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Frame Semantics and translation*

1 Introduction

This paper examines how insights from Frame Semantics can be applied to translation, both by humans and computers. In particular, it shows what types of semantic frames can be used for the creation of translation resources such as electronic dictionaries and whether frames differ with respect to their universal applicability across languages. A discussion of a variety of semantic frames such as `Risk`, `Compliance`, `Self_Motion`, and `Theft` illustrates the differences between frames and their applicability to the analysis of languages for translation purposes.

The paper is structured as follows. Section 2 traces the intellectual basis underlying Frame Semantics. Section 3 shows how the theoretical concepts of Frame Semantics have been implemented in the design of the FrameNet database, a large-scale corpus-based on-line lexical resource of English (Baker, Fillmore, and Lowe 1998; Fillmore and Baker 2010). Section 4 focuses on how frame-semantic concepts have been applied to translation issues since the 1990s, particularly in the construction of multilingual dictionaries. The final section provides an in-depth discussion of specific theoretical and applied issues surrounding the use of semantic frames for translation purposes: (i) re-usability of semantic frames for descriptions of other languages; (ii) universal versus culture-specific frames; (iii) profiling differences of particular frame elements across languages; (iv) syntactic valency and null instantiation; (v) choosing between frames when translating into different languages; and (vi) the compatibility of semantic frames and Wierzbicka's (2006) cultural scripts in the translation process.

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2 Frame Semantics[1]

During the 1970s and 1980s Charles Fillmore developed his Case Theory (1968) into a more sophisticated theory, which eventually became known as Frame Semantics, "a research program in empirical semantics and a descriptive framework for presenting the results of such research" (Fillmore 1982: 111). This approach differs from other theories of lexical meaning in that it builds on common backgrounds of knowledge (semantic frames) against which the meanings of words are interpreted.[2] A "frame is a cognitive structuring device, parts of which are indexed by words associated with it and used in the service of understanding" (Petruck 1996: 2). The central ideas underlying Frame Semantics can be characterized as follows:

> A word's meaning can be understood only with reference to a structured background of experience, beliefs, or practices, constituting a kind of conceptual prerequisite for understanding the meaning. Speakers can be said to know the meaning of the word only by first understanding the background frames that motivate the concept that the word encodes. Within such an approach, words or word senses are not related to each other directly, word to word, but only by way of their links to common background frames and indications of the manner in which their meanings highlight particular elements of such frames. (Fillmore and Atkins 1992: 76–77)[3]

To illustrate, consider the `Theft` frame, which involves several semantically related verbs such as *steal*, *snatch*, *shoplift*, *snitch*, *pinch*, *filch*, *purloin*, and *thieve*, among others. The `Theft` frame represents a scenario with different frame elements (FEs) that can be regarded as instances of broader semantic roles such as AGENT, UNDERGOER, INSTRUMENT, etc.[4] Giving precise definitions for FEs is important because the entirety of FEs comprises the frame description,

1 This section is based on Boas (2005a).

2 Fillmore's use of the concept of "frame" is somewhat related to work in artificial intelligence. For example, Minsky (1975: 212) describes a frame as a "data-structure representing a stereotypical situation". Work in psychology employs a similar concept that refers to knowledge structures for sequences of events; cf. Schank and Abelson's (1975) "restaurant script" (cf. Boas 2003: 164). For differences between semantic frames, scenes, and scenarios, see Schmidt (2009: 103) and Ziem (2008: 247–272). For differences between Frame Semantics and semantic field theories, see Fillmore and Atkins (1992: 76–79).

3 For a more detailed review of the main principles of Frame Semantics, see Fillmore, Johnson and Petruck (2003); Fillmore and Baker (2010); and Petruck (1996).

4 For an overview of different characterizations of semantic roles (also known as theta-roles), see, e.g. Dowty (1991); Fillmore (1968, 1975, 1985a); Jackendoff (1990); Langacker (1990); Ravin (1990); Ruppenhofer et al. (2006); and Van Valin and Wilkins (1996).

which in turn represents a schematic arrangement of the situation type that underlies the meanings of semantically related words as in the following examples.[5]

(1) a. *Nikki stole the watch from Carolyn.*
b. *Jana nicked the book from Vaughan.*
c. *Guido pinched the disk from the table.*
d. *Ingrid filched the snack from Karen.*

