Chapter 2

The Frame Semantic Basis

Frame semantics is first of all an approach to the understanding and description of the meanings of lexical items and grammatical constructions. It begins with the uncontroversial assumption that in order to understand the meanings of the words in a language we must first have knowledge of the conceptual structures, or semantic frames, which provide the background and motivation for their existence in the language and for their use in discourse. We assume that an account of the meaning and function of a lexical item can proceed from the underlying semantic frame to a characterization of the manner in which the item in question, through the linguistic structures that are built up around it, selects and highlights aspects or instances of that frame.

The relation between a frame and a word that appeals to it is very similar to what we find in Ronald Langacker's distinction between *base* and *profile*. (R. Langacker 1987, *Foundations of Cognitive Grammar*, Volume I, Stanford University Press). Langacker's parade example of the distinction uses the word *hypotenuse*. Nobody can be said to understand this word who does not first understand the concept of a right triangle. A description of the relevant features of a right triangle is a description of the frame against which the word *hypotenuse* is to be defined. In Langacker's terms, right triangle is the base, *hypotenuse* is the profile.

The *hypotenuse* example, coming as it does from a domain in which meanings are stipulated (nobody would turn to corpus evidence to find out what the word *hypotenuse* means) makes it easy to understand the importance of the relations between frames. The description of right triangle will contain terms that presuppose an understanding of such deeper background notions as straight line, perpendicularity, closed geometric figure, angle, etc.

For most purposes of ordinary lexical inquiry, it will not be necessary to reduce a frame description to its ultimate 'primitives'. In the end it will be necessary to express frame notions in some formal knowledge-representation language which will allow valid inferences to be drawn from frame semantic representations of sentences, or which can serve in a precise way in the development of a cumulative representation of the content of an ongoing discourse.

But for purposes of ordinary lexicographic inquiry (and for the purposes of the present project), the language used to describe semantic frames can be limited to the granularity needed for revealing to human users the essential semantic characteristics of the words being studied and for tagging all of the arguments and contrasts that we believe are conventionally associated with them.

In fact, the semantic frames that we need to call on may often refer to entities and experiences that cannot be given precise formalization at all. These may include certain species-universal experiences (anger, sleep, recognition of conspecifics, etc.), interactions with the environment (responses to gravity, recognition of natural kinds, protection from weather conditions, etc.), and cultural universals (nurturance, speech, etc.) which are presupposed, but not explained, in describing the meanings of words such as *smile*, *upwards*, *food*, *death*, *pain*, *cat*, etc.

In developing a frame-semantic description, we must first identify the phenomena, experiences, or scenarios represented by the meanings of the target words and the sentences in which they occur. We must then identify and assign labels to the parts or aspects of these which are associated with specific means of linguistic expression. These are what we refer to as frame elements. In the simplest cases, they can be thought of in terms of the roles that arguments can have in a predicate-argument structure. Although in the initial stages of inquiry we may be satisfied with labels for frame elements that are obviously ad hoc and merely mnemonic, we will try, from the start, to choose words for their ‘reusability’, in particular for their reusability in the description of words in the same semantic domain in different languages.

Using labels for frame elements, we then describe the manner in which a word, in combination with the constructions in which it occurs, provides information about instances (or possible instances) of the frame or frames in question.

To make this process clearer, let us consider an example—the Commercial Transaction Frame.

2.1 The Commercial Transaction Frame

The commercial transaction frame involves such concepts as possession, change of possession (giving, taking/receiving), exchange (the parties in the exchange accept and are expected by their community to accept the results of the exchange), and money (an artefact which the culture has dedicated to the purpose of exchange and which has no other function). The basic frame elements, then, will include Money, the Goods (standing for goods or services), the Buyer (the person who surrenders money in exchange for the goods), and the Seller (the person who surrenders the goods in exchange for the money). Further elaborations, needed for describing some of the peripheral terms in this frame, involve certain details of the exchange: in some cases, for example, we need to identify the Price, a ratio between the quantity of money given and the quantity of goods received (e.g. two dollars an ounce), temporal features of the exchange (perhaps

the payment is spread over a period of time), the difference between the tender and the price (Change), and so on. Still further elaborations can separate the owner of the goods or the owner of the money from the actual participants in the exchange arrangement.

In terms of this richly structured collection of concepts, it is possible to create contrasting descriptions of the meanings, uses, and grammatical structuring of a very wide range of vocabulary: *buy, sell, pay, spend, cost, charge, price, change, debt, credit, owe, merchant, clerk, broker, shop, merchandise*, etc. Enriching the context by combining the commercial transaction frame with other frames concerning the interactional settings in which participants find themselves will allow the description of the meanings of such semantically specific words as *tip, bribe, fee, honorarium, taxes, tuition*, and undoubtedly hundreds of others.

For characterizing in frame-semantic terms the class of words connected with Commercial Transactions, we can refer in our description to Money, without feeling the need to specify everything that can be known about the minting of coin, the social and institutional backings of a money economy, the nature of the contract between persons in transactions involving the exchange of money, and the like. For our purposes, we need only assume that the users of our description already know what money is and what it is for; in other words, we can take it as a ‘local primitive’ – not needing explanation within the system.

2.2 The Speech Communication Frame

A speech communication frame will inherit part of its structure from more abstract frames involving general semiotic concepts such as sender, receiver, message, medium, and the rest. All of the verbs related to speaking will necessarily have a place for the Speaker, that is, the person whose communicative behavior constitutes the activity we want to describe. Relevant English verbs are *say, speak, utter, whisper, talk, tell, discuss, mention, ask, promise, order, plead, confess, warn, threaten*, and scores of others.

The description of the semantic nature of these words includes a presentation of their semantic valence properties. That is, we determine the syntactic and semantic combinatory possibilities of these verbs by studying the structure of the phrases and sentences in which they occur, and we ask, within such combinatorial patterns, how or whether individual frame elements get expressed. We note whether the expression of a given frame element is obligatory or optional (or perhaps suppressed) and what grammatical form the expression takes.

In addition to the Speaker, another necessary element in most cases is the Addressee, the person(s) to whom speech is directed, the person(s) intended to receive and interpret what the Speaker says. The verbs in our set must be described in different ways with respect to the Addressee. In some cases the Addressee is obligatorily represented, e.g., when *tell* expresses its message as a *that*-clause or as an infinitive phrase:

They **told** [me] that she liked Dan.

I **told** [him] to leave the room.

but in other cases it is optional. The syntactic realization of the Addressee role also varies. It can be an object,

She **asked** [me] why the meeting had been cancelled.

the object of the preposition *to*,

He **said** it [to me] more than once.

Why don't you **talk** [to me]?

I've already **spoken** [to her] about the book.

or the object of the preposition *with*:

They **discussed** that [with me] at some length.

I've already **spoken** with him about the book.

In addition to the Speaker and Addressee, there is also what might be called the Topic. In some cases the Topic can be expressed as a direct object, in other cases as the object of the preposition *about*, and in some cases it cannot be expressed at all.

We **mentioned** [your situation].

They **discussed** [your situation].

We **talked** [about your situation].

He **said** a number of things [about your situation].

We **spoke** [about your situation].

In addition to the Speaker, the Addressee, and the Topic, we can identify a cluster of related frame elements associated with the Message. There is, first of all, Message-as-phonological-form:

He **said** [”ouch”].

but not:

*He **told** me *ouch*.

*He **uttered** *ouch*.

Some verbs, however, can introduce the speech form if it is appositionally linked to its linguistic characterization.

He **said** [the word *ouch*].

He **uttered** [the word *ouch*].

but not

*He **told** me the word *ouch*.

The second Message type, then, is Message-as-description, in which the realization of the Message element is identified in grammatical or discourse-type terms.

He **asked** [a question].

He **told** [a joke/a story].

He **recited** [a poem].

There is also Message-as-content, in which the sentence gives an indication of the force and content of the communication. This can be represented with *that*-clauses, WH-clauses, and infinitive phrases. Notice:

They **said** [that you weren't ready].

They **told** me [that you weren't ready].

They **mentioned** [that you weren't ready].

They **textbf{confessed}** [that they weren't ready].

They **warned** me [that they weren't ready].

But not:

*They **spoke** (to me) that they weren't ready.

*They **talked** (to me) that they weren't ready.

*They **uttered** that they weren't ready.

*They **discussed** that they weren't ready.

Sometimes the reported message is in the form of a WH-clause but expresses a declarative rather than an interrogative meaning:

He **said** [what was on his mind].

He **told** me [where they had hidden the gold].

A Message can also have interrogative force, expressed by a WH-cause (including one with *whether*) or an IF-clause.

She **asked** me [where I lived].

Ask him [whether he saw the accident].

She **asked** [if I could leave the room].

Infinitive WH-phrases can be used to convey either declarative or interrogative messages.

He **told** me [what to do]. (=what I should do)

He **asked** me [what to do]. (=what he should do)

Plain infinitive phrases are often used for conveying commands.

I **ordered** them [to leave the room].

I **asked** them [to leave the room].

I **told** them [to leave the room].

But they are also used for conveying commissive speech acts.

I **promised** [to be home before dark].

He **threatened** [to leave me].

And some are used for conveying declarative propositions.

He **claimed** [to have witnessed the incident].

The study of verbs of speaking will identify from the corpus all of the possibilities that we find; since the variety is so vast, this work will probably have to be supplemented by intuitive judgments to see if the combinations that are not attested in the corpus are nevertheless permitted in the language.

2.3 Using Frame Semantics in FrameNet

For practical reasons, frames in the FrameNet project are organized by domain, which are very general categories of human experience and knowledge. Domains serve as useful groupings of semantic frames, but their theoretical significance is slight and indirect. All the important information about lexical items is captured by their associations with specific frames and by constraints on their syntactic expression of the elements of those frames.

In the frame database, semantic generalizations across frames are captured through the abstraction of general frames and the inheritance of these frames by more specific ones. In the resulting inheritance lattice, it is generally true that each domain contains one general frame that captures what the more specific frames in that domain have in common. In this respect domains do have a degree of theoretical significance—they are broad-level generalizations over the frame network that we are constructing.

For example, in the Communication domain, all frames share the following basic structure at the conceptual level: a Speaker communicates a Message to an Addressee in some Medium, and the Message may be described as being about a Topic. For that reason we have defined a Basic Communication frame consisting of these five roles: Speaker, Addressee, Message, Topic and Medium. This basic frame is inherited by all the other frames in the Communication domain. Some of the frames that inherit the domain, however, do not allow the overt expression of all the frame elements. For example, the words *talk* and *speak* do not generally allow the overt expression of Message, though they both imply the existence of a Message semantically; they both mean, very roughly,

‘to say something,’ where *something* stands for a Message. The fact that *talk* and *speak* do allow the expression of the role Topic shows that the role Message is conceptually present, because Topic is a property of Messages.

The system of inheritance links between frames is quite complex.

Some lexical items are associated only with one frame in a single domain, so it makes sense to think of these as belonging to a domain. Other lexical items, however, are associated with multiple frames in different domains, as discussed below. For these items it does not make as much sense to think of them as belonging to ‘a domain,’ though it is often the case that one particular frame in one domain is the most important for determining the semantic and syntactic properties of a lexical item.

Chapter 3

Annotation Basics

3.1 FrameNet Annotation Background Principles

FrameNet is a computational lexicography project based on the principles of frame semantics, a theory developed by Charles Fillmore, the Principal Investigator. Frame semantics characterizes the semantic and syntactic properties of words by relating them to *semantic frames*. These are schematic representations of situations involving various participants, props, and other conceptual roles, each of which is a *frame element*. The most interesting frames do not simply characterize individual words; rather, they are generalizations over classes of words that share semantic and syntactic properties.

A word whose meaning is defined relative to a given frame is said to *inherit* the frame. The frame elements in that frame, or some subset of them, constitute the semantic arguments of the words inheriting the frame. Complements and, occasionally, modifiers of these word in actual sentences provide information about the frame elements. Facts about the syntactic complements of a word and the frame elements they express are referred to as *valence* properties of the word.

Grammatical constructions associated with a frame express generalizations about the syntactic realization of frame elements. For example, it is a general property of frames in the communication domain that a Topic may be expressed by an *about*-PP.

They **asked** me [about my family].

The President made a **statement** [about the economy].

We had a **conversation** [about our favorite music].

The words inheriting a frame may specify their own idiosyncratic constraints on the expression of frame elements, and these lexically specific constraints may override the generalizations made at the frame level. For example, with the verb

discuss, the frame element Topic is expressed as a direct object rather than an *about*-PP:

We **discussed** [our favorite music].

* We **discussed** about our favorite music.

Words may also place semantic constraints on frame elements that are more specific than those specified at the frame level. For example, the word *slither* inherits a general frame pertaining to the directed motion of a living being under its own power, but places its own special constraints on the nature of the living thing that moves, as well as on the manner in which it moves.

An example of a semantic frame is the Commercial Transaction frame. This frame characterizes simple events of buying and selling, as such events are linguistically encoded in English. At the minimum, it has the following frame elements: the Buyer, the Seller, the Money, and the Goods. Different words associated with this frame are characterized by the different phrase types and grammatical functions they use to provide information about these frame elements. Limiting ourselves to the use of these words in the active voice, we can say that the word *buy*, for example, expresses the Buyer as a subject NP and the Goods as a direct object NP. The Seller can optionally be expressed as a PP complement headed by *from*, and the Money as a PP complement headed by *for*. The word *charge* expresses the same roles with its complements, but assigns each role to a different phrase type-grammatical function pair: the Buyer is expressed as a direct object NP, the Goods as a PP Complement headed by *for*, the Seller as a subject NP, and the Money as a non-object NP complement. Other verbs defined relative to the same frame include *sell*, *pay*, *spend*, and *cost*. Below, the different syntactic complementation patterns associated with these words are summarized using frame element names. An example sentence follows each pattern.

Buyer **bought** Goods from Seller for Money.

Al **bought** one golf club from Bill for \$1000.

Buyer **paid** Seller Money for Goods.

Al **paid** Bill \$1000 for one golf club.

Buyer **paid** Money to Seller for Goods.

Al **paid** \$1000 to Bill for one golf club.

Seller **sold** Goods to Buyer for Money.

Bill **sold** one golf club to Al for \$1000.

Seller **sold** Buyer Goods for Money.

Bill **sold** Al one golf club for \$1000.

Buyer **spent** Money on Goods. (Seller not expressed)

Al **spent** \$1000 on one golf club.

Goods **cost** Buyer Money. (Seller not expressed)

One golf club **cost** Al \$1000.

The purpose of FrameNet annotation is to mark the complements and, occasionally, modifiers of predicated words with the names of the frame elements that they express.

3.2 FrameNet Annotation

3.2.1 General Information

The goal of the FrameNet project is to construct a computer-readable database of information about English words and the frames they inherit, together with attested examples that illustrate the way frame elements are expressed by complements and modifiers of these words in real sentences.

An important part of this work is the annotation of corpus sentences with frame semantic information. Each example sentence shows valence properties of one predicated word—typically a verb, adjective or noun. In the context of a given example sentence, the word whose semantic and syntactic properties are of interest is called the *target word*, or just the *target*.

The main task of annotation is to tag to the important syntactic constituents in example sentences with the names of the frame elements that they express. Generally speaking, these are the constituents that bear grammatical functions with respect to the target word, but they may sometimes be modifiers of the target. A secondary task of annotation is to mark certain lexico-syntactically relevant elements in sentences, such as support verbs of target nouns.

In order to annotate a collection of sentences for a given target word, it is necessary for annotators to understand the frame associated with that word. Frame descriptions are provided by the Vanguard, and are read carefully before annotation begins in any frame.

3.2.2 Sentence-Level Annotation

Since the goal of the project is to annotate the best and simplest example sentences for a target word in a particular frame, we only use the sentence-level Metaphor tag to indicate metaphoric use of a target word when there is a systematic transfer across frames. The transfer must be one that permits the use of the same frame elements for all parts of a sentence in two different frames.

Each time a sentence is tagged with the sentence-level Metaphor tag, an annotator also begins a discussion about a new frame.

3.2.3 Secondary Annotation

Secondary Annotation of Target Words

Use INC on an FE when a target word incorporates an FE. For example, in *Scalar_Position2*, the noun *increase* incorporates the FE Path. INC may be used on any part of speech, but will most often be needed with verbs. Consider the following sentence.

He **boxed** the toy for shipment.

Every occurrence of *box.v* incorporates the FE Goal, which must be so indicated. Unlike INI, DNI, and CNI, INC may be used even when the FE is instantiated. For example,

He **boxed** the toy [in a red container GOAL.]

Secondary Annotation on Additional FE Layer

Annotate on an additional FE layer when more than one FE is expressed by a single constituent. For example, in the *bodily_injury* frame,

Primary FE Layer: He [hit TARGET][my head BP]. Secondary FE Layer: [my VICTIM]

Note that there is no PT or GF indicated for the FE on the secondary layer.

In the following sentence these FEs do not overlap. He [hit TARGET] [me VICTIM] [on the head BP].

One of the two FEs may be expressed twice, in which case, double tag that FE, once on the primary layer and once on the secondary layer, as shown here.

Primary Layer: He [hit TARGET] [me VICTIM] [on my head BP]. Secondary Layer: [my VICTIM]

Chapter 4

Identifying Phrase Types

The syntactic metalanguage used in the FrameNet project is not intended as a framework for the complete syntactic description of sentences. Rather, it is intended as a framework for describing the syntactic valence properties of individual lexical items. In choosing the grammatical functions and phrase types to use, the major criterion was whether or not a particular label might figure into a description of the grammatical requirements of one of the target words of the project.

The emphasis on what is relevant to lexical descriptions means that we limit ourselves, for the most part, to those phrase type labels which might appear in subcategorization frames in more theoretically oriented syntactic descriptions. One way in which the FrameNet syntax differs from traditional treatments of subcategorization, however, is in its inclusion of certain modifiers. For example, the FrameNet description of a noun like *clinic* makes reference to the types of nouns which can modify this noun in compounds like *allergy clinic*. In theoretical treatments, modifiers of this sort are typically assumed to be outside the realm of subcategorization. We include them because they frequently express the same semantic roles (or frame elements) with respect to the modified heads as complements express with respect to their governors. For example, the frame associated with the verb *treat* includes a role for the Disease which is treated, and this role is typically expressed as the object of *treat*. Thus you can *treat an allergy*, *treat the flu*, and so forth. Modifiers occurring with the noun *treatment* often express the same role; thus there are *allergy treatments*, *flu treatments*, etc. We consider observations like this to be of lexicographic interest, and our syntactic descriptions reflect this perspective.

4.1 List of phrase types

What follows is a list of phrase types used in FrameNet. Phrase types are assigned automatically during the classifying process, at which time attribute value pairs are added to the SGML tags surrounding annotated constituents.

(See section on SGML Syntactic Classification.)

4.1.1 Noun Phrase types

Nonreferential Noun Phrase

There (Expletive *there*)

It (Expletive *it*)

Possessive Noun Phrase (Poss)

Non-maximal Nominal (N)

Standard Noun Phrase (NP)

4.1.2 Prepositional Phrase types

Two types of Prepositional Phrases are assigned the phrase type **PP**.

Standard Prepositional Phrase (with NP object)

Particle (with no object)

PPing (Preposition with gerund object)

4.1.3 Verb Phrase types

Finite Verb Phrase (VP_{fin})

Nonfinite Verb Phrase

VP_{brst} (Bare Stem Verb Phrase)

VP_{to} (*To*-Marked Infinitive Verb Phrase)

VP_{ing} (Gerundive Verb Phrase)

4.1.4 Complement Clause types

Finite Clause

S_{fin} (Finite Clause (with or without *that*))

S_{wh}- (*Wh*-Clause)

S_{whether} (*Whether/if*-Clause)

Nonfinite Clause**Sing** (Gerundive Clause)**Sto** (*To*-marked Clause)**Sforto** (*For-to*-marked Clause)**Sbrst** (Bare Stem Clause)**4.1.5 Subordinate Clause (Ssub)****4.1.6 Adjective Phrase Types****Non-maximal Adjective (A)****Standard Adjective Phrase (AJP)****4.1.7 Adverb Phrase (AVP)****4.1.8 Quote (QUO)****4.2 Tagging Noun Phrases****4.2.1 Nonreferential NPs**

The first distinction to worry about with NP types is that between **referential** and **nonreferential** NPs. Expletive *it* and *there* are the two kinds of nonreferential NPs. These are marked with separate tags (**It**, **There**) because they occur in special syntactic contexts which are only licensed by certain predicators, and because they need to be distinguished from the locative proform *there* and the pronoun *it*, whose semantic properties they do not share. Some examples are given below.

[It] is clear that we won't finish on time.

[It] is odd that George is winning.

[There] are more cookies in the jar.

[There] is a fly in my soup.

4.2.2 Possessive Noun Phrase (Poss)

Referential NPs are either possessive NPs (marked **Poss**) or standard (non-possessive) NPs (marked **NP**). Possessive NPs, which may either be possessive pronouns or noun phrases marked with *'s*, often express frame elements of predicating nouns. For example, in the Speech Communication domain, possessive nouns express THE Speaker role when they are the determiners of target nouns such as *claim*, *remark*, *reply*, etc.:

I question [your] **claim** that the car was already damaged. [The President's] **remarks** surprised the reporters. [Leslie's] **reply** was well-timed.

Note: The label ‘possessive’ is not restricted to NPs denoting actual possessors. It is a morphosyntactic type rather than a semantic type.

4.2.3 Non-maximal Nominal (N)

In some situations it is necessary to tag nominal expressions which are not complete (i.e. maximal) noun phrases. For example, consider nominal modifiers of target nouns, or the modified nouns in sentences showing target adjectives used attributively in what follows here.

The judge dismissed the [forgery] **allegations**.

[Cancer] **treatments** are advancing rapidly.

Allergic [patients] benefit from this medicine.

The senator gave a **polemical** [speech].

These non-maximal nominal expressions are given the grammatical function **N** (for ‘nominal’).

Notice that head nouns that are frame elements of postnominal modifiers are not treated as non-maximal nominals. Rather they are treated as if the postnominal modifier was used with a copula, i.e. they are treated as full NPs with respect to Phrase Type, and as External arguments with respect to Grammatical function.

The problem seems to affect [people] **sensitive** to primulas.

4.2.4 Standard Noun Phrase (NP)

With the exception of possessive 4.2.1 and of referential noun phrases 4.2, all noun phrases are marked with the phrase type **NP**. The sections below discuss special circumstances which arise with the tagging of NPs.

Nouns with complements

Some nouns take prepositional or clausal complements. These should be included inside the brackets enclosing the relevant NP. In the examples below, noun complements appear in italics.

I **heard** [a story *about a man named Jed*].

I **dropped** [the lid *of my vitamin jar*]

[The fact *that moles are blind*] is totally **irrelevant**.

Nominals with relative clauses

Relative clauses containing the target word If the target word is inside the relative clause, include the relative pronoun or relativizer inside the square brackets with the head nominal, as in the following examples:

[the doctor who] **cured** my insomnia
 [the joke that] got **repeated** over and over

Relative clauses with the target word outside If the target word is not inside the relative clause, include the whole relative clause modifier along with the nominal head, as in the following examples. (Relative clauses are in italics.)

[The acupuncturist *I saw last month*] **cured** my insomnia.

Other postnominal modifiers

Other postnominal modifiers should also be included inside NPs. These include ‘reduced relative clauses’ headed by prepositions and participial forms of verbs:

[The cat *in the corner*] likes celery
 I have [a cat *with orange stripes*]
 [The cat *running down the hall*] is my favorite
 I’m talking about [the cat *bitten by a mouse*]

If there is more than one postnominal modifier, they should all be included inside the NP:

Stop [that cat *with orange stripes running down the hall*]

4.3 Tagging Prepositional Phrases

PP is assigned to ordinary prepositional phrases with nominal objects and to particles, the latter under the assumption that particles can be regarded as prepositional phrases which lack objects. **PPing** is assigned to prepositional phrases with gerundial objects rather than nominal ones. Here are some examples:

The passengers **looked** [at the monitors]. PP
 The players began to **spread** [out]. PP
 The fog **prevented** us [from seeing anything]. PPing

4.3.1 Particles

Particles like those in the following examples are treated as prepositions without objects and are assigned the Phrase Type **PP**.

Did you **figure** the problem [out]?

Look the number [up] in the phone book.

He **took** his hat [off] and put it on the table.

Note that particles of this kind may occur before NPs and therefore give the appearance of being the heads of regular PPs with NP objects:

Did you **figure** [out] the problem?

Look [up] the number in the phone book.

He **took** [off] his hat and put it on the table.

However, given the fact they are separable, as shown in the earlier examples, they cannot plausibly be treated as the heads of PPs in contexts like this. Therefore they are enclosed by themselves in brackets and assigned the label **PP**. Lexicographers are likely to be informed in advance of the particles which can appear with particular target words.

Test: If you are uncertain about whether or not to treat a word W as a particle, perform this test:

1. Think of a simple VP of the form V W NP.
2. Transpose the W and the NP: V NP W.
3. If the transposed version is an acceptable paraphrase of the original VP, then the word W is a particle.

While some particles, like the ones above, are equivalent in form to prepositions and may therefore misleadingly appear to head PPs in certain contexts, other particles do not resemble prepositions and are therefore less likely to be misanalyzed that way:

Throw [away] those old things!

The librarian told me to **put** [back] the books.

There is no syntactic reason to distinguish these particles from the ones which resemble prepositions, and they are therefore given the same label (PP).

4.3.2 Prepositional verbs

Some verb-preposition combinations are clearly conventional, e.g.

The passengers *looked at* the information monitors.

Let me know if you *come across* that reference I asked you about.

Though these verb-preposition combinations are units in the lexicon, we do not capture their unitary status in terms of *constituent structure*. That is, we do not analyze *look at* and *come across* as syntactic constituents. Rather, we analyze the prepositions in expressions like this as heading PPs:

The passengers **looked** [at the information monitors]

Let me know if you **come** [across that reference].

In accordance with the Construction Grammar analysis of these expressions, their unitary status is captured in the valence representations of lexical entries. For example, there will be a lexical entry for *look at* which states that the verbal head *look* requires a PP headed by the preposition *at*.

4.3.3 Complex prepositions

Some prepositions function as individual lexical units but consist, orthographically, of more than one word (complex prepositions shown in *italics*):

Put the birthday cake *next to* the other desserts.

We had tofu *instead of* veal.

Expressions of this kind are treated as single complex prepositions which head normal PPs. The PPs in the above sentences should be tagged in the following way:

Your birthday cake is [next to the other desserts].

We had tofu [instead of veal].

4.3.4 Preposition stranding

A preposition and its complement may be separated from each other, with the preposition appearing in a canonical post-verbal position and its complement noun phrase appearing in a pre-verbal position higher in the clause.

[John] we **laughed** [at].

[The man] you **screamed** [at] is my father.

Since allowing for preposition stranding is not lexically relevant information, annotators are discouraged from marking such sentences. If, however, sentences with preposition stranding have been annotated, then the two parts are assigned their normal phrase type values, NP and PP.

4.3.5 Preposition phrases with relative clauses

If the target word is inside the relative clause and one of its frame elements is a prepositional phrase containing the relative pronoun, then we include the phrase containing the relative pronoun or relativizer inside the square brackets with the head nominal, as in the following examples:

[the house out of which] I was **evicted**

[the operator to whom] he had **spoken**

Notice that the bracketed constituent is treated as a PP.

If preposition stranding occurs within the relative clause, we mark the antecedent and relativizer as well as the stranded preposition.

[the house that] I was **evicted** [out of]

[the operator that] he had **spoken** [to]

4.4 Tagging Verb Phrases

Every verb phrase has at least a head verb, which may be a main verb or an auxiliary. VPs headed by main verbs may also contain one or more auxiliaries. A verb phrase may also have a negative marker, an infinitive marker, a pre-verbal adverb phrase, one or more complements of the verb, and one or more post-verbal adjuncts. A VP may be headed by the main verb in a sentence or it may be embedded as a complement under another verb. The following examples show a variety of VPs:

I *have*. (In response to “Have you taken out the trash?”)

This book *really stinks*.

I didn’t expect you *to eat your sandwich so quickly*.

4.4.1 Finite verb phrases (VP_{fin})

Any VP containing a verb (including auxiliaries) which (1) expresses information about tense and (2) is not in a separate embedded clause is tagged as a finite VP. Finite VPs are not generally subcategorized for, but it is nonetheless necessary to tag them in certain contexts, e.g.

Who do you **think** [ate the sandwich]?

What did you **say** [fell on your hat]?

This pattern seems to be limited to a fairly small number of verbs of belief and assertion which subcategorize for clausal complements: *think*, *believe*, *say*, *claim*, *assert*, etc.

4.4.2 Non-finite verb phrases

Among non-finite VPs it is necessary to recognize bare stem infinitives (**VP-brst**), *to*-marked infinitives (**VPto**), and gerunds (**VPing**).

Bare stem infinitives (VPbrst)

Bare stem infinitives are non-tensed verb phrases headed by verbs in the bare stem form without the infinitive marker *to*. Examples of bare stem infinitives (VPbrst) are given below.

We **made** the children [take naps].

Management **let** the employees [set their own hours].

Note that *the children take naps* and *the employees set their own hours* are not treated as clauses in the FrameNet project, though that is how they are sometimes analyzed.

To-marked infinitives (VPto)

To-marked infinitives are VPs that begin with the infinitive marker *to*. Otherwise they are identical to bare-stem infinitives. Examples of *to*-marked infinitives appear below.

The cat **wants** [to go outside].

The mayors **persuaded** the President [to support the cities].

It is **hard** for infants [to tie their own shoes].

Gerundive Verb Phrases (VPing)

Gerundive VPs are VPs headed by verbs in the *-ing* form. They often occur in syntactic contexts in which nominal expressions also occur. Examples of Gerundive VPs are provided here.

My friend **likes** [running barefoot].

[Inhaling pepper] **makes** most people sneeze.

We **watched** the dogs [playing].

4.5 Tagging Clauses

Expression types that are treated as clauses in some syntactic theories are treated in the FrameNet syntax as combinations of smaller constituents. For example, the sequence *Pat leave* in a sentence like *They made Pat leave* is sometimes analyzed as a ‘small clause,’ but in the FrameNet metalanguage it is treated simply as an NP followed by a bare stem infinitive VP. This strategy has been adopted for two reasons. First, it simplifies the lexicographers’ task

of annotation, making it unnecessary to decide in certain cases which combinations of constituents should be treated as clausal and which should not. Second, it makes the lexical descriptions produced by the FrameNet project relatively theory-neutral. While the question of which verbal complements are clausal and which are not is answered differently in different syntactic theories, the analysis of clauses into their major constituents is in most cases uncontroversial.

4.5.1 Finite complement clauses

Declarative finite complement clauses (Sfin)

Declarative finite complement clauses are full sentences that may begin with the complement marker *that*. In this PT, the entire clause, including the complement marker, is tagged.

Pat **knew** [Kim would never agree]

Pat **knew** [that Kim would never agree]

Wh-interrogative clauses (Swh)

Structurally, a *wh*-interrogative clause may be a sentence or a verb phrase. Although not full clauses, these phrases only occur in constructions which allow a full Swh and therefore a single PT is used for both. Note that we treat *how* as a *wh*-expression. *Wh*-expressions are included in the tag for the clause.

I **heard** [what you said].

I **forgot** [what to say].

I **know** [how you feel]. I don't **know** [how to react].

I **asked** [who came]. She **told** me [who to invite].

Whether-if interrogative clauses (Swhether)

Structurally, a *Whether-if* interrogative clause may be a sentence or, in the case of *whether*, a verb phrase. Although not full clauses, these phrases only occur in constructions which allow a full *Whether-if* clause and therefore a single PT is used for both.

I **wonder** [whether the Indian restaurant delivers]

He **wondered** [whether to turn back]

Kim didn't **know** [if Pat liked the show]

4.5.2 Non-finite clauses

Gerundive clauses (Sing)

Sequences of object-form noun phrase and gerundive verb phrase are treated as single clauses by FrameNet. The reason for the analysis as a clause is that the noun phrase cannot be separated from the gerundive verb phrase, for instance, in passivization.

