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Relations between frames and constructions

A proposal from the Japanese FrameNet constructicon

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This chapter discusses relations between frames and constructions, based on the constructicon-building project within the Japanese FrameNet (JFN) project. The aims are: to clarify distinctions between a framenet lexicon and a constructicon; and to contribute to the on-going discussion on whether all constructions are "meaning-bearing." I will argue that a framenet analysis involves annotating frame-based syntactic/semantic structures of words (simple words and multiwords), while a constructicon annotation pertains to describing the internal and external syntax/semantics of linguistic objects that have complex structures. While maintaining that all constructions are meaning-bearing, I will point out that meaning structures of some constructions may not involve frames and propose a frame-based classification of constructions. Finally, I will suggest that a constructicon annotation needs both semantic frames and interactional frames.

Keywords: FrameNet, constructicon, Frame Semantics, Construction Grammar, syntax-lexicon continuum, semantic frame, interactional frame, Japanese, annotation

1. Introduction

This chapter discusses relations between frames and grammatical constructions,[1] based on the constructicon-building project within the Japanese FrameNet (JFN) project (Ohara, 2013), the umbrella for building both the lexical resource and the constructicon.[2] In addition to the existing lexical-resource-buidling projects of framenets for a range of languages, several constructicon-building projects have been underway for languages other than English, such as Japanese, Swedish, and Brazilian

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1. Hereafter, I will use "constructions" to mean "grammatical constructions" in the sense of Construction Grammar (e.g. Fillmore 2013, inter alia).

2. http://jfn.st.hc.keio.ac.jp

Portuguese. These include the English FrameNet[3] Constructicon (Lee-Goldman & Petruck, this volume), the Japanese FrameNet Constructicon (Ohara, 2013, 2014), the Swedish Constructicon (Sköldberg et al. 2013; Lyngfelt, Bäckström et al., this volume), the FrameNet Brasil Constructicon (Torrent and Lage, 2014; Torrent et al., this volume), the Russian Constructicon (Janda et al., this volume), and the German Constructicon (Boas & Ziem, this volume).

As pointed out in Lyngfelt (this volume), two meanings of "constructicon" exist in the literature. One meaning pertains to a theoretical concept, that is, a structured network of grammatical constructions (Fillmore, 1988; Jurafsky, 1991). The other involves an actual instantiation of construction descriptions (Fillmore, Lee-Goldman & Rhomieux, 2012). This chapter focuses on the latter sense of constructicon.

At the same time, both constructicons and framenets are practical implementations of the theories of Construction Grammar and Frame Semantics (cf. Boas, 2010), respectively. In the two theories, grammatical constructions are defined as form-meaning pairs. Furthermore, the two theories assume the syntax-lexicon continuum rather than the dictionary-and-grammar model, since dividing speakers' knowledge of vocabulary from that of grammar is impossible, as apparent from the existence of many productive idiomatic expressions at different levels and at varying degrees in a language (Fillmore, Kay, and O'Connor, 1988; Hilpert, 2014, pp. 3–8). In discussing relations between frames and constructions in this chapter, I will attempt to preserve the syntax-lexicon continuum in the JFN Lexicon and the JFN Constructicon in two ways: (1) avoiding an arbitrary distinction between words and linguistic objects that are not words; and (2) ensuring that the information in the JFN Lexicon and the JFN is Constructicon as parallel as possible (cf. Torrent et al., this volume).

The two-fold aims of this chapter are: (1) clarify distinctions between a framenet lexicon and a constructicon; and (2) contribute to the on-going discussion on whether or not all constructions should be seen as "meaning-bearing". Regarding the first aim, the need for a constructicon in addition to a FrameNet-style lexicon may not be obvious to everyone. Moreover, relations between a framenet annotation and a constructicon annotation have not been discussed much in the literature and variations seem to exist in understanding the relations between the two among the current projects as well.[4] In this chapter, I will distinguish between the two as follows: framenet annotation involve annotating frame-based syntactic

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3. FrameNet (FN) is used as the name of the lexical resource and also as the name of the project.

4. Fillmore (2008, p. 59) calls the two types of annotation "FN lexicographic annotation" and "constructional annotation". In this chapter, I will use "framenet annotation" and "construction annotation" for reasons discussed in Section 3.

and semantic structures of words (simple words and multiwords); constructicon annotation requires describing the *internal* and *external syntax* and *internal* and *external semantics* of linguistic objects that have complex structures.

With respect to the second aim, there have been discussions on whether all constructions should be seen as "meaning-bearing" or not (Fillmore, Lee-Goldman, & Rhomieux, 2012, pp. 325–328; Goldberg, 2006, pp. 166–182; Hilpert, 2014, pp. 51–57). I maintain that all constructions are meaning-bearing and instead regard what the researchers have been calling "non meaning-bearing" constructions to be constructions that do *not* evoke frames (Section 4). I will then propose classification of constructions based on the notion of frames (see also Lyngfelt, Bäckström et al., this volume, for a discussion on frame-bearing and non frame-bearing constructions in Swedish in SweCcn, from a slightly different perspective[5]). Finally, I will suggest that for a constructicon annotation, we need interactional frames in addition to semantic frames.

The discussion in this chapter will be based on analyses of Japanese constructions, which are being carried out for the purpose of building a prototype of a constructicon as part of the JFN project. In building the JFN Constructicon, we have been concentrating on grammatical constructions that cannot be annotated in the JFN Lexicon (cf. Section 2). Since the databases and other resources of the overarching JFN project are compatible with those of the FN project, in which the lexicon and the constructicon are integrated parts of the same resource, the JFN lexical data and the JFN Constructicon data allow cross referencing. As the time of writing, however, the JFN Constructicon data has not been linked to the JFN Lexicon data yet.