In (1a)–(1d), the `Theft` frame is evoked by the verbs *steal*, *nick*, *pinch*, and *filch*. This frame represents a scenario with different core FEs such as GOODS (anything that can be taken away), PERPETRATOR (the person or other agent that takes the goods away), SOURCE (the initial location of the goods before they change location), and VICTIM (the person [or other sentient being or group] that owns the goods before they are taken away by the perpetrator). The frame description defines the relationships between FEs, in this case that a PERPETRATOR takes GOODS that belong to a VICTIM. For example, *stole* in (1a) is the target word that evokes the `Theft` frame. *Nikki* is the PERPETRATOR FE, *the watch* is the GOODS FE, and *from Carolyn* is the VICTIM FE. In (1c), *from the table* is the SOURCE FE. Interpreting the verbs in (1a)–(1d) as belonging to the `Theft` frame requires an understanding of illegal activities, property ownership, taking things, and a great deal more.[6] Besides so-called core FEs there are other FEs that are peripheral from the perspective of the `Theft` frame such as MEANS (e.g. *by trickery*), TIME (e.g. *two days ago*), MANNER (e.g. *quietly*), or PLACE (e.g. *in the city*). These FEs do not belong to the set of core FEs of the `Theft` frame because they are also found among other frames of agentive action. The following section shows how the theoretical principles of Frame Semantics have been applied to the creation of a lexicographic database for English, namely FrameNet. Section 4 will then illustrate how frame-semantic principles have been applied to translation efforts, primarily through the creation of multi-lingual dictionaries.

5 Names of `semantic frames` are in Courier font. Names of FRAME ELEMENTS (FEs) are in small caps. Frame Elements differ from traditional universal semantic (or thematic) roles such as Agent or Patient in that they are specific to the frame in which they are used to describe participants in certain types of scenarios. "Tgt" stands for target word, which is the word that evokes the semantic frame.

6 Other parts of speech can also evoke frames. For example, nouns such as *shoplifter*, *snatcher*, *stealer*, *thief*, and *pickpocket* or adjectives such as *light-fingered*, *thieving*, and *stolen* also evoke the same `Theft` frame as the verbs in (1).

3 FrameNet[7]

The FrameNet project (Lowe, Baker, and Fillmore 1997; Baker, Fillmore, and Lowe 1998) applies the principles of Frame Semantics to the description and analysis of the English lexicon, thereby creating a database of lexical entries for several thousand words taken from a variety of semantic domains. Based on corpus data, FrameNet identifies and describes semantic frames and analyzes the meanings of words by appealing directly to the frames that underlie their meanings. In addition, it studies the syntactic properties of words by asking how their semantic properties are given syntactic form (Fillmore, Johnson, and Petruck 2003: 235). Between 1997 and 2010, FrameNet defined close to 9,000 lexical units (LUs) (a word in one of its senses) in more than 1,000 frames.

The workflow of FrameNet begins by defining frame descriptions (based on corpus evidence) for the words to be analyzed. Then, the following steps are taken: "(1) characterizing schematically the kind of entity or situation represented by the frame, (2) choosing mnemonics for labeling the entities or components of the frame, and (3) constructing a working list of words that appear to belong to the frame, where membership in the same frame will mean that the phrases that contain the LUs will all permit comparable semantic analyses" (Fillmore et al. 2003: 297). The next step focuses on finding corpus sentences in the British National Corpus that illustrate typical uses of the target words in specific frames. These corpus sentences are then extracted mechanically and annotated manually by tagging the FEs realized in them. Finally, lexical entries are automatically prepared and stored in the database (for more details, see Fillmore and Baker 2010).

The result of this workflow is an on-line dictionary of English that is structured in terms of semantic frames. Going to the FrameNet website, users can search – among other things – for entries of specific LUs, frame descriptions, and combinations thereof. Lexical entries in FrameNet offer a link to the definition of the frame evoked by a LU, including FE definitions, and example sentences exemplifying prototypical instances of FEs. In addition, FrameNet includes a list of all LUs evoking the same frame while also providing frame-specific information about various frame-to-frame relations, like the child-parent relation and sub-frame relation (Fillmore et al. 2003). For example, a search for the `Compliance` frame returns a frame description, together with a list of several semantically related words such as *adhere*, *adherence*, *comply*, *compliant*,

7 This section is based on Boas (2009). The FrameNet data can be accessed online at http://framenet.icsi.berkeley.edu.

and *violate*, among others (Fillmore et al. 2003), all of which evoke the same frame. It represents a kind of situation in which there are ACTS and STATES_OF_AFFAIRS for which PROTAGONISTS are responsible and which violate some NORM(S). The FE ACT identifies the act that is judged to be in or out of compliance with the norms. The FE NORM identifies the rules or norms that ought to guide a person's behavior. The FE PROTAGONIST refers to the person whose behavior is in or out of compliance with norms. Finally, the FE STATE_OF_AFFAIRS refers to the situation that may violate a law or rule (see Boas 2005a; Ruppenhofer et al. 2006).