I don't like [him being here all the time]
 [*He] wasn't liked [being there all the time]

Notice that similar-looking gerundive forms with a possessive subject are treated as noun phrases:

I don't **like** his being here all the time.

To-marked clauses (Sto)

I'd **like** [you to meet my mother] Certainly , but I should **hate** [you to forget that he has scored more runs in Test cricket than any other Englishman].

In sentences like the above example, *you* cannot be the subject of a passive and therefore is treated as part of the non-finite clause.

*[You] would be liked [to meet my mother]

For-to-marked clauses (Sforto)

I'd **like** [for you to meet my mother] I would **prefer** [for John to stay in the 250 class].

Bare stem clauses (Sbrst)

The manager **demanded** [that employees be on time]

4.5.3 Subordinate clauses

Certain clauses introduced by subordinators can be frame elements and consequently need to be tagged. Such clauses receive the PT value Ssub (Subordinate Clause) rather than Sfin (finite complement clause). In the following sentence, the because-clause expresses the Reason frame element of the target word *admire*, which belongs to the frame Cognition/Judgment.

I **admire** her [because she is an actress who can also sing] and I think she has a wonderful personality , " said Mr Hipkiss as he stood with 1,500 screaming fans outside the city 's Ritzy nightclub .

4.6 Tagging Adjective Phrases

Adjective Phrases typically occur as prenominal modifiers, as non-Subject complements of copular *be* and a small number of related verbs (*seem*, *become*, etc.), and as predicate complements of verbs like *find*, *consider*, etc.:

They were eating [very large] sandwiches.
 The house is [empty].
 You seem [sad] today.
 The company considers these documents [extremely valuable].

4.6.1 Standard Adjective Phrase (AJP)

An Adjective Phrase may consist of just a single adjective, an adjective with some modifying expression (such as an adverb or an intensifier), or a conjunction of adjective phrases:

We **found** the play [dull].
 We **found** the play [extremely dull].
 We **found** the play [extremely dull and too long].

4.6.2 Non-maximal Adjectival (A)

Some adjectival expressions to be tagged are not treated as complete (i.e. maximal) adjective phrases. This is typically the case with relational modification:

[marital] **bliss**
 *very marital bliss

These expressions are given the phrase type A.

4.6.3 Adjectives with complements

Some adjectives take complements other than the nouns they modify and these should be included as part of the Adjective Phrase. For example, consider the comparative adjective illustrated below:

Leslie is [taller than Kim].

An adjective and its complement may form a discontinuous constituent:

We need to find a [taller] player [than Kim].

In such cases, both the adjective and its complement are enclosed in brackets and assigned the label AJP.

4.7 Tagging Adverb Phrases (AVP)

Sometimes an adverb expresses a frame element of a target verb. For example:

The President **answered** the question [affirmatively].

In this sentence, the adverb *affirmatively* expresses the frame element Message, because it tells us that the President said *Yes*, or something equivalent in meaning, to the reporter's question. It is therefore tagged and assigned the phrase type AVP, the grammatical function Mod(ifier) and the frame element Message.

4.8 Tagging Quotes (QUO)

Some verbs of communication take quoted material as a complement and are assigned the PT QUO. For example:

["Get out of here!"] she **cried**.

["But, I, er, uh..."] he **stammered**.

Quoted material can be of any syntactic form, or syntactically ill-formed, for that matter. Because the distribution or 'external syntax' of quoted material does not depend on its internal syntactic structure, we use a separate phrase type to tag it. Only direct quotes are given the phrase type QUO. Indirect quotes always take the form of some other kind of specific phrase type, e.g.

They **asked** us [what we were doing there]. (*Wh*-clause)

The President **said** [that he would support the inner city]. (*That*-clause)

Quoted material is easy to identify because it almost always appears in quotation marks, which should be included inside the brackets marking the Quote constituent.

Sometimes quoted material forms a discontinuous constituent:

["Cities,"] he **said**, ["are a very high priority."]

In such cases, both portions of the quote should be enclosed in square brackets and assigned the PT QUO. The tagging and annotation software will automatically coindex the parts and treat them together as a single unit.

Chapter 5

Assigning Grammatical Functions

When we annotate an example sentence, we always do so from the point of view of one particular target word in the sentence. Grammatical functions (GFs) are assigned to parts of the sentence only with respect to the target word. The grammatical functions that are assigned do not describe surface-syntactic positions of the constituents to which we assign them. Rather, they describe the ways in which the constituents satisfy abstract grammatical requirements of the target word.

For example, suppose the following sentence is selected to exemplify grammatical properties of the target word *treat*:

Circumstances forced the doctor to **treat** her enemies.

The word *circumstances* is the subject of the sentence as a whole, but this fact is not of interest to us and is not marked in any way in the example sentence. Rather, the NP *the doctor* is tagged as the external argument (Ext) of *treat*, even though it is not the ‘surface subject’ of the sentence, because it satisfies a valence requirement of the verb *treat* outside the phrase headed by *treat* (thus ‘external’). That is, it satisfies a semantic role, associated with *treat*, which would be realized in a simple declarative main clause by the subject of the clause.

The combinations of grammatical function labels which occur with particular lexical items provide both a way of encoding the syntactic constructions a lexical item occurs in, and also a way of retrieving certain narrower distinctions between grammatical functions than those covered by the set of GF labels used.

For example, the verb *like* can appear in sentences with ‘extraposed objects’:

I **like** it [that you speak French].

A FrameNet description of the word *like* would encode this fact by specifying, as one of the valence options of *like*, that it may take a null object *it* followed by a complement clause.

At the same time, examples of extraposed objects may be retrieved from the database by searching for combinations of null object and complement clause.

5.1 List of grammatical functions

What follows is a list of all of the grammatical functions used in FrameNet. It is followed by sections providing detailed criteria for the assignment of each GF. As with phrase types, GFs are assigned automatically during the classifying process, at which time attribute value pairs are added to the SGML tags surrounding annotated constituents. (See section on Syntactic Classification SGML.)

5.1.1 GFs for complements of verbs

External Argument (Ext)

Object (Obj)

Complement (Comp)

5.1.2 GFs for complements of adjectives

External Argument (Ext)

Head noun modified by attributive adjective (Head)

Complement (Comp)

5.1.3 GFs for complements of prepositions

External Argument (Ext)

Object (Obj)

5.1.4 GFs for complements of nouns

External Argument (Ext)

Complement (Comp)

Genitive determiner (Gen)

Modifier (Mod)

5.2 Assigning GFs to complements of verbs

5.2.1 External Argument (Ext)

Any normal subject of a target verb, e.g.

[Pat] loves Kim.

Also any constituent which controls the subject of a target verb. This constituent might be a subject, an object or a prepositional object in its local syntactic context, e.g.

[The doctor] tried to **cure** me.

They persuaded [the doctor] to **treat** me.

They gestured to [us] to **leave**.

In the last example, note that it is just the NP *us*, and not the PP *to us*, which is tagged as the External Argument. This is because we are interested in the valence properties of *leave* in this case and not in the valence properties of *gesture*, which are responsible for the prepositional marking of this constituent.

5.2.2 Object (Obj)

Any normal object, any *wh*-extracted object, or any post-target-verb NP which controls the Subject of a Complement of the target verb is assigned the grammatical function Obj. For example,

Voters **approved** [the stadium measure].

[What] did you **cook** for dinner?

They **expect** [us] to finish soon.

They **made** [us] eat our vegetables.

In some syntactic theories, the NP *us* in the last two examples would be treated as the Subjects of small clause complements, and not as Objects of the target words. We have decided to treat all post-verbal NPs of this type as Objects in order to simplify the task of tagging.

The GF Object is also assigned to any subject of a *tough*-predicate which satisfies the Object role of a verb or preposition in the complement of the *tough*-predicate, e.g.

[Artichokes] are hard to **eat**.

5.2.3 Complement (Comp)

Complement is the general grammatical function assigned to PPs, VPs, Clauses (and a small number of NPs) which occur after their governing verbs, adjectives or nouns in normal declarative sentences. This grammatical function includes both what are usually referred to as *complements* and what are usually referred to as *obliques*. One reason we do not recognize Oblique as a distinct grammatical function is that it seems merely to be reserved for PPs which are complements—i.e., it redundantly encodes phrase type. For those who wish to maintain the distinction between complement and oblique, it need merely be kept in mind that any PP which is assigned the GF Complement can be considered an oblique.

PP Complements

Any particle or any PP, optional or obligatory, which expresses a semantic role belonging to the frame associated with the target word. This does not include setting adjuncts of Place or Time, purpose clauses, or other such expressions which can occur with very large classes of predicators. Here are some examples:

Give the gun [to the officer].

Pat **spoke** [to me].

Pat **lives** [in Cleveland].

Note: A Locative expression may be a Complement if it expresses a role belonging to the frame of the target predicator. In the third example above, the PP *in Cleveland* is a Complement because the frame of the verb *live* (=‘reside’) includes a role for the place in which a person lives.

Some NPs are marked as Complements rather than as Objects. These NPs are not passivizable, and they often express Place, Time, and other meanings normally associated with adjuncts and PP complements (e.g. Measurement). Such NPs are often Complements in the same contexts in which comparable PPs might be used instead, e.g.,

I **run** [ten miles] every day.

Come [this way]!

I **expect** your papers [the moment you walk into class].

They **gave** the children [candy].

The children were **given** [candy].

A note on particles: Even if a preposition seems to ‘go with’ a verb to form a phrasal verb, if it can plausibly be considered the head of a post-verbal PP it is analyzed that way, and the PP is assigned the GF Comp. Separable verb particles, like *up* in *pick up the package* and *pick the package up*, cannot plausibly be treated as the heads of PPs. They are therefore marked with the GF Comp by themselves, and the NPs with which they occur are treated as GF Obj. In passive sentences, these NPs are treated as GF Subj.

Pat **picked** [up Comp] [the package Obj].

Pat **picked** [the package Obj] [up Comp].

[The package Subj] was **picked** [up Comp] by Pat.

For more information on particles, see the appropriate section in the chapter on Phrase Types.

Verbal and Clausal Complements

Any verbal or sentential complement, regardless of whether or not it is passivizable, e.g.

They **want** [to stay home].
 They **expect** us [to stay home].
 I **believe** [that you are the winner].
 They **think** [you are the president].
 You **persuaded** me [to finish early].
 I **wonder** [who will finish first].

5.3 Assigning GFs to complements of adjectives

5.3.1 External Arguments of adjectives

When an adjective appears in a clausal predication, one of its arguments is expressed as the subject of a support verb (indicated with underlining) and of the clause as a whole, e.g.

[The chair] is **red**.
 [My sister] seems more **interesting** than yours.

This argument is assigned the GF External Argument (Ext). Also, the noun in object-control constructions with adjectives is assigned the GF External Argument, e.g.

We consider [Pat] very **intelligent**.

5.3.2 Modified head nouns with prenominal adjectives

In prenominal uses of adjectives, the modified head nouns are assigned the GF Head (Head).

the **small** [children Head]

Only some types of sentences in which a target adjective appears in prenominal position will actually be annotated and included in the database of corpus examples. These are the sentences in which the adjective has a *qualitative* as opposed to a *relational* use.

In a qualitative use, the modified noun expresses an element of the frame associated with the adjective, and this is the same frame element which is typically expressed by the subject of a copular or other clausal predication (in which the adjective occurs in predicate position):

The children are **small**.

In a relational use of an adjective, it is much more difficult to identify a specific frame element which is expressed by the modified noun. In fact, the semantic relation between the adjective and noun may be more strongly determined by the modified noun than by the adjective. In any event, the relation between modifier and head is much less tightly constrained than in cases of qualitative modification, resembling the relation between nouns in a noun compound. Very often relational uses of adjectives do not have corresponding predicative uses:

Pat had an immune response to the virus.

*Pat's response to the virus was immune.

We do not annotate relational uses of target adjectives because doing so is unlikely to reveal much that is interesting about the frames associated with the adjectives.

Many cases of relational modification (like many noun compounds) are highly conventionalized. Such cases will be treated as idioms when they are relevant to a particular domain, and will be identified with respect to their head nouns rather than their adjectives. For example, *immune response* will be treated in the health care domain as a lexical unit headed by *response*, rather than as a particular use of *immune*.

5.3.3 Postnominal adjectives

In postnominal uses of adjectives, their arguments are treated as if the adjective were used with a copula. In particular, modified head nouns are assigned the GF External (Ext) and the PT Noun Phrase (NP) rather than the GF Modifier (Mod) and the PT Noun (N). Thus, in the following example, *people* has the grammatical function Ext and the phrase type NP.

The problem seems to affect [people] **sensitive** to primulas.

5.4 Assigning GFs to complements of prepositions

For most domains prepositions are not among the target words. However, in the domains of Space, Motion and Time they are, and in these cases we need to be concerned with assigning GFs to their complements.

5.4.1 Objects of prepositions

Any constituent which occurs immediately after a preposition and which expresses an element of the frame associated with the preposition is tagged as an Object (**Obj**). Typically this constituent is an NP, but it can also be a gerund or a clause:

We had a glass of wine **before** [the meal].

Wash your hands **before** [returning to work].

He left **before** [I had a chance to say anything].

5.4.2 External Arguments of prepositions

A constituent which expresses an element of the frame associated with a preposition, but which is outside the PP, is tagged as an External Argument (**Ext**). The most easily identified prepositional External Arguments are those which occur with so-called ‘reduced relative clauses’ (i.e. postnominal modifiers) and with copular predications:

the [day] **before** yesterday

the [trail] **to** our campsite

the [ball] **under** the table

The [ball] is **under** the table.

5.5 Assigning GFs to complements of nouns

5.5.1 Complement of noun (Comp)

The GF Comp is assigned to any post-nominal complement of a target noun, e.g.

the **fact** [that cats have fur]

a **letter** [to the President]

a **story** [about a young entrepreneur]

your **attempt** [to scare me]

our **arrival** [at the station]

Sometimes complements of nouns are realized as the predicates of copular sentences, e.g.

The **fact** is [that cats have fur]

The **letter** was [to the President]

The **attempt** was [to scare you]

Ultimately these will be assigned the GF Pred, and the same phrase type they have when they are complements. In order to assist the computer in this process it will be necessary to tag the copula which follows the target and introduces the ‘predicate complement’ in expressions like these. For this purpose annotators will use the simple tag Copula (Cop).

5.5.2 Genitive determiner of noun (Gen)

The GF Gen is assigned to any possessive NP functioning as determiner of the target noun, e.g.

[your] **book**

[your work's] **influence** on the field

5.5.3 Modifier of noun (Mod)

The GF Mod is assigned to any prenominal modifier (whether a noun, adjective, gerund, or participle), e.g.

[allergy] **treatment**

[monthly] **stipend**

[sleeping] **cat**

[broken] **lamp**

Chapter 6

The FrameNet Process

6.1 An Informal Account of the FrameNet Process

6.1.1 Discovery of Frames

First, collect lists of words with similar meanings, where you think the similarity is because they are all built on the same semantic frame.

Speaking	Judging	Classifying
speak, say, tell, talk, inform, discuss, complain, report, assert, affirm	admire, appreciate, belittle, scorn, blame, commend, denigrate, deplore, disapprove, condemn, respect, evaluate, judge	categorize, classify, define, interpret, depict, describe, regard, construe

6.1.2 Definition of Communication/Statement Frame

Characterize the frames and identify (and name) the actors and props in situations understood in terms of the frame: Communication/Statement (i.e., monologic, informing)

Frame Description:

A person (Speaker) produces some linguistic object (Message) while addressing some other person (Addressee) on some topic (Topic).

Frame Elements:

- Speaker: [The salesman] **told** me it was guaranteed for life.

- Addressee: Are you **speaking** [to me]?
- Topic: She **said** something quite interesting [about you].
- Message: I **informed** them [that I was planning to quit].
- Medium: He **said** it [in last night's broadcast].

Refinements on “Message”:

- Message-Content (I **said** [that I was planning to quit].)
- Message-Form (She **said** [”I can’t stand this any longer!”])
- Message-Category (They **told** me [your age].)
- Message-Type (We’re going to **say** [a few words].)

6.1.3 Definition of Cognition/Categorization Frame

Frame Description:

A person (the Cognizer) categorizes something (the Item). The Category into which the Item is placed may be expressed, as may the Criterion used as the basis for categorization.

Frame Elements:

- Cognizer: [The botanist] **categorized** the specimens.
- Item: The botanist **categorized** [the specimens].
- Category: The city **classified** the building [as a historic monument].
- Criterion: The city **classified** the buildings [according to their age].

6.1.4 Definition of Cognition/Judgment Frame

Frame Description:

A person (the Cognizer) makes a judgment about something or someone (the Evaluatee). The judgment may be positive or negative. The target word may entail that the judgment is expressed verbally (e.g. *scold*) or it may not (e.g. *blame*). There may be a Reason for the judgment or a Role in which the Evaluatee is evaluated.

Frame Elements:

- Cognizer: [Kim] **respects** Pat for being so brave.
- Evaluatee: Kim **respects** [Pat] for being so brave.
- Reason: Kim **respects** Pat [for being so brave].
- Role: Kim **respects** Pat [as a scholar].

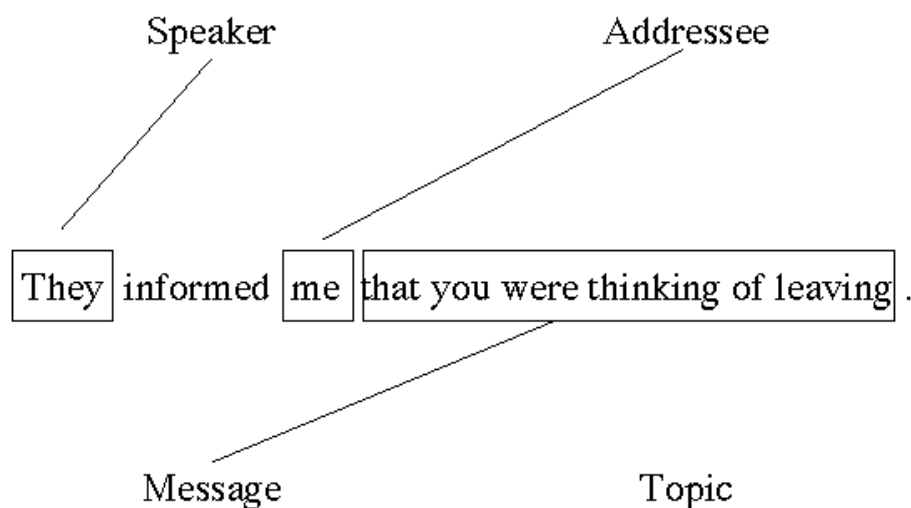


Figure 6.1: Hand annotation of: They **informed** me that you were thinking of leaving.

6.1.5 Preliminary Exploration of Corpus Examples

Collect examples of each word on the list.

Recognize the possibility of polysemy: choose those examples in which the word has the sense being examined.

Speak, *talk* and *discuss* have both monologic and dialogic uses; for this frame we want only the monologic ones.

- The teacher **discussed** the next homework assignment. (monologic)
- My neighbors and I **discussed** your membership application. (dialogic)

6.1.6 Hand Marking: *Inform*

Identify constituents in the example sentences and label them by the frame elements they realize. (See Fig.6.1 on page 47.)

6.1.7 Hand Marking: *Say*

(See Fig.6.2 on page 48.)

6.1.8 Hand Marking: *Discuss*

(See Fig.6.3 on page 48)

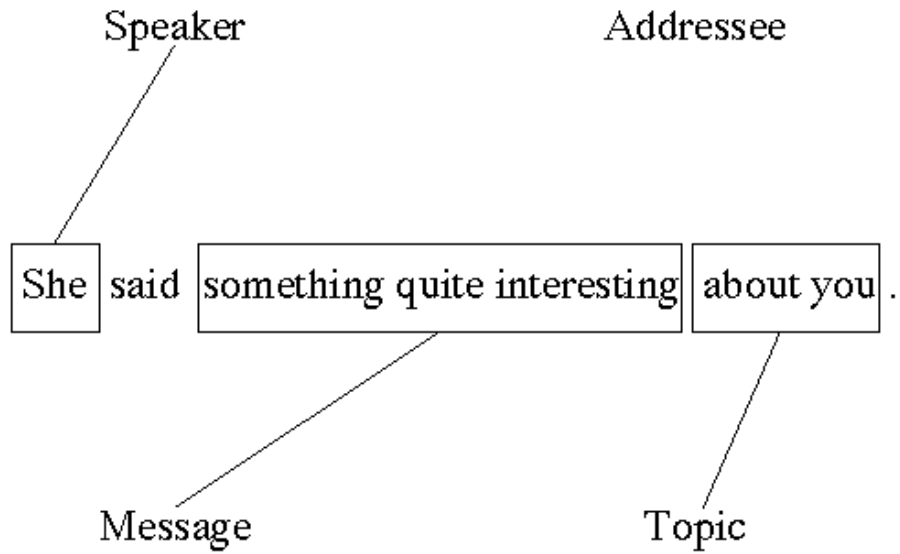


Figure 6.2: Hand annotation of: She **said** something quite interesting about you.

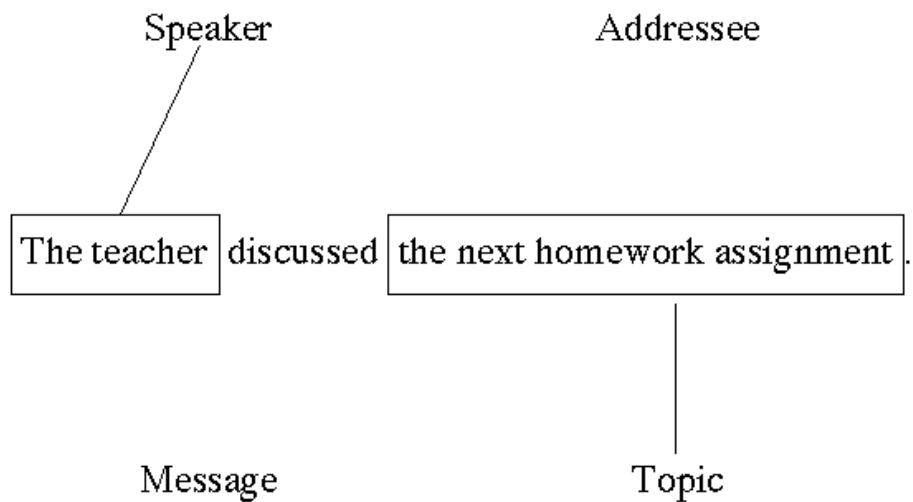


Figure 6.3: Hand annotation of: The teacher **discussed** the next homework assignment.

6.1.9 Creating Subcorpora for Annotation

The Vanguard sets parameters relevant for a particular lemma which are then used by the CQP program to search the corpus and produce subcorpora. (See Resources used in FrameNet.) Lines from each subcorpus are selected and combined into a single file for annotation.

6.1.10 Annotation with the Alembic Workbench

FrameNet's customized annotation software is not publicly available. However, a close approximation can be found by looking at the example sentences for a lemma such as *admire* in the FrameSQL interface (<http://163.136.182.112/fnsearch>).

6.1.11 SGML Labeling of Frame Elements

The following shows the annotation results at this stage which includes the SGML labeling of constituents with frame element tags.

```
<S TPOS="58295185"><C FE="Eval">He</C> led successful campaigns to
clear infestation on over forty worlds and was respected and <C
TARGET="y">admired</C> <C FE="Judge">by all of his colleagues in the
forces</C> .</S>
```

```
<S TPOS="7614466">He could coast along , asking nothing ; accepting
everything , like <C FE="Eval">the animals</C> <C FE="Judge">Vic</C>
<C TARGET="y">admired</C> <C FE="Degr">so much</C> , and staying out
of trouble .</S>
```

```
<S TPOS="26231339"><C FE="Judge">I</C> <C TARGET="y">admire</C> <C
FE="Eval">them</C> <C FE="Reas">for being so up front about their
religious activity</C> because it puts them right in the front line
against anti-Semitism . "</S>
```

6.1.12 SGML Syntactic Classification

At this stage, the FE-annotated file is passed through a constituent classifier which adds grammatical functions and phrase type information. Later on, the rearguard hand-checks the information and makes corrections, if needed.

```
<S TPOS="58295185"><C FE="Eval" GF="Ext" PT="NP">He</C> led successful
campaigns to clear infestation on over forty worlds and was respected
and <C TARGET="y">admired</C> <C FE="Judge" GF="Comp" PT="PP">by all
of his colleagues in the forces</C> .</S>
```

```
<S TPOS="7614466">He could coast along , asking nothing ; accepting
everything , like <C FE="Eval" GF="Obj" PT="NP">the animals</C> <C
```

```
FE="Judge" GF="Ext" PT="NP">Vic</C> <C TARGET="y">admired</C> <C
FE="Degr" GF="Adjunct" PT="Adv">so much</C> , and staying out of
trouble .</S>
```

```
<S TPOS="26231339"><C FE="Judge" GF="Ext" PT="NP">I</C> <C
TARGET="y">admire</C> <C FE="Eval" GF="Obj" PT="NP">them</C> <C
FE="Reas" GF="Comp" PT="PPing">for being so up front about their
religious activity</C> because it puts them right in the front line
against anti-Semitism . "</S>
```

6.1.13 Lexical Entry Preparation

Software is run to prepare the initial version of a lexical entry. The output shows the mappings between FEs and their syntactic realizations, along with example sentences. It also provides a summary of the valence patterns in which a lemma occurs.

6.1.14 Making Generalizations

Sample generalizations for Communication/Statement verbs

- Of the basic verbs, only SAY freely **precedes** quotations.
 - *She informed me "It's getting late".
 - elaborations of SAY: whisper, shout,...
 - hundreds of verbs can **follow** a quotation: she sighed, he bellowed, they admired, ...
- Some of the basic verbs do not have a place for the Message
 - *She spoke that she didn't want to go.
 - *The professor discussed that it was a hard problem.
- TELL and INFORM take Addressee as direct object.
- DISCUSS takes Topic as direct object.

6.1.15 Facing reality:

Actually it's hugely more complicated than what we've seen so far; we'll discuss null instantiation, frame inheritance, blending, etc. in Chapter 8.

6.2 Resources used in FrameNet

6.2.1 The Corpus

The British National Corpus (<http://info.ox.ac.uk/bnc/>) (BNC) is a large sample of modern (British) English taken from a number of genres. It was created in

the UK by a consortium of publishing houses, universities, and government agencies, was completed in 1994, and was made available to European researchers in 1995.

The Corpus comprises 90% written language and 10% transcribed speech, totalling over 100,000,000 running words.

The Corpus has been processed in certain ways by the Consortium. It has been **tokenized**, which means that the boundaries of sentences are indicated, contractions are separated, individual word tokens are assigned numbered locations, and punctuation marks are indexed. Also, it has been **pos-tagged** (each word is tagged for part of speech) in a refined system of 65 word classes.

The version of the Corpus which we use has further been **lemmatized**, which means that inflectional (and dialect) variants are identified as instances of the same lemma. The lemmatizing was done at the University of Stuttgart. The lemmatized version was made available to us through the courtesy of the Institut fuer Maschinelle Sprachverarbeitung at the University of Stuttgart.

FrameNet has the use of this corpus by agreement with Oxford University Press, leader of the BNC Consortium.

6.2.2 Corpus Workbench: xkwic and cqp

The Corpus Query Processor (CQP) is a command-line tool that allows users to perform powerful regular expression searches over linguistically annotated corpora that have been pre-processed appropriately. Besides allowing the user to save search results to a file, CQP has many other capabilities used in the framenet process. With CQP one can, for instance, create and store subcorpora; set collocates; and sort the search results alphabetically based on the match, the collocate, or a specified position to the left or right of the match.

Xkwic is a graphical user interface for the Corpus Query Processor. More specifically, it is a key-word-in-context tool that lets users view the results of CQP-corpus searches with the matches aligned on the screen. Xkwic integrates all the functionality of CQP but in addition allows the user to display the context of search results in ways that are not supported by basic CQP.

6.2.3 Annotation Software

FrameNet I corpus data was annotated using the Alembic Workbench (MITRE). Information is available at <http://www.mitre.org/technology/alembic-workbench/>. FrameNet II data will be annotated using in-house software which is currently under development.

Chapter 7

Lexical Entry Structure

FrameNet lexical entries are sets of lexical sub-entries, each of these being a record of what FrameNet has recorded for the lemma in one of its senses. (Since our work has proceeded one frame at a time, rather than one lemma at a time, there are not many instances of multiple sub-entries in the databank. There are, however, cases in which annotators have noted multiple senses by marking them with sentence-initial sense numbers. Unfortunately, no automatic mechanism currently exists allowing such individually marked senses to be associated with their own frames, definitions and valence descriptions.)

An individual lexical entry, then, covers a lemma in a particular part of speech, e.g., as verb or as noun. A lexical sub-entry is intended to represent a single lexical unit, i.e., a lemma in a given part of speech in a single sense.

A lexical sub-entry comprises the following components:

1. Headword: the lexeme to be defined
2. Domain/Frame: a path to the individual background frame, e.g., “Communication/Argument” (Communication domain, Argument frame)
3. A definition, if relevant, taken from the Concise Oxford Dictionary, 10th Edition
4. Table of Frame Element Realizations: a full list of the syntactic ways, in terms of grammatical function and phrase type, in which Frame Elements have been expressed in the annotated sentences
5. Table of Valence Patterns: a list of the groupings of Frame Elements and their syntactic realizations as found in the annotated sentences
6. Annotated sentences (where each sentence is annotated in respect to a single target word and the semantic roles which neighboring phrases bear to that word)

The Frame Element Realization table and the Valence Pattern table are derived automatically from the sentence annotations. Each item in each of these tables is linked to the annotations that exemplify it.

In short, a FrameNet entry provides information, for each sense, about frame membership and the syntactic means by which each Frame Element is realized in the word's surroundings, and summarizes, as Valence Patterns, the full range of combinatorial possibilities as attested in the Corpus.

Chapter 8

Second Thoughts and Improvements

8.1 The Pseudo-Grammatical Function “EXTERNAL”

The GF's (**grammatical functions**) represented in FrameNet documentation are taken from a limited set, including: **Object**, for the direct object of a transitive verb; **Complement** for almost everything else inside a verb phrase, as well as for post-head FE's in adjective phrases and noun phrases. For noun targets, **Genitive** refers to the possessive modifier (as in *[the lad's] decision*), **Modifier** for an adjectival modifier of the noun insofar as it identifies a frame element of the noun's frame (as in *[financial] crisis*) or the nominal modifier of the head noun of a compound (as in *[foot] injury*); in the case of an adjectival head, Modifier can be used as the GF of a degree or manner modifier of a predating adjective (*[far] distant*), or a nominal modifier of an adjective in an adjectival compound (as in *[light] sensitive*). And in the case of an adjective used attributively, **Head**, for the head noun satisfying a frame element of the frame evoked by the adjective (as in *missing [child]*). There are a few other maximal-phrase-internal GFs (see appropriate section in Chapter 5) covering situations of extraposition and various sorts of discontinuities.

The list just given did not contain a GF **Subject**. All of those mentioned above are to be found inside the maximal phrase headed by the target word; but there are two situations in which phrases outside of the maximal phrase are functionally linked to a target word. The first involves what we call **External**, a cover term for anything that satisfies an FE requirement of a target word in any of the following syntactic contexts: (a) as a subject of a finite target verb; (b) as a subject or object of a controlling governor of the target (e.g., as in *[the physician] decided to perform the surgery*); (c) as the possessive modifier of a governing noun (as in *[the physician's] decision to perform the surgery*).

Notice that in sentence (c) the phrase *the physician's* is in the Genitive GF relation to the noun *decision* but bears the Ext relation to the verb *perform*.

A subcase of a “controlling verb” is that of a verb that can be seen as specifically dedicated to providing external representation for an element of the conceptual structure associated with the meaning of a nominal or adjectival target; these we refer to as **support verbs**. Subjects and objects of support verbs can be taken as Ext for the dependent word; other complements of the support verb, where relevant, can be treated as complements of the dependent noun or adjective.