Frame Semantics and framenets, i.e., its practical implementations, pertain to linguistically anchored frames. Frames refer to "any of the organized packages of knowledge, beliefs, and patterns of practice that shape and allow humans to make sense of their experiences" (Fillmore & Baker, 2010, p. 314). Frame elements (FEs) are the aspects and components of individual frames (Fillmore & Baker, 2010, p. 321). There are two very important notions in Frame Semantics and consequently in framenets: frame evocation and frame invocation. The former is defined as "a cognitive experience on the part of an interpreter that comes about by the interpreter's responding to language-specific associations connecting linguistic signs with particular frames" and in Frame Semantic terms a given linguistic sign evokes a linguistically anchored frame that contributes to interpreting the passage (Fillmore & Baker, 2010, p. 316). The latter notion of frame invocation is defined as "a cognitive act that the interpreter (possibly quite unconsciously) performs to

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5.   However, their analysis of Swedish constructions and the analysis of Japanese constructions presented in this chapter share many insights and thus are essentially compatible.

make sense of some incoming information" and in this theory it is viewed that the interpreter invokes a cognitive frame that enables the experience to make sense (Fillmore & Baker, 2010, p. 316). Typically words are frame evoking elements (FEEs), or targets, but as we will see in Section 4 linguistic objects other than words may also evoke frames.

In Construction Grammar, grammatical constructions are pairings of a linguistic form with a meaning. Constructs are actual structures licensed by one or more constructions and construct elements (CEs) are components of constructions (Fillmore, Lee-Goldman & Rhomieux, 2012, p. 321). Construction evoking elements (CEEs) are lexically-limited material (if any) (Fillmore, Lee-Goldman & Rhomieux, 2012, p. 323).

The rest of the chapter is organized as follows. Sections 2 and 3 deal with distinctions between framenet lexicons and constructicons: Section 2 discusses why we need constructicons in addition to framenets, by focusing on the targets of annotation needed to produce the two kinds of resources; and Section 3 compares and contrasts information added in a framenet annotation and a constructicon annotation. Sections 4 and 5 have to do with the issue of whether all constructions are meaning-bearing: Section 4 discusses "non meaning-bearing" constructions, which have also been called constructions "without meanings" and/or "semantically null" constructions, from a Frame-Semantic point of view; and Section 5 proposes a five-way classification of constructions based on whether or not constructions evoke frames. Finally, Section 6 summarizes the discussions.

2.   The need for constructicons

Why do we need constructicons in addition to framenets? One might argue that since grammatical constructions in Construction Grammar are defined as form-meaning pairs, which include linguistic objects at word, phrase, and clause levels, we do not need a lexicon and a constructicon separately, especially if we want to maintain the syntax-lexicon continuum, which is one of the most important assumptions in Construction Grammar just like in the other approaches in Cognitive Linguistics. In this section, I will argue that a constructicon is needed in addition to a framenet lexicon, since there are linguistic objects that cannot be annotated within the framework of a framenet lexicon.

First of all, limitations on lexicographic annotations in FN and JFN have become apparent: the two projects originally had the purely lexicographic purposes of (1) characterizing the main distributional properties of verbs, nouns, and adjectives based on valences and (2) identifying the requirements that lexical units

(LUs), pairings of a lemma and a frame, might impose on their dependents, using the concept of frames (cf. Fillmore, Lee-Goldman & Rhomieux, 2012, p. 310–313; Ohara, 2013, p. 21–22). This means that the kinds of grammatical structures that purely lexicographic annotation of LUs is recording are more or less limited to relations of predication, modification, and complementation (Fillmore, Lee-Goldman & Rhomieux, 2012, p. 312). Furthermore, Fillmore, Lee-Goldman and Rhomieux (2012) point out that linguistic objects "that function *as units* while at the same time having a describable internal structure", in other words, linguistic objects with internal and external structures are difficult to describe in framenets (Fillmore, Lee-Goldman & Rhomieux, 2012, pp. 12–313). At the same time, purely grammatical patterns with no reference to any lexical items cannot be dealt with by framenet annotation. Consequently, there are many sentences whose semantic and syntactic organizations cannot be fully annotated in framenets. Therefore, in order to describe the meaning of various kinds of sentences, the FN project and later the JFN project began to engage in construction-annotating activities additionally.

Currently, the JFN Constructicon is being built as a prototype of a Japanese constructicon, for the purpose of finding out what would be needed in language resources that can be regarded as practical implementations of the theories of Frame Semantics and Construction Grammar (cf. Section 1). We are thus focusing on expressions that cannot be annotated in JFN.

Let us examine an example of a grammatical structure that cannot be recorded by framenet annotation. The sentence pattern is often called "internally headed relativization" (Ohara, in press). The following is taken from a voice mail.

(1) *[[kinoo ringo o okuttekudasatta] no] ga kyoo tukimasita*
    yesterday apple ACC send-HON-PST NMLZ NOM today arrived
    Literal translation: '[That (you) sent me apples yesterday] arrived today.'
    Intended: '(You) sent me apples yesterday, and I received (them) today.'

Here, the main clause asserts the fact that you sent me apples yesterday. The subject of the main verb *tsukimashita* "arrived" is semantically construed as *ringo* "apple". However, it is inside the nominalized clause (i.e. the relative clause) with no syntactic identification. Hence the name internally headed relativization. This is a purely grammatical pattern and involves no lexical item. This sentence pattern is known for its narrative-advancing function and each of the two clauses has various semantic and pragmatic constraints. In particular, there are many internal and external semantic restrictions on the relative clause and on the main clause. That is, in the `internally_headed_relativization` construction, no single lexical item evokes a frame; rather, the entire sentence pattern functions as a unit, and the sentence pattern includes a describable internal structure. Thus, describing

the `internally_headed_relativization` construction requires a constructicon annotation, not a framenet annotation.