A FrameNet entry consists of three parts. The first provides the Frame Element Table (a list of all FEs found within the frame) and corresponding annotated corpus sentences demonstrating how FEs are realized syntactically. FrameNet uses different colors to highlight each FE, making it easier to identify individual FEs. Due to formatting restrictions, FE names are not color-coded in Figures 5.1–5.3.

Figure 5.1 illustrates how words and phrases instantiating certain FEs in corpus sentences are annotated with the same FE names as in the FE table above

Num	FE/LUset(sort = FE; Compliance, *comply*, V,)
01	Act + Degree + **comply.V**+ Norm
02	Act + **comply.V**+ Norm
01	Norm + **comply.V**+ (Protagonist)
03	Protagonist+ **comply.V**+ Degree + Norm
01	Protagonist + **comply.V**+ Manner + Norm
10	Protagonist + **comply.V**+ Norm
01	Protagonist + **comply.V**+ Norm + Time
01	State_of_Affairs + **comply.V**+ Norm
01	State_of_Affairs + **comply.V**+ (Norm)
02	**comply.V**+ Norm + (Protagonist)
23	

01. : Act + Degree + **comply.V** + Norm
1. 123614: [$_{\langle Act \rangle}$ The last minute addition of the recommendation] did not [$_{\langle Degree \rangle}$ in any way] *comply*^{Tgt} [$_{\langle Norm \rangle}$with the law] and the recommendation would be quashed.
02. : Act + **comply.V** + Norm
1. 123626: The court was told that [$_{\langle Act \rangle}$her appearance before the registrar] was solely to *comply*^{Tgt} [$_{\langle Norm \rangle}$with the formalities of Scots law].
2. 123758: [$_{\langle Act \rangle}$Spending by public sector organisations] has to *comply*^{Tgt} [$_{\langle Norm \rangle}$ with complex and changing legal regulations], and is exposed to scrutiny at a number of levels.
01. : Norm + **comply.V** + (Protagonist)
1. 123932: If [$_{\langle Norm \rangle}$this rule] is not *complied*^{Tgt} [$_{\langle Norm \rangle}$with], the issuer is guilty of an offence, any subsequent contract etc entered into may be unenforceable and the issuer of the advertisement may face criminal charges and/or fines. [$_{\langle Protagonist \rangle}$CNI]

Figure 5.1: First part of FrameNet entry for *comply* (Boas 2009: 18)

them. This display allows users to see the variety of different FE instantiations across a broad spectrum of words and phrases. An important feature is the split of annotated corpus sentences into different groups according to different types of combinations of FEs.[8] For example, in the first annotated sentence in Figure 5.1, *comply*, which is the target ("Tgt") evoking the `Compliance` frame, occurs with the FEs ACT, DEGREE, and NORM, while in the second sentence it occurs only with ACT and NORM. FE names are displayed in terms of subscript notations following the first square bracket.

Figure 5.2 illustrates the second part of a lexical entry in FrameNet, namely the Realization Table of the Lexical Entry Report. Besides providing a dictionary definition of the relevant LU, in this case *comply*, it summarizes the different syntactic realizations of the FEs. The left column lists the names of different core FEs (ACT, NORM, PROTAGONIST, and STATE_OF_AFFAIRS), the middle column lists the number of annotated example sentences in FrameNet, and the right column lists the different types of syntactic realizations of the respective FEs. Consider the FE NORM, which appears 23 times, 21 of those times as a prepositional phrase headed by *with*, once as a definite null instantiation (DNI), once as an external noun phrase argument, and once as a prepositional phrase headed by *to* (for details see Boas 2005a).

Comply.v
Frame: `Compliance`
Definition: COD: act in accordance with a wish or command
The Frame elememts for this word sense are (with relizations):

Frame Element	Number Annotated	Realizations(s)
`Act`	(3)	NP.Ext (3)
`Norm`	(23)	PP[with].Dep (21) DNI.– (1) NP.Ext (1) PP[to].Dep (1)
`Protagonist`	(18)	CNI.– (3) NP.Ext (15)
`State of Affairs`	(2)	NP.Ext (2)

Figure 5.2: FrameNet entry for *comply*, Realization Table (Boas 2009: 19)

8 Numbers in the table represent the total number of annotated example sentences in FrameNet. Numbers at the beginning of each annotated example sentence represent their location in the British National Corpus.