This last provision is what allows us to finesse the problem of disputed constituency decisions in the case of support-verb constructions. Thus, for a sentence like *He made a statement to the press concerning the bribery case*, it is contestable whether the phrase *to the press* is a complement of the noun *statement* or the verb *make*. Ignoring this dispute, FrameNet will tag the phrase as the Addressee complement of the target word. By allowing this phrase under either of the disputed analyses, we don't have to make the constituency decision ourselves.

It would have been theoretically justifiable to omit selecting phrases outside of the standard **subcategorization frame** of a target word, or we could have limited such excursions to the subjects of finite verbs. But since one of our goals was to provide a database that would include samples of phrases capable of satisfying particular FE requirements of the words we analyzed, this was one way of increasing the size of such a sample.

In the process of noting the function of such words, we have also taken on the obligation of recording the actual support verbs we encountered, thus allowing the database to be a resource for identifying the support verbs that most often accompany particular nouns and adjectives. In doing this, we have taken a relaxed rather than a strict view of identifying support verbs, including alongside of *make* (as in *make an attack*), also such semantically richer verbs as *launch* (as in *launch an attack*), etc. An extension of FrameNet could be defined which sought to include the full range of **Lexical Functions** in the sense of I. Mel'cuk.

8.2 Implicit FEs

Since the annotators were tagging the FE's of our target words with FE labels, and automatic processes were adding grammatical function (GF) and phrase type (PT) information, the original plan was to let the full combinatorial possibilities of our target words be determined automatically from the resulting annotations. But it became immediately obvious that this would not allow us to group example annotations by the sets of FEs that defined individual senses, since in many cases FEs that are conceptually a part of the frame are not actually expressed in the sentence. The **Alembic Workbench** annotator that we use allows us to introduce tags only if they surround pieces of text. Our solution was to introduce into corpus lines, adjacent to each target word, char-

acter strings that could bear FE annotations for FEs that were conceptually obligatory but that did not appear as lexical or phrasal material in the sentence (Condoravdi & Gawron 1996). But then we realized that, since we would need to add such material to corpus lines anyway, we could easily enrich the database by letting these dummy symbols carry certain lexicographically relevant information regarding **omissibility conditions**.

We posited three kinds of omissibility conditions in our sentences, two of which tend to be relevant to the description of lexical items. These can be divided into **constructional**, **existential**, and **definite**. Constructionally omitted constituents (variously also called *structurally* omitted) have their omission licensed by the grammatical constructions in which the target word appears and are therefore more or less independent of lexically specific information; these include the omitted subject of imperative sentences, the omitted agent of passive sentences, the omitted subjects of independent gerunds and infinitives (“PRO”), etc. The dummy symbol we use for constructionally null instantiated constituents is **CNI**.

Bring [CNI] me the head of Alfredo Garcia!

John was being **followed** [CNI].

It was like **visiting** [CNI] a tartar camp.

The first stage would be to **go** [CNI] to the schools and interview the teachers.

Constructionally licensed omissibility is dependent on lexical information only to the extent that not all verbs can be the heads of imperative clauses, only transitive verbs can be made passive, etc. Constructionally licensed omissions are tagged, for the sake of making their FE available, but information about their occurrence is not being catalogued as part of the description of the lexical items in question.

The indefinite cases (sometimes also referred to as *existential*) are illustrated by the missing objects of verbs like *eat*, *sew*, *bake*, *drink*, etc., that is, cases in which these ordinarily transitive verbs can be spoken of as “used intransitively”. As is well known, there are often special interpretations of the existentially understood missing objects: for example, with **eat** the missing entity is likely to be a meal, with **bake** it is likely to be flour-based foods, with **drink** it is likely to be alcoholic beverages, etc.; but the essential difference between indefinite/existential and definite/anaphoric omissions is that with existential cases the nature of the missing element can be understood given interpretational conventions, but there is no need for anything about it to have been understood in advance. We put the FE annotations for indefinite null instantiation on the dummy symbol **INI**.

Have you **eaten** [INI] already?

Joe started to **drink** [INI] again.

I’ve been **baking** [INI] all morning.

The definite (also called *anaphoric*) cases are those in which the missing element must be something that is already understood in the discourse context. For a sentence like *Did anybody find out?*, both speaker and addressee are in on what it is that somebody might have discovered; *find out* permits an anaphoric zero, whereas a verb like *ascertain* does not. In a sentence like *Nobody objected*, knowledge about the proposal which evoked no objection is taken for granted in the interlocutors' shared context. And so on. The symbol created to bear the FE annotations for definite null instantiation is **DNI**.

Did anybody **find out** [DNI]?

Let's ask John. He will **know** [DNI].

Who came in first? –I think Mark **won** [DNI].

There remain various situations in which the notation is unsatisfactory and decision-making about unexpressed FE's is not straightforward. There is what might be thought of as a **Generic** null instantiation which should probably be kept distinct from the others. With a question like *Does your dog bite?* one is asking about a general predisposition of a dog that might be a source of danger; an event report that used the verb *bite* without an object (*My dog bit*) does not permit either an INI nor a DNI interpretation, nor, in fact, a generic interpretation.

In the case of words with complex argument structures, the number of ways in which a frame can be elaborated by filling slots may be quite numerous, and we would not want to have to mark, as omitted, FE's standing for each of those elements when they are not realized. Thus, rather than worry about whether the verb *write* evokes a frame that includes Implement (*with a ballpoint pen*), Language (*in Spanish*), Surface (*on expensive paper*), etc., and marking each of these as missing in a sentence like *Do you enjoy writing?*, we will simply not mark any of these as INI and will instead describe the ways in which such elaborations are permitted in the entry itself.

8.3 Frame Inheritance

There are numerous ways in which a single word incorporates multiple frames, sometimes joined in a time-patterned scenario, sometimes acting simultaneously.

Suppose we wish to put into a single frame words that have to do with someone passing judgment on someone or something, either positively or negatively. Examples might be *blame*, *scorn*, *admire*, etc. The canonical structure is

A **_ed** B **for C-ing**

representing the Judge (A), the Evaluatee (B) and the Reason for the judgment (for C-ing).

The list of such judgment words will include, in addition to those just given, words representing situations in which the Judge expresses the judgment in

words, as with *criticize* and *praise*. (Criticizing and praising require talk; admiring and scorning do not.) To describe such cases we need to say that the Judge, in the judgment frame, is simultaneously the Speaker in a communication frame. It's possible for these words to understand the recipient of the talk to be identified with the topic of the talk, but they sometimes make room for an Addressee who is distinct from the Evaluee, as in *She criticized me before the committee*, *He praised me to my principal*.

But lastly, there are some words, like *scold*, *berate*, *flatter*, and *compliment*, in which the Evaluee is necessarily the same individual as the Addressee. In *My boss scolded me*, I am not only the object of his disapproval, but I have to listen to what he says about me.

We would like the database to include all such information, so that the words that participate in more than one frame can show up in response to queries about either of the frames.

8.4 Frame Blending

There are some words that belong simultaneously to a conversation frame and a dispute frame. Interestingly, these two frames themselves involve a blend, between an abstract **Reciprocity** frame, operating in a great many domains, and speaking on the one hand and assailing on the other hand.

The reciprocity frame takes as input two (or more) subevents of some transitive relation and creates a complex scenario in which multiple participants operate at both ends of such a relation: the result, in the case of talking, A talks to B and B talks to A (**Conversation**); if it's assailing, then A assails B and B assails A (**Fighting**); if it's transferring, then A transfers something to B and B transfers something to A (**Exchanging**).

The special syntactic pattern alternations that go with reciprocity involve the option (with corresponding semantic difference) of representing the multiple participants either jointly, as a single (semantically plural) constituent, or as two constituents, one primary (the subject in an active sentence) and one secondary (the oblique constituent, typically marked by the preposition *with*). This gives us such formal differences as

- [My brother and I] had a **discussion**.
- [I] had a **discussion** [with my brother].
- [My brother and I] **fought**.
- [I] **fought** [with my brother].
- [My brother and I] **exchanged** bicycles.
- [I] **exchanged** bicycles [with my brother].

Conversation words are words (mostly verbs and deverbal nouns) having to do with conversational interaction. As reciprocals, they show up in reciprocal syntax, as with *discuss*, *(have a) discussion*, *talk*, *(have a) talk*, *chat*, *(have a) chat*, etc.

Fight words are words having to do with mutual assailing. As reciprocals they show up in reciprocal syntax: *fight*, *(have a) fight*, *struggle*, *(engage in a) struggle*, *dispute*, *(have a) dispute*, etc.

A semantic/syntactic characteristic of the words in the Fight frame has to do with the **Issue** over which there is disagreement; this FE can be marked with the preposition *over*. Notice: *We fought over the land*, *over a woman*, etc.

There is a class of words that belong to both the Fight frame and the Conversation frame, being words representing verbal disputes. Examples are *argue*, *argument*, *dispute* (verb and noun), *quarrel* (verb and noun), etc. While clearly involving conversation, they can be accompanied by an oblique PP indicating the Issue of dispute, and this can be marked by the preposition *over*. (*We argued over the children's education*, *The family argued over the interpretation of the will*.) The preposition *over* does not on its own communicate the idea of a quarrel or disagreement: it is not possible to import the semantics of quarreling into an ordinary conversation word by the addition of an *over*-phrase. (**We chatted over the inheritance* doesn't work.)

8.5 Frame Composition

It was suggested above that some frames are complex in that they designate sequences of states of affairs and transitions between them, each of which can itself be separately described as a frame. This is most obviously true in the case of words with resultative meanings (put differently, words that participate in resultative constructions). This can be seen most clearly in the case of verbs that can designate both simple and complex event types, and in the complex event situation they have syntactic objects unmotivated by their basic meanings. In many cases, these are uses that can be explained in terms of the integration of lexical meanings with the meanings of grammatical constructions. Thus, to *talk oneself hoarse* is to talk until one becomes hoarse; here *talk* is not a transitive verb, but in the resultative use, it can take a reflexive object; to *run one's shoes ragged* is to run in a pair of shoes until those shoes become ragged, where *run* is not by itself a transitive verb, but can take as object the name of the entity that undergoes the change through running; to *squeeze the toothpaste out of the tube* is to squeeze the toothpaste tube until the toothpaste comes out of it, though the actual activity of squeezing is applied more directly to the tube than its contents. In this case the verb is transitive, but the direct object does not correspond in the most straightforward sense to the object to which squeezing is applied. (Compare *shake the apples out of the tree*, where the act of shaking is applied directly to the tree.)

8.6 Conflated FEs

In many cases the most natural description of a frame specifies a list of conceptually obligatory FEs, but occasionally single constituents, sometimes because

of the complex meanings of single words, contain information that could be spread over two constituents. Thus, the concept of ousting somebody from office requires an understanding of the (former) incumbent of the office and the identity of the office, and these both can be represented separately in a sentence like *We ousted Jones as mayor*. But in a sentence like *We ousted the mayor*, the direct object stands for both the office and the incumbent. Curing generally requires an understanding of a disorder or disease and a sufferer of that disease. Sentences which identify both are like *We cured the patient of the disease*. But there are words that designate sufferers of particular diseases, like *leper*, permitting both bits of information to be combined in one constituent: *we cured the leper*.

8.7 Incorporated FEs

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)*).

Appendix A

Deliverables: The FrameNet Databases

A.1 Introduction

The FrameNet project has produced two types of data, a collection of approximately 50,000 hand-annotated sentences and a database containing information about frames, frame elements, lemmas and lexical entries. All of this data is distributed as ASCII files with markup that is compatible with both SGML and XML, with accompanying DTDs. (For brevity, this will be referred to as XML format hereafter.) If resources permit, other data formats will be made available.

These databases have not yet been released, but will soon be available for downloading from the FrameNet website (<http://framenet.icsi.berkeley.edu/~framenet>). The web site also contains the complete documentation of the project and will contain a web interface to a search engine which can handle a wide variety of linguistically interesting queries.

The remainder of this appendix describes the contents and structure of the data files.

A.2 Annotated files

In the FrameNet project, we have created approximately 1,600 annotated files, each comprising a set of sentences selected from the BNC containing a given lemma and grouped by syntactic pattern, as described in Section 6.1.9; the number of sentences ranges from very few to about 300 depending on the frequency of the lemma in the corpus. Typically, only about 20% of the sentences will be annotated; our objective has been to document and exemplify the range of possible patterns of occurrence, rather than to annotate everything.

A.2.1 Format of headers

Each file consists of a header followed by a body, all wrapped in a <CORPUS> element. The corpus element has four required attributes:

CORPNAME	(always “bnc”)
DOMAIN ¹	listed in link
FRAME	listed in link
LEMMA	listed in link

The lemma value is the base (uninflected) form of the word, followed by a period and the part of speech (“n”, “v”, or “a”). The other element in the header is called CNOTES, giving information about the creation of the file, and an element CHANGES, containing the dates of each change in the file, including regular annotation and occasional systematic, global revisions such as renaming of frame elements which occurred during the course of the project. The lines in the CHANGES element were produced by the RCS revision control system.

A.2.2 Format of body

The body consists of a series of sentences marked up as S elements, interspersed with COMMENT elements. The COMMENT elements are used to mark the stages of the subcorpus extraction process. Each COMMENT contains a SC element giving the name of the subcorpus, and a STATS element, giving (1) the number of BNC sentences initially selected for the subcorpus, (2) the number considered “usable” after eliminating those considered too long, too short, or likely to contain sentence fragments from one of the BNC speech corpora, and (3) the number of sentences saved from these (limited to 20, if there were more than 20 usable).

Constituent Tags

Each S element has one attribute, an 8- or 9-digit number which represents the position of the target word in the BNC corpus. This serves both as a unique identifier and a key to find the sentence in the corpus.

The content of the S element is the sentence from the BNC, a series of words separated by whitespace, each containing a slash and the part-of-speech tag from the BNC (the CLAWS C5 Tagset).

(http://info.ox.ac.uk/bnc/what/garside_allc.html#ucrelc5)

There must be at least one tagged word, the target, enclosed in a C element, with the attribute TARGET and the value “y”. If the sentence has been annotated, there will be one or more frame elements, also enclosed in C tags, each with the three attributes for frame element name (FE), phrase type (PT) and grammatical function (GF).

Say something about TARGET=“mate” !!!

¹ The semantic domains were defined mainly to ensure that our work spanned many different semantic areas. We make no ontological claims about them, and have abandoned this terminology in FrameNet II.

Implicit FEs (Null Instantiation)

In cases where some FEs are conceptually required in a frame but not expressed in a given sentence, this is indicated by a constituent tag containing no text. The FE will be a regular frame element name for the given frame, and the PT will be one of DNI, INI, or CNI; there should be no GF attribute. See Section 8.2 for more explanation of implicit FEs.

Sentence-level Tags

There may also be sentence-level tags for features that apply to the sentence as a whole. The format is `<T TYPE= type ></T>`. The most important of these are:

sense n	An instance of sense n of the target lemma
Idiom	Idiomatic use of the target lemma
Metaphor	Metaphorical use of the target lemma
Blend	Sentence represents a blending of frames

In the data release, we have combined all the annotated sentences from these 1,600 files into one large XML file, called `fn1.xml`. Unannotated sentences have been omitted, as have empty subcorpora. The `CORPUS` element from each annotation file has been included to mark the beginning and end of sentences annotated for a particular lexical unit (i.e. a lemma in a frame). Within lexical units, the beginning of each subcorpus is marked with a `¡SC¡` element (contained within `¡COMMENT¡` tags); the content of this element shows in abbreviated form the syntactic criterion used to extract the subcorpus. For example, “V-570-np-ppagainst” means that this subcorpus contains sentences in which the target verb is followed by an NP and then a PP headed by *against*. The DTD for the annotation file is part of the release, in the file `fnc.dtd`.

A.3 Frame-and-Lexicon Database

This part of the data consists of four tables, which collectively can be thought of as a database describing all the frames and frame elements (FEs) from the project, listing the lexical units, and giving a few of the proposed inheritance (elaboration) relations between frames. The relations between the four tables are indicated by the use of unique names for frames and frame elements. (Note that there are many instances of FEs of the same name in different frames, but they refer to the same entry in the FE table. In the frame inheritance table, where it is necessary to refer to two FEs of the same name in different frames, the dotted notation `frame.frame_element` is used.)

Each of the four tables is provided in two formats, XML and flat, tab-separated. In the latter, the first row contains the names of the fields, also tab-separated.

A.3.1 Frame Description Table

This table provides the basic information about the eighty-eight frames completed to date; the fields are:

domain	semantic domain (cf. Fn. 1)
frame	name of the frame
FES	list of names of FEs
Description	a brief description of the frame
Examples	examples of the frame:n

The descriptions and examples given here are just enough to remind someone already familiar with the frame what it means; the full descriptions, with more complete examples, are given in Appendix C of this document.

A.3.2 Frame Element Table

This table provides the basic information about frame elements. Conceptually, each FE is defined relative to one frame, but in practice, some FE names are specific to a particular frame, while other names are used in more than one frame. Some of the fields in the table will have little use to anyone outside the FrameNet project. As for the preceding table, fuller descriptions should be sought in Appendix C of this document.

The fields are:

domain	semantic domain of the frame containing the FE, if unique; otherwise “NA”
frame	name of the frame containing the FE, often “NA” for FEs used in many frames
attribute	full attribute used in the XML tag, which usually contains the abbreviation of the FE name
x1	used internally by Alembic
text	display color for text of FE
bgcolor	display color for background of FE
x2	used internally by Alembic
key	keystroke used in annotation software
fename	the full name of the FE
description	a brief description of the meaning of the FE
example	a short example of the FE

A.3.3 Lexical Unit Table

This table contains one row for each lexical unit treated in FN1, that is, for each pairing of a lemma with a frame, roughly equivalent to each dictionary sense of each lemma. Many of the fields of this table are mostly empty, because there is no information of the relevant type on this particular lexical unit in the FN1 data. For example, if it is clear which sense of a lemma is intended on the basis of the lemma and frame, there may be no definition written in; if there are no

lexically specific observations on the syntax, or FEs to be realized, or commonly null-instantiated FEs, these fields will be empty.

The fields are:

lemma	base form of word
pos	Part of Speech (usually Noun, Verb, or Adjective)
sense	number (usually 1)
domain	semantic domain (cf. Fn. 1)
frame	name of frame for this sense
FN definition	definition of this sense, written by FN staff
Senses	
FE note	Notes on FEs
SR note	Notes on syntactic realization
Collocates	Frequent collocates
Null Instantiated Constituents	
Frame Elements	List of frame elements
Done	internal bookkeeping field
COD dfn	Definition from Concise Oxford Dictionary
WS dfn	
WN link	Link to WordNet synset
sequence	

A.3.4 Frame Inheritance Table

This table describes some of the inheritance relations between frames, by virtue of showing the mappings between their elements. For example, the first two lines of the file show that the **Candidness** frame is a child of the **Communication** frame, and that the FEs Speaker and Addressee of **Candidness** inherit from the FEs of **Communication** of the same name. The next two lines show that **Commitment** is another child of **Communication**, and that the FEs Commitment.Communicator and Commitment.Addressee inherit from Communication.Speaker and Communication.Addressee respectively.

The inheritance relations given in this table are very preliminary, and subject to revision. Many more such relations will probably be described as the work of FrameNet II progresses.

This section is currently under revision.

Appendix B

Publications related to FrameNet

Frame Semantics Background

Fillmore, Charles J. (1968): The case for case; in Bach and Harms (Ed.): *Universals in Linguistic Theory* (pp. 1-88), Holt, Rinehart, and Winston, New York.

Fillmore, Charles J. (1976): Frame semantics and the nature of language; in *Annals of the New York Academy of Sciences: Conference on the Origin and Development of Language and Speech, Volume 280* (pp. 20-32).

Fillmore, Charles J. (1977): Scenes-and-frames semantics, *Linguistic Structures Processing*; in Zampolli, Antonio (Ed.): *Fundamental Studies in Computer Science*, No. 59, North Holland Publishing.

Fillmore, Charles J. (1977): The need for a frame semantics in linguistics; in Karlgren, Hans (Ed.): *Statistical Methods in Linguistics*

Fillmore, Charles J. (1982): Frame semantics; in *Linguistics in the Morning Calm* (pp. 111-137), Hanshin Publishing Co., Seoul, South Korea.

Fillmore, Charles J. (1985): Frames and the semantics of understanding; in *Quaderni di Semantica*, Vol 6, No. 2 (pp. 222-254).

Fillmore, Charles J. (1992): “Corpus linguistics” vs. “computer-aided armchair linguistics”; in *Directions in Corpus Linguistics: Proceedings from a 1991 Nobel Symposium on Corpus Linguistics* (pp. 35-66), Mouton de Gruyter, Stockholm.

Fillmore, Charles J. and B. T. S. Atkins (1994): Starting where the dictionaries stop: The challenge for computational lexicography, In Atkins,

B. T. S. and A. Zampolli, eds. Computational Approaches to the Lexicon. Clarendon Press.

Recent Papers by FrameNet Staff

Baker, Collin F., Fillmore, Charles J., and Lowe, John B. (1998): The Berkeley FrameNet project. in Proceedings of the COLING-ACL, Montreal, Canada. Postscript (380 Kb) available at <http://framenet.icsi.berkeley.edu/~framenet/papers/acl98.ps> PDF (194 Kb) available at <http://framenet.icsi.berkeley.edu/~framenet/papers/acl98.pdf>

Boas, Hans C. (2001): "Frame Semantics as a framework for describing polysemy and syntactic structures of English and German motion verbs in contrastive computational lexicography," in: Rayson, Paul, Andrew Wilson, Tony McEnery, Andrew Hardie, and Shereen Khoja (eds.), Proceedings of the Corpus Linguistics 2001 conference. Technical Papers, Vol. 13. Lancaster, UK: University Centre for computer corpus research on language. PDF (64 Kb) available at <http://framenet.icsi.berkeley.edu/~framenet/papers/boasCL2001.pdf>

Fillmore, Charles J. and Atkins, B. T. S. (1998): FrameNet and lexicographic relevance, Proceedings of the First International Conference on Language Resources and Evaluation, Granada, Spain.

Fillmore, Charles J. and Baker, Collin F. (2000): FrameNet: Frame semantics meets the corpus. Poster session at The Linguistic Society of America, January, 2000.

Fillmore, Charles J. and Baker, Collin F. (2001): Frame Semantics for Text Understanding. In Proceedings of WordNet and Other Lexical Resources Workshop, NAACL, Pittsburgh, June, 2001. Gzipped Postscript (112 Kb) available at <http://framenet.icsi.berkeley.edu/~framenet/papers/FNcrime.ps.gz> PDF (189 Kb) available at <http://framenet.icsi.berkeley.edu/~framenet/papers/FNcrime.pdf>

Fillmore, Charles J., Wooters, Charles and Baker, Collin F. (2001): Building a Large Lexical Databank Which Provides Deep Semantics. Proceedings of the Pacific Asian Conference on Language, Information and Computation. Hong Kong. Gzipped Postscript (445 Kb) available at <http://framenet.icsi.berkeley.edu/~framenet/papers/dsemlex16.ps.gz> PDF (460 Kb) available at <http://framenet.icsi.berkeley.edu/~framenet/papers/dsemlex16.pdf>

Gahl, Susanne. (1998): Automatic extraction of Subcorpora based on Subcategorization Frames from a Part-of-Speech tagged Corpus. in COLING-

ACL '98 Proceedings of the Conference held August 10-14, 1998, at the University of Montral, Canada, pp.428-32.

Gahl, Susanne. (1998): Automatic extraction of Subcorpora for Corpus-based Dictionary-building. in Thierry Fontenelle et al. (eds.) EURALEX '98 Proceedings: Papers submitted to the Eighth EURALEX Conference, at the University of Lige, Belgium, pp.445-452. MS Word 6.0 document (123 Kb) available at
<http://framenet.icsi.berkeley.edu/~framenet/papers/euralex-word.doc>

Gildea, Daniel and Daniel Jurafsky. (2001) Automatic Labeling of Semantic Roles, ICSI Technical Report 01-005. PDF available at
<ftp://ftp.icsi.berkeley.edu/pub/techreports/2001/tr-01-005.pdf>

Gildea, Daniel and Daniel Jurafsky. (2000) Automatic Labeling of Semantic Roles, In Proceedings of ACL 2000, Hong Kong.

Johnson, Christopher R. and Charles J. Fillmore. (2000): The FrameNet tagset for frame-semantic and syntactic coding of predicate-argument structure. In the Proceedings of the 1st Meeting of the North American Chapter of the Association for Computational Linguistics (ANLP-NAACL 2000), April 29-May 4, 2000, Seattle WA, pp. 56-62. PDF (70 Kb) available at
http://framenet.icsi.berkeley.edu/~framenet/papers/crj_cjf2000.pdf

Johnson, Christopher R. (1999): Multiple frame inheritance in lexical descriptions. Presentation at the 1999 Annual Meeting of the Linguistic Society of America. Los Angeles, January 9.

Lowe, J.B., Baker, C.F. and Fillmore, C.J. (1997): A frame-semantic approach to semantic annotation, in Proceedings of the SIGLEX workshop "Tagging Text with Lexical Semantics: Why, What, and How?" held April 4-5, in Washington, D.C., USA in conjunction with ANLP-97. Gzipped Postscript (41 Kb) available at
<http://framenet.icsi.berkeley.edu/~framenet/papers/siglex.ps.gz>
 PDF (164 Kb) available at
<http://framenet.icsi.berkeley.edu/~framenet/papers/siglex.pdf>

Petruck, Miriam. (1996): Frame Semantics. In Jef Verschueren, Jan-Ola Östman, Jan Blommaert, and Chris Bulcaen (eds.). Handbook of Pragmatics 1996. Philadelphia: John Benjamins. Postscript (61 Kb) available at
<http://framenet.icsi.berkeley.edu/~framenet/papers/miriamp.FS2.ps>
 PDF (28 Kb) available at
<http://framenet.icsi.berkeley.edu/~framenet/papers/miriamp.FS2.pdf>

Appendix C

Domains and Frames: Descriptions

C.1 Inherited frames

Most of the semantic frames described in this project occur in specific semantic domains, characterizing particular types of events, states, objects, and so on. There are, however, some frames of a very general nature that are inherited by more specific frames, and in some cases by entire domains (for example, the Communication frame). These higher-level frames characterize the basic structural properties of events and relations in the more specific frames.

An example of such a frame is the Reciprocal frame. This frame is associated with its own syntactic valence phenomena but occurs in combination with other frames that characterize the qualitative properties of the events and relations in question. A characteristic syntactic property of the Reciprocal frame is that it allows either a joint or disjoint reference to multiple participants in a relatively symmetric event or relation.

Specific examples used in the descriptions of inherited frames often belong in one of the inheriting frames and are used here to demonstrate the properties of the general frame.

Since there has been no annotation in these inherited frames, Frame Element names and their abbreviations are subject to change.

C.1.1 Frame: Causation

Lexemes

cause.v, cause.n, make.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cause	Cause	<i>The wind caused the tree to sway.</i>
Affected	Affected	The wind caused <i>the tree</i> to sway.
Effect	Effect	The rain caused <i>flooding</i> .

General Description

A Cause, animate or inanimate, causes an Effect. Those frames that inherit the Causation frame convey the idea that some event is responsible for the occurrence of another event (or state). In the inheriting frame, typically an FE like Agent or Causer is proposed for an individual or force associated with the causing event, but at bottom we assume event causation.

FE: Cause

An animate or inanimate entity, a force, or event that produces an effect. Volitionality is not a necessary characteristic of Causes.

[John] **made** me give up smoking.

[The wind] **made** the door rattle.

[The accident] **caused** them to be more careful the next time.

FE: Affected

The entity or event that is changed or influenced by the Cause.

Personal animosities **caused** [the alliance] to break up.

What **caused** [you] to change your mind ?

FE: Effect

The event or state brought about by the Cause.

But we do n't want to **cause** [a fuss] , now , do we ?

In the long term , too much drink can **cause** [high blood pressure and stomach disorders].

C.1.2 Frame: Communication**Lexemes**

communicate.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Communicator	Com	<i>Pat</i> communicated the message to me.
Addressee	Add	Pat communicated the message <i>to me</i> .
Message	Msg	Pat communicated <i>the message</i> to me.
Topic	Top	Pat communicated with Kim <i>about the festival</i> .
Medium	Medium	Pat communicated with Kim <i>by letter</i> .

General Description

A Communicator conveys a Message to an Addressee; the Topic and Medium of the communication also may be expressed. This frame includes no specification of the method of communication (speech, writing, gesture, etc.). The frames that inherit the general Communication frame can add elaboration to the Medium in a variety of ways (*in French, on the radio program, in a letter*) or to the manner of communication (*babble, rant, shout, whisper*). There are also frames that either do not inherit all of the FEs of this frame (*speak, talk*), or do not inherit them in a straightforward manner (*argue, converse*).

FE: Communicator

The person who uses language in the written or spoken modality to convey a Message to another person.

[He] finds it hard to **communicate** with people, not least his separated parents .

FE: Addressee

The person that receives a Message from the Communicator.

The company must be able to **communicate** [to potential customers] the way in which its product would satisfy their needs, and provide competitive value.

FE: Message

A proposition or set of propositions that the Communicator wants the Addressee to believe or take for granted.

How do you **communicate** to them [that you really like them] ?

FE: Topic

Topic is the entity that the proposition or propositions conveyed relate to, that they are about.

Had someone **communicated** to the capital [about the flagrant disregard of the religious law] ?

FE: Medium

The physical or abstract setting in which the Message is conveyed.

Opinions are usually **communicated** [over the telephone] and are often given within 24 hours.

C.1.3 Frame: Motion**Lexemes**

move.v

Frame Elements (FEs)

FE	Tag	Example (in italics)
Theme	Thm	<i>The crowd moved out of the building.</i>
Source	Src	<i>The crowd moved out of the building.</i>
Path	Path	<i>The crowd was moving along the street.</i>
Goal	Goal	<i>The crowd moved into the park.</i>
Area	Area	<i>People moved about the room.</i>

General Description

The frames that inherit the general Motion frame add some elaboration to the simple idea that some entity (Theme) starts out in one place (Source) and ends up in some other place (Goal), having covered some space between the two (Path). Inheriting frames can add Goal-profiling (*arrive, reach*), Source-profiling (*leave, depart*), or Path-profiling (*traverse, cross*), or aspects of the manner of motion (*run, jog*) or assumptions about the shape-properties, etc., of any of the places involved (*insert, extract*).

FE: Theme

The Theme is the entity that changes location.

The explosion made [me] **move** in a hurry .

FE: Source

The Source is the location the Theme occupies initially before its change of location.

The policeman **moved** [away from the door].

FE: Path

Path refers to (a part of the) ground the Theme travels over or to a landmark the Theme travels by.

The door opened , and he **moved** [past Dad], into the hall.

FE: Goal

Goal is the location the Theme ends up in.

The car accelerated and **moved** [into the slow lane], as he passed.

FE: Area

Area is the setting in which the Theme's movement takes place.

Emily rose to her feet and **moved** restlessly [around the room].

C.1.4 Frame: Perception**Lexemes**

perceive.v

Frame Elements

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Perceiver	Perc	<i>Humans</i> cannot perceive the sound of a dog whistle.
Phenomenon	Phen	Humans cannot perceive <i>the sound of a dog whistle</i> .

General Description

A Perceiver perceives a Phenomenon. The general Perception frame is an inherited background to all frames that have to do with some sentient being responding to changes in the environment, independently of the sensory modalities. The inheriting frames may specify the modalities (*see, hear, taste, smell*), or may emphasize the experiences or acts of the perceiver (*peek, eavesdrop*, or the properties of the perceived phenomena (*clank, rattle, thump*).

FE: Perceiver

The Perceiver is the animate entity whose perceptual system registers aspects of its environment.

[We] can **perceive** the sound emitted by a piccolo but not that from a dog whistle.

FE: Phenomenon

The Phenomenon is the entity or event which causes the perceptual experience of the Perceiver.

So do our domestic dogs **perceive** [smells] with the same range of subtle 'hues' as we perceive colour ?