There are many other grammatical constructions in Japanese like the `internally_headed_relativization` construction with internal and external structures. Consequently, semantics and the JFN project is thus creating a prototype of the JFN Constructicon to record and annotate such constructions in Japanese.

3.   Framenet annotations and constructicon annotations

This section will clarify distinctions between framenet lexicons and constructicons by focusing on the kinds of annotation conducted to produce the two types of language resources. I will first bring up terminological issues and then discuss the information added in the two kinds of annotation.

So far I have been using "framenet annotation" and "constructicon annotation," instead of "lexicographic/frame annotation" and "construction(al) annotation" (see also Footnote 3). There are at least three reasons. First, there are variations among linguists and projects in what information to include in "frame annotation" and "construction(al) annotation." For example, by "constructional annotation" some focus on annotating constructions with frame names and FE labels, while others emphasize identifying constructions' constructs and CEs. (2) and (3) are examples of constructicon entries given in Boas (2010, p. 71) and Fillmore, Lee-Goldman and Rhomieux (2012, p. 39), respectively. In (2b) the sentence structure is annotated with semantic role labels such as Agent, Patient, and Recipient and so is the example sentence in (2d).

(2)   Constructicon entry in Boas (2010, p. 71)
   The `ditransitive` construction
   a.   Description: A volitional AGENT successfully transfers a PATIENT to a willing RECIPIENT, who receives the PATIENT.
   b. $[NP_1/Subj]_{AGENT}$ verb^{tgt} $[NP_2/Obj_1]_{RECIPIENT}$ $[NP_3/OBJ_2]_{PATIENT}$
   c.   List of LUs that evoke the `ditransitive` construction: v.Giving, signal.Communication, tell.Telling, v.Cooking_creation, ...
   d.   Annotated example sentence for each LU that evokes the `ditransitive` construction: [*Miriam*]$_{AGENT}$ *passed* [*Joe*]$_{RECIPIENT}$ [*the salt*]$_{PATIENT}$

On the other hand, in (3) an interpretation of the construction is given but the example sentence is not annotated with FE names.

(3) Constructicon entry in Fillmore, Lee-Goldman and Rhomieux (2012, p. 339)

{[AUX-INITIAL:COND] [[AUX]] [[SUBJ]] [[PRED]] }

Name	`aux_initial:conditional`
M	Inverted finite clause
D1	Auxiliary verb, either *had, should,* or *were*
D2	NP, the subject of D1
D3	Predicate (verbal or otherwise), selected by D1, shares subject with D1
Interpretation	A conditional clause, which interpretation varying with the identity of D1.

{[AUX-INITIAL:COND] [[AUX] *had*] [[SUBJ] *you*] [[PRED] *arrived on time*] }

Here, following the convention of Sign-Based Construction Grammar, outer brackets '{ }' are used to enclose the entire structure of the construction; and inner brackets '[ ]' indicate the individual CEs. "M" stands for the whole (the Mother), that is, the external structure; and "D1" through "D3" for parts (Daughters), namely the internal structure (Fillmore, Lee-Goldman & Rhomieux 2012, p. 331). The numbering on the Ds indicates the order of the CEs.

Second, I chose to use the terms "framenet annotation" and "constructicon annotation" instead of "lexicographic annotation" and "construction(al) annotation" to avoid misunderstanding that framenets only annotate "words" and that constructicons exclusively involve annotating non-words and "constructions." In Construction Grammar, grammatical constructions are defined as form-meaning pairs and in this definition "forms" include not only phrasal and clausal patterns but also words and morphemes. We should therefore not distinguish words from non-words outright, because doing so might suggest that we are making arbitrary distinctions among "forms". Since the JFN Lexicon contains words including both simple words and multiwords and since the JFN Constructicon is for the other types of linguistic objects with both internal and external structures, "framenet" and "constructicon," rather than "lexicographic" and "constructional," seem preferable.

Third, I prefer the terms "framenet annotation" and "constructicon annotation" to "frame annotation" and "construction(al) annotation" since annotation in framenets is not only about revealing the "meaning" of words by assigning frame names and FE labels. It also pertains to describing words' "structural properties." That is, valence patterns, which are created as a result of annotation in framenets, include phrase types (PTs) and grammatical functions (GFs) in addition to FE labels. Conversely, annotating constructions does not have to be exclusively about describing "structures" of constructions. It also involves describing their meanings and interpretations.

For the reasons given above the JFN project uses the terms "framenet annotation" and "constructicon annotation." Regarding the format of a constructicon

entry, the JFN Constructicon chose to adopt the one used by FN Constructicon, used in Fillmore, Lee-Goldman and Rhomieux (2012) and exemplified in (3) above, for the following reasons. First, since we are interested in describing internal syntax/semantics as well as external syntax/semantics of various grammatical constructions, the latter type of notation is better suited for the purpose, since the latter includes more detailed structural information. Second, as we will see in the next section, there are constructions for which we cannot assign semantic role or FE labels to their CEs, since the constructions do not evoke frames. Third, as mentioned in Section 1 the databases of the larger JFN project are compatible with those of the FN project and it is therefore practical to maintain the same format as that of the FN Constructicon.

Next, let us examine the kinds of information added in the two types of annotation. In JFN, framenet annotation processes consist of: (1) identifying the frame evoking element (FEE); (2) annotating constituents corresponding to the FE's of the frame; and (3) annotating the constituents with the PT and GF labels. Note that processes (2) and (3) above result in creating LUs' valence patterns, which consist of FE, PT, and GF labels.