Valence patterns

These frame elements occur in the following syntactic patterns:

Number Annotated	Patterns		
3 TOTAL	**Act**	**Norm**	
(3)	NP	PP[with]	
	Ext	Dep	
1 TOTAL	**Norm**	**Norm**	**Protagonist**
(1)	NP	PP[with]	CNI
	Ext	Dep	–
16 TOTAL	**Norm**	**Protagonist**	
(2)	PP[with]	CNI	
	Dep	–	
(14)	PP[with]	NP	
	Dep	Ext	
1 TOTAL	**Norm**	**Protagonist**	**Protagonist**
(1)	PP[with]	NP	NP
	Dep	Ext	Ext
2 TOTAL	**Norm**	**State_of_Affairs**	
(1)	DNI	NP	
	–	Ext	
(1)	PP[to]	NP	
	Dep	Ext	

Figure 5.3: Partial FrameNet entry for *comply*, Valence Table (Boas 2009: 20)

The third part of the Lexical Entry Report summarizes the valence patterns found with a LU, that is, "the various combinations of frame elements and their syntactic realizations which might be present in a given sentence" (Fillmore, Johnson, and Petruck 2003: 330). The third column from the left in the valence table for *comply* in Figure 5.3 illustrates how the FE NORM may be realized in terms of two different types of external arguments: either as an external noun phrase argument, or as an external prepositional phrase headed by *with*. Clicking on the link (in this case "3" or "1") in the column to the left of the valence patterns leads the user to a display of annotated examples sentences illustrating the valence pattern (see Figure 5.1 above).[9]

9 FEs which are conceptually salient but do not occur as overt lexical or phrasal material are marked as null instantiations. There are three different types of null instantiation: Constructional Null Instantiation (CNI), Definite Null Instantiation (DNI), and Indefinite Null Instantiation (INI). See Fillmore et al. (2003: 320–321) and Ruppenhofer et al. (2006) for details.

FrameNet differs from other approaches to lexical description such as WordNet (Fellbaum 1998) in that it makes use of independent organizational units that are larger than words, i.e., semantic frames (see also Atkins [2002] 2008; Atkins and Rundell 2008; Boas [2005b] 2009; Ohara et al. 2003). As such, FrameNet facilitates a comparison of the comprehensive lexical descriptions and their manually annotated corpus-based example sentences with those of other LUs (also of other parts of speech) belonging to the same frame. Another advantage of the FrameNet architecture lies in the way lexical descriptions are related to each other. Using detailed semantic frames makes it possible to compare and contrast their numerous syntactic valence patterns systematically (see Atkins [2002] 2008 and Fillmore 2007).

4 Applying frame-semantic insights to the creation of translation resources

Following the development of FrameNet for English, researchers became interested in re-using semantic frames based on English for the description and analysis of other languages. Studies such as Heid (1996) and Fontenelle (1997) laid the groundwork for addressing systematic ways of structuring dictionaries of multiple languages using the same set of semantic frames. These studies were followed by works like Fillmore and Atkins (2000), Petruck and Boas (2003), and Boas (2002, 2003, 2005a), which showed that semantic frames are in principle useful tools for translating between languages, whether automatically or by hand.[10] These studies all share the basic idea that semantic frames based on English can in principle be re-used in order to analyze the lexicons of other languages, thereby providing an effective tool for translation purposes.

To illustrate this idea, consider the process of creating parallel lexicon fragments for German which can then be linked to their English counterparts. This process, first proposed in Boas (2002), begins by identifying a list of English LUs evoking a particular frame and to find translation equivalents. For example, the verb *argue* in the `Communication_Conversation` frame describes situations in which one or more parties are exchanging information about a topic with another party. The FEs include INTERLOCUTORS and TOPIC, among others. Table 5.1

10 Frame-semantic analysis has also been applied to languages like German (Lambrecht 1984), Hebrew (Petruck 2009), Japanese (Ohara 2009), and Chinese (Baker 1999). These analyses focused on specific organizational principles of the lexicons of single languages, but were not directly concerned with issues surrounding translation.

Table 5.1: Partial lexical entry of *argue* in `Communication-Conversation` (Boas 2002)

	Interlocutors	TARGET	Topic
1	NP.Ext	argue.v	INI
2	NP.Ext	argue.v	PP_over.Comp
3	NP.Ext	argue.v	PP_about.Comp
4	NP.Ext	argue.v	PPing_about.Comp
5	NP.Ext	argue.v	Swhether.Comp

Table 5.2: Semantically