C.1.5 Frame: Reciprocality

Lexemes

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Protagonist-1	Prot-1	<i>Pat fought</i> with Kim.
Protagonist-2	Prot-2	Pat <i>fought</i> with Kim.
Protagonists	Prot-s	<i>Pat and Kim fought</i> .

General Description

This frame characterizes events performed reciprocally, with two equal participants acting on each other. It is inherited, for example, by the Communication.Conversation frame in which two people are effectively both speakers and addressees in a joint act of communication.

FE: Protagonist-1

The participant in a reciprocal event that is encoded as the subject of an active-form sentence or as a by-PP in a passive.

[‘You] can’t **argue** politics with foreigners,’ sighed the policeman.

FE: Protagonist-2

The participant in a reciprocal event that is coded in a with-PP.

We have been **arguing** the point [with the inspector at claims branch]
for many many months and we just seem to go round in circles.

FE: Protagonists

The jointly expressed participants in a reciprocal activity.

[They] were **gossiping** about the weather and American football.

C.1.6 Frame: Transitive action

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>Pat hit</i> the ball.
Patient	Pat	Pat <i>hit</i> the ball.

General Description

This frame characterizes, at a very abstract level, one entity acting on another. This frame is inherited by many lower-level frames.

FE: Agent

Agent is the entity that acts on another entity.

FE: Patient

Patient is the entity that is being acted on and that may but need not undergo a change.

C.2 Domain: General

C.2.1 Frame: Duplication

Lexemes

clone.n, clone.v, copy.n, copy.v, duplicate.n, duplicate.v, photocopy.n, photocopy.v, reduplicate.v, replicate.v, reproduce.v

Frame Elements (FEs)

FE	Tag	Example (in italics)
Creator	Creat	<i>Pat duplicated the key.</i>
Original	Orig	<i>Pat duplicated the key.</i>
Copy	Copy	<i>The results duplicated those of an earlier experiment.</i>
Source	Src	<i>Jo copied the notes from the board.</i>
Goal	Goal	<i>Jo copied the notes onto file cards.</i>

General Description

This frame involves a **Creator** making a duplicate (the **Copy**) of some **Original** entity. A **Source** (the location of the Original) and **Goal** (location of the Copy) may be expressed.

FE: Creator

This is the person responsible for producing the Copy based on the Original. It is normally expressed as an External Argument:

[Pat] **photocopied** the article.

FE: Original

This is the entity which is copied. With verbs it is frequently expressed as an NP Object:

Pat **photocopied** [the article].

FE: Copy

The Copy produced by the Creator is frequently not expressed. However, when Copy does occur, it is usually expressed as the External Argument of verbs:

[The results] **replicate** those of an earlier study.

FE: Source

This is the location from which material is copied, i.e. the location of the Original. Unlike the FE Source in other domains and frames, there is no actual movement of either Copy or Original from this location. Source is usually expressed by a PP Complement:

I **copied** the design [from a magazine].

FE: Goal

This is the location to which material is copied. Unlike the FE Goal in other frames, there is no actual movement of any entity to this location. Goal is usually expressed as a PP Complement:

Copy the file [onto the hard drive].

C.2.2 Frame: Imitation**Lexemes**

artificial.a, bogus.a, counterfeit.a, counterfeit.v, ersatz.a, fake.a, fake.n, fake.v, false.a, falsify.v, feign.v, forge.v, forgery.n, genuine.a, imitation.a, imitation.n, impersonation.n, impostor.n, phoney.a, phoney.n, pseudo.a

Frame Elements (FEs)

FE	Tag	Example (in italics)
Creator	Creat	<i>The child forged her mother's signature.</i>
Original	Orig	<i>The child forged her mother's signature.</i>
Copy	Copy	<i>The signature was a forgery.</i>

General Description

This frame involves a **Creator** making an imitation or fake (the **Copy**) of some **Original** entity.

FE: Creator

This is the person responsible for producing the Copy based on the Original. The Creator is frequently not expressed with noun and adjective targets, and usually occurs as an External Argument of verbs:

[Pat] **falsified** the papers.

FE: Original

This is the entity which is copied. With verbs it is frequently expressed as an NP Object:

Pat **falsified** [the papers].

FE: Copy

The Copy produced by the Creator most commonly occurs as the External Argument of a predicative use of an adjective or noun target:

[The painting] is a **fake**.

C.2.3 Frame: Joining**Lexemes**

amalgamate.v, combine.v, fuse.v, join.v, merge.v, unify.v, unite.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>Kim combined the ingredients into a batter.</i>
Whole	Whole	Kim combined the ingredients <i>into a batter</i> .
Parts	Parts	Kim combined <i>the ingredients</i> into a batter.
Part-1	Part_1	Kim combined <i>the eggs</i> with the flour.
Part-2	Part_2	Kim combined the eggs <i>with the flour</i> .

General Description

These words refer to the combination or joining of entities (Parts) to form a Whole. The joining may be carried out by an Agent.

FE: Agent

In causative uses of these verbs there is an Agent responsible for joining the Parts. The Agent is generally the External Argument (or the object of a PP-*by* in passives):

[Pat] **joined** the pieces together.

The ingredients were **combined** [by the chef].

FE: Whole

This is the entity resulting from combination of parts. When overtly expressed, it is usually a PP Complement (often headed by *into*).

The directors **merged** the two companies [into one].

FE: Parts

The entities being combined are often expressed in a single plural NP, usually the direct object of a verb.

The directors **merged** [the two companies] into one.

FE: Part-1

The first of two Parts mentioned. This is most often the NP Object of a verb.

A walkway **joins** [the annex] to the main building.

FE: Part-2

The second of two Parts mentioned. This is usually a PP Complement.

A walkway **joins** the annex [to the main building].

General Grammatical Observations

As with General.Separation, words in this frame can be used statively, as in *The buildings are joined by a walkway*, inchoatively, as in *The schools amalgamated*, or causatively, as in *I joined the two pieces together*.

C.2.4 Frame: Replacement**Lexemes**

exchange.v, interchange.v, replace.v, replacement.n, substitute.v, substitution.n, succeed.v, supplant.v, swap.v, switch.v, trade.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>Pat</i> exchanged the car for a new one.
Agent-1	Agt_1	<i>Pat</i> exchanged cars with Jo.
Agent-2	Agt_2	Pat exchanged cars <i>with Jo</i> .
Agents	Agt_s	<i>Pat and Jo</i> exchanged cars.
Theme-Old	Thm_O	Pat exchanged <i>the car</i> for a new one.
Theme-New	Thm_N	Pat exchanged the car <i>for a new one</i> .
Themes	Thm_s	Pat and Jo exchanged <i>cars</i> .
Place	Place	Jo substituted honey for sugar <i>in the recipe</i> .
Place-1	Place_1	Pat switched her gaze <i>from one</i> to the other.
Place-2	Place_2	Pat switched her gaze from one <i>to the other</i> .
Places	Place_s	Pat and Jo switched <i>places</i> .

General Description**FE: Agent**

The Agent carries out the replacement of a Theme or Themes.

[Pat] **exchanged** one stressful job or another.

In sentences tagged with a single Agent, there is no two-way exchange, i.e. the Agent does not give one object to another (implicit) Agent in return for another Theme, as in the following sentence, where the subject is Agent-1 and the store is the unexpressed Agent-2:

I **exchanged** the sweater you bought me for a new hat.

FE: Agent-1

Where two Agents are exchanging Themes (or Places) with each other, they can be referred to separately. Agent-1 is the first of two Agents mentioned:

[Jo] **switched** hats with Jess.

In some cases, one of the two Agents is not overtly expressed:

[Members of the scheme] can **exchange** the vouchers for food

In this sentence, the External Argument is Agent-1 and Agent-2 is INI.

FE: Agent-2

Agent-2 is the second of two separate Agents exchanging Themes or Places.

Jo **switched** hats [with Jess].

FE: Agents

Two Agents exchanging Themes or Places with each other may be referred to with a single constituent:

[Jo and Jess] **switched** hats.

FE: Theme-Old

Theme-Old is an entity which is replaced with another.

Pat **replaced** [the curtains] with wooden blinds.

FE: Theme-New

Theme-New is an entity which replaces another.

Pat **replaced** the curtains [with wooden blinds].

FE: Themes

Two entities which are exchanged for each other.

Kim and Jo **exchanged** [addresses].

FE: Place

Place is the location of the replacement, for example the location originally occupied by Theme-Old and later occupied by Theme-New.

Elizabeth **replaced** her father [on the throne].

Substitute this value for the variable x [in the equation].

FE: Place-1

Place-1 is the first of two locations mentioned.

Jo **switched** the wallet [from one pocket] to another.

FE: Place-2

Place-2 is the second of two locations mentioned.

Jo **switched** the wallet from one pocket [to another].

FE: Places

The FE Place is two locations which are ‘exchanged’ for each other, as when two Agents switch locations.

Pat and Jo **switched** [places].

Pat **switched** the phone [between the two rooms].

C.2.5 Frame: Separation**Lexemes**

bisect.v, divide.v, part.v, partition.v, section.v, segment.v, segregate.v, separate.v, split.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Whole	Whole	Jo divided <i>the cake</i> into eight pieces.
Parts	Parts	Jo divided the cake <i>into eight pieces</i> .
Part-1	Part_1	The researcher separated <i>the albino mice</i> from the others.
Part-2	Part_2	The researcher separated the albino mice <i>from the others</i> .
Agent	Agt	<i>The researcher</i> separated the albino mice from the others.
Criterion	Crit	The researcher separated the mice <i>according to color</i> .

General Description

These words refer to separating a Whole into Parts, or separating Parts from each other. The separation may be made on the basis of some Criterion.

FE: Whole

This is a single entity or an aggregate of entities which is separated into Parts. It is usually the NP Object of a target verb.

The directors **split** [the company] in two.

The teacher **divided** [the children] into groups.

FE: Parts

This refers collectively to the Parts resulting from separation of a Whole:

The directors **split** the company [in two].

The teacher **divided** the children [into groups].

In reciprocals such as the following, both the reciprocal expression and the antecedent are tagged as Parts:

The teacher **separated** [the children] [from each other].

FE: Part-1

Part-1 is the first of two Parts mentioned. This is most often the Object of a verb.

First, **separate** [the yolks] from the whites.

FE: Part-2

Part-2 is the second of two Parts mentioned. This is usually a PP Complement.

First, **separate** the yolks [from the whites].

FE: Agent

With causative uses of these verbs, an Agent separates or divides something. The Agent is usually expressed as the External Argument:

[The researcher] **divided** subjects into groups.

FE: Criterion

This frame element expresses a property of the Parts or components of the Whole which is used as the basis for separation. Criterion is typically expressed as a PP headed by *by*, or as a complex PP of the form *on the basis of*...

The researcher **divided** subjects into groups [on the basis of eye color].

General Grammatical Observations

As with the frame General.Joining (above), words in this frame can be used statively, as in *The rooms are separated by a partition*, inchoatively, as in *The group separated* or causatively, as in *I separated the laundry*.

C.3 Domain: Body**C.3.1 Frame: Body-movement****Lexemes**

arch.v, bat.v, bend.v, blink.v, bob.v, clap.v, cock.v, crane.v, cross.v, drop.v, flap.v, flex.v, fling.v, flutter.v, frown.v, gnash.v, grimace.v, grin.v, grind.v, hang.v, jerk.v, lift.v, nod.v, pout.v, pucker.v, purse.v, roll.v, scowl.v, shake.v, shrug.v, shuffle.v, smile.v, smirk.v, stretch.v, swing.v, throw.v, toss.v, twitch.v, wag.v, waggle.v, wave.v, wiggle.v, wink.v, wrinkle.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	Kim rolled her eyes.
Body Part	BodP	Kim rolled <i>her eyes</i> .
Internal Cause	ICause	Kim wrinkled his nose <i>in disgust</i> .
Cause	Cause	Kim's nose wrinkled <i>at the smell</i> .
Addressee	Add	Kim rolled her eyes <i>at me</i> .
Source	Src	Pat lifted her feet <i>off the ground</i> .
Path	Path	Kim rolled her eyes <i>up and down</i> .
Goal	Goal	Pat flung his arms <i>around Kim</i> .
Area	Area	Kim waved his arms <i>in the air</i> .

General Description

This frame contains motions or actions an Agent performs using some part of his/her body.

A number of words in this frame occur as blends with Communication, in which the action has an Addressee. For example,

Pat **nodded** [at Kim].

These examples differ from *Communication.Gesture* in that no specific message need be expressed. The following is an example of *Communication.Gesture*:

She **nodded** to him to sit down.

FE: Agent

The Agent of the action occurs as the External Argument:

[The boy] **swung** his legs.

FE: Body Part

With some verbs in this frame, the Body Part involved in the action is specified by the meaning of the verb and cannot be expressed separately:

Pat **frowned** (*his face).

With others, the Body Part is specified by the verb but can optionally be expressed separately (although its presence is generally redundant):

Pat **nodded** (his head).

A few verbs have a 'default' Body Part which need not be expressed but this can be overridden by the expression of some other body part:

Pat **waved** (his arms).

(The objectless version of the sentence, *Pat waved*, is a blend with communication.)

The remainder of the verbs require a Body Part to be expressed in a separate constituent:

Pat **rolled** [his eyes].

Body Part generally occurs as the direct object.

FE: Internal Cause

The body movement may be prompted by either some outside phenomenon or occurrence, or by an Internal Cause, the Agent's mental or emotional state. Internal Cause is expressed in a PP Complement:

Kim **frowned** [in concentration].

Kim **threw** her hands up [in despair].

FE: Cause

Something in the external environment that causes the Agent to move part of his/her body. Cause is usually expressed in a PP Complement:

Pat **grimaced** [at the sudden noise].

Cause does not include any physical force moving the Agent's Body Part. This type of situation is described by the frame Motion.Cause-to-move.

FE: Addressee

This frame element only occurs in the Body-movement frame in sentences which are blends with Communication. Where it occurs, it is typically a PP Complement:

Pat **fluttered** his eyelashes [at me].

Since this frame involves a particular type of motion, it contains the frame elements Source, Path, Goal and Area, which originate in the motion frame. All of these frame elements are generally expressed in PP Complements.

FE: Source

Source is the place from which the Body Part is moved:

Pat **swung** his legs [from under the table].

FE: Path

The Path describes the trajectory of motion of the Body Part without specifying a start or end point.

Pat **flung** his arms [up].

FE: Goal

Any expression which identifies the endpoint of movement.

Pat **dropped** her hands [to her lap].

FE: Area

Any expression describing a region in which the motion takes place when the motion is understood to be irregular and not to consist of a single linear path.

Pat **waved** her arms [about her head].

C.3.2 Frame: Manipulation

Lexemes

clasp.v, claw.v, clutch.v, finger.v, grab.v, grasp.v, grip.v, knead.v, massage.v, nip.v, nudge.v, paw.v, pinch.v, pull.v, push.v, seize.v, squeeze.v, tug.v, tweak.v, wring.v, yank.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>Pat clutched the child by the hand.</i>
Entity	Enty	<i>Pat clutched the child by the hand.</i>
Locus	Locus	<i>Pat clutched the child by the hand.</i>
Agent's Body Part	AgBP	<i>Pat grasped the box with both hands.</i>

General Description

The words in this frame describe the manipulation of an Entity by an Agent.

A number of lexemes listed in this frame also occur in the frame Motion.Cause-to-move (for example, *push*, *yank*). Only the non-motion uses of these words belong in this frame, i.e. combinations such as *push at*, *push on*, *yank at*.

FE: Agent

The Agent manipulates an object. Agent typically refers to animate beings, but is also extended to mechanical and other inanimate objects. Agent is most frequently expressed as the external argument of verbs:

[A robot arm] **grasps** the box on the conveyor belt and seals it.

FE: Entity

The Entity being manipulated often occurs as the direct object of verbs:

Squeeze [the ball] as many times as you can.

Pat **squeezed** [Jo's hand].

FE: Locus

The Agent's manipulation of an Entity may be further specified as being localized to some part of the Entity, a Locus. The Locus is usually expressed as a PP Complement.

Pat **squeezed** Jo [by the hand].

FE: Agent's Body Part

The part of the Agent's body being used to manipulate the Entity may also be expressed. While the default is for an Agent to use his/her hands, other body parts may be specified. This frame element usually occurs as a PP Complement.

Kim **grasped** the needle [between finger and thumb].

C.3.3 Frame: Posture**Lexemes**

bend.v, crouch.v, hunch.v, huddle.v, kneel.v, lean.v, lie.v, sit.v, slouch.v, sprawl.v, squat.v, stand.v, stoop.v

Frame Elements (FEs)

FE	Tag	Example (in italics)
Agent	Agt	Pat sat in the armchair.
Location	Loc	Pat sat <i>in the armchair</i> .

General Description

The words in this frame are verbs describing the body posture of an Agent.

FE: Agent

The Agent is generally expressed as the external argument of verbs:

[Kim] was **kneeling** by the window.

FE: Location

The Location of the Agent is frequently expressed and generally occurs as a PP Complement:

Kim was **kneeling** [by the window].

C.4 Domain: Cognition**C.4.1 Frame: Awareness****Lexemes**

alert.a, attend.v, attention.n, attentive.a, aware.a, awareness.n, belief.n, believe.v, comprehend.v, comprehension.n, conceive.v, conception.n, conscious.a, hunch.n, imagine.v, interest.n, interested.a, know.v, knowledge.n, knowledgeable.a, presume.v, presumption.n, reckon.v, supposition.n, suspect.v, suspicion.n, think.v, thought.n, understand.v, understanding.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cognizer	Cog	<i>Kim</i> is aware of the problem.
Content	Cont	Kim is aware <i>of the problem</i> .
Evidence	Evid	Kim knew the answer <i>from studying the text</i> .
Topic	Top	Kim knows <i>about the party</i> .

General Description

The words in this frame have to do with the presence of some Content in the awareness, knowledge or beliefs of a Cognizer.

FE: Cognizer

This is the person whose awareness of phenomena is at question. With a target verb or adjective the Cognizer is generally expressed as an External Argument with the Content expressed as an Object or Complement:

- [The boss] is **aware** of your commitment.
- [The students] do not **know** the answer.
- [Pat] **believes** that things will change for the better.

FE: Content

This is the object of the Cognizer's awareness. Content can be expressed as a direct object or in a PP Complement:

- The police **believed** [Pat's story].
- The boss is **aware** [of your commitment].
- Kim **knows** [that poison oak is painful].

FE: Evidence

The source of awareness or knowledge can be expressed in a PP Complement:

- The sailors **knew** [from the look of the sky] that a storm was coming.
- I **knew** [from experience] that Jo would be late.

FE: Topic

Some words in this frame allow a Topic to be expressed in *about*-PPs:

- Kim **knows** [about first aid].

However, a number of nouns and adjectives in this frame which cannot take *about*-phrases allow Topic to be expressed as an adjectival or adverbial modifier:

- Kim is [politically] **aware**.
- [Environmental] **consciousness** is increasing.

C.4.2 Frame: Becoming-aware

Lexemes

discover.v, discovery.n, find.v, note.v, notice.v, recognize.v, register.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cognizer	Cog	<i>Pat discovered a great little restaurant in Soho.</i>
Phenomenon	Phen	<i>Pat discovered a great little restaurant in Soho.</i>
Ground	Ground	<i>Pat discovered a great little restaurant in Soho.</i>
State	State	<i>We discovered the children <i>playing in the pantry</i>.</i>
Evidence	Evid	<i>We discovered from their job performance that they were well trained.</i>

General Description

Words in this frame have to do with a **Cognizer** becoming aware of some **Phenomenon**. They are similar to Cognition.Coming-to-believe words, except the latter indicate changes of state that culminate in states of belief or knowledge. The words in this frame take direct objects that denote entities in the world, and indicate awareness of those entities, without necessarily giving any information about the content of the Cognizer's belief or knowledge. These words also resemble perception words, since creatures often become aware of things by perceiving them.

FE: Cognizer

This is the person who becomes aware of a Phenomenon. It is normally expressed as an External Argument:

[Pat] **discovered** a great little restaurant in Soho.

FE: Phenomenon

This is the entity or situation in the world of which a Cognizer becomes aware. It is normally expressed as an Object:

Pat **discovered** [a great little restaurant] in Soho.

FE: Ground

This is the background or context against which a Cognizer becomes aware of a Phenomenon. It is normally expressed by a locative PP:

Pat **discovered** a great little restaurant [in Soho].

I **noticed** a hint of sarcasm [in her voice].

FE: State

This is the state or situation of the Phenomenon at the time when the Cognizer becomes aware of it. It is normally expressed by a Predicate expression (e.g. a PP or a participial VP):

We **discovered** the children [playing in the pantry].

FE: Evidence

This is some fact that allows the Cognizer to become aware of something. It is normally expressed as a PP head be *from*:

We **discovered** [from their job performance] that they were well-trained.

General Grammatical Observations

Passive forms of the verbs in this frame can occur with extraposed clauses expressing Phenomenon:

That year it was **discovered** [that consumers preferred the older model].

It is not always **recognized** [how much work goes into a dinner party].

C.4.3 Frame: Categorization**Lexemes**

categorization.n, categorize.v, characterization.n, characterize.v, class.v, classification.n, classify.v, construe.v, define.v, definition.n, depict.v, depiction.n, describe.v, description.n, interpret.v, interpretation.n, perceive.v, portray.v, redefine.v, redefinition.n, regard.v, represent.v, representation.n, symbolize.v, translate.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cognizer	Cog	<i>Kim</i> categorized the book as fiction.
Item	Item	Kim categorized <i>the book</i> as fiction.
Category	Cat	Kim categorized the book <i>as fiction</i> .
Criterion	Crit	Kim categorized the books <i>by author</i> .

General Description

A person (the **Cognizer**) construes or decides to treat an entity (the **Item** as belonging to a certain **Category**. Words in this frame may also occur with expressions for the **Criterion** used in the act of categorization.

FE: Cognizer

This is the person who performs an act of categorization. Typically, this frame element is expressed as an External Argument:

[Kim] **categorized** the books under fiction.

[Kim] **categorized** them on the basis of genre.

FE: Item

This is the entity which is construed or treated by the Cognizer as being an instance of a particular Category. Typically, the Item is expressed as an Object:

Kim **categorized** [the books] under fiction.

FE: Category

This frame element expresses a general type or class of which the Item is considered an instance. Typically, it is expressed in a prepositional phrase headed by *as* or *under*:

Kim **categorized** the book [as/under fiction].

FE: Criterion

This frame element expresses a property of the Item which is used as a basis for categorization. Criterion is a general dimension along which Items can potentially differ from one another and hence, fall into different Categories. For example, paint sample can be classified *by color* or *by finish (matte or gloss)*; if they are classified by color, one can be classified *as orange* and another *as red*. Criterion is typically expressed as a PP headed by *by*, or as a complex PP of the form *on the basis of...*:

The students were **categorized** [on the basis of their test scores].

The librarian **classified** the books [by subject].

C.4.4 Frame: Cogitation**Lexemes**

brood.v, consider.v, consideration.n, contemplate.v, contemplation.n, deliberate.v, deliberation.n, dwell.v, meditate.v, meditation.n, mull.v, muse.v, ponder.v, reflect.v, reflection.n, ruminat.e.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cognizer	Cog	<i>Kim considered</i> running for office.
Topic	Top	Kim considered <i>running for office</i> .

General Description

A person, the **Cognizer**, thinks about a **Topic** over a period of time. What is thought about may be a course of action that the person might take, or something more general.

FE: Cognizer

With a target verb, the Cognizer is usually expressed as an External Argument, with the Topic appearing as an Object NP, a gerundive verbal Complement, or a PP:

- [Pat] **considered** a career change.
- [The employees] **contemplated** going on strike.
- [Everyone] **thought** about the game.

With a target noun, the Cognizer is typically expressed as the External Argument of a Support Verb, as a Possessor, or in a Prepositional Phrase:

- [The teacher] gave some **thought** to a career change.
- [Your] **ruminations** about art are not relevant.
- Your application was submitted for **consideration** [by the committee].

FE: Topic

With a target verb, the Topic is usually expressed as an Object NP, a gerundive verbal Complement, or a PP:

- Pat **considered** [a career change].
- The employees **contemplated** [going on strike].
- Everyone **thought** [about the game].

With a target noun, the Topic is typically expressed in a Prepositional Phrase:

- Your **contemplation** [of a career change] is understandable.
- Your **ruminations** [about art] are not relevant.

General Grammatical Observations

The words in this domain denote activities; the verbs, unlike stative verbs which appear in the Static frame, frequently appear in the progressive form.

C.4.5 Frame: Coming-to-believe

Lexemes

ascertain.v, conclude.v, conclusion.n, deduce.v, deduction.n, guess.n, guess.v, infer.v, inference.n, learn.v, realization.n, realize.v, surmise.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cognizer	Cog	<i>Kim inferred that pigs don't fly.</i>
Evidence	Evid	<i>Kim inferred <i>from their girth</i> that pigs don't fly.</i>
Content	Cont	<i>Kim inferred <i>that pigs don't fly</i>.</i>
Topic	Top	<i>Kim inferred something <i>about us</i>.</i>

General Description

A person (the **Cognizer**) comes to believe something (the **Content**), sometimes after a process of reasoning. This change in belief is usually initiated by a person or piece of **Evidence**. Occasionally words in this domain are accompanied by phrases expressing **Topic**, i.e. that which the mental Content is about.

FE: Cognizer

Cognizer is the person who comes to believe something.

[Sue] **realized** that Bob was lost.

FE: Evidence

Words in this frame may occur with a PP headed by *from* which expresses the Evidence on which knowledge or belief is based:

I have **learned** [from experience] that poison oak can be painful.

FE: Content

With a target verb, the Content is usually expressed as a finite clausal Complement or an Object NP, and may sometimes be expressed by a PP:

The President **learned** [that the reporters were hungry].

The children **determined** [the answer].

FE: Topic

Some verbs in this frame may occur with postverbal Topic expressions:

They **found out** [about us]!

More generally verbs in this frame may occur with quantificational nouns followed by Topic expressions:

The jury **learned** something terrible [about the suspect].

C.4.6 Frame: Differentiation

Lexemes

differentiate.v, discriminate.v, discrimination.n, distinguish.v, sort.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cognizer	Cog	<i>The teacher couldn't differentiate the twins.</i>
Phenomenon-1	Phen-1	<i>The teacher couldn't differentiate <i>Pat</i> from Kim.</i>
Phenomenon-2	Phen-2	<i>The teacher couldn't differentiate <i>Pat from Kim</i>.</i>
Phenomena	Phen-pl	<i>The teacher couldn't differentiate <i>the twins</i>.</i>
Quality	Qual	<i>They can be differentiated <i>by their eyebrows</i>.</i>

General Description

Words in this frame have to do with a person being aware (or not being aware) of the difference between two Phenomena, which may be expressed jointly or disjointly.

FE: Cognizer

The cognizer is the person (or other sentient being) who potentially determines that two Phenomena are distinct from each other. It is normally expressed as an External Argument:

[The teacher] couldn't **distinguish** one child from the other.

FE: Phenomenon-1

The phenomena that are potentially judged to be different from one another can be expressed as separate constituents. When they are, one is typically expressed as an NP Object, and the other as a PP Complement headed by *from*:

The teacher couldn't **distinguish** Pat from Kim.

In this case, the phenomenon expressed more prominently as an NP Object is called **Phenomenon-1**:

The teacher couldn't **distinguish** [Pat] from Kim.

FE: Phenomenon-2

See Phenomenon-1, above.

The phenomenon expressed less prominently as a PP complement is called **Phenomenon-2**:

The teacher couldn't **distinguish** Pat [from Kim].

FE: Phenomena

Both phenomena that are potentially judged to be different from one another can be expressed jointly by the same constituent:

The teacher couldn't **distinguish** [the twins].

Such constituents are assigned the FE **Phenomena**. They are always plural, as in the above example, or involve conjunction:

The teacher couldn't **distinguish** [Pat and Kim].

FE: Quality

This is a property that is potentially used by the Cognizer to distinguish one phenomenon from another. It is normally expressed as a PP headed by a preposition such as *from*, *by*, or *on the basis of*:

The coach could **distinguish** the twins [by their hair].

General Grammatical Observations

Verbs in this domain often occur with the modal auxiliary *can*.

C.4.7 Frame: Evidence**Lexemes**

argue.v, argument.n, attest.v, confirm.v, corroborate.v, demonstrate.v, evidence.v, evince.v, prove.v, reveal.v, show.v, substantiate.v, testify.v, verify.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Support	Sup	<i>This evidence supports my hypothesis.</i>
Proposition	Prop	<i>This evidence supports my hypothesis.</i>

General Description

This frame involves some kind of phenomenon, the **Support**, that lends support to a claim or proposed course of action, the **proposition**. Some of the words in this frame, such as *argue* are communication words used in a non-communicative, epistemic sense.

FE: Support

This is a fact that lends epistemic support to a claim, or that provides a reason for a course of action. Typically it is expressed as an External Argument:

[The fact that you lied to me] **shows** that I shouldn't trust you.

[Your face] **reveals** that you are lying.

FE: Proposition

This is a belief, claim, or proposed course of action to which the Support lends validity. Normally it is expressed as a Finite Clause Complement:

The fact that you lied to me **shows** [that I shouldn't trust you].

Some words in this frame require the proposition to be expressed as an NP Object:

The fact that you lied **substantiates** [the claim that you can't be trusted].

C.4.8 Frame: Expectation**Lexemes**

anticipate.v, await.v, expect.v, foresee.v, predict.v, wait.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cognizer	Cog	<i>Pat awaits the end of the millennium.</i>
Phenomenon	Phen	<i>Pat awaits the end of the millennium.</i>

General Description

Words in this frame have to do with a Cognizer believing that some Phenomenon will take place in the future.

FE: Cognizer

This is the person who believes some Phenomenon will take place in the future. It is normally expressed as an External Argument:

[Pat] **expects** that the Yankees will win the World Series.

FE: Phenomenon

This is what the Cognizer believes will happen in the future. It can be expressed as a Finite Clause Complement, an NP Object, or a VP Complement with or without an NP Object (see General Grammatical Observations):

Pat **expects** [that the Yankees will win the World Series].

Pat **expects** [a big win].

Pat **expects** [the Yankees] [to win the World Series].

General Grammatical Observations

Many of the verbs in this frame allow Raising:

Pat **expects** it to rain.

In the example above, the word *it* is grammatically the Object of the target verb *expect*, but it does not express an FE. Rather, it is merely construed as the External Argument of the verb *rain*, which heads the VP Complement of the target. In this situation, both the raised constituent *it* and the VP Complement are marked with the **Phenomenon** FE, but are marked as separate constituents. That is because the Object can be passivized and therefore not appear adjacent to the VP Complement:

It is **expected** to rain.

C.4.9 Frame: Invention**Lexemes**

coin.v, conceive.v, concoct.v, concoction.n, contrivance.n, contrive.v, cook.v, create.v, design.v, devise.v, dream-up.v, formulate.v, hatch.v, improvise.v, invent.v, invention.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cognizer	Cog	<i>Kim created a new dance step.</i>
Invention	Inv	<i>Kim created a new dance step</i>
Purpose	Purp	<i>Kim designed it to ward off evil spirits.</i>
Material	Mat	<i>It was concocted out of various gestures.</i>

General Description

Words in this frame have to do with a Cognizer creating a new intellectual entity, the Invention. These words are similar to words of physical creation such as *build* and *make*, and in some cases may be understood as metaphorically based on such words. However, the Inventions in this frame are predominantly conceptual in nature.

FE: Cognizer

Cognizer is the person who comes up with or conceptualizes the Invention. It is normally expressed as an External Argument:

[Kim] **devised** a new recipe.

FE: Invention

Invention is the intellectual creation of the Cognizer. It is normally expressed as an NP Object, but sometimes as a PP Complement:

Kim **devised** [a new recipe].

Kim **came up** [with a new recipe].

FE: Purpose

Some of the words in this frame frequently occur with a constituent expressing the **Purpose** for which the Invention is intended. Normally this constituent is a PP Complement headed by *for* or a *to*-marked VP Complement:

This car has been **designed** [for quicker performance].

Kim **created** this plan [to prevent a hostile takeover].