Following Fillmore, Lee-Goldman and Rhomieux (2012), the JFN Constructicon regards constructicon annotation to consist of: (1) identifying the CEE if there is one (2) identifying constructs (i.e. actual structures licensed by the construction in question); and (3) identifying the construct-internal constituents as instantiating CEs (Fillmore, Lee-Goldman & Rhomieux, 2012, pp. 321–323). In other words, while framenet annotation describes syntax and semantics, that is, valence patterns of FEEs, constructicon annotation describes constructions' internal syntax and semantics by identifying CEEs, constructs, and Daughter CEs; and constructions' external syntax and semantics by identifying the Mother CE and the interpretation of the whole. Note that constructicon annotation by itself does not necessarily involve annotating constructions with frame names, as will be shown in Section 5.

Table 1 summarizes framenet annotation and constructicon annotation, focusing on their targets of annotation and the kinds of information added. We can see that the syntax-lexicon continuum is guaranteed with respect to both the target of annotation and the information added. First, the distinction between the two kinds of annotation is not about words *vs.* anything other than words but rather it has to do with whether the target of annotation has both internal and external structures or not. Second, in the two types of annotation the kinds of information added are kept as parallel as possible. That is, just like in framenet annotation, in constructicon annotation information pertaining to both forms and meanings are added. The only difference is that in constructicon annotation the meaning of a construction to be annotated may or may not involve frames, as will be discussed in the next section.

Table 1. Framenet annotations and constructicon annotations

	Framenet annotation	Constructicon annotation
Targets of Annotation	– Simple words; Multiwords (phrasal verbs, verb particles, words with selected prepositional complements, support constructions, combinations, transparent nouns (Fillmore 2008, p. 55–56))	– Linguistic objects with internal and external structures
Information Added	– Frame Name – Frame-Evoking Elements (FEEs) – Frame Elements (FEs) – Phrase Types (PTs) – Grammatical Functions (GFs)	– Construction Name – Construction-Evoking Elements (CEEs) – Constructs – Construct Elements (CEs) – Interpretation – Frame Name[*] – FEEs[*] – FEs[*]

* If the construction evokes a semantic frame (See Section 5)

4. Constructions "without meanings" and the use of frames to represent meaning structures of constructions

Let us now turn to the second goal of this chapter, namely, to discuss the issue of whether all constructions are meaning-bearing or not. Asking whether constructions have meanings or not may sound strange to many, since one of the basic tenets of Construction Grammar is the assumption that constructions are pairings of a form with a meaning and thus all constructions should have meanings. In the Construction Grammar community, however, there have indeed been discussions on whether there are constructions "without meanings". In this section, I will propose that instead of debating whether all constructions are meaning-bearing, it would be more appropriate to ask whether meanings of all constructions can be described by the notion of frames or not. That is, assuming that all constructions are meaning-bearing I argue that there are constructions whose meanings cannot be described by frames. I will first give a brief history of previous discussions in the community and then suggest that some constructions' meaning structures do not involve frames. In Frame Semantics, relations between frames and linguistic objects are accounted for by the concept of "frame evocation" and the concept is essential in framenets and constructicons as well. I will thus explicate the notion of "frame evocation", contrasting it with the related concept of "frame invocation", another important concept in Frame Semantics.

There have been discussions on whether or not *all* constructions should be seen as meaning-bearing (Fillmore, Lee-Goldman & Rhomieux 2012, pp. 325–328). In Construction Grammar, a grammatical construction is a conventionalized pairing between a specific formal pattern and the meaning it contributes to the expressions that contain it. However, some linguists including Fillmore (1999) argue for a "semantic-free syntax" for some linguistic expressions such as `aux_initial` in English (e.g. *May we come in?* with the meaning of question; *May you have a long and fruitful marriage* as a wish; *Had I known this, I would have gone* with the meaning of condition; *Did I do something stupid last night!* as an exclamation; see also (3) in Section 3). In the `aux_initial` construction, it is not possible to assign a clear meaning in the general form of the construction that is described by the more specific constructions. Goldberg, a strong proponent of Construction Grammar, opposes such a "semantic-free syntax" view and claims that the `aux_initial` construction indeed has a generalized meaning of its own, namely, non-assertiveness (Goldberg, 2006, pp. 166–182). Unlike Goldberg, however, the current FN Constructicon policy is to assume that semantically null constructions are legitimate and the `aux_initial` construction is categorized as one of such constructions (Fillmore, Lee-Goldman & Rhomieux, 2012, pp. 325–328) (see Section 5.1.2 below).

Since I view constructicons to be practical implementations of Construction Grammar, I maintain that all constructions have meanings. I argue, at the same time, that meaning structures of some constructions do not involve frames. More specifically, I contend that what Fillmore, Lee-Goldman and Rhomieux (2012) called constructions "without meaning" and "non meaning-bearing" constructions can be paraphrased as constructions that do not evoke frames.[6] In framenets it is assumed that simple words and multiwords evoke frames but linguistic forms other than words may also evoke frames (Ohara, 2013; Sköldberg et al., 2013). In fact, Fillmore and Baker (2010) points out, "Frame Semantics is the study of how linguistic forms evoke or activate frame knowledge, and how the frames thus activated can be integrated into an understanding of the passages that contain these forms" (Fillmore & Baker, 2010, p. 317). It is also important to note that there are constructions whose meanings cannot be described by frames, that is, there are constructions that do not evoke frames. Based on this idea, the next section presents a classification of constructions according to whether their meanings pertain to frames or not.

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6. See pp. 76–77 of Lyngfelt, Bäckström et al. (this volume) for a similar position.

5.   A five-way frame-based classification of constructions

It is possible to classify constructions based on whether they evoke frames or not. There are three types of non frame-evoking constructions and two types of frame-evoking constructions as shown in Table 2. Let us examine each of these types of constructions.