FE: Material

Words in this frame sometimes occur with a constituent that expresses the intellectual material from which the Invention is created. This frame element is characteristic of physical creation verbs like *make*; its presence gives sentences in this frame an especially strong metaphorical quality. The Material FE is normally expressed by a PP Complement headed by *from* or *out of*:

The composer **created** the symphony [out of snippets of popular melodies].

C.4.10 Frame: Judgment**Lexemes**

acclaim.n, acclaim.v, accusation.n, accuse.v, admiration.n, admire.v, admiring.a, admonish.v, admonishment.n, admonition.n, applaud.v, appreciate.v, appreciation.n, approbation.n, approving.a, belittle.v, berate.v, blame.n, blame.v, blast.v, castigate.v, censure.n, censure.v, charge.v, chastise.v, chastisement.n, chide.v, cite.v, commend.v, commendation.n, compliment.n, compliment.v, condemn.v, condemnation.n, contempt.n, contemptuous.a, critical.a, criticism.n, criticize.v, damn.v, damnation.n, decry.v, denigrate.v, denigration.n, denounce.v, denouncement.n, denunciation.n, deplore.v, deprecate.v, deride.v, derision.n,

derisive.a, disapproval.n, disapprove.v, disapproving.a, disdain.n, disdain.v, disdainful.a, disparage.v, disparagement.n, disparaging.a, disrespect.n, esteem.n, esteem.v, extol.v, fault.n, fault.v, laud.v, mock.v, mocking.a, praise.n, praise.v, rebuke.n, rebuke.v, remonstrance.n, remonstrate.v, reprimand.n, reprimand.v, reproach.n, reproach.v, reproachful.a, reproof.n, reprove.v, ridicule.n, ridicule.v, scathing.a, scoff.v, scold.v, scorn.n, scorn.v, scornful.a, stigma.n, stigmatize.v, stricture.n, thank.v, thanks.n, uncritical.a, upbraid.v

Frame Elements (FEs)

FE	Tag	Example (in italics)
Cognizer	Cog	<i>Kim respects</i> Pat for being so brave.
Evaluee	Eval	Kim respects <i>Pat</i> for being so brave.
Reason	Reas	Kim respects Pat <i>for being so brave</i> .
Role	Role	Kim is critical of Pat <i>as a scholar</i> .
Expressor	Exr	Pat threw Kim an approving <i>glance</i> .

General Description

A person (the **Cognizer**) makes a judgment about someone or something (the **Evaluee**). The judgment may be positive (e.g. *respect*) or negative (e.g. *condemn*). The target word may entail that the judgment is expressed verbally (e.g. *scold*) or it may not (e.g. *blame*). There may be a specific **Reason** for the Cognizer's judgment, or there may be a capacity or **Role** in which the Evaluee is evaluated.

FE: Cognito

This is the person who makes the judgment. This role is typically expressed as the External Argument (or in a *by*-PP in passives).

[The boss] **appreciates** you for your diligence.

[The boss] is very **critical** of my work.

FE: Evaluee

Evaluee is the person or thing about whom/which a judgment is made. With verbs this FE is typically expressed as Object:

The boss **appreciates** [you] for your diligence.

FE: Reason

Typically, there is a constituent expressing the **Reason** for the Judge's judgment. It is usually a *for*-PP, e.g.

I **admire** you [for your intellect].

For some words in this domain, the Reason frame element is obligatory. That is to say, the overt expression of this frame element may only be omitted when the reason for the judgment is understood from context. For example, the sentence

I **blame** you!

can only be uttered when it is clear what the addressee is being blamed for.

FE: Role

Some sentences with judgment words have constituents which say something about the capacity in which the Evaluee is judged. These are typically *as*-PPs, e.g.

I **admire** you [as a composer].

There are similar (but not identical) uses of *as*-PPs that occur with words involving a verbal expression of judgment, such as *decry*:

Pat **decried** Kim [as the worst offender].

These *as*-PPs are probably best considered Reason. The true Role *as*-PPs are those expressions which cannot be paraphrased with *for*-PPs. For example, *I admire you as a composer* does not mean the same as *I admire you for being a composer*. Rather, the former means something like ‘I think you are a good composer.’ In contrast, *They decried him as a traitor* is very similar in meaning to *They decried him for being a traitor*. (We note that the latter seems to be factive, while the former is not.)

FE: Expressor

Expressor is the body part or action by a body part that conveys the judgment made by the Cognizer.

She viewed him with a **critical** [gaze].

Communication FEs with Judgment words

Because many of the judgment words entail a verbal expression of the judgment, they sometimes occur in syntactic patterns that are more characteristic of Communication words than of Cognition words. For example, the verb *criticize* may occur with a direct quote or, occasionally, with a *to*-PP expressing an Addressee. Since the Communication FEs are not available to the annotator while annotating with the Cognition.Judgment tagset, these sentences are marked the Re-examine Sentence tag.

C.4.11 Frame: Mental-property

Lexemes

absent-minded.a, absurd.a, absurdity.n, astute.a, astuteness.n, brainless.a, brilliance.n, brilliant.a, broad-minded.a, bull-headed.a, canny.a, careless.a, carelessness.n, crafty.a, crazy.a, cunning.a, cynical.a, daft.a, diligent.a, dim-witted.a, dim.a, discerning.a, discernment.n, enlightened.a, enlightenment.n, foolish.a, foolishness.n, forgetful.a, foxy.a, idiotic.a, ill-advised.a, inane.a, inattentive.a, ingenious.a, insightful.a, intelligent.a, irrational.a, ludicrous.a, moronic.a, naive.a, narrow-minded.a, nonsensical.a, perceptive.a, reasonable.a, ridiculous.a, sagacious.a, sage.a, sensible.a, shrewd.a, smart.a, unreasonable.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Protagonist	Prot	<i>Kim</i> was astute to make that investment.
Behavior	Behv	Kim was astute <i>to make that investment</i> .
Practice	Prac	Kim is astute <i>at math</i> .

General Description

The adjectives and nouns in this frame are all based on the idea that mental properties may be attributed to a person on the basis of that person's **Behavior**, broadly understood. Though on a conceptual level these words always attribute mental properties to people, they may be applied to people's Behaviors as well, with the understanding that the Behavior is revealing a (usually temporary) property of the person responsible for it. For example, while we may speak of a *stupid person*, we may also speak of a *stupid thing to say/do/think*. In addition, we may mention both the Protagonist and the Behavior, as in *It was stupid of me to do that*. Some of the words in this frame also have slightly different uses, in which there is a constituent expressing the **Practice** with respect to which the mental property holds of the Protagonist, as in *She is astute at math*. While Practice expressions do not co-occur with Behavior expressions, they seem sufficiently different semantically to warrant a distinct frame element name. Also, while the FE Behavior usually occurs in sentences expressing judgments that are based on specific events, Practice occurs in sentences that are about general capabilities.

In addition to the frame elements which are expressed, there is an understood Judge (usually the speaker) in the background who forms the opinion of the Protagonist's mental properties, judging the Protagonist or the Protagonist's Behavior to be stupid, brilliant, etc.

FE: Protagonist

This is the person (or people) to whom a mental property is attributed. The FE may be expressed as External Argument of a predicative use of the adjective,

as a PP Complement, or as the head noun modified by an attributive use of the adjective:

[You] were **smart** to save all your receipts.
 It was **smart** [of you] to save all your receipts.
 You are a **smart** [person] to save your receipts.

FE: Behavior

This is any action, utterance, belief, or artifact thereof on the basis of which a mental property is attributed to the Protagonist. The meaning of the English word *behavior* should not be taken to constrain the identity of this frame element too much—conceptually, this frame element includes things that would not normally be described using the word *behavior*. All the bracketed constituents in the following sentences are examples of Behavior:

That was a **stupid** [mistake].
 The manager made a few **stupid** [remarks] and then sat down.
 What a **stupid** [book]!
 It's **stupid** [to think that everything will improve].

FE: Practice

Some of the words in this frame have a slightly different use in which they evaluate someone only with respect to their mental performance in some particular domain or capacity. We call this domain or capacity **Practice**. E.g.,

She is **astute** [at math].

Note that this does not mean she is considered to be astute in general for doing math. Rather, she is astute with respect to math, but may be dumb with respect to other things. These uses probably belong in a different frame with words such as *skilled*, but for the time being they are marked with the FE Practice.

General Grammatical Observations

The adjectives in this frame may exhibit Extraposition of a *to*-marked infinitive VP, with an optional Protagonist expressed in an *of*-PP:

It was **brilliant** (of you) to invite the clowns to the party.

C.4.12 Frame: Salience

Lexemes

apparent.a, attractive.a, compelling.a, conspicuous.a, distinct.a, distinctive.a, evident.a, familiar.a, flagrant.a, glaring.a, inconspicuous.a, manifest.a, noticeable.a, obvious.a, plain.a, self-evident.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Content	Cont	<i>Pat's annoyance was obvious.</i>
Cognizer	Cog	Pat's annoyance was obvious to me.
Evidence	Evid	Pat's anger was obvious <i>from her face</i> .
Ground	Ground	Pat was inconspicuous <i>among the crowd</i> .
Location of Perceiver	Loc-Perc	The arch is distinct <i>from a mile away</i> .

General Description

This frame contains adjectives describing how noticeable or salient some Content is to Cognizers who might perceive it.

FE: Content

The Content is the entity or phenomenon whose salience is described. This usually occurs as the External Argument of predicate adjectives or as the head noun with the target word used attributively:

[The effects of unemployment] are **evident** in this area.

The rise in unemployment has caused **noticeable** [social problems].

FE: Cognizer

The Cognizer is frequently not expressed, although the judgment of salience is often understood to be that of the speaker. Where Cognizer is expressed, it occurs in a PP Complement:

Your discomfort is **obvious** [to me].

FE: Evidence

Any information which would be likely to make the Content salient to the Cognizer. This frame element occurs as a PP Complement:

Pat's intelligence is **obvious** [from the papers she writes].

FE: Ground

The Content may be described as salient or inconspicuous with respect to its context or background:

The animal was barely **noticeable** [in the long grass].

FE: Location of Perceiver

The salience of the Content to a Cognizer may depend on the position of the Cognizer. This frame element appears in *from*-PPs:

The actor's mistake was **obvious** [from where I was sitting].

General Grammatical Observations

The adjectives in this frame may exhibit **Extraposition** of a clausal expression:

It is **obvious** *that you are displeased*.

C.4.13 Frame: Scrutiny**Lexemes**

analyse.v, analysis.n, examination.n, examine.v, inspect.v, inspection.n, investigate.v, investigation.n, look.v, perusal.n, peruse.v, scan.v, scrutinize.v, scrutiny.n, search.n, search.v, study.n, study.v, survey.n, survey.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cognizer	Cog	[Leslie] examined the glass for cracks.
Ground	Ground	Leslie examined [the glass] for cracks.
Phenomenon	Phen	Leslie examined the glass [for cracks].

General Description

This frame has to do with a person (or other intelligent being), the Cognizer, paying close attention to something, the Ground, in order to discover a property, the Phenomenon, that belongs to it or an entity that it contains (or to ensure that such a property of entity is not present).

FE: Cognizer

This is the person who pays attention to an entity in order to discover something about it. The FE is normally expressed as an External Argument:

[Leslie] **examined** the glass for cracks.

FE: Ground

This is the entity to which the Cognizer pays attention. It is referred to as **Ground** because it serves as the background or context for the Phenomenon. This FE can be expressed as an NP Object or as a PP Complement:

Leslie **examined** [the glass] for cracks.

Kim **searched** [in the woods] for mushrooms.

FE: Phenomenon

This is the property that belongs to an entity or that the entity contains. Typically, it is expressed as a *for*-PP.

Leslie **examined** the glass [for cracks].

Kim **searched** in the woods [for mushrooms].

General Grammatical Observations

Some words in this frame allow alternate expressions of the Ground and the Phenomenon:

We searched the yard for my contact lens.

We searched for my contact lens in the yard.

C.5 Domain: Communication

The frames in this domain all have to do with verbal communication between people and inherit structure and frame elements from the higher-level frame Communication.

With the exception of the frame Communication.Gesture, the frame element Speaker is used throughout this domain to denote the person who communicates a Message, regardless of whether the message is spoken or written.

Another frame element which is domain-wide is Medium, i.e. the medium used for communication. This may be a language, a type of text, etc:

We had an **argument** [in French].

She **told** me all the news [in her letter].

The President made his **speech** [on television].

C.5.1 Frame: Candidness**Inherits: Communication****Mapping:**

<u>Source</u>	<u>Target</u>
Communication.Speaker	Candidness.Speaker
Communication.Addressee	Candidness.Addressee
Communication.Message	Candidness.Message

Lexemes

blunt.a, candid.a, coy.a, discreet.a, explicit.a, forthcoming.a, forthright.a, frank.a, honest.a, open.a, outspoken.a, secretive.a, sincere.a, straightforward.a, truthful.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	<i>Leslie</i> was blunt with me about the lawsuit.
Addressee	Add	Leslie was blunt <i>with me</i> about the lawsuit.
Message	Msg	<i>Leslie's statement</i> was quite blunt .
Topic	Top	Leslie was blunt with me <i>about the lawsuit</i> .

General Description

This frame contains adjectives that describe the truth or sincerity of communication. These adjectives, analogously to behavior-evaluating adjectives, can apply either to Speakers or to the Messages they produce. They can occur with *about* PPs expressing Topic.

FE: Speaker

The person who produces the Message, the truth or sincerity of which is at issue. It is normally expressed as the External Argument of predicative uses of the target word, or as the Nominal Head of prenominal uses:

[Evelyn] was quite **straightforward** about what happened.

Evelyn is one of the most **straightforward** [people] I have ever met.

FE: Addressee

The person to whom the Message is communicated. This FE often remains unexpressed. When it is expressed, it normally takes the form of a PP Complement headed by *with*:

Evelyn was **straightforward** [with me] about what happened.

FE: Message

This is the communicative content whose truth or sincerity is at issue. This FE does not normally co-occur with the other FEs in this frame. When it does occur, it is normally the External Argument of a predicative use of the target word, or the modified Nominal Head in a prenominal use:

Evelyn made some **blunt** [remarks] about the party.

[Evelyn's remarks] were **blunt**.

FE: Topic

This is the subject matter to which the Message pertains. It often occurs without the Message FE in predicative uses of the target word. It is normally expressed as a PP Complement headed by *about*:

Evelyn and Leslie are very **candid** [about their upbringing].

C.5.2 Frame: Commitment

Inherits: Communication

Mapping:

<u>Source</u>	<u>Target</u>
Communication.Communicator	Commitment.Speaker
Communication.Addressee	Commitment.Addressee
Communication.Message	Commitment.Message

Lexemes

consent.v, covenant.n, covenant.v, oath.n, pledge.n, pledge.v, promise.n, promise.v, swear.v, threaten.n, threaten.v, undertake.v, undertaking.n, volunteer.v, vow.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	<i>Kim promised to be on time.</i>
Addressee	Add	<i>Kim promised Pat to be on time.</i>
Message	Msg	<i>Kim promised to be on time.</i>
Topic	Top	<i>The government broke its promise about taxes.</i>
Medium	Medium	<i>Kim promised in writing to sell Pat the house.</i>

General Description

A Speaker makes a commitment to an Addressee to carry out some future action. This may be an action desirable (as with *promise*) or not desirable (as with *threaten*) to the Addressee. Some of the words in this frame allow an Addressee to be expressed:

You **promised** [me] you'd come to my graduation.

Other words cannot normally occur with an Addressee:

Kim **undertook** to finish the project by June.

FE: Speaker

The Speaker is the person who commits him/herself to do something. Speaker is usually the External Argument of predicative uses of the target or the Genitive modifier of a noun:

[Jo] made a **promise** to me.

[Jo] **promised** me she would cook dinner.

[Jo's] **promise** to cook dinner came to nothing.

FE: Addressee

The Speaker's commitment can be made to an Addressee. With those words which allow this frame element to be expressed, Addressee usually occurs as a PP Complement headed by *to* or the (Indirect) Object of verbs:

Kim made a **promise** [to me].

Kim **promised** [me] that everything would be okay.

FE: Message

An expression of the commitment made by the Speaker expresses the frame element Message. Message is expressed as a finite or non-finite clausal Complement or an NP Object:

I **swore** [that I would never make the same mistake again].

The owner finally **consented** [to sell the business].

They **threatened** [revenge].

FE: Topic

Topic expressions are not very frequent in this frame. They can occur with noun targets.

Jo made endless **promises** [about working harder at school].

FE: Medium

As with other frames in the Communication domain, the **Medium** of communication may be expressed. Medium is the physical entity or channel used to transmit the Message.

Bob **threatened** the workers [in Spanish].

C.5.3 Frame: Conversation

Inherits: Communication

Mapping:

<u>Source</u>	<u>Target</u>
Communication.Topic	Conversation.Topic
Communication.Medium	Conversation.Medium

Description of mapping:

The mapping of frame elements from communication to conversation is not one-to-one. Conversation involves two Interlocutors, both of whom map onto both Communicator and Addressee. Conversation involves an iterated act of

communication: each turn within a conversation involves a Speaker and an Addressee, but the participants (Interlocutors) may take both roles at different points in the exchange.

This type of argument structure in Conversation is inherited from the Reciprocity frame (see below).

The frame element Message does not have a counterpart in the conversation frame. This is also due to the iterative nature of conversation: a Message may be communicated by a single turn within a conversation, but the entire conversation can only have a Topic.

Inherits: Reciprocity

Mapping:

<u>Source</u>	<u>Target</u>
Reciprocity.Protagonist-1	Conversation.Interlocutor-1
Reciprocity.Protagonist-2	Conversation.Interlocutor-2
Reciprocity.Protagonists	Conversation.Interlocutors

Description of mapping:

The mapping of Protagonist(s) to Interlocutor(s) is straightforward. While the actual roles that the Interlocutors play are those of Communicator and Addressee, the argument structure of conversation verbs is determined by the reciprocal nature of Conversation. This accounts for the complexity of the mapping from Communicator and Addressee roles inherited from the Communication frame, as described above.

Lexemes

altercation.n, argue.v, argument.n, banter.n, bicker.v, bickering.n, chat.v, chat.n, communicate.v, communication.n, confer.v, converse.v, conversation.n, debate.n, debate.v, dialogue.n, disagreement.n, discuss.v, discussion.n, dispute.n, exchange.n, fight.v, gossip.n, gossip.v, joke.v, meeting.n, quarrel.n, quarrel.v, row.n, row.v, speak.v, squabble.v, talk.v, tiff.n

Frame Elements (FEs)

FE	Tag	Verb Example	Noun Example
Interlocutor-1	Intlc_1	<i>Kim</i> argued with Pat.	<i>Kim</i> had an argument with Pat.
Interlocutor-2	Intlc_2	Kim argued <i>with Pat</i> .	Kim had an argument <i>with Pat</i> .
Interlocutors	Intlc_s	<i>Kim and Pat</i> argued .	<i>Kim and Pat</i> had an argument .
Topic	Top	Kim and Pat argued <i>about politics</i> .	Kim and Pat had an argument <i>about politics</i> .
Medium	Medium	Kim and Pat argued <i>in French</i> .	Kim and Pat had an argument <i>in French</i> .

General Description

Two (or more) people talk to one another. No person is construed as only a speaker or only an addressee. Rather, it is understood that both (or all) participants do some speaking and some listening—the process is understood to be symmetrical or reciprocal.

FE: Interlocutor-1

In many sentences, one participant is given the more prominent grammatical function of Subject, and the other is expressed within a prepositional phrase, e.g.

[The President] **spoke** with his top advisor.

In such sentences, the Subject (in this case *The President*), which expresses the more prominent participant, is assigned the FE role **Interlocutor-1**. The *with*-PP, which expresses the less prominent participant, is assigned the FE role **Interlocutor-2**.

Note that it is possible for a single role to correspond to multiple referents. For example, if the prepositional object in the above sentence were plural, as in

The President **spoke** [with his top advisors].

we would still assign it the single role **Interlocutor-2**.

FE: Interlocutor-2

See Interlocutor-1, above.

The President **spoke** [with his top advisor].

FE: Interlocutors

In some sentences both participants are expressed by the Subject, and there is no *with*-phrase, e.g.

[The President and his advisor] **spoke** briefly before the summit.

In sentences like this, the Subject is assigned the FE role **Interlocutors**. In such sentences, the Subject always denotes more than one person, and it is understood that the reciprocal communication takes place between these two (or more) people. The Subject may denote two or more people either through conjunction, as in the sentence above, or through plurality, as in

[The lawyers] **conferred** before the trial.

In either case the FE **Interlocutors** is assigned.

For nouns in the Conversation frame, it is possible for the **Interlocutors** role to be expressed by a prepositional phrase, e.g.

There was a brief **conversation** [between the lawyers].

Here *between the lawyers* is assigned the FE role **Interlocutors**.

FE: Topic

In general, words in this frame may occur with constituents expressing the FE role **Topic**. For example:

The President and his top advisors **discussed** [the scandal].

They had a **discussion** [about the scandal]

FE: Medium

Most words in the Communication domain may occur with constituents expressing the **Medium** of communication, such as the language used or the medium proper (e.g. print or radio).

The candidates debated [on the radio].

C.5.4 Frame: Encoding

Inherits: Communication

Mapping:

<u>Source</u>	<u>Target</u>
Communication.Communicator	Encoding.Speaker
Communication.Message	Encoding.Message

Lexemes

couch.v, express.v, expression.n, formulate.v, formulation.n, frame.v, phrase.v, phrasing.n, put.v, voice.v, word.v, wording.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	<i>Kim expressed the idea clearly.</i>
Message	Msg	<i>Kim expressed the idea carefully.</i>
Manner	Manr	<i>Kim expressed the idea carefully.</i>
Medium	Medium	<i>Kim expressed the idea in a song.</i>

General Description

A person (the **Speaker**) expresses a **Message** or mental content, broadly understood, in a particular **Manner**. The content may be emotional, as in *express one's feelings*, intellectual, as in *formulate the idea carefully*, or linguistic, as in *phrase your question as a comment*.

FE: Speaker

The Speaker, the person who encodes the Message, occurs as the External Argument of all these verbs:

[The teacher] **phrased** the question carefully.

FE: Message

In this frame Message is almost invariably expressed in an NP Object. (The only exceptions occur with the verb *express*, which is occasionally used with *that*-clause complements.)

The Prime Minister **expressed** [her sympathy for the victims].

The Prime Minister **expressed** that she was worried about the victims.

FE: Manner

For most of the words in this frame, some expression of Manner or Medium is obligatory. As in other frames, Manner expressions characterize the action (in this case, the speech act performed by the Speaker). However, a wide range of Manner expressions occurs in this frame, including the following types:

True manner	You should phrase it [carefully].
Illocutionary force	You should phrase it [as a question].
Purpose	You should phrase it [so that everyone understands].

FE: Medium

This frame element expresses the medium of communication, such as the language used or the specific type of text in which the Message occurs:

Kim **formulated** her objections [in French].

Kim **formulated** her objections [in a letter].

C.5.5 Frame: Gesture

Inherits: Communication

Mapping:

<u>Source</u>	<u>Target</u>
Communication.Communicator	Gesture.Communicator
Communication.Addressee	Gesture.Addressee
Communication.Message	Gesture.Message

Lexemes

beckon.v, gesticulate.v, gesture.v, motion.v, nod.v, signal.v, wave.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Communicator	Com	[The teacher] gestured us into the room.
Addressee	Add	The teacher gestured [us] into the room.
Message	Msg	The teacher gestured us [into the room].

General Description

The words in this frame have to do with non-verbal communication. Topic is not normally expressed with these words. This seems to be related to the absence of a verbal code in cases of gestural communication. Topic can be viewed as a partial characterization of a Message, but such partial characterization is either difficult or irrelevant in the absence of a verbal code.

FE: Communicator

This is the person who communicates a Message non-verbally. It is normally expressed as an External Argument:

[The teacher] **gestured** us into the room.

FE: Addressee

This is the person to whom a non-verbal Message is communicated. It may be expressed as an NP Object or as a PP Complement:

The teacher **gestured** [us] into the room.

The teacher **gestured** [to us] to enter the room.

FE: Message

This is the content of non-verbal communication. It may be expressed as a *that*-clause Complement, a *to*-marked infinitive VP Complement, or a directional PP Complement:

The teacher **gestured** [that it was time to leave].

The teacher **gestured** to us [to enter the room].

The teacher **gestured** us [into the room].

C.5.6 Frame: Hear**Inherits: Communication****Mapping:**

<u>Source</u>	<u>Target</u>
Communication.Communicator	Hear.Speaker
Communication.Addressee	Hear.Addressee
Communication.Message	Hear.Message

Lexemes

hear.v, overhear.v, read.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	I heard <i>from Pat</i> that class was canceled.
Addressee	Add	<i>Pat</i> heard the news from Kim.
Message	Msg	Kim read <i>that the peace treaty had been signed</i> .
Topic	Top	Kim read <i>about the signing of the treaty</i> .
Medium	Medium	Kim read <i>about the peace treaty in the newspaper</i> .

General Description

Words in this frame denote events of verbal communication, but express the Addressee rather than the Speaker as an External Argument.

FE: Speaker

This is the person who produces a Message. Typically, it is expressed in this frame as a PP-complement headed by *from*:

The students **heard** [from Pat] that class was canceled.

FE: Addressee

This FE is the person who receives a Message. It is expressed as an Exteranal Argument in this frame:

[The students] **heard** from Pat that class was canceled.

FE: Message

The Message is the content that is communicated from one person to another. It is normally expressed as an NP Object or a finite clause Complement:

The students **heard** [the news].

The students **heard** from Pat [that class was canceled].

FE: Topic

Topic is the subject matter about which the Message is communicated. It is normally expressed as a PP-complement headed by *about*, with or without a quantificational noun:

The students **heard** [about class].

The students **heard** something [about today's class].

The quantificational noun, if present, is treated as the Message.

FE: Medium

Medium is the physical entity or channel used to transmit the Message. It is normally expressed as a PP-complement headed by *on* or *in*:

The students **heard** the news [on the radio].

The students **read** the news [in the paper].

C.5.7 Frame: Manner**Inherits: Communication****Mapping:**

<u>Source</u>	<u>Target</u>
Communication.Communicator	Manner.Speaker
Communication.Addressee	Manner.Addressee
Communication.Message	Manner.Message

Lexemes

babble.v, bluster.v, chant.v, chatter.v, drawl.v, gabble.v, gibber.v, jabber.v, lisp.v, mouth.v, mumble.v, mutter.v, natter.v, prattle.v, rant.v, rave.v, shout.v, simper.v, sing.v, slur.v, stammer.v, stutter.v, whisper.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	<i>Kim</i> whispered something to me.
Addressee	Add	Kim whispered something <i>to me</i> .
Message	Msg	<i>“That’s outrageous!”</i> Pat ranted .
Topic	Top	Pat was muttering <i>about having too much work</i> .
Medium	Medium	The priest chanted something <i>in Latin</i> .

General Description

The words in this frame describe manners of verbal communication. All of them can occur with quoted expressions.

FE: Speaker

Speaker is the person who produces a Message or communicates about a Topic. It is expressed as the External Argument of verbs:

[The boy] **mumbled** an apology.

FE: Addressee

Addressee is the person to whom the Speaker is communicating. When expressed, the Addressee occurs as a PP Complement:

The taxi driver **chattered** away [to me] about gardening.

FE: Message

Message is the content which is communicated by the Speaker. The Message may be a direct quote, a finite complement clause or an NP Object:

[“I- It was an accident,”] Jo **stammered**.

Jo **stammered** [that it was an accident].

Jo **stammered** [an apology].

FE: Topic

Topic is the subject matter of the communicated Message. It is normally expressed as a PP Complement headed by *about* and, in this frame, is frequently preceded by a quantificational noun which is treated as referring to the Message:

The actor **chattered** [about the difficulties of being famous].

The person next to me **muttered** something [about pride coming before a fall].

FE: Medium

This frame element expresses the medium of communication, such as the language used or the specific type of text in which the Message occurs. It is normally expressed as a PP-complement headed by *on* or *in*:

The Beatles **sang** [on the Ed Sullivan show].

The drunk man **mumbled** [in French].

C.5.8 Frame: Communication_Noise**Inherits: Communication****Mapping:**

<u>Source</u>	<u>Target</u>
Communication.Communicator	Noise.Speaker
Communication.Addressee	Noise.Addressee
Communication.Message	Noise.Message

Lexemes

babble.n, bark.v, bawl.v, bellow.v, bleat.v, boom.v, bray.v, burble.v, cackle.v, chirp.v, chirrup.v, chuckle.v, cluck.v, coo.v, croak.v, croon.v, crow.v, cry.v, drone.v, gasp.v, grate.v, groan.v, growl.v, grunt.v, gurgle.v, hiss.v, hoot.v, howl.v, moan.v, murmur.v, purr.v, rap.v, rasp.v, rattle.v, roar.v, rumble.v, scream.v, screech.v, shriek.v, shrill.v, snarl.v, snort.v, splutter.v, sputter.v, squawk.v, squeak.v, squeal.v, thunder.v, titter.v, trill.v, trumpet.v, twitter.v, wail.v, warble.v, wheeze.v, whimper.v, whine.v, whoop.v, yell.v, yelp.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	"What am I going to do?" <i>Kim</i> wailed to me.
Addressee	Add	"What am I going to do?" <i>Kim</i> wailed to <i>me</i> .
Message	Msg	<i>Kim</i> warbled <i>that it was a delightful idea</i> .
Topic	Top	<i>Leslie</i> croaked something <i>about feeling unwell</i> .
Medium	Medium	The two men droned <i>on in a language I didn't know</i> .

General Description

This frame contains words for types of noise which can be used to characterize verbal communication.

While the verbs in Communication.Manner are specific to verbal communication, Communication.Noise contains verbs which originate in the Perception domain (not in the communication domain) where they simply characterize sounds (including sounds produced by animals and inanimate objects).

FE: Speaker

Speaker occurs as the External Argument:

[Kim] **whined** that it wasn't fair.

FE: Addressee

Addressees generally occur in *to* or *at* PPs:

Kim **whined** [to Jess] that it wasn't fair.

Jess **screamed** [at Kim] to be quiet.

FE: Message

Message has a number of different realizations in this frame, including *that*-clauses, direct quotes, infinitival complements, *for-to* phrases, and NP Objects.

Kim **whined** [that it wasn't fair].

["Get moving!"] Jess **growled**.

Jess **growled** at me [to get moving].

Jess **growled** [for me to get moving].

Jess **growled** [an order].

Quoted Messages may either precede or follow the External Argument and verb, or may be discontinuous:

"Get moving!" Jess **growled**.

Jess **growled** angrily "Get moving!"

"For goodness sake," Jess **growled**, "get moving!"

FE: Topic

Topic occurs in PP Complements, usually headed by *about*:

Kim **howled** [about the unfairness of it all].

FE: Medium

The physical entity or channel used to transmit the Message. It is normally expressed as a PP Complement headed by *on* or *in*:

Pat **screamed** something [in Spanish].

C.5.9 Frame: Questioning**Inherits: Communication****Mapping:**

<u>Source</u>	<u>Target</u>
Communication.Communicator	Questioning.Speaker
Communication.Addressee	Questioning.Addressee
Communication.Message	Questioning.Message

Lexemes

grill.v, inquire.v, inquiry.n, interrogate.v, interrogation.n, query.n, query.v, question.n, question.v, questioning.n, quiz.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	<i>The police questioned three people about the incident.</i>
Addressee	Add	<i>The police questioned three people about the incident.</i>
Message	Msg	<i>“How has your mother been?” Pat inquired politely.</i>
Topic	Top	<i>The police questioned three people about the incident.</i>
Medium	Medium	<i>I inquired in a low voice what had happened.</i>

General Description

The words in this frame have to do with a Speaker asking an Addressee a question which calls for a reply (as opposed to making a request which calls for an action on the part of the Addressee).

FE: Speaker

The person asking a question generally occurs as the External Argument of verb and noun targets:

[Pat] **quizzed** me about where I had been.

[Pat's] **question** surprised me.