Table 2. Five-way frame-based classification of constructions

Cxn type	Frame-evoking cxn?	Sub-section	Japanese examples
[1] Compositionally interpretable	NO	5.1.1	`modifier_head` cxn: (4)
[2] Its more elaborated cxns evoke frames	NO	5.1.2	`V_te_iru` cxn: (5′)
[3] With omission of repetitive position -specific constituents	NO	5.1.3	`gapping` cxn: (6)
[4] Evoking a semantic frame	Yes	5.2.1	`comparative_inequality` cxn: (7a)
[5] Evoking an interactional frame	Yes	5.2.2	`te_linkage` cxn: (8c); `suspended_clause` cxn: (9b)

5.1   Non frame-evoking constructions

The three types of non frame-evoking constructions are: [1] compositionally-interpretable cxns (Section 5.1.1); [2] cxns whose more elaborated constructions evoke frames (Section 5.1.2); and [3] cxns with omission of repetitive position-specific constituents (Section 5.1.3).

5.1.1   *Compositionally interpretable constructions*
The first type of non frame-evoking constructions pertains to syntactic patterns with specific formal features whose interpretation depends on combining information from their constituents in a completely regular way (Fillmore, Lee-Goldman, & Rhomieux, 2012, p. 326) (Type [1] in Table 2). The `head_complement` construction (involving the structure of complementation), the `modifier_head` construction (involving the structure of modification), and the `subject_predicate` construction (involving the structure of predication) in English and Japanese are examples of such constructions. Example (4) illustrates the `modifier_head` construction in Japanese. As mentioned in Section 3 with respect to (3), here and in the other examples of constructicon entries below, outer brackets '{ }' indicate the entire expression produced by the construction and inner brackets '[ ]' are for individual

CEs. M represents the external structure of the construction and the numbers on Ds show the order of the CEs. [7] In (4), the prenominal adjective *utukusii* 'beautiful' modifies the noun *hana* 'flower' and the interpretation of the whole phrase is dependent on combining information of the two pieces in a regular way.

(4)   The `modifier_head` construction
{ [MODIFIER] [HEAD] }
M   NP
D1   Modifier AP
D2   Head NP
Interpretation   An NP, with D1 modifying D2
{ [MODIFIER *utukusii*] [HEAD *hana*] }
beautiful   flower
'(A) beautiful flower'

In other words, the meanings of the constructions belonging to Type [1] are derived compositionally and no frame is involved in interpreting them.

5.1.2   *Constructions whose more elaborated constructions evoke frames of their own*

The second type of non frame-evoking constructions involves constructions that determine syntactic patterns to which separate interpretations can be given under different variations (Type [2] in Table 2). Fillmore, Lee-Goldman and Rhomieux (2012) argue that the `aux_initial` construction (see also (3) in Section 3 and the discussion in Section 4) and the `filler_gap` construction are categorized as belonging to this type (Fillmore, Lee-Goldman & Rhomieux, 2012, pp. 326–327).[8] In the `filler_gap` construction, an argument of a verb, typically the direct object, appears to the left of the verb, i.e., in a place that differs from its canonical position in a simple declarative clause (Hilpert 2014, pp. 53–54). Constructs of this construction include: *What are you reading?* (*wh*-question), *How clever I am!* (exclamative), *The coat Dan had on yesterday was new* (relative clause), *Normally people don't buy such books, but this one they'll read* (topicalization), and *The more he criticizes the author, the more they will read* (*the X-er, the Y-er*).

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7.   Here and in the rest of the paper, unless otherwise noted, the order of Ds is rigid.

8.   The adjective_as_nominal construction in English is another example of Type [2] constructions, since there are at least three more specific constructions that inherit from it (e.g. *The party was losing its attraction for the young* (adjective_as_nominal.Human); *I took the shortest* (adjective_as_nominal.Anaphoric); and *It was only putting off the inevitable* (adjective_as_nominal. Abstract)) (Fillmore, Lee-Goldman & Rhomieux 2012, pp. 357–360).

That is, the `filler_gap` construction is inherited by more specific constructions, namely, the *wh*-`question`, `exclamative`, `relative_clause`, `topicalization` and *the*_X-*er,*_*the*_Y-*er* constructions, and each of these more specific constructions has a separate meaning. The `filler_gap` construction, however, does not have a generalized meaning and thus does not evoke a frame.

The `V_te_iru` construction in Japanese is another example of Type [2] constructions. The auxiliary *te iru* functions as an aspectual marker and attaches to the stem of a verb. Depending on the aktionsart of the preceding verb, separate aspectual interpretations are given, as shown in (5a) through (5c). In (5a), *te iru* attaches to a state verb *niru* 'resemble' and the whole sentence is interpreted as expressing a state; in (5b), *te iru* attaches to an activity verb *hasiru* 'run' and the sentence expresses an activity; and in (5c), *te iru* attaches to an achievement verb *oriru* 'fall' and the sentence describes a resultant state.

(5a) *haha   to   musume wa yoku ni   te iru*
      mother CONJ daughter TOP much resemble ASP
      '(The) mother and (the) daughter are much alike.'

(5b) *kodomo-tati ga   hasit te iru*
      child   PL NOM run   ASP
      '(The) Children are running.'

(5c) *koi kiri ga   numa no   ue   ni   ori te iru*
      thick fog NOM mire GEN top LOC fall ASP
      '(A) thick fog has fallen over (the) mire.'

Rather than assigning a generalized meaning to the `V_te_iru` construction, it seems preferable to recognize three constructions that inherit from the `V_te_ir` construction, each having a specific aspectual meaning, namely, that of state, activity, or resultant state. As shown in (5′) below, the `V_te_iru` construction does not evoke a frame. Instead the `V_te_iru`:state (5′a), `V_te_iru`:activity (5′b), and `V_te_iru`:resultant_state (5′c) constructions, which inherit from the `V_te_iru` construction, have more specific meanings and each evokes a frame.