FE: Addressee

The Addressee is most frequently the NP Object of a target verb. However, with the verb *inquire*, Addressee can only occur as an *of*-PP and with a noun target, Addressee occurs in a PP Complement or as a possessive :

Pat **questioned** [me] about where I had been.

“Do you often come here?” Kim **inquired** [of the person sitting next to her].

My **question** [to you] is straightforward.

[Kim’s] **interrogation** by the police was long.

FE: Message

The Message, or content of the question, usually takes the form of a direct quote or an embedded question with a verb target:

[“What are you doing?”] Kim **inquired**.

Kim **inquired** [what I was doing].

With noun targets, Message is not common (as Topic occurs more frequently). However, Message does occur in a PP Complement with the noun *question*:

The answer to your **question** [of how the company makes money] is simply that it doesn’t.

FE: Topic

Topic occurs very frequently in this frame with both noun and verb targets. It generally occurs as a PP Complement:

Pat **inquired** [about train times].

Pat’s **inquiry** [about train times] fell on deaf ears.

FE: Medium

Medium is the physical entity or channel used by the Speaker to transmit the question(s):

Kim **questioned** me [over the phone].

C.5.10 Frame: Request

Inherits: Communication

Mapping:

<u>Source</u>	<u>Target</u>
Communication.Communicator	Request.Speaker
Communication.Addressee	Request.Addressee
Communication.Message	Request.Message

Lexemes

appeal.n, ask.v, beg.v, beseech.v, command.n, command.v, demand.n, demand.v, entreat.v, entreaty.n, implore.v, order.n, order.v, petition.n, plea.n, plead.v, request.n, request.v, suggestion.n, summon.v, tell.v, urge.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	<i>Pat urged me to apply for the job.</i>
Addressee	Add	<i>Pat urged me to apply for the job.</i>
Message	Msg	<i>Pat urged me <i>to apply for the job</i>.</i>
Topic	Top	<i>Kim made a request <i>about changing her appointment</i>.</i>
Medium	Medium	<i>Kim made a request <i>in her letter</i>.</i>

General Description

In this frame a Speaker asks an Addressee for something, or to carry out some action:

The customer **demanded** a refund.

I **begged** my parents to let me stay up late.

FE: Speaker

The Speaker, as in other communication frames, is generally an External Argument.

[The judge] ordered the plaintiff to return the money.

FE: Addressee

In this frame the Addressee can either occur as an NP Object (usually with a following complement clause) or as a PP Complement of verbs or nouns:

The child **implored** [her parents] to let her stay up late.

I **pleaded** [with the bus driver] to let me on without paying.

I made an **appeal** [to the passers-by] to help me.

FE: Message

The content of the request can be expressed as a quote, in a finite or non-finite clausal Complement, an NP Object or PP Complement. For example:

- ["I'd like an extension,"] **begged** Pat.
- The directors **requested** [that Pat resign].
- Pat **begged** them [to reconsider].
- The students **requested** [an extension of the deadline].
- The offender **begged** [for clemency].

FE: Topic

Topic is rarely expressed in this frame but can occur as a PP Complement headed by *about*.

- Max offered a **suggestion** [about completing the work].

FE: Medium

The physical entity or channel used to transmit the Message. Frequently expressed as a PP Complement headed by *on* or *in*.

- The parents of the missing child made an **appeal** [on television].
- The parents of the missing child made an **appeal** [in the papers].

C.5.11 Frame: Communication_Response

Inherits: Communication

Mapping:

<u>Source</u>	<u>Target</u>
Communication.Communicator	Response.Speaker
Communication.Addressee	Response.Addressee
Communication.Message	Response.Message

Lexemes

answer.n, answer.v, comeback.n, counter.v, rejoin.v, rejoinder.n, reply.n, reply.v, respond.v, response.n, retort.n, retort.v, riposte.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	<i>Kim</i> answered me immediately.
Addressee	Add	Kim answered <i>me</i> immediately.
Message	Msg	<i>“I’m sorry I can’t help you,”</i> Kim answered .
Topic	Top	He hasn’t yet sent me a reply <i>about our meeting</i> .
Medium	Medium	She replied <i>in broken English</i> .
Trigger	Trig	Kim answered <i>my question</i> .

General Description

This frame deals with communicating a reply or response to some prior communication or action.

FE: Speaker

The Speaker is the person who communicates the reply or response. It is expressed as the External Argument of predicative uses of a target word or as the Genitive modifier of a target noun:

[Sue] **responded** to the objection convincingly.

[Sue] gave a convincing **response**.

[Sue’s] **response** was convincing.

FE: Addressee

This is the person to whom the response is communicated. When expressed, this FE occurs as the direct object of a target verb, or in a prepositional phrase introduced by *to*:

Sue **answered** [Bob] immediately.

Sue **responded** [to Bob] immediately.

FE: Message

This is the FE that identifies the content of what the Speaker is communicating to the Addressee. It can be expressed as a direct quote or a clause.

[“I can’t help you,”] Sue **answered**.

Sue **replied** [that she couldn’t help].

FE: Topic

Topic occurs quite rarely in this frame and usually only as a PP Complement of a noun target:

My boss still hasn’t given me an **answer** [about a promotion].

FE: Medium

As in other Communication frames, the physical entity or channel used to communicate can be expressed, usually as a PP Complement headed by *on* or *in*:

Sue **responded** to my question [on the telephone].

Sue **replied** [in writing].

FE: Trigger

The Trigger is the prior communication or action to which a response is given. It can occur as an NP Object or a PP Complement.

Sue **answered** [the question].

Sue **responded** [to the questionnaire].

C.5.12 Frame: Statement

<u>Source</u>	<u>Target</u>
Communication.Communicator	Statement.Speaker
Communication.Addressee	Statement.Addressee
Communication.Message	Statement.Message

Lexemes

add.v, address.n, address.v, admission.n, admit.v, advise.v, affirm.v, affirmation.n, allegation.n, allege.v, announce.v, announcement.n, assert.v, assertion.n, assure.v, attest.v, aver.v, avow.v, avowal.n, boast.n, boast.v, brag.v, caution.v, claim.n, claim.v, comment.n, comment.v, complain.v, complaint.n, concede.v, concession.n, confess.v, confession.n, confide.v, confidence.n, conjecture.n, conjecture.v, contend.v, contention.n, convey.v, declaration.n, declare.v, denial.n, disclose.v, divulge.v, exclaim.v, exclamation.n, explain.v, gloat.v, gripe.v, grumble.v, inform.v, insist.v, lecture.n, lecture.v, maintain.v, mention.n, mention.v, notify.v, preach.v, proclaim.v, proclamation.n, profess.v, promise.v, pronouncement.n, proposal.n, propose.v, proposition.n, reaffirm.v, recount.v, reiterate.v, relate.v, remark.n, remark.v, report.n, report.v, reveal.v, revelation.n, say.v, speak.v, state.v, statement.n, suggest.v, talk.v, tell.v, write.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	Leslie stated that she could not participate in this event.
Addressee	Add	Leslie told me that she could not participate in this event.
Message	Msg	Leslie insists <i>that she cannot participate in this event.</i>
Topic	Top	Leslie informed us all <i>about her unwillingness in this matter.</i>

General Description

This frame 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 can be used performatively, for example, *declare*, *insist*:

I now **declare** you members of this Society.

FE: Speaker

This FE is the person who produces the Message (whether spoken or written). It is normally expressed as the External Argument of predicative uses of the target word, or as the Genitive modifier of the noun:

[Evelyn] **spoke** feelingly about what happened.

[Evelyn] made a persuasive **statement**.

[Evelyn's] **statement** was quite persuasive.

FE: Addressee

This is the person to whom the Message is communicated. When this FE is expressed, it often appears in a prepositional phrase introduced by *to*, or as a direct object.

Evelyn **told** [me] about what happened.

Evelyn **spoke** [to me] about what happened.

FE: Message

This is the FE that identifies the content of what the Speaker is communicating to the Addressee. It can be expressed as a clause or as a noun phrase.

Evelyn **said** [that she was not ready to leave].

Evelyn **reported** [the whole incident].

FE: Topic

This is the subject matter to which the Message pertains. It is normally expressed as a PP Complement headed by *about*, but in some cases it can appear as a direct object:

Evelyn **spoke** candidly [about her past].

The teacher **discussed** [the recent campus incidents].

C.5.13 Frame: Volubility

<u>Source</u>	<u>Target</u>
Communication.Communicator	Volubility.Speaker
Communication.Addressee	Volubility.Addressee
Communication.Message	Volubility.Message
Communication.Topic	Volubility.Topic

Lexemes

effusive.a, glib.a, laconic.a, loquacious.a, reticent.a, silent.a, talkative.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Speaker	Spkr	<i>Kim is reticent about her family.</i>
Company	Comp	<i>Kim is reticent <i>with me</i> about her family.</i>
Message	Msg	<i>Kim issued us with an effusive welcome.</i>
Topic	Top	<i>Kim was effusive <i>about Pat's new dress</i>.</i>
Medium	Medium	<i>Our hosts gave us an effusive welcome <i>in English</i>.</i>

General Description

These adjectives describe the quantity of information a Speaker gives, either in a specific occasion or topic or in general.

FE: Speaker

This is the person who is characterized as talkative, reticent etc. It is usually the External Argument:

[Pat] has been **silent** on this issue.

FE: Company

The frame element Addressee from the Communication frame does not occur with Volubility adjectives. Rather, some sentences (treated as Blends) (see section on Frame Blending) contain the frame element Company which also appears in the frame Society.Sociability. In this frame, Company occurs in PP Complements headed by *with*:

Kim was **reticent** [with me] about her family.

FE: Message

In this frame, Message is rarely expressed because the quantity of information given is the focus of the frame, rather than the information content. Messages can be neither direct quotes nor complement clause, but can occur as NP Objects:

Kim made **effusive** [compliments] to everyone.

Kim gave a hesitant, **reticent** [account].

FE: Topic

This FE is the Topic on which much or little information is communicated. Topic is far more frequent than Message in this frame.

Kim is very **talkative** [about her family and childhood].

FE: Medium

As in other Communication frames, the physical entity or channel used to communicate can be expressed, usually as a PP Complement headed by *on* or *in*:

Kim is **talkative** [on the phone].

C.6 Domain: Emotion

C.6.1 Frame: Emotion_Active

Lexemes

fret.v, fuss.v, worry.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Experiencer	Exp	<i>Jo worried</i> about the children.
Topic	Top	Jo worried <i>about the children</i> .

General Description

This frame has similarities to Emotion.Experiencer-subj, but here the verbs are more ‘active’ in meaning. (For example, they often occur in negative imperatives, e.g. “Don’t worry!”). They also differ from experiencer-subj verbs in that they occur with Topic expressions and can be used in the present progressive:

Pat is still **worrying** about the exam.

*Pat is **fearing** the exam.

This frame can be thought of as a blend of a basic emotion frame with Cognition.Cogitation.

FE: Experiencer

The Experiencer occurs as the subject of these verbs:

[Kim] **worried** about the phone bill.

FE: Topic

The Experiencer's emotion generally has a Topic which occurs in a PP-Complement:

Kim **fretted** [over the exam].

C.6.2 Frame: Directed**Lexemes**

angry.a, annoyed.a, appalled.a, cross.a, disappointed.a, furious.a, irritated.a, mad.a, pleased.a, sore.a, upset.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Experiencer	Exp	<i>Jess</i> was annoyed about the letter.
Focus	Foc	Jess was annoyed <i>at Pat</i> .
Topic	Top	Jess was annoyed <i>about the letter</i> .
Content	Cont	Jess was annoyed <i>that the kitchen was in a mess</i> .

General Description

These adjectives describe emotions that can be directed at people. For example, it is possible to be *mad at* someone. On the other hand, it is not possible to be *sad at* someone, so *sad* does not belong in this frame.

FE: Experiencer

The Experiencer of the emotion is generally the External Argument or the Head noun if the adjective is used attributively:

[Pat] is **pleased** with the outcome.

Pat had to deal with a **furious** [customer].

FE: Focus

The frame element Focus is reserved for people at whom the Experiencer's emotion is directed. Usually occurs in a PP Complement:

Leslie was **furious** [at Kim].

FE: Topic

Kim was **disappointed** [about the party].

This sentence makes explicit that Kim's disappointment is related to the party, but the exact Content of her disappointment might be that she couldn't go, that the party was cancelled, that she had to go but didn't want to, or any one of a number of other possibilities. The phrase *about the party* is the Topic of this sentence. Topics occur as *about*-PPs.

FE: Content

The Experiencer's emotion is in relation to or directed at some Content. Content in this frame occurs as an finite or infinitival Complement clause, or a PP or PPing Complement:

Leslie was **angry** [that the plumber didn't show up].

Leslie was **angry** [to find that the plumber had not come].

Leslie was **angry** [at the plumber's failure to show up].

Leslie was **angry** [at being let down by the plumber].

C.6.3 Frame: Experiencer-obj**Lexemes**

aggrieve.v, alarm.v, amaze.v, anger.v, annoy.v, antagonize.v, astonish.v, astound.v, baffle.v, bewilder.v, bewitch.v, calm.v, captivate.v, charm.v, cheer.v, comfort.v, conciliate.v, confuse.v, console.v, dazzle.v, delight.v, depress.v, disappoint.v, discomfit.v, disconcert.v, discourage.v, dishearten.v, displease.v, distress.v, disturb.v, embarrass.v, enchant.v, enrage.v, entertain.v, enthrall.v, exasperate.v, excite.v, fascinate.v, frighten.v, frustrate.v, gall.v, gladden.v, gratify.v, hearten.v, humiliate.v, impress.v, infuriate.v, irk.v, irritate.v, mollify.v, pacify.v, perplex.v, placate.v, please.v, puzzle.v, rattle.v, reassure.v, rile.v, sadden.v, satisfy.v, scare.v, shake.v, shame.v, shock.v, soothe.v, spook.v, startle.v, stimulate.v, stun.v, surprise.v, terrify.v, thrill.v, unnerve.v, unsettle.v, upset.v

Frame Elements (FEs)

FE	Tag	Example (in italics)
Experiencer	Exp	Kim's reply surprised <i>me</i> .
Cause	Cause	<i>Kim's reply</i> surprised me.
Means	Mns	Kim surprised me <i>by leaving her job</i> .

General Description

Some phenomenon (the Cause) provokes a particular emotion in an Experiencer.

FE: Experiencer

The Experiencer is either an NP Object or the External Argument of passives:

Pat's behavior **amazed** [Kim].

[Jo] was **delighted** by the gift.

FE: Cause

The Cause is either the External argument or, with passives, a PP Complement headed by *by*:

[Your driving] **terrifies** me.

I was **terrified** [by your driving].

FE: Means

Means is a global frame element, not specific to this frame or domain. However, it occurs with a high frequency in this frame, used to describe the way in which some Cause (generally a person) produces an emotion in the Experiencer. Cause typically occurs as a PP or PPing Complement headed by *with* or *by*:

My parents **embarrassed** me [by showing my baby photos].

The children **charmed** me [with their dazzling smiles].

C.6.4 Frame: Experiencer-subj**Lexemes**

abhor.v, abominate.v, adore.v, aspire.v, covet.v, crave.v, delight.v, desire.v, despair.v, despise.v, detest.v, dislike.v, dread.v, empathize.v, enjoy.v, envy.v, fancy.v, fear.v, grieve.v, hanker.v, hate.v, hope.v, like.v, loathe.v, long.v, love.v, mourn.v, pine.v, pity.v, regret.v, relish.v, resent.v, rue.v, sympathize.v, want.v, yearn.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Experiencer	Exp	<i>Jo loves oranges.</i>
Content	Cont	<i>Jo loves oranges.</i>
Reason	Reas	<i>We liked the play for its originality.</i>

General Description

The words in this frame describe an Experiencer's emotions with respect to some Content. A Reason for the emotion may also be expressed.

FE: Experiencer

The Experiencer in this frame is always the External Argument:

[Pat] **wants** to learn ballroom dancing.

FE: Content

In this frame Content occurs as an NP Object, infinitival or gerundive Complement and (less frequently) as a PP Complement or finite clausal Complement:

Everyone **loves** [compliments].

Everyone **loves** [to be complimented].

Everyone **loves** [being complimented].

His parents **despaired** [of him].

My parents **fear** [that I will never find a steady job].

FE: Reason

Reason occurs frequently as a PP Complement headed by *for*:

He thinks people only **like** him [for his money].

Pat **envies** Kim [for winning the prize].

General Grammatical Observations

With certain verbs, the Content can be expressed in a finite clausal or wh-Complement which may optionally be preceded by a Null NP Object:

I **hate** *it* when you do that.

I **hate** *it* that you're always late.

I **hate** when you do that.

I **hate** that you're always late.

C.6.5 Frame: Heat**Lexemes**

boil.v, burn.v, chafe.v, fume.v, seethe.v, simmer.v, smoulder.v, stew.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Experiencer	Exp	Pat boiled with anger.
Emotion	Emo	Pat boiled <i>with anger</i> .
Cause	Cause	Pat boiled with anger <i>at Sandy's stupidity</i> .
Location	Loc	Rage smouldered <i>inside her</i> .

General Description

This frame contains verbs that describe emotional experiences and participate in the locative alternation. For example:

I was **boiling** with anger.

Anger was **boiling** inside me.

While these words might seem to be like support verbs for emotion nouns such as *anger*, the same verbs can be used in the absence of such nouns, e.g. *His remarks made me boil (inside)*.

FE: Experiencer

The Experiencer is generally an External Argument:

[Pat] **seethed** with rage.

FE: Emotion

The Emotion experienced (usually restricted to words such as *anger*, *fury*, *rage*, *passion*) can occur as the External Argument or in a PP Complement. Alternatively, there may be no expression of Emotion separate from the target verb:

[Rage] **boiled** inside him.

He **boiled** [with rage].

Pat's behavior made me **seethe**.

FE: Cause

The Cause of the Emotion can be expressed in a PP Complement headed by *at*:

Jo **burned** with shame [at the criticism].

FE: Location

The words in this frame can occur with an overtly expressed Location of the Emotion. Location occurs as a PP Complement:

Fury **seethed** [within her].

I was **seething** [inside].

C.7 Domain: Health

C.7.1 Frame: Cure

Lexemes

alleviate.v, cure.n, cure.v, heal.v, rehabilitate.v, rehabilitation.n, treat.v, treatment.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Healer	Hlr	<i>The doctors cured Sandy's arthritis.</i>
Patient	Pat	<i>The doctors cured Sandy.</i>
Affliction	Affl	<i>The healer can cure back pain.</i>
Treatment	Trtm	<i>The healer's touch can cure back pain.</i>
Means	Mns	<i>The doctor cured Sandy by administering antibiotics.</i>

General Description

This frame deals with treating and curing injuries, disease and pain.

FE: Healer

The Healer, anyone who treats or cures the Patient, occurs as the External Argument of verbs:

Doctors **alleviated** his suffering.

FE: Patient

This is the sufferer of the injury, disease or pain and can occur as an NP Object in this frame. However, Patient may not be expressed as a separate Frame Element but frequently occurs as the possessor of the Affliction, an example of Frame Element Conflation: (See section on Conflation.)

Acupuncture **cured** [Pat] of his depression.

Acupuncture **cured** Pat's depression.

The Patient may therefore not be tagged in a sentence although explicitly identified.

FE: Affliction

The Frame Element Affliction is generally the NP Object of a verb, frequently incorporating the Patient as a possessor, as described above:

This potion **heals** [a broken heart].

The potion **healed** [Kim's broken heart].

FE: Treatment

A medication or method used to treat the Affliction can be the External Argument of these verbs, or expressed in a PP Complement:

[These herbs] can **cure** insomnia.

Insomnia can be **cured** [with herbs].

FE: Means

Means describes the action taken to treat the Affliction. Means as a course of action is distinguished from Treatment (medication or a method of treatment). This frame element occurs in PPing Complements headed by *by*:

The doctor **cured** the child [by administering antibiotics intravenously].

C.7.2 Frame: Recovery**Lexemes**

convalesce.v, convalescence.n, heal.v, recover.v, recovery.n, recuperate.v, recuperation.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Patient	Pat	<i>Jo recovered from the flu.</i>
Affliction	Aff	<i>Jo recovered from the flu.</i>
Body Part	BodP	<i>Jo's leg healed.</i>

General Description

These words describe the recovery or healing of a Patient from an Affliction without reference to the influence of any Treatment or Healer.

FE: Patient

The Patient may either be expressed as the External Argument or, as in Health.Cure, may occur as the possessor of the Affliction (an example of Frame Element Conflation):

[Pat] is **convalescing** from surgery.

Pat's wound is **healing**.

FE: Affliction

This FE is the injury, pain or disease experienced by the Patient. Affliction occurs either as an External Argument of verbs or as a PP Complement of nouns or verbs:

[The wound] is **healing** well.

[Pat's wound] is **healing** well.

Pat is **recovering** [from scarlet fever].

Pat's **recovery** [from scarlet fever] was very rapid.

FE: Body Part

Where Body Part is expressed as a separate constituent (rather than in phrases such as *the wound on Pat's arm*), it occurs as an External Argument:

[Pat's arm] **healed** up quickly.

Body Part is treated as a separate Frame Element although it may be viewed as metonymic for Affliction.

C.7.3 Frame: Health_Response**Lexemes**

allergic.a, allergy.n, sensitive.a, sensitivity.n, susceptible.a, susceptibility.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Protagonist	Prot	<i>Kim</i> is allergic to peanuts.
Trigger	Trig	Kim is allergic to <i>peanuts</i> .

General Description

A Protagonist is sensitive to a Trigger, which has the potential to cause some kind of reaction in the Protagonist.

FE: Protagonist

The Protagonist occurs as the External Argument of the targets in this frame:

[Pat's] **allergy** to dairy products is severe.

[Young children] are very **susceptible** to infections.

FE: Trigger

The Trigger most commonly occurs in a PP Complement headed by *to*:

Some people are very **sensitive** [to chemicals in the environment].

C.8 Domain: Life**C.8.1 Frame: Death****Lexemes**

annihilate.v, assassinate.v, death.n, demise.n, die.v, execute.v, exterminate.v, kill.v, killing.n, massacre.n, massacre.v, murder.n, murder.v, perish.v, slaughter.n, slaughter.v, suicide.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Protagonist	Prot	<i>The woman died peacefully.</i>
Cause	Cause	<i>The woman died of a heart attack.</i>
Agent	Agt	<i>I killed the cockroaches.</i>
Instrument	Ins	<i>I killed the cockroaches with poison.</i>
Means	Mns	<i>I killed the cockroaches by putting poison in the kitchen.</i>

General Description

The words in this frame describe the death of a Protagonist. Some words include an Agent who causes the death. The Agent may use a particular Instrument or Means. With words which do not involve an Agent, a Cause of death may be expressed.

FE: Protagonist

This FE is the being or entity that dies or is killed. With words referring to killing, the Protagonist is most commonly an NP Object. With words referring to dying, the Protagonist is the External Argument:

The mechanic **murdered** [his wife].

[The goldfish] **died**.

FE: Cause

This frame element can occur with words that do not involve an Agent and expresses any object or eventuality that brings about the Protagonist's death:

The cat **died** [of old age].

FE: Agent

Agent is the person causing the death of the Protagonist. The External Argument of *kill*-type words:

[The butler] **killed** his employer.

In the case of the noun *suicide* the Agent is also the Protagonist, an instance of FE conflation, and is tagged only as Protagonist.

FE: Instrument

This FE is any object used to cause death. It is expressed in a PP Complement headed by *with*:

She **killed** her husband [with a frying pan].

FE: Means

This FE is the action on the part of the Agent which brings about the death of the Protagonist. Expressed in a PP Complement, usually headed by *by*:

Pat **killed** the cockroach [by stamping on it].

C.9 Domain: Motion**C.9.1 Frame: Arriving****Inherits: Motion****Mapping:**

<u>Source</u>	<u>Target</u>
Motion.Theme	Arriving.Theme
Motion.Source	Arriving.Source
Motion.Path	Arriving.Path
Motion.Goal	Arriving.Goal

Lexemes

approach.n, approach.v, arrival.n, arrive.v, come.v, enter.v, entrance.n, return.n, return.v, visit.n, visit.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Theme	Thm	<i>The bus approached the corner.</i>
Source	Src	<i>The bus approached from the east.</i>
Path	Path	<i>The bus approached the house through the alley.</i>
Goal	Goal	<i>The bus approached the corner.</i>
Manner	Manr	<i>The bus approached slowly.</i>

General Description

An object moves in the direction of a Goal. The Goal may be expressed or it may be understood from context, but the existence of a Goal is always implied by the verb itself.

FE: Theme

This is the object which moves. It may be an entity which moves under its own power, but it need not be.

[The officer] **approached** the house.

I ducked as [the baseball] **approached** my head.

FE: Source

Any expression which implies a definite starting-point of motion expresses the frame element Source. While Source expressions are possible in this frame, they are relatively infrequent. When they do occur, they often express a general direction from which a Theme moves, rather than a landmark away from which it moves.

The cat **approached** the bird [from behind].

She **arrived** [from New York] yesterday.

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal (see below) expresses the frame element Path. In this frame Path expressions almost always have a *via*-sense.

The officer **approached** the house [through the bushes].

FE: Goal

Any expression which tells where the Theme ends up, or would end up, as a result of the motion expresses the frame element Path. This frame element is always conceptually present and specific, though it may sometimes be understood from context and therefore not be expressed by any separate constituent.

Our visitors **arrived** yesterday. (Goal is understood from context.)

We **arrived** [in Paris] before midnight.

FE: Manner

Any expression which describes a property of motion which is not directly related to the trajectory of motion expresses the frame element Manner. Descriptions of speed, steadiness, grace, means of motion, and other things count as Manner expressions.

The messenger **entered** the room [clumsily].

C.9.2 Frame: Cause-to-move**Inherits: Motion****Mapping:**

<u>Source</u>	<u>Target</u>
Motion.Theme	Cause-to-move.Theme
Motion.Source	Cause-to-move.Source
Motion.Path	Cause-to-move.Path
Motion.Goal	Cause-to-move.Goal

Lexemes

cast.v, catapult.v, chuck.v, drag.v, fling.v, haul.v, hurl.v, nudge.v, pitch.v, press.v, push.v, shove.v, throw.v, thrust.v, toss.v, tug.v, yank.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>Jess flung the book across the room.</i>
Theme	Thm	<i>Jess flung the book across the room.</i>
Source	Src	<i>Jo dragged the suitcase <i>from under the bed</i>.</i>
Path	Path	<i>Jess flung the book <i>across the room</i>.</i>
Goal	Goal	<i>Jo dragged the suitcase <i>into the kitchen</i>.</i>
Distance	Dist	<i>Jess threw the book <i>ten feet</i>.</i>
Area	Area	<i>Jo dragged the box <i>around the house</i>.</i>

General Description

An Agent causes a Theme to undergo directed motion. The motion may be described with respect to a Source, Path and/or Goal.

FE: Agent

The Agent's action causes the motion of a Theme. Agent is generally the External Argument:

[Pat] **threw** the china at the wall.

FE: Theme

The Theme is generally an NP Object:

Pat **threw** [the china] at the wall.

FE: Source

This FE is the starting point of motion.

Pat **dragged** the box [out of the cupboard].

FE: Path

This FE is any description of a trajectory of motion which is neither a Source nor Goal.

I **pushed** the trolley [along the street].

FE: Goal

This FE is the point at which the Theme ends up as a result of the motion.

Kim **threw** the cat [into the garden].

FE: Distance

This FE is any expression characterizing the extent of motion of the Theme.

Pat **threw** the Javelin [50 meters].

FE: Area

This frame element is used for expressions which describe a general area in which motion takes place when the motion is understood to be irregular or not to consist of a single, linear path. Locative setting adjuncts may also be assigned this frame element.

Kim **pushed** the lawnmower [around the garden].

C.9.3 Frame: Cotheme**Inherits: Motion****Mapping:**

<u>Source</u>	<u>Target</u>
Motion.Theme	Cotheme.Self-mover
Motion.Source	Cotheme.Source
Motion.Path	Cotheme.Path
Motion.Goal	Cotheme.Goal

Lexemes

accompany.v, chase.v, conduct.v, escort.v, flee.v, follow.v, guide.v, hound.v, lead.v, pursue.v, shadow.v, shepherd.v, tail.v, track.v, trail.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Self-mover	SMov	<i>Kim chased me up the hill.</i>
Cotheme	Thm_c	<i>Kim chased me up the hill.</i>
Source	Src	<i>Kim chased me out of the house.</i>
Path	Path	<i>Kim chased me down the street.</i>
Goal	Goal	<i>Kim chased me into the house.</i>
Manner	Manr	<i>Kim chased me swiftly.</i>
Distance	Dist	<i>Kim chased me two miles.</i>
Area	Area	<i>Kim chased me around.</i>

General Description

This frame contains words that necessarily indicate the motion of two distinct objects. One of the objects is typically animate and is expressed the same way a Self-mover is expressed in the Self-motion frame—i.e. as the subject of a target verb. The other object may or may not be animate and is typically expressed as a Direct Object or an Oblique. Source, Path, Goal, and the other frame elements common to motion words also regularly occur with the words in this frame.

FE: Self-mover

This is the living being which moves, under its own power, in relation to the Cotheme. Normally the Self-mover frame element is expressed as an external argument.

[Pat] **accompanied** me for five miles in a blue Toyota.

[The squirrel] **chased** the nut across the road.

FE: Cotheme

This is the second moving object, expressed as a direct object or an oblique:

Pat **accompanied** [me] down the street.

The squirrel **chased** [after the nut].

FE: Source

Any expression which implies a definite starting-point of motion expresses the frame element Source. In prepositional phrases, the prepositional object expresses the starting point of motion. In particles, the starting point of motion is understood from context.

The cat **chased** the mouse [out of the house].

The cat **chased** the mouse [out].

The cat **chased** the mouse [away].

The cat **chased** the mouse [off].

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal (see below) expresses the frame element Path, including directional expressions.

The bikers **followed** the truck [west].

The bikers **followed** the truck [through the desert].

FE: Goal

Any expression which tells where the Cotheme ends up as a result of the motion expresses the frame element Goal. Note that if the Cotheme is animate, the Self-mover need not also end up in the same place. Some particles imply the existence of a Goal which is understood in the context of utterance.

The children **chased** the ball [into the park].

(The children end up in the park.)

The children **chased** the dog [into the park].

(The dog ends up in the park; the children may not have entered the park.)

FE: Manner

Any expression which describes a property of motion which is not directly related to the trajectory of motion expresses the frame element Manner. Descriptions of speed, steadiness, grace, means of motion, and other things count as Manner expressions.

The bikers **followed** the truck [furiously].

FE: Distance

Any expression which characterizes the extent of motion expresses the frame element Distance.

The police **tailed** the suspects [for five miles].

FE: Area

This frame element is used for expressions which describe a general area in which motion takes place when the motion is understood to be irregular and not to consist of a single linear path. Locative setting adjuncts of motion expressions may also be assigned this frame element.

The police **followed** the suspects [all around town].

C.9.4 Frame: Departing**Inherits: Motion****Mapping:**

<u>Source</u>	<u>Target</u>
Motion.Theme	Departing.Theme
Motion.Source	Departing.Source
Motion.Path	Departing.Path
Motion.Goal	Departing.Goal

Lexemes

decamp.v, defect.v, defection.n, depart.v, departure.n, desert.v, desertion.n, disappear.v, disappearance.n, emigrate.v, emigration.n, escape.n, escape.v, quit.v, retreat.n, retreat.v, split.v, vacate.v, vamoose.v, vanish.v, withdraw.v, withdrawal.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Theme	Thm	<i>Pat departed.</i>
Source	Src	<i>Pat departed the US.</i>
Path	Path	<i>Pat departed across the Canadian border.</i>
Goal	Goal	<i>The family departed for Australia.</i>
Manner	Manr	<i>The family departed as quickly as possible.</i>

General Description

An object moves away from a Source. The Source may be expressed or it may be understood from context, but its existence is always implied by the verb itself.

FE: Theme

This is the object which moves. It may be an entity which moves under its own power, but it need not be.

[The officer] **left** the house.