(5′) The `V_te_iru` construction
      { [SUBJECT] [VERB] [AUX *te iru*] }
      M   Clause
      D1 Subject NP
      D2 Verb
      D3 Auxiliary verb *te iru*

(5a′) The V_*te_iru*:state construction
{ [^SUBJECT] [^VERB- STATE] [^AUX *te iru*] }

M	Clause
D1	Subject NP
D2	State verb
D3	Auxiliary verb *te iru*

Interpretation Evokes the State frame
{ [^SUBJECT *haha to musume wa*] *yoku* [^VERB- STATE *ni*] [^AUX *te iru*] }
mother and daughter TOP   much resemble   ASP

'(The) mother and (the) daughter are much alike.'

(5b′) The V_*te_iru*:activity construction
{ [^SUBJECT] [^VERB- ACTIVITY] [^AUX *te iru*] }

M	Clause
D1	Subject NP
D2	Activity verb
D3	Auxiliary verb *te iru*

Interpretation Evokes the Activity frame
{ [^SUBJECT *kodomo-tati ga*] [^VERB-ACTIVITY *hasit*] [^AUX *te iru*] }
child PL NOM   run   ASP

'(The) Children are running.'

(5c′) The V_*te_iru*:resultant_state construction
{ [^SUBJECT] [^VERB- ACHIEVEMENT] [^AUX *te iru*] }[9]

M	Clause
D1	Subject NP
D2	Resultant verb
D3	Auxiliary verb *te iru*

Interpretation Evokes the *Resultant_state frame[9]
{ [^SUBJECT *koi kiri ga*] *numa no ue ni* [^VERB- ACHIEVEMENT *ori*] [^AUX *te iru*] }
thick fog NOM mire GEN top LOC fall   ASP

'(A) thick fog has fallen over (the) mire.'

Note that since each of the V_*te_iru*:state, V_*te_iru*:activity, and V_*te_iru*:resultant_state constructions evokes a semantic frame, the relevant frame name is recorded in the "Interpretation" section in their respective JFN Constructicon entries (5a′) through (5c′). Additionally, the JFN constructicon provides a separate layer for semantic-frame annotation for each of the constructs. It includes the bracketing formula with the FEE and the FE labels, as shown in (5a″) through (5c″) below.

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9. Here and in the rest of the paper, the asterisk (*) before a frame name indicates that, at the time of writing, the frame has not been defined in the FrameNet Lexicon.

(5a″)   The `State` frame:
- The ENTITY persists in a stable situation called STATE.
- FEs: ENTITY, STATE

[ENTITY *haha to musume wa*] *yoku*   [STATE = FEE *ni te iru*]
mother and daughter TOP   much   resemble ASP
'(The) mother and (the) daughter are much alike.'

(5b″)   The `Activity` frame:
- The AGENT enters an ongoing state of the ACTIVITY, remains in this state for some DURATION of TIME and leaves this state.
- FEs: AGENT, ACTIVITY, DURATION, TIME

[AGENT *kodomo-tati ga*] [ACTIVITY = FEE *hasit te iru*]
child PL NOM   run ASP
'(The) Children are running.'

(5c″)   The `*Resultant_state` frame:
- As a result of an EVENT happening to an ENTITY, A STATE begins and continues.
- FEs: ENTITY, STATE, EVENT

[ENTITY *koi kiri ga*] *numa no ue ni*   [STATE = FEE [EVENT *ori*] [*te iru*]]
thick fog NOM   mire GEN top LOC fall ASP
'(A) thick fog has fallen over (the) mire.'

As we have just seen, in the case of Type [2] constructions, it is the high level of abstraction that makes them "meaningless." Thus, it may be misleading to say that the constructions belonging to Type [2] are "without meanings." They are semantically underspecified rather than being meaningless. They do not evoke frames but constructions that inherit from them have more specific meanings and evoke frames.

5.1.3   *Constructions that omit repetitive position-specific constituents*
The third type of constructions that do not evoke frames are constructions that allow the omission of position-specific constituents that would otherwise be repetitions (Type [3] in Table 2). Gapping (e.g. *John ate an apple and Mary a peach*), stripping (e.g. *Chris plays the guitar, but not the piano*), and shared_completion (e.g. *Robin is familiar with and fond of the dog*) in English belong to this type. In gapping, typically two phrasal constituents are juxtaposed and the second one is missing a verb that is present in the first. In stripping, a full sentence is stripped of everything except one constituent. In shared_completion, two phrases share a common ending (Fillmore, Lee-Goldman & Rhomieux, 2012, pp. 334–335).

Gapping exists in Japanese as well.

(6) The gapping construction
    { [ITEM1] [ITEM2] [ITEM1] [ITEM2] [ITEM3] }

M	A coordinate structure, whose non-final conjuncts are missing some linguistic material present in the last conjunct
D1	Appears in each conjunct
D2	Appears in each conjunct
D3	A string in the last conjunct which contains the main predicate, and which is omitted from non-final conjuncts
Interpretation	Each non-final conjunct is missing some material that is present in the final conjunct, and each conjunct is interpreted and parsed as though that missing material were present.

{ [ITEM1 *ozii -san wa*]   [ITEM2 *yama e*] ,   [ITEM1 *obaa -san wa*]

old-man HON TOP   mountain GOAL old-woman HON TOP

[ITEM2 *kawa e*] [ITEM3 *ikimasita*] }

river GOAL went

'(The) old man went to the mountain, (the) old woman to the river.'

Type [3] constructions may therefore be called elliptical constructions and even though they do not have meanings of their own, sentences licensed by the constructions carry meanings that can be calculated by processing the meanings of the component words (Hilpert, 2014, p. 55). Due to their common property of being elliptical, I agree with Fillmore, Lee-Goldman and Rhomieux (2012) and Hilpert (2014) in regarding this type of constructions as distinct from Type [1] and Type [2] constructions. As Hilpert (2014) points out, these syntactic patterns do not seem to have idiosyncratic constraints or collocational preferences, unlike other types of constructions (Hilpert, 2014, p. 56–57).

To summarize the discussion on non frame-bearing constructions, in the cases of Type [1] and Type [3] constructions it can be said that their meanings are somehow derived from the meanings of the words that make up the constructions. As for Type [2] constructions they themselves do not evoke frames but the constructions that inherit from them do evoke frames.

5.2 Frame-evoking constructions

Next, let us examine frame-evoking constructions. Frame-evoking constructions can be classified based on the kinds of frames they evoke: those evoking semantic fames (Type [4] in Table 2); and those evoking interactional frames (Type [5] in

Table 2) (Fillmore, 1982, p. 117 (p. 379 in Geeraerts (Ed.), 2006)).[10] Semantic frames are "script-like conceptual structures that describe a particular type of situation, object, or event along with its participants and props" (Ruppenhofer et al., 2016).[11] Interactional frames, on the other hand, have to do with "how we conceptualize what is going on between the speaker and the hearer, or between the author and the reader" (Fillmore 1982, p. 117 (p. 379 in Geeraerts (Ed.), 2006)). Interactional frames do not involve participants in situations and events, which correspond to FEs in semantic frames, but rather they have to do with interactions between the speaker and the hearer or between the author and the reader.

5.2.1   *Constructions evoking a semantic frame*
The `comparative_inequality` construction in English (e.g. *She is better than her father at chess*), which evokes the *Comparison_inequality frame (The ENTITY is compared against some STANDARD with respect to their values for some FEATURE), is an example of a Type [4] construction (cf. Hasegawa et al., 2010, p. 179–186). The `comparative_inequality` construction in Japanese, shown in (7a) below, also evokes the *Comparison_inequality frame and is thus categorized as a Type [4] construction.

> (7a) The `comparative_inequality` construction
> { [ENTITY1] [ENTITY2] [FEATURE] }
>
> | | |
> |---|---|
> | M | Clause |
> | D1 | NP. May include the phrase *no hoo* (Lit. 'the NP's side') |
> | D2 | NP, accompanied by a case marker *yori* |
> | D3 | a plain adjective |
> | Interpretation | Evokes the `Comparative_inequality` frame that reports inequalities between two *Entities* as arguments of a plain adjective. |
>
> { [ENTITY1 *kore* (*no hoo*) *ga*] [ENTITY2 = CEE *are yori*] [FEATURE *nagai*] }
> this GEN side NOM   that than   long
> 'This is longer than that.'

---

10. See Section 5.3 in Lyngfelt, Bäckström et al. (this volume) for constructions in Swedish with pragmatic functions, which are classified as non frame-bearing constructions.

11. Other terms such as *cognitive frames* (Fillmore, 1982, p. 117 (p. 379 in Geeraerts (Ed.), 2006); Fillmore and Baker 2010, p. 314), *linguistic frames* (Fillmore & Baker, 2010, p. 338) and *frames* (Fillmore and Baker 2010, p. 314) have been used to refer to the notion of semantic frames.

When a Type [4] construction evokes a semantic frame, the frame name is documented in its "Interpretation" section in the JFN Constructicon, as in (7a) above. In addition, the construct will have a separate layer of frame annotation, which includes the bracketing formula with the FEE and with the FE labels, as shown in (7b).

(7b) The *Comparison_inequality frame:
- The ENTITY is compared against some STANDARD with respect to their values for some FEATURE.
- FEs: ENTITY, STANDARD, FEATURE

[ENTITY *kore (no hoo) ga*] [STANDARD = FEE *are yori*] [FEATURE *nagai*]
this GEN side NOM   that than   long
'This is longer than that.'

5.2.2   *Constructions evoking an interactional frame*

The second type of frame-evoking construction involves those that evoke an interactional frame (Type [5] in Table 2). Type [5] constructions have various rhetorical constraints, and such constraints do not seem to involve ordinary semantic frames. As indicated above, instead of involving FEs in semantic frames, such rhetorical constraints address interactions between the speaker and the hearer or between the author and the writer. At the time of writing, very few interactional frames have been defined in FN. Exceptions include the Attention_getting frame. The FN Lexicon defines the frame as "(t)his frame covers terms used to get someone's attention, including INTERJECTIONS (e.g. *hey*, *yo*) and certain terms of address (ADDRESS_TERM), the latter of which may serve the function of attention getting" and LUs that evoke the frame include interjections such as *excuse me* and *hello there* and address terms such as *boy*. The FE ADDRESS_TERM may be a proper name.

In Japanese, the te_linkage construction is classified as Type [5]. (8a) is an instance of the te_linkage construction, in which two clauses are connected by a clause-linking marker *te* 'and.'

(8a) *koosi ga   kaizyoo ni tui-te   kooen ga   hazimatta.*
lecturer NOM hall   LOC arrive-TE lecture NOM began
'The lecturer arrived at the hall, and the lecture began.'

According to Hasegawa (1996), the constraints on the use of te_linkage "are neither on syntactic structures alone, nor on semantic relations alone; they apply only when a particular syntagm is used to express a certain semantic relation." In this construction the speaker construes the two events presented in the two clauses connected by *te* to be somehow relevant. Thus, unlike (8a), (8b) below is unacceptable, since it is difficult to imagine a situation in which the arrival of *watasi* 'I,' who was in the audience, is relevant to the start of the lecture.

(8b) #*watasi ga kaizyoo ni tui-te   kooen ga   hazimatta.*
      I NOM   hall   LOC arrive-TE lecture NOM began
      (Intended) 'I arrived at the hall, and the lecture began.'