FE: Source

All the verbs in this frame express some change of location, away from one place and to another. Any constituent that expresses the initial position of the Theme, before the change of location, is tagged with Source. Often the Source is understood from context.

The woman **left**. (Source is understood from context.)

The woman **left** [the house].

We **departed** [from New York] on Friday.

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal expresses the frame element Path. In this frame, Path expressions almost always have a *via*-sense.

Spiderman **left** [through the window].

FE: Goal

This FE is any expression which tells where the Theme ends up, or would end up, as a result of the motion.

Our visitors **left** [for Los Angeles].

FE: Manner

Any expression which describes a property of motion which is not directly related to the trajectory of motion expresses the frame element Manner. Descriptions of speed, steadiness, grace, means of motion, and other things count as Manner expressions.

The messenger **left** the room [clumsily].

C.9.5 Frame: Emptying**Inherits: Motion****Mapping:**

<u>Source</u>	<u>Target</u>
Motion.Theme	Emptying.Theme
Motion.Source	Emptying.Source
Motion.Path	Emptying.Path
Motion.Goal	Emptying.Goal

Lexemes

clear.v, drain.v, empty.v, purge.v, strip.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>Kim emptied</i> the tub of water.
Theme	Thm	Kim emptied the tub <i>of water</i> .
Source	Src	Kim emptied <i>the tub</i> of water.
Path	Path	Kim emptied the bucket <i>down the drain</i> .
Goal	Goal	Kim emptied the bucket <i>onto the floor</i> .

General Description

These are words relating to emptying containers and clearing areas of some substance or items. The area or container can appear as the direct object with all these verbs, and is designated Source because it is the source of motion of the Theme. Corresponding to its nuclear argument status, it is also affected in some crucial way, unlike Source in other frames. Some words in this frame, such as *empty*, may also occur with Path or Goal expressions, e.g. *The players emptied the bucket over his head*.

FE: Agent

The Agent is the External Argument of the target verb.

[Pat] **cleared** the table of dishes.

FE: Theme

The Theme, when overtly expressed, invariably occurs in a PP Complement headed by *of*:

Pat **cleared** the table [of dishes].

FE: Source

This FE is the region or container which is emptied of something. In this frame, the Source occurs as an NP Object:

Pat **cleared** [the table].

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal expresses the frame element Path.

Kim **emptied** the basin [over the edge of the balcony].

FE: Goal

This FE is any expression which tells where the Theme ends up, or would end up, as a result of the motion.

The children **emptied** the toy box [onto the floor].

C.9.6 Frame: Filling

Inherits: Motion

Mapping:

<u>Source</u>	<u>Target</u>
Motion.Theme	Filling.Theme
Motion.Source	Filling.Source
Motion.Path	Filling.Path
Motion.Goal	Filling.Goal

Lexemes

adorn.v, anoint.v, cover.v, dust.v, load.v, pack.v, smear.v, spread.v, stuff.v, wrap.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>Jo covered</i> the table with newspapers.
Theme	Thm	Jo covered the table <i>with newspapers</i> .
Source	Src	The waiter filled our glasses <i>from the pitcher</i> .
Path	Path	Kim filled the bottle <i>through a funnel</i> .
Goal	Goal	The waiter filled <i>our glasses</i> with water.

General Description

These are words relating to filling containers and covering areas with some thing, things or substance. The area or container can appear as the direct object with all these verbs, and is designated Goal because it is the goal of motion of the Theme. Corresponding to its nuclear argument status, it is also affected in some crucial way, unlike Goal in other frames.

FE: Agent

The Agent is an External Argument of the target word:

[Jo] **smear**ed the toast with a small amount of jam.

FE: Theme

The Theme most frequently occurs in a PP Complement headed by *with* or *in*:

Jo **smear**ed the toast [with a small amount of jam].

FE: Source

Source occurs quite rarely with the words in this frame, although the following type of example does occur:

Jess **filled** a hip-flask [from the bottle].

FE: Path

Path also occurs infrequently, but may appear as a PP Complement:

Jess **filled** the container [through a small hole in the lid].

FE: Goal

The area or container being filled. Goal is generally the NP Object in this frame:

Jess **filled** [the container] with molasses.

C.9.7 Frame: Motion_Noise

Inherits: Motion

Mapping:

<u>Source</u>	<u>Target</u>
Motion.Theme	Noise.Theme
Motion.Source	Noise.Source
Motion.Path	Noise.Path
Motion.Goal	Noise.Goal

Lexemes

bang.v, buzz.v, chug.v, clack.v, clang.v, clank.v, clatter.v, click.v, clink.v, clump.v, clunk.v, crackle.v, crash.v, creak.v, crunch.v, fizz.v, gurgle.v, howl.v, patter.v, ping.v, purr.v, putter.v, roar.v, rumble.v, rustle.v, screech.v, splash.v, splutter.v, squelch.v, swish.v, thud.v, thump.v, thunder.v, wheeze.v, whine.v, whir.v, zing.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Cause	Cause	<i>Jo clattered the plates into the sink.</i>
Theme	Thm	<i>The car roared out of the garage.</i>
Source	Src	<i>The car roared out of the garage.</i>
Path	Path	<i>Kim thumped along the corridor.</i>
Goal	Goal	<i>Kim thumped into the kitchen.</i>
Area	Area	<i>Kim thumped around the house.</i>
Distance	Dist	<i>The car screeched backwards a few feet.</i>

General Description

These are noise verbs used to characterize motion. In these uses they take regular Source, Path and Goal expressions like other motion verbs.

FE: Cause

Many verbs in this frame do not occur with a Cause of motion. However, examples are found with a number of verbs, including *bang*, *clatter*, *clink*, *clank*, *thump*, generally in examples where they describe the noise of impact resulting from caused-motion of a Theme:

[Pat] **thumped** the books down on the table.

*[Pat] **thudded** the books down on the table.

FE: Theme

In sentences containing a Cause, the Theme is typically the NP Object. In other sentences, the Theme is normally the External Argument:

Pat **thumped** [the books] down on the table.

[Pat] **crunched** over the fresh snow.

FE: Source

Any expression which implies a definite starting-point of motion expresses the frame element Source.

The train **rumbled** [out of the station].

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal expresses the frame element Path.

The truck **roared** [through the tunnel].

FE: Goal

Any expression which tells where the Theme ends up as a result of the motion expresses the FE Goal.

The plates **clattered** [to the floor].

FE: Area

This FE is the general area in which motion takes place, used particularly if the motion is understood as following a complex or non-linear path:

The fly **buzzed** [about the room].

FE: Distance

This FE is any expression which characterizes the extent of motion. This frame element occurs throughout the motion domain but is very infrequent in Motion.Noise.

The engine **spluttered** forward [a short way] and stopped.

C.9.8 Frame: Path-shape**Inherits: Motion****Mapping:**

<u>Source</u>	<u>Target</u>
Motion.Theme	Path-shape.Theme
Motion.Source	Path-shape.Source
Motion.Path	Path-shape.Path
Motion.Goal	Path-shape.Goal

Lexemes

angle.v, bear.v, crisscross.v, cross.v, descend.v, dip.v, drop.v, edge.v, emerge.v, exit.v, leave.v, meander.v, mount.v, plummet.v, reach.v, rise.v, skirt.v, slant.v, snake.v, swerve.v, swing.v, traverse.v, veer.v, weave.v, wind.v, zigzag.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Theme	Thm	Kim meandered through the woods.
Source	Src	Kim meandered out of the house.
Path	Path	Kim meandered down the street.
Goal	Goal	Kim meandered into the woods.
Road	Road	The trail meanders through the woods.
Manner	Manr	Kim meandered aimlessly.
Distance	Dist	Kim meandered all the way.
Area	Area	Kim meandered throughout the countryside.

General Description

The words in this frame all describe motion in terms of the shape of the path traversed by the entity that moves. A defining characteristic is that they can also be used to describe the shape of a physical path, such as a road or trail:

Kim **meandered** through the woods.

The road **meanders** through the woods.

In these uses they are not literally motion verbs, but express what Langacker (1987) calls subjective motion. Such uses are annotated, but not ultimately be treated as part of this frame.

Some of the words in this frame imply a Source or Goal which is expressed by a direct object:

We **entered** *the garden* on the west side.

The walking path **entered** *the garden* on the west side.

Some of the words indicate a Path which requires mention of a landmark (below, in italics):

We veered north and **skirted** *the lake*.

The road veered north and **skirted** *the lake*.

FE: Theme

This is the object which moves. In many sentences this FE will be expressed as something which moves under its own power. However, this FE is not *required* to be an animate mover, so it is different from Self-mover.

[Kim] **zigzagged** through the woods.

[The water droplet] **zigzagged** down the window.

FE: Source

Any expression which implies a definite starting-point of motion expresses the frame element Source. In prepositional phrases, the prepositional object expresses the starting point of motion. In particles, the starting point of motion is understood from context.

The cat **crossed** [the yard].

The cat **weaved** [out].

The cat **meandered** [away].

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal (see below) expresses the frame element Path, including directional expressions:

The bikers **zigzagged** [through the desert].

The cyclist **swerved** [towards the gate].

FE: Goal

Any expression which tells where the Theme ends up as a result of the motion expresses the frame element Goal.

The children **meandered** [into the neighbor's yard].

The car **veered** [into the bushes].

Some particles imply the existence of a Goal which is understood in the context of utterance:

The children **meandered** [over] and sat down.

FE: Road

Any expression that identifies a physical path expresses the frame element Road.

[The bike trail] **zigzagged** through the woods.

FE: Manner

Any expression which describes a property of motion which is not directly related to the trajectory of motion expresses the frame element Manner. Descriptions of speed, steadiness, grace, means of motion, and other things count as Manner expressions. An example follows:

The bikers **zigzagged** [furiously] through the desert.

FE: Distance

Any expression which characterizes the extent of motion expresses the frame element Distance.

I **zigzagged** [twenty feet] before slipping and falling.

FE: Area

This frame element is used for expressions which describe a general area in which motion takes place when the motion is understood to be irregular and not to consist of a single linear path.

The bikers **crisscrossed** [the desert].

Locative setting adjuncts of motion expressions may also be assigned this frame element.

The tourists **meandered** [through the woods].

C.9.9 Frame: Placing**Inherits: Motion****Mapping:**

<u>Source</u>	<u>Target</u>
Motion.Theme	Placing.Theme
Motion.Source	Placing.Source
Motion.Path	Placing.Path
Motion.Goal	Placing.Goal

Lexemes

arrange.v, arrangement.n, array.v, bring.v, deposit.v, embed.v, hang.v, immerse.v, implant.v, inject.v, insert.v, insertion.n, install.v, lay.v, lean.v, load.v, lodge.v, mount.v, pack.v, park.v, pile.v, place.v, placement.n, plant.v, position.v, rest.v, set.v, situate.v, smear.v, spread.v, stand.v, stash.v, station.v, stick.v, stow.v, stuff.v, tuck.v, wrap.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>The waiter placed the food on the table.</i>
Theme	Thm	<i>The waiter placed the food on the table.</i>
Source	Src	<i>The waiter brought the food <i>from the kitchen</i>.</i>
Path	Path	<i>The mail carrier stuck the letters <i>through the slot</i>.</i>
Goal	Goal	<i>The waiter placed the food <i>on the table</i>.</i>
Manner	Manr	<i>The waiter positioned the food <i>carefully</i>.</i>

General Description

An **Agent** causes a **Theme** to move to a location, the **Goal**. In this frame, the Goal is profiled. This contrasts with the frame Motion.Cause-to-move, where world knowledge tells us that the Theme must have a final location (Goal) but this particular frame element is not profiled by the words in the frame, as it is here.

FE: Agent

The Agent is the person (or other force) that causes the Theme to move.

[The waiter] **placed** the food on the table.

FE: Theme

Theme is the object that changes location.

The waiter **placed** [the food] on the table.

FE: Source

Source is the initial location of the Theme, before it changes location.

The waiter **brought** the food [from the kitchen].

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal expresses the frame element Path. In this frame, Path expressions almost always have a *via*-sense.

The mail carrier **stuck** the letters [through the slot].

FE: Goal

Goal is the location where the Theme ends up. This frame element is profiled by words in this frame. Sometimes it is understood from context (for example, with *bring*).

The waiter **placed** the food [on the table].

The waiter **brought** the food ([to the table]).

FE: Manner

Any expression which describes a property of motion which is not directly related to the trajectory of motion expresses the frame element Manner. Descriptions of speed, steadiness, grace, means of motion, and other things count as Manner expressions.

The waiter **arranged** the food [carefully].

C.9.10 Frame: Removing**Inherits: Motion****Mapping:**

<u>Source</u>	<u>Target</u>
Motion.Theme	Removing.Theme
Motion.Source	Removing.Source
Motion.Path	Removing.Path
Motion.Goal	Removing.Goal

Lexemes

abduct.v, clear.v, confiscate.v, depose.v, discard.v, dislodge.v, drain.v, eject.v, ejection.n, eliminate.v, elimination.n, empty.v, evacuate.v, evacuation.n, evict.v, eviction.n, excise.v, expel.v, expulsion.n, expunge.v, extract.v, oust.v, pluck.v, prise.v, purge.n, purge.v, removal.n, remove.v, skim.v, snatch.v, strip.v, swipe.v, take.v, withdraw.v, withdrawal.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>The waiter removed the dishes from the table.</i>
Theme	Thm	<i>The waiter removed the dishes from the table.</i>
Source	Src	<i>The waiter removed the dishes <i>from the table</i>.</i>
Path	Path	<i>The army evacuated the townspeople <i>through the tunnel</i>.</i>
Goal	Goal	<i>Grandmother removed the fine china <i>to a safe place</i>.</i>
Manner	Manr	<i>The army evacuated the townspeople <i>efficiently</i>.</i>

General Description

An **Agent**, usually an agentive force, causes a **Theme** to move away from a location, the **Source**. Source is profiled by the words in this frame, just as Goal is profiled in the frame Motion.Placing.

FE: Agent

Agent is the person (or other force) that causes the Theme to move.

[The waiter] **removed** the dishes from the table.

FE: Theme

Theme is the object that changes location.

The waiter **removed** [the dishes] from the table.

FE: Source

Source is the initial location of the Theme, before it changes location.

The waiter **removed** the dishes [from the table].

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal expresses the frame element Path. In this frame Path expressions almost always have a *via*-sense.

The army **evacuated** the townspeople [through the tunnel].

FE: Goal

Goal is the location where the Theme ends up. This frame element is not profiled by words in this frame, though it may occasionally be expressed, as with the word *remove*:

Grandmother **removed** the fine china [to a safe place].

FE: Manner

Any expression which describes a property of motion which is not directly related to the trajectory of motion expresses the frame element Manner. Descriptions of speed, steadiness, grace, means of motion, and other things count as Manner expressions.

The army **evacuated** the townspeople [efficiently].

General Grammatical Observations

A few of the words in this frame participate in an alternation between a Theme object and a Source object.

The waiter **cleared** the dishes from the table.

The waiter **cleared** the table of dishes.

The plumber **drained** the water from the sink.

The plumber **drained** the sink of water.

The gardener **emptied** the soil from the bucket.

The gardener **emptied** the bucket of soil.

The army **evacuated** the people from the town.

The army **evacuated** the town.

Sentences with a Source object belong in the frame Motion.Emptying. The frames Motion.Emptying and Motion.Removing differ in terms of which frame element, the Source or the Theme, is construed as being more highly affected.

C.9.11 Frame: Self-motion

Inherits: Motion

Mapping:

<u>Source</u>	<u>Target</u>
Motion.Theme	Self-motion.Self-mover
Motion.Source	Self-motion.Source
Motion.Path	Self-motion.Path
Motion.Goal	Self-motion.Goal

Lexemes

amble.v, back.v, barge.v, bolt.v, bop.v, bound.v, burrow.v, bustle.v, canter.v, caper.v, clamber.v, climb.v, clomp.v, crawl.v, creep.v, dance.v, dart.v, dash.n, dash.v, flit.v, flounce.v, frolic.v, gallivant.v, gambol.v, hasten.v, hike.n, hike.v, hitchhike.v, hobble.v, hop.v, hurry.v, jaunt.n, jog.v, jump.v, leap.v, limp.v, lope.v, lumber.v, lunge.v, lurch.v, march.n, march.v, meander.v, mince.v, mosey.v, pace.v, pad.v, parade.v, plod.v, pounce.v, prance.v, promenade.v, prowl.v, roam.v, romp.v, run.v, rush.v, sashay.v, saunter.v, scamper.v, scoot.v, scramble.n, scramble.v, scurry.v, scuttle.v, shuffle.n, shuffle.v, skip.v, skulk.v, slalom.v, sleepwalk.v, slink.v, slither.v, slog.n, slog.v, sneak.v, spring.v, sprint.n, sprint.v, stagger.v, stamp.v, steal.v, step.n, step.v, stomp.v, straggle.v, stride.v, stroll.n, stroll.v, strut.v, stumble.v, swagger.v, swim.n, swim.v, tiptoe.v, toddle.v, totter.v, traipse.v, tramp.v, tread.v, trek.v, trip.v, troop.v, trot.v, trudge.v, trundle.v, vault.v, waddle.v, wade.v, walk.n, waltz.v, wander.v, wriggle.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Self-mover	SMov	Kim ran up the hill.
Source	Src	Kim ran <i>out of the house</i> .
Path	Path	Kim ran <i>down the street</i> .
Goal	Goal	Kim ran <i>into the house</i> .
Manner	Manr	Kim ran <i>swiftly</i> .
Distance	Dist	Kim ran <i>two miles</i> .
Area	Area	Kim ran <i>around</i> .

General Description

A living being, the **Self-mover** moves under its own power in a directed fashion, i.e. along what could be described as a path.

FE: Self-mover

This is the living being which moves under its own power. Normally the Self-mover frame element is expressed as an External Argument.

[Pat] **ran** five miles today.

[The squirrel] **leapt** out onto the branch.

FE: Source

Any expression which implies a definite starting-point of motion expresses the frame element Source. In prepositional phrases, the prepositional object expresses the starting point of motion. With particles, the starting point of motion is understood from context.

The cat **ran** [out of the house].

The cat **ran** [out].

The cat **ran** [away].

The cat **ran** [off].

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal (see below) expresses the frame element Path. This includes directional expressions and “middle of path” expressions, e.g.

The scouts **hiked** [west].

The scouts **hiked** [through the desert].

The scouts **hiked** [along] merrily.

FE: Goal

Any expression which tells where the Self-mover ends up as a result of the motion expresses the frame element Goal. Some particles imply the existence of a Goal which is understood in the context of utterance.

The children **skipped** [into the park].

The principal **walked** [over] and sat down.

A dog **ran** [up] and licked our hands.

FE: Manner

Any expression which describes a property of motion which is not directly related to the trajectory of motion expresses the frame element Manner. Descriptions of speed, steadiness, grace, means of motion, and other things count as Manner expressions. Some examples follow:

The bikers **rode** [at a good clip].

We **tangoed** [smoothly] through the crowd.

They had to **trek** [on foot] through the desert.

FE: Distance

Any expression which characterizes the extent of motion expresses the frame element Distance.

I barely **hobbled** [six feet] before collapsing.

We **hiked** [a short distance] into the forest and sat down.

FE: Area

This frame element is used for expressions which describe a general area in which motion takes place when the motion is understood to be irregular and not to consist of a single linear path. Locative setting adjuncts of motion expressions may also be assigned this frame element.

The mouse **scurried** [about].

Stop **running** [around] and sit down!

The hitchhikers **walked** [in the middle of the road].

C.9.12 Frame: Transportation**Inherits: Motion****Mapping:**

<u>Source</u>	<u>Target</u>
Motion.Source	Transportation.Source
Motion.Path	Transportation.Path
Motion.Goal	Transportation.Goal

Description of mapping:

The frame element Theme in the Motion frame does not have a simple mapping in the frame Transportation. The Driver and the Vehicle together constitute the Theme.

Lexemes

balloon.v, bicycle.v, bike.v, boat.v, canoe.v, caravan.v, coast.v, cruise.v, cycle.v, drive.v, ferry.v, fly.v, jet.v, motor.v, paddle.v, parachute.v, pedal.v, punt.v, raft.v, ride.v, row.v, sail.v, skate.v, sledge.v, tack.v, taxi.v, toboggan.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Driver	Driv	<i>Kim drove through the woods.</i>
Cargo + Passenger	CnP	Kim drove <i>the kids</i> to the store.
Vehicle	Veh	Kim drove <i>the truck</i> to the store.
Source	Src	Kim drove <i>out of the garage</i> .
Path	Path	Kim drove <i>down the street</i> .
Goal	Goal	Kim drove <i>into the woods</i> .
Manner	Manr	Kim drove <i>dangerously</i> .
Distance	Dist	Kim drove <i>500 miles</i> .
Area	Area	Kim drove <i>throughout the countryside</i> .

General Description

The words in this frame all describe motion involving a **Vehicle** and someone who controls the Vehicle, the **Driver**. Some normally allow the Vehicle to be expressed as a separate constituent:

I **drove** [my car] all the way across North America.

I **paddled** [my canoe] across the Canadian border.

Other words in this domain are based on the names of Vehicles, and do not normally allow the Vehicle to be expressed as a separate constituent:

They **biked** all the way across the country.

However, a separate Vehicle constituent can occur if it adds information not included in the verb:

I **biked** across the country [on an old 10-speed].

FE: Driver

This is the being, typically human, that controls the Vehicle as it moves.

[Kim] **drove** my old car cross-country.

FE: Cargo + Passenger

This is the goods or people being moved by a Driver in a Vehicle. When occurring, this FE is expressed as Object:

I **flew** [the containers] to a remote island.

I **drove** [the visitors] to the airport.

FE: Vehicle

This is the means of conveyance controlled by the Driver. It can move in any way and in any medium. With verbs, Vehicle is usually expressed as Object:

I **drove** [my car] to Canada.

FE: Source

Any expression which implies a definite starting-point of motion expresses the frame element Source. In prepositional phrases, the prepositional object expresses the starting point of motion. With particles, the starting point of motion is understood from context.

Kim **drove** [out of town].

Kim **drove** [away].

FE: Path

Any description of a trajectory of motion which is neither a Source nor a Goal (see below) expresses the frame element Path. This includes directional expressions and “middle of path” expressions, e.g.

The bikers **rode** [through the desert].

FE: Goal

Any expression which tells where the moving object(s) ends up as a result of the motion expresses the frame element Goal. Some particles imply the existence of a Goal which is understood in the context of utterance.

Kim **drove** [into the parking lot].

Kim **drove** [out].

FE: Manner

Any expression which describes a property of motion which is not directly related to the trajectory of motion expresses the frame element Manner. Descriptions of speed, steadiness, grace, means of motion, and other things count as Manner expressions. Some examples follow:

The bikers **rode** [recklessly] through the desert.

The bikers **rode** [haltingly] over the rough terrain.

FE: Distance

Any expression which characterizes the extent of motion expresses the frame element Distance.

The bikers **rode** [hundreds of miles].

FE: Area

This frame element is used for expressions which describe a general area in which motion takes place when the motion is understood to be irregular and not to consist of a single linear path. Locative setting adjuncts of motion expressions may also be assigned this frame element.

The bikers **rode** [all over the place].

C.10 Domain: Perception**C.10.1 Frame: Perception_Active**

Inherits: Perception

Mapping:

<u>Source</u>	<u>Target</u>
Perception.Perceiver	Active.Perceiver-Agentive
Perception.Phenomenon	Active.Phenomenon

Lexemes

attend.v, attention.n, eavesdrop.v, feel.v, gaze.n, gaze.v, glance.n, glance.v, listen.v, look.n, look.v, observation.n, observe.v, palpate.v, peek.n, peek.v, peep.v, peer.v, savour.v, smell.v, sniff.n, sniff.v, spy.v, stare.n, stare.v, taste.n, taste.v, view.v, watch.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Perceiver-Agentive	Perc-Agt	Pat looked into the house.
Phenomenon	Phen	Pat smelled <i>the milk</i> to see if it was fresh.
Body Part	BodP	I looked at him <i>with my good eye</i> .
Location of Perceiver	Loc-Perc	Pat watched the game <i>from the roof</i> .
Direction	Dir	Pat watched the game <i>through the window</i> .
State	State	Kim tasted the fish <i>raw</i> .
Ground	Ground	Pat looked <i>under the bed</i> .
Manner	Manr	Pat listened [attentively] to the lecture.

General Description

This frame contains perception words whose Perceivers intentionally direct their attention to some entity or phenomenon in order to have a perceptual experience. For this reason we call the Perceiver role **Perceiver-Agentive**.

Comparing the Perception-active frame to the Perception-experience frame, we note that for some modalities there are different lexical items in each frame. For instance, whereas Perception-active has *look at*, Perception-experience has

see. For other sense modalities, we find the same lexical item in both frames. To illustrate, consider the verb *smell* where *Smell this to see if it's fresh* exemplifies its Perception-active use and *I smell something rotten* exemplifies its Perception-experience sense.

FE: Perceiver-Agentive

This FE is the being who performs some action in order to have a perceptual experience. It is expressed as an External Argument:

[The waiter] **smelled** the milk to see if it was fresh.

FE: Phenomenon

This FE is the entity or phenomenon that the perceiver directs his or her attention to in order to have a perceptual experience. Typically, it is expressed as Object with verbs:

The waiter **smelled** [the milk] to see if it was fresh.

FE: Body Part

This FE is the part of the body used as a sensory organ by the perceiver, typically expressed in a *with*-PP:

You should **feel** the water [with your toes] before you jump in.

This frame element occurs infrequently in this frame, because most of the target words imply what part of the body is used (e.g. smelling must be done with the nose). However, the verb *feel* does take this frame element, because touch is not localized on the body the same way other modalities are. Body Part may be expressed in other modalities when it is more specific than what is implied by the target word in question:

I **looked** at the wreckage [with my good eye].

FE: Location of Perceiver

This FE is the position of the Perceiver during the act of perception. Typically, it is expressed in a *from*-PP:

We **watched** the parade [from the roof].

FE: Direction

This frame element is used for all path-like expressions, except those indicating the location of the perceiver (see above), that describe how the perceiver's attention is directed during the act of perception.

The detective **looked** [across the street] at the suspect.

The detective **listened** [through the wall] to their conversation.

FE: State

This frame element is used for predicate expressions that apply to the Phenomenon, providing some information about the state it is in while the perceiver's attention is directed to it:

The detective **watched** the suspect [fleeing].

Pat **tasted** the cookie dough [raw].

FE: Ground

This FE is the perceptual background against which the Phenomenon is experienced by the Perceiver. In this frame, Ground occurs primarily with *look*:

Kim **looked** for the pill [on the patterned rug].

FE: Manner

Manner expressions may be of lexicographic interest if they describe properties of active perception as such: *closely*, *carefully*, etc.

Dan **looked** at the inscription carefully.

C.10.2 Frame: Appearance**Inherits: Perception****Mapping:**

<u>Source</u>	<u>Target</u>
Perception.Perceiver	Appearance.Perceiver-Passive
Perception.Phenomenon	Appearance.Phenomenon

Lexemes

appear.v, feel.v, look.v, reek.v, seem.v, smell.v, sound.v, stink.v, taste.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Phenomenon	Phen	<i>Pat looked great.</i>
Characterization	Char	<i>Pat's hair looks red.</i>
Appraisal	Appr	<i>Pat looks great!</i>
Inference	Inf	<i>Pat looks tired.</i>
Perceiver-Passive	Perc-Pass	<i>Pat looked great to me.</i>
Body Part	BodP	<i>The sun felt good on my back.</i>
Location of Perceiver	Loc-Perc	<i>The stage sets looked good from the back.</i>
Direction	Dir	<i>How does it look through the window?</i>
State	State	<i>Pat looks great all dressed up.</i>
Ground	Ground	<i>The sculpture looks best against a wall.</i>

General Description

In this class of perception words, the Phenomenon is typically expressed as External Argument, and its perceptual characteristics are given some description. This may be a Characterization describing purely perceptual properties, an Appraisal (i.e. positive or negative judgment) or an Inference about some non-perceptual property, based on perception.

FE: Phenomenon

The Phenomenon is typically the External Argument of the verbs in this frame.

[The soup] **tasted** very salty.

FE: Characterization

The Characterization is the subjective description (of the Perceiver-Passive) of the Phenomenon:

Kim's new furniture **looks** [stunning].

The violins **sounded** [as if they were in pain].

The city **smelled** [like rotting sewage].

FE: Appraisal

The Appraisal is the positive or negative judgement given to the phenomenon:

Kim's hair **feels** [silky smooth].

That idea **sounds** [dreadful].

FE: Inference

Inference is the FE that expresses some non-perceptual property of the phenomenon, based on perception:

Pat **sounds** [devastated] by the bad news.

FE: Perceiver-Passive

In this frame, the Perceiver-Passive experiences some perception without necessarily intending to, but makes a judgment about the Phenomenon. The Perceiver-Passive generally occurs in a PP Complement:

The milk **smells** bad [to me].

FE: Body Part

Body Part expressions are not common in this frame, but may occur with the verb *feel* (the only verb in this frame which does not lexically encode the body part involved in perception) or occasionally (and redundantly) with other verbs:

The fabric **felt** soft [on my skin].

The music **sounded** beautiful [to my ears].

FE: Location of Perceiver

This FE is the position of the Perceiver during the act of perception. Typically it is expressed in a *from*-PP:

The house **looks** deceptively small [from the outside].

FE: Direction

This frame element is used for all path-like expressions, except those indicating the location of the perceiver (see above), that describe how the perceiver's attention is directed during the act of perception. Direction usually occurs as a PP Complement:

His voice **sounded** muffled [through the wall].

FE: State

This frame element is used for predicate expressions that apply to the Phenomenon, providing some information about the state it is in while the perceiver experiences it:

Pat **looks** great [dressed in red].

The meat **tastes** delicious [seasoned with garlic].

FE: Ground

This FE is the perceptual background against which the Phenomenon is experienced (or not experienced) by the Perceiver.

The painting **looks** great [against the new wallpaper].

C.10.3 Frame: Body**Inherits: Perception****Mapping:**

<u>Source</u>	<u>Target</u>
Perception.Perceiver	Body.Experiencer
Perception.Phenomenon	Body.Cause, Body.Agent

Description of mapping:

The Perception frame element maps onto both Agent and Cause in this frame (which differ only in animacy/agentivity).

Lexemes

ache.v, burn.v, hurt.v, itch.v, prickle.v, smart.v, sting.v, tickle.v, tingle.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Experiencer	Exp	<i>I hurt</i> all over.
Body Part	BodP	<i>My head hurts</i> .
Cause	Cause	<i>It hurts when I laugh</i> .
Agent	Agt	<i>You hurt</i> me!

General Description

This frame contains words describing physical experiences that can affect virtually any part of the body. The body part affected is almost always mentioned with these words. It is typically expressed by the noun heading the external argument, and this noun is typically accompanied by a possessive determiner that refers to the possessor of the body part: *My head hurts!*

FE: Experiencer

The Experiencer is the being who has a physical experience on some part of his or her body, or internally. Often information about this frame element is incorporated as a possessive determiner into the constituent expressing the Body Part, in which case it is not tagged separately (from Body Part), as shown below:

My legs **hurt**!

Sometimes, however, this frame element is expressed as an External Argument in its own right:

[I] **hurt** all over!

Here, the phrase *all over* can be considered a kind of generalized Body Part expression, and the pronoun *I* expresses the Experiencer independently. With nouns and adjectives in this frame, the separate expression of the Experiencer is more common:

[I] have a **pain** in my leg.

FE: Body Part

This FE is the location on the body where the physical experience takes place, typically expressed as External Argument, often as PP complement:

[My legs] are a little **sore**.
I'm a little **sore** [in my legs].

FE: Cause

Cause is a non-agentive cause of the physical experience. This frame element can be an entity or an event:

[The bright lights] **hurt** my eyes.
It **hurts** my eyes [when you shine the light directly at me].

The second example contains an extraposed *when*-clause, a constituent-type commonly used to express Cause in this frame.

FE: Agent

Agent is the person who causes the Experiencer to have the physical experience. It is normally expressed as an External Argument.

[Rob] **tickled** Mary.