The `te_linkage` construction can thus be said to evoke an interactional frame, namely, the *`Relevancy` frame, which may be defined as "the Speaker construes the two reported events to be somehow relevant." Note that in this definition of the frame there is no reference to FEs, corresponding to participants and props in situations or events, since interactional frames do not involve participants and props in events and situations and instead they pertain to interactions between the speaker and the hearer or between the author and the reader. The `te_linkage` construction can be described as in (8c). Since there is no FE in the definition of the *`Relevancy` frame, there is no separate layer for frame annotation.

(8c) The `te_linkage` construction
      { [CONJUNCT1] [CLAUSE-CONNECTIVE *te*] [CONJUNCT2] }

M	Bi-clausal sentence
D1	First clausal conjunct
D2	Clause-connective *te*
D3	Final clausal conjunct
Interpretation	Two clausal conjuncts report two events and the two events exhibit temporal sequentiality. The construction evokes the *`Relevancy` frame, in which the Speaker construes the two reported events to be somehow relevant.

      { [CONJUNCT1 *koosi ga kaizyoo ni tui*] [CLAUSE-CONNECTIVE = CEE *te*]
      lecturer NOM hall   LOC arrive-TE
      [CONJUNCT2 *kooen ga hazimatta*] }
      lecture NOM began
      'The lecturer arrived at the hall, and the lecture began.'

The `suspended_clause` construction in Japanese is another example of a Type [5] construction, exemplified in (9a). Here, the speaker, trying to end a conversation on the phone, first says *sore zya ne* 'that's it!' angrily and then utters *kirase te morau kara*, which can be translated into English as 'Because I'm gonna hang up.' What the speaker conveys by the second sentence is a message that s/he does not want the hearer to bother him/her anymore. In Japanese a dependent clause with a clause-linking marker such as *kara* 'because' is typically followed by a main clause. In (9a), however, there is no main clause that follows the clause-linking marker *kara*. Hence the name "suspended" clause.[12]

---

12. This kind of structure is found in many languages and is often called "insubordination" (Evans and Watanabe, 2016).

(9a) *sore zya   ne. kir   -ase   te morau <u>kara</u>*
      that DAT-TOP SFP hang-up CAUS AUX because
      [On the phone] (Lit.) 'That's it! <u>Because</u> I'm gonna hang up. (i.e., I don't want
      you to bother me anymore).'

A "suspended" clause is not just an ellipsis of a main clause, since there is no need
to reconstruct the content of the "missing" main clause; and in this construction,
there is a conventionalized implicature. The speaker expects the hearer's empathy
toward the speaker's situations (Ohori 2002). Therefore, it is possible to characterize
the `suspended_clause` construction as evoking the `*Expect_empathy` frame, an
interactional frame defined as "the Speaker expects the Hearer to empathize with
the Speaker's situation." The `suspended_clause` construction is shown in (9b).

(9b) The `suspended_clause` construction
      { [CLAUSE] [CLAUSE-CONNECTIVE] }
      M   Clause
      D1   Clause
      D2   Clause-connective such as *kara* 'because,' *node* 'because,' *ga*
                     'but,' and *kedo* 'but'
      Interpretation Evokes the `*Expect_empathy` frame, in which the Speaker
                     expects the Hearer to empathize with the Speaker's situation.
      sore zya   ne. { [CLAUSE *kir -ase te morau*] [CLAUSE-CONNECTIVE= CEE <u>*kara*</u>] }
      that DAT-TOP SFP hang-up CAUS AUX   because
      [On the phone] (Lit.) 'That's it. <u>Because</u> I'm gonna hang up. (i.e., I don't want
      you to bother me anymore).'

As in the case of the `te_linkage` construction, there is no separate layer for frame
annotation in the case of the `suspended_clause` construction either, since the
frame that the construction evokes, namely, the `*Expect_empathy` frame, is an
interactional frame and hence there is no FE involved.

    In this section I have presented a five-way classification of constructions, cat-
egorizing constructions based on whether they evoke frames and based on which
type of frames is involved. In the case of constructions that evoke semantic frames,
the construction annotation has an additional layer for a frame annotation. On the
other hand, construction annotations of constructions evoking interactional frames
do not have an additional layer for a frame annotation, since interactional frames
do not have to do with FEs, that is, participants in events and situations described
in the sentence. The five types of constructions proposed above seem to be mutu-
ally exclusive, although we have yet to find out whether they are exhaustive or not.

6.   Summary and conclusion

In this chapter, based on the idea that framenets and constructicons are practical implementations of the theories of Frame Semantics and of Costruction Grammar, I have discussed relations between frames and constructions. I illustrated the differences between framenet annotation and constructicon annotation. Framenet annotation involves describing frame-based syntactic and semantic structures of words, both simple words and multiwords, resulting in their valence patterns. Framenet annotation processes consist of: identifying the FEE; identifying constituents corresponding to the FE's of the frame; and annotating the constituents with the PT and GF labels. On the other hand, constructicon annotation pertains to internal and external syntax/semantics of complex linguistic objects. Constructicon annotation processes consist of: identifying the CEE if there is any; identifying the construct's span of text; and identifying the construct-internal constituents as instantiating CEs.

Instead of asking the question of whether all constructions are meaning-bearing, I proposed that it is possible to classify constructions according to whether or not they evoke a frame and based on which type of frame is evoked and suggested a five-way classification. I also pointed out that for constructicon annotation, we need interactional frames in addition to semantic frames. It may turn out to be impossible to incorporate interactional frames to framenets, since they have to do with the speaker-hearer/writer-reader interactions but not with FEs, However, it is beyond the scope of this present paper to discuss this issue.

I hope to have shown a way to describe how grammatical constructions relate to semantic and interactional frames, the two kinds of frames that were originally proposed by Fillmore in the early days of Frame Semantics.

Acknowledgments

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