C.10.4 Frame: Perception_Noise**Lexemes**

babble.n, babble.v, bark.n, bark.v, bellow.n, bellow.v, blare.n, blare.v, blast.n, blast.v, bleat.n, bleat.v, boom.n, boom.v, bray.n, bray.v, burble.n, burble.v, buzz.n, cackle.n, cackle.v, caterwaul.v, caw.n, caw.v, chant.n, chant.v, chatter.n, chatter.v, cheep.n, cheep.v, chirp.n, chirp.v, chorus.n, chorus.v, chuckle.n, chuckle.v, clang.n, clang.v, clash.n, clash.v, clatter.n, clatter.v, click.n, click.v, clink.n, clink.v, coo.n, coo.v, cough.n, cough.v, creak.n, creak.v, croak.n, croak.v, croon.n, croon.v, crunch.n, crunch.v, drone.n, drone.v, fizzle.v, gasp.n, gasp.v, giggle.n, giggle.v, gobble.v, grate.n, grate.v, growl.n, growl.v, grunt.n, grunt.v, guffaw.n, guffaw.v, gurgle.n, gurgle.v, hawk.v, hiss.n, hiss.v, hoot.n, hoot.v, howl.n, howl.v, hum.n, hum.v, keen.v, mew.n, mew.v, mewl.v, moan.n, moan.v, moo.v, neigh.n, neigh.v, patter.n, patter.v, peal.n, peal.v, peep.n, peep.v, splash.n, splash.v, plonk.v, plop.n, plop.v, plunk.n, plunk.v, purr.n, purr.v, quack.n, quack.v, rap.n, rap.v, rasp.n, rasp.v, rattle.v, roar.n, roar.v, roll.n, roll.v, rustle.n, rustle.v, scrape.n, scrape.v, screech.n, screech.v, scrunch.n, scrunch.v, sizzle.n, sizzle.v, slam.v, slap.n, slap.v, smack.n, smack.v, snarl.n, snarl.v, snicker.v, snigger.n, snigger.v, snore.n, snore.v, snort.n, snort.v, sob.n, sob.v, sough.n, sough.v, squawk.n, squawk.v, squeak.n, squeak.v, squeal.n, squeal.v, thump.n, thump.v, thunder.n,

thunder.v, tinkle.n, tinkle.v, titter.n titter.v, toll.n, toll.v, trumpet.n, trumpet.v, tweet.n, tweet.v, twitter.n twitter.v, ululate.v, wail.n, wail.v, whimper.n, whimper.v, whine.n, whine.v, whinny.n, whinny.v, whisper.v, whistle.n, whistle.v, yammer.n, yammer.v, yap.n, yap.v, yelp.n, yelp.v yodel.n, yodel.v, yowl.n, yowl.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Source	Src	<i>The old truck rattled.</i>
Source-1	Src-1	<i>The rain pattered against the roof.</i>
Source-2	Src-2	<i>The rain pattered <u>against the roof</u>.</i>
Cause	Cause	<i>The wind rattled the tree branches.</i>
Causer	Causer	<i>Kim rattled the tree branches.</i>
Sound	Sound	<i>The branches made a rattling sound.</i>
Manner	Manr	<i>The branches rattled loudly.</i>

General Description

A physical entity (the **Source**) emits a sound, or two or more entities coming into contact with one another (**Source-1** and **Source-2**) create a sound. In causative cases, an inanimate force (a **Cause**), or an animate force (a **Causer**), causes the Source(s) to emit the sound. Sometimes the sound itself is referred to with a nominal expression, in which case it is called the **Sound**. **Manner** expressions may also be relevant in this frame, if they describe properties of the sound as such.

FE: Source

The frame element **Source** is assigned to a constituent referring to a physical entity which emits a sound. Such an entity must have an appropriately complex internal structure such that it can create a sound. For example, a machine or some other thing with moving parts can create sound by itself.

Simpler objects may also create sound if they come into contact with one another. For example, one rock knocked against another may make a clacking sound. When scenes like this are described, one object is often given more prominent syntactic expression than the other, as in *I clacked the black rock against the gray one*. The more prominent expression is assigned the frame element **Source-1**, and the less prominent one, usually expressed in an oblique PP, is assigned the frame element **Source-2**. In the example above, *the black rock* expresses Source-1, and *against the gray one* expresses Source-2.

Typically Source and Source-1 are expressed as External Arguments:

[The wind] **howled**.

[The wind] made a **howling** noise.

[The branches] **rattled** against the roof.

[The branches] made a **rattling** sound against the roof.

FE: Source-1

See FE: See Source, above.

[The branches] **rattled** against the roof.

FE: Source-2

See FE: See Source, above.

The branches **rattled** [against the roof].

FE: Cause

The frame element **Cause** is assigned to a constituent referring to an inanimate cause of sound which is not itself a Source of sound. The cause applies some force to the Source which makes it emit its sound, but the Cause does not make the sound directly. In the sentence *The wind howled through the branches*, the noun phrase *the wind* is a Source, because one could describe the same event by saying *The wind howled*. In the sentence *The wind rattled the branches*, on the other hand, *the wind* is a Cause, because it is not understood to make the sound directly: this event could not be described by the sentence *The wind rattled*.

Cause is normally expressed as an External Argument:

[The wind] **rattled** the branches.

[The wind] made the branches **rattle**.

FE: Causer

The frame element **Causer** is assigned to constituents expressing animate causes of sound. People and other animate beings count as Causers when they cause sounds but are not themselves the Source of sound. For example, in the sentence *The cat howled*, *the cat* is the Source rather than the Causer.

Causer is usually expressed as an External Argument:

[The ghost] **rattled** its chains.

[The ghost] made its chains **rattle**.

FE: Sound

The frame element **Sound** is assigned to NPs which actually refer to a sound in the presence of the target. This typically occurs when the target is a verb used as a modifier in its *-ing* form, e.g.

The branches made a **rattling** [sound].

In this example, the frame element Sound is actually expressed by the word *sound*. The frame element also occurs in copular constructions with a target noun in the predicate, e.g.

[Her voice] was just a **croak**.

Here, the expression *her voice* expresses Sound.

FE: Manner

Manner expressions may be of lexicographic interest if they describe properties of a sounds as such: *loudly*, *shrilly*, etc.

Jo **sobbed** [loudly].

C.10.5 Frame: Perception-experience

Inherits: Perception

Mapping:

<u>Source</u>	<u>Target</u>
Perception.Perceiver	Perception-experience.Perceiver-Passive
Perception.Phenomenon	Perception-experience.Phenomenon

Lexemes

detect.v, *feel.v*, *hear.v*, *perceive.v*, *perception.n*, *see.v*, *sense.v*, *smell.v*, *taste.v*

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Perceiver-Passive	Perc-Pass	Pat saw Kim sitting outside.
Phenomenon	Phen	Pat smelt <i>smoke</i> .
Body Part	BodP	I felt the wind <i>on my face</i> .
Location of Perceiver	Loc-Perc	Pat heard the noise <i>from next door</i> .
Direction	Dir	Pat heard the noise <i>through the wall</i> .
State	State	Kim saw Pat <i>trembling with rage</i> .
Ground	Ground	Pat saw Kim <i>among the crowd</i> .
Manner	Manr	Pat heard the pop <i>clearly</i> .

General Description

This frame contains perception words whose Perceivers have perceptual experiences that they do not necessarily intend to. For this reason we call the Perceiver role **Perceiver-Passive**.

Comparing the Perception-experience frame to the Perception-active frame, we note that for some modalities there are different lexical items in each frame. For instance, whereas Perception-experience has *see*, Perception-active has *look*

at. For other sense modalities, we find the same lexical items in both frames. To illustrate, consider the verb *smell* where *I smell something rotten* exemplifies its Perception-experience use and *Smell this to see if it's fresh* exemplifies its Perception-active sense.

This frame also includes words which are not specific to any sense modality, including *detect*, *perceive*, *perception*, *sense*.

FE: Perceiver-Passive

This FE is the being who has a perceptual experience, not necessarily on purpose. It is typically expressed as an External Argument:

[The waiter] **smelled** something foul in the kitchen.

FE: Phenomenon

This FE is the entity or phenomenon that the perceiver experiences with his or her senses. It is typically expressed as Object with verbs:

The waiter **smelled** [something foul] in the kitchen.

FE: Body Part

This FE is the location on the body where the perceptual experience takes place. It is typically expressed in a PP:

Marlow **felt** something cold and hard [against the back of his neck].

This frame element occurs less frequently than others, because many target words imply that a particular part of the body is involved (e.g. smelling must be done with the nose). However, the verb *feel* does take this frame element, because touch is not localized on the body the same way other modalities are. Body Part may be expressed in other modalities when it is more specific than what is implied by the target word in question:

I **heard** a ringing [in my right ear].

FE: Location of Perceiver

This FE is the location of the Perceiver during the perceptual experience. It is typically expressed in a *from*-PP:

The witnesses **saw** the robbery [from the their car].

FE: Direction

This frame element is used for all path-like expressions, except those indicating the location of the perceiver (see above), that describe how the perceiver's attention is directed during the act of perception.

The detective could easily **see** [into the house].

The detective **heard** their conversation [through the wall].

FE: State

This frame element is used for predicate expressions that apply to the Phenomenon, providing some information about the state it is in while the perceiver experiences it:

The detective **saw** the suspect [fleeing].

Pat **saw** Kim [naked].

FE: Ground

This FE is the perceptual background against which the Phenomenon is experienced (or not experienced) by the Perceiver. It can be distinguished from locative postnominal modifiers of the Phenomenon in negative contexts:

Pat didn't **see** Kim [behind the bar].

In this example, it is implied that Pat looked behind the bar and did not find Kim there.

FE: Manner

Manner expressions may be of lexicographic interest if they describe properties of perception as such: *clearly*, *loudly*, etc.

Pat **heard** the shot [clearly].

C.10.6 Frame: Sensation**Inherits: Perception****Mapping:**

<u>Source</u>	<u>Target</u>
Perception.Perceiver	Sensation.Perceiver-Passive
Perception.Phenomenon	Sensation.Percept

Lexemes

aroma.n, bouquet.n, feel.n, feeling.n, flavour.n, fragrance.n, incense.n, noise.n, odour.n, perception.n, perfume.n, reek.n, savour.n, scent.n, sensation.n, sense.n, sight.n, smell.n, sound.n, stink.n, taste.n, vision.n, whiff.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Perceiver-Passive	Perc-Pass	<i>Kim</i> could smell garlic.
Source	Src	<i>This basil</i> smells like garlic.
Percept	Pcpt	Kim could smell <i>garlic</i> .
Body Part	BodP	This polenta has a nice feel <i>in the mouth</i> .

General Description

This frame contains nouns that refer to sensations in different modalities. The FE **Source** is used for the phenomenon that gives rise to the sensation in question. The FE **Percept** is used for the characteristic quality of the sensation. In cases of veridical perception these are not typically distinguished from one another; we use the FE **Percept** as the default in these cases. With some nouns in this frame it is possible to express the being who experiences the sensation. We mark such expressions with the FE **Perceiver-Passive**. (The **-Passive** part of this label serves to distinguish this FE from the **Perceiver-Agentive** FE used in other frames.)

FE: Perceiver-Passive

This FE is only expressed with certain nouns in this frame, and then only with the help of a support verb, such as *have*:

[I] *have* a tingling **sensation** in my hands.

With most nouns in this frame, a perceiver can only be expressed as the subject of a perception verb such as *detect* or *sense*:

The dog detected the **scent** of explosives.

In sentences like these the perceiver-denoting expression is not annotated because it is introduced by another perception word, which is treated independently in a different frame.

FE: Source

This is the entity or phenomenon which gives rise to the sensation. In cases of veridical sensation, this FE is not typically distinguished from **Percept** (see below). Most of the phrases that express this FE can be paraphrased as *from*-phrases, e.g.

The **smell** [of the garlic] made me hungry.

The **smell** *from the garlic* made me hungry.

The **smell** *of garlic* made me hungry.

*The **smell** *from garlic* made me hungry.

The first sentence, in which the object of the preposition *of* is a definite NP, can be roughly paraphrased by the second sentence, which replaces the *of*-PP with a *from*-PP. This shows that the phrase *of the garlic* in the first sentence expresses Source. On the other hand, the third sentence, in which the object of the preposition *of* is a bare noun, cannot be so paraphrased. The bare-noun *of*-PPs express Percept rather than Source.

Source can be expressed as the External Argument of a support verb, e.g.

[This herb] *emits* a strong **odor**.

FE: Percept

The FE **Percept** is used for phrases that express the characteristic property of a sensation. Typically this characteristic property is described with reference to the entity or phenomenon that produces the sensation—that is why this FE can be difficult to distinguish from Source. It is possible for Source and Percept to be expressed separately, however:

[This herb (Source)] *gives off* a **smell** [of garlic (Percept)].

In cases in which it is impossible to distinguish between Source and Percept, Percept is used as the default FE.

FE: Body Part

This FE is assigned to phrases expressing the body part in which a sensation is located. Since touch is the least localized of sense modalities, words relating to haptic sensations are the ones most likely to occur with this FE:

I have a tingling **feeling** [in my hands].

Words for other sense modalities can occasionally express this FE as well:

There is a bitter **taste** [on the back of my tongue].

The ringing **sound** [in my left ear] distracted me during class.

C.11 Domain: Society

C.11.1 Frame: Change-of-Leadership

Lexemes

appoint.v, coup.n, elect.v, insurrection.n, mutiny.n, mutiny.v, overthrow.v, rebellion.n, revolt.v, revolution.n, uprising.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Selector	Slctr	<i>The committee elected a new chair.</i>
Old Leader	Ldr_O	The military overthrew <i>the dictator</i> .
New Leader	Ldr_N	The committee elected <i>Pat</i> chair.
Role	Role	The committee elected Pat <i>chair</i> .

General Description

This frame has to do with the appointment of a new leader or removal from office of an old one. The Selector brings about the change in leadership, for example, by electing or overthrowing a leader.

Some words in the frame describe the successful removal from office of a leader, others simply the attempt (e.g. *uprising, rebellion*).

FE: Selector

The Selector (most commonly a group of people) is responsible for a change in leadership. Typically, it occurs as the External Argument of verbs:

[The voters] **elected** Blair.
 [The president] **appoints** the prime minister.

FE: Old Leader

With words denoting removal (or attempted removal) from office of a leader, the Old Leader is typically the direct object of verbs, or occurs in a PP Complement with noun targets, frequently headed by the preposition *against*:

The students **overthrew** [the president].
 The **uprising** [against the king] was quickly ended by the military.

FE: New Leader

With words denoting appointment to a position, the New Leader is typically the object of verbs:

The president **appoints** [the prime minister].

FE: Role

Frequently the Old or New Leader is referred to only by his/her Role. However, the Role can be expressed separately from the Leader, usually as either a secondary predicate or in a PP Complement:

The board of directors **appointed** Ashton [Acting President].
 The board of directors **appointed** Ashton [as Acting President].
 The voters **elected** Mitterand [to the presidency]

C.11.2 Frame: Leadership

Lexemes

bishop.n, boss.n, captain.n, chairman.n, chairperson.n, chief.n, chieftain.n, command.v, commandant.n, commander.n, director.n, emperor.n, general.n, govern.v, governor.n, head.n, head.v, imam.n, king.n, lead.v, leader.n, mayor.n, minister.n, monarch.n, premier.n, preside.v, president.n, principal.n, queen.n, reign.v, rule.v, ruler.n, run.v, shah.n, sovereign.n, sultan.n, vice-captain.n, vice-chairman.n, vice-president.n, vice-principal.n, viceroy.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Leader	Ldr	<i>Local landowners rule the villages.</i>
Jurisdiction	Jur	<i>Local landowners rule the villages.</i>
Role	Role	<i>Paul reigned as king for 20 years.</i>
Duration	Dur	<i>Paul reigned as king for 20 years.</i>

General Description

These are words referring to control by a Leader over a particular domain (the Jurisdiction). The frame contains both nouns referring to a title or position (e.g. *director, king, president*), and verbs describing the action of leadership (e.g. *rule, reign*).

FE: Leader

With verbs, and with predicate nominals linking an individual to a Role, the Leader is usually the External Argument:

[King Hussein] **ruled** Jordan.

[Hussein] was **King** of Jordan.

With leadership nouns, the frame element Leader is most frequently instantiated by the target itself, and therefore the SLF (Self) nubbie is tagged:

The **queen** [SLF] announced her upcoming visit to Belgium.

FE: Jurisdiction

The domain (organization, area or political entity) in which the Leader has control.

King Hussein **ruled** [Jordan].

FE: Role

When expressed separately from the target, Role usually occurs in a PP Complement headed by *as*:

Hussein **reigned** [as King of Jordan]

FE: Duration

Leadership by any particular individual is frequently limited in time. Duration occurs in a PP Complement:

She **reigned** [for 3 years].

C.11.3 Frame: Sociability**Lexemes**

companionable.a, extrovert.a, extrovert.n, friendly.a, gregarious.a, introverted.a, loner.n, outgoing.a, recluse.n, shy.a, sociable.a, timid.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Protagonist	Prot	<i>Kim</i> is shy of strangers.
Company	Comp	Kim is shy of <i>strangers</i> .
Content	Cont	Kim is shy about <i>speaking in public</i> .

General Description

These words describe how outgoing or sociable a Protagonist is, often in a particular context, either with certain people (the Company), or about a particular situation, topic or event (the Content).

FE: Protagonist

The Protagonist is the person whose sociability is being described.

[Pat] is **sociable**.

Pat was a very **shy** [child].

[Pat] is a **loner**.

Everyone had heard about the **recluse**[SLF] who lived on the hill.

FE: Company

The Protagonist may be sociable, shy, outgoing, etc. when with particular Company (specific people or types of people). Company usually occurs in a PP Complement with a target adjective:

Kim is **shy** [of strangers].

The children are **friendly** [to everyone they meet].

FE: Content

The Protagonist may be sociable, shy, outgoing, etc. when in a particular situation, or about performing some action.

Kim is **outgoing** [when traveling alone].

Kim is **timid** [about meeting new people].

C.11.4 Frame: Strictness**Lexemes**

authoritarian.a, indulgent.a, lenient.a, liberal.a, strict.a, tolerant.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	Pat is strict with the children.
Controllee	Cntrl	Pat is strict <i>with the children</i> .
Behavior	Behv	Pat is strict <i>in disciplining the children</i> .
Issue	Iss	Pat is strict with the children <i>about bedtime</i> .
Medium	Medium	The company has strict <i>rules</i> about safety.

General Description

These adjectives describe the degree of strictness or tolerance of an Agent, usually with regard to another person (the Controllee) and often with regard to a particular Issue.

FE: Agent

The Agent is the person who is strict or liberal in his/her control over another. This FE is usually the External Argument with predicate adjectives, or the head noun if the adjective is used attributively:

[The school] is very **liberal** in approach and curriculum.

I attended a very **liberal** [school].

FE: Controllee

The Agent's strictness may be directed towards or limited to some particular person or group over whom he/she has control. The Controllee generally occurs in a PP Complement:

Grandparents are often **indulgent** [with their grandchildren].

FE: Behavior

The Agent's strictness may be manifested in particular behavior:

The judge was **lenient** [in dealing with the offender].

FE: Issue

The Agent may be strict or lenient with respect to a particular matter or situation. Issue occurs in PP Complements, usually headed by *about*:

The city council is **strict** [about pollution control].

FE: Medium

A Medium of control, such as rules, may also be described as strict or lenient. Medium may occur with or without the Agent who ultimately has control (i.e. the one who implements or enforces the rules).

The club has **strict** [rules] about who can become a member.

[Immigration law] is very **strict**.

C.12 Domain: Space**C.12.1 Frame: Adornment****Lexemes**

adorn.v, blanket.v, cloak.v, coat.v, cover.v, deck.v, decorate.v, encircle.v, envelop.v, festoon.v, fill.v, film.v, line.v, pave.v, wreath.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Theme	Thm	<i>The cloak covered him completely.</i>
Location	Loc	<i>The cloak covered him completely.</i>

General Description

This frame involves a static (primarily spatial) relationship between a figure and a ground. All of the verbs used statically in this frame can also occur in the frame Motion.Filling, producing pairs such as the following:

Filling: Pat **covered** the table with flowers.

Adornment: Flowers **covered** the table.

FE: Theme

The Theme in this frame is the object which is described as standing in some spatial relation to a particular location. Theme typically occurs as the External Argument or, with passives, as a PP Complement headed by *with* or *by*:

[Ribbons] **festooned** the car.

The car was **festooned** [with ribbons].

The table was **covered** [by a purple velvet cloth].

FE: Location

The Location is the object or area with respect to which the Theme's spatial arrangement is described. This frame element generally occurs as an NP Object or the External Argument of passives.

Thick varnish **coated** [the beautiful wood].

[The beautiful wood] was **coated** with thick varnish.

C.12.2 Frame: Expansion

Lexemes

aggrandizement.n, augmentation.n, contraction.n, dilate.v, enlarge.v, enlargement.n, expand.v, expansion.n, grow.v, growth.n, inflate.v, lengthen.v, magnification.n, magnify.v, reduction.n, shrink.v, shrinking.n, swell.v, widen.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>The council widened the road.</i>
Item	Itm	<i>The council widened the road.</i>
Initial Size	Size-I	<i>My grandfather has shrunk from 6'2" to 5'11".</i>
Result Size	Size-R	<i>My grandfather has shrunk from 6'2" to 5'11".</i>
Degree	Deg	<i>The tree grew by six inches.</i>
Dimension	Dim	<i>The tree grew in diameter by 6 inches.</i>

General Description

This frame has to do with the expansion or contraction of an object (the Item). There are a number of additional ways the change in size may be characterized—i.e. in terms of Initial- and Result-Sizes, the Dimension of expansion or the Degree of change.

FE: Agent

With some words in this frame, an Agent who causes the change in size of the Item may be present. The Agent typically occurs as the External Argument of a verb:

[Management] **expanded** the company.

FE: Item

The Item is frequently the External Argument of verbs or the NP Object if an Agent is expressed:

[The company] **expanded**.
Management **expanded** [the company].

FE: Initial Size

Initial Size is rarely expressed without Result Size also being explicit. Initial Size generally occurs in a PP-*from* Complement:

The glacier **shrank** [from 1km square] to 400 square meters.

FE: Result Size

Result Size is typically expressed in a PP Coomplement headed by *to*:

The trees **grow** [to 25 feet].

FE: Degree

Although Degree, is treated as a global frame element, it plays an important role in this frame. Any expression describing the extent of the size change (either in units or as a percentage) is treated as Degree:

The forests **shrank** [by 25,000 hectares last year].
The forests **shrank** [by half last year].

FE: Dimension

Change of size may be limited to or described in terms of a single Dimension:

The wall **grew** [in height].

The piglet had **grown** 6 inches [in length].

C.12.3 Frame: Location**Lexemes**

amphora.n, backpack.n, baggage.n, can.n, capsule.n, cart.n, casket.n, cell.n, chamber.n, chest.n, closet.n, compartment.n, drawer.n, envelope.n, flask.n, garage.n, glass.n, handbag.n, jar.n, kettle.n, knapsack.n, ladle.n, locker.n, mug.n, package.n, pocket.n, pot.n, purse.n, reservoir.n, sack.n, satchel.n, sandbag.n, shovel.n, shelf.n, spoon.n, suitcase.n, table.n, tin.n, wallet.n

base.n, boundary.n, edge.n, exterior.n, interior.n, side.n, surface.n, top.n

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
FE1	xyz	
FE2	yza	

General Description

The complement structures of these nouns are not unusual. They can occur with possessives indicating the entity located (*[your] position*) or the owner (*[my] pocket*), phrasal complements or modifying nouns indicating the contents (*a bag [of popcorn]*, including potential or intended contents (*my [underwear] drawer*), or the whole of which the target is a part (*the top [of the spire]*).

FE: FE1**FE: FE2****C.13 Domain: Time****C.13.1 Frame: Duration****Lexemes**

abiding.a, brief.a, chronic.a, enduring.a, ephemeral.a, eternal.a, extended.a, interim.a, lasting.a, lengthy.a, momentary.a, perpetual.a, short.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Eventuality	Evty	<i>The meeting was brief.</i>
Period	Prd	For a brief moment we thought we had succeeded.

General Description

This frame contains adjectives characterizing the duration of an event, state or time-period.

FE: Eventuality

A situation, action or event whose duration is being described. The Eventuality occurs as the External Argument if the adjective is used predicatively, or as the modified noun if the adjective is used attributively:

[The lecture] was **short**.
We had a **lengthy** [conversation].

FE: Period

Sometimes these adjectives describe simply a period of time, rather than an event or state. The Period almost invariably occurs as the modified noun with an attributive adjective:

We waited for only a **short** [time].
Use of the drug over a **lengthy** [period] can cause memory loss.

C.13.2 Frame: Iteration**Lexemes**

annual.a, bi-annual.a, bi-monthly.a, biennial.a, daily.a, fortnightly.a, frequent.a, infrequent.a, intermittent.a, monthly.a, nightly.a, occasional.a, periodic.a, recurrent.a, recurring.a, repeated.a, sporadic.a, weekly.a, yearly.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Event	Evnt	We have a weekly meeting .

General Description

This frame has to do with the repetition (and especially the frequency of repetition) of an event.

FE: Event

This FE is any (bounded) Event whose frequency or iteration is described.

The country has been struck by **frequent** [economic crises].

[The symptoms] were **sporadic**.

C.13.3 Frame: Relative**Lexemes**

antecedent.a, belated.a, defer.v, delay.v, early.a, follow.v, following.a, late.a, overdue.a, postpone.v, precede.v, preceding.a, predate.v, premature.a, previous.a, prior.a, punctual.a, subsequent.a, succeeding.a, tardy.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Agent	Agt	<i>The family delayed the decision by another year.</i>
Focal Occasion	F_Occ	<i>The agreement followed months of negotiations.</i>
Reference Occasion	R_Occ	<i>Tensions preceded the election.</i>
Interval	Int	<i>The rally preceded the vote <i>by a week</i>.</i>

General Description

These words relate to the relative ordering of two events or times. These words describe the shifting of some event by the Agent from its expected or planned time, the Reference Occasion (usually Null Instantiated) to some earlier or later time.

FE: Agent

Only a few words in this frame (such as *postpone.v*, *delay.v*) allow an Agent to be expressed. The Agent generally occurs as the External Argument:

[Pat] **delayed** going home until everyone else had already left.

FE: Focal Occasion

The Focal Occasion is the event which is being located in time with respect to some other event:

[Hours of eating and drinking] **followed** the wedding ceremony.

FE: Reference Occasion

The Reference Occasion is the event with respect to which the Focal Event is located:

Hours of eating and drinking **followed** [the wedding ceremony].

FE: Interval

Frequently, the Interval between the Reference and Focal Occasions is expressed:

The article in the Times [closely] **followed** the singer's announcement that he was retiring.

C.14 Domain: Transaction**C.14.1 Frame: Commerce****Lexemes**

buy.v, charge.v, cost.v, lease.v, pay.v, purchase.v, rent.v, retail.v, sell.v, spend.v

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Buyer	Byr	<i>Pat bought a new guitar.</i>
Seller	Slr	<i>Pat bought a guitar <i>from Kim</i>.</i>
Payment	Pymt	<i>Kim sold the guitar <i>for \$250</i>.</i>
Goods	Gds	<i>Kim sold <i>the guitar</i> for \$250.</i>
Rate	Rate	<i>The plumber charges <i>\$20 an hour</i>.</i>
Unit	Unit	<i>The plumber charges <i>by the hour</i>.</i>

General Description

These are verbs describing basic commercial transactions involving a buyer and a seller exchanging money and goods. The words vary individually in the patterns of frame element realization they allow.

For example, the typical patterns for *buy* and *sell*:

BUYER buys GOODS from SELLER for PAYMENT

SELLER sells GOODS to BUYER for PAYMENT

FE: Buyer

[Jess] **bought** a coat.

[Jess] **bought** a coat from Saks for Andy.

Pat **sold** [Jess] a coat.

FE: Seller

[The landlord] **rents** the apartment for \$700 a month.

[Jess] **rents** the apartment to Andy.

Kim and Pat **rent** the apartment [from Jess].

FE: Payment

Payment is the thing given in exchange for Goods in a transaction.

Pat **paid** [\$48] for the concert ticket.

[\$50] will **buy** a second hand lawnmower.

FE: Goods

The FE Goods is anything (including labor or time, for example) which is exchanged for Payment in a transaction.

Kim **bought** [the sweater].

Pat **sold** Kim [the sweater].

FE: Rate

In some cases, price or payment is described per unit of Goods.

The manager **pays** the paper boys [five dollars an hour].

FE: Unit

This FE is any unit in which goods or services can be measured. Generally, it occurs in a *by*-PP.

Bob **sells** peppers [by the pound].

Sue **pays** rent [by the month].

C.14.2 Frame: Expensiveness**Lexemes**

affordable.a, cheap.a, costly.a, exorbitant.a, expensive.a, free.a, inexpensive.a, low-cost.a, low-priced.a, overpriced.a, pricey.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Goods	Gds	<i>My new tennis racket</i> was expensive .
Payer	Pyr	The tickets are inexpensive <i>for club members</i> .
Payment	Pymt	The tickets are cheap <i>at \$15</i> .

General Description

These adjectives describe the price of some Goods. A Payer, the person buying (or considering buying) the Goods may be expressed, and in this case it is frequently with respect to his/her budget that expensiveness is judged.

FE: Goods

The FE Goods is the item(s) whose price is being assessed. Goods is usually an External Argument:

These paintings are very **pricey**.

FE: Payer

The Payer is often not expressed. Where it does occur it is frequently in contexts where the Goods are described as expensive or affordable for a particular person. The frame element typically occurs as a PP Complement:

A holiday in Europe is very **expensive** [for me].

FE: Payment

The price of or payment made for the Goods.

The painting was **cheap** [at \$600].
 [\$600] is **exorbitant** for that painting!

C.14.3 Frame: Frugality**Lexemes**

austere.a, economical.a, extravagant.a, frugal.a, generous.a, lavish.a, miserly.a, parsimonious.a, sparing.a, stingy.a, thrifty.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Person	Pers	<i>Kim</i> is generous .
Behavior	Bhv	Kim was generous <i>to buy me dinner</i> .
Recipient	Rcp	Kim was generous <i>to me</i> .
Resource	Res	Kim is generous <i>with money</i> .

General Description

These are adjectives that describe how freely a person spends money or other resources. They can be applied to people and also to their behavior in particular instances.

FE: Person

Person is the individual whose frugality or generosity is being described. Person typically occurs as the External Argument or, in some cases when Behavior is also expressed, in an *of*-PP:

[Jo] is very **frugal**

It was **stingy** [of Jo] not to pay for dinner.

FE: Behavior

Some specific Behavior may be described as frugal or extravagant, rather than attributing the characteristic directly to the Person:

It's **thrifty** of Jo [to re-use teabags].

FE: Recipient

Some words in this frame (most commonly *generous* and *stingy*) allow a Recipient of the Resources spent by the Person to be expressed:

Grandparents are often **generous** [with their grandchildren].

FE: Resource

This FE is the resource which the Person expends.

Pat is **stingy** [with her time].

C.14.4 Frame: Wealthiness

Lexemes

affluent.a, bankrupt.a, broke.a, needy.a, poor.a, privileged.a, prosperous.a, rich.a, underprivileged.a, wealthy.a, well-off.a

Frame Elements (FEs)

<u>FE</u>	<u>Tag</u>	<u>Example (in italics)</u>
Person	Pers	<i>Jess</i> is very rich .
Institution	Inst	<i>The university</i> is wealthy .
Resource	Res	The company is rich <i>in gold</i> .

General Description

These adjectives describe the wealthiness of a Person or Institution.

FE: Person

[Pat and Kim] are completely **broke** at the moment.

FE: Institution

[The company] is **bankrupt**.

FE: Resource

The resource or currency in which the Person or Institution's wealth is being assessed. This frame element is expressed mainly with the words *rich.a*, *poor.a*, *bankrupt.a* and typically occurs in a PP Complement headed by *in* or *of*:

The company is **bankrupt** [of money and ideas].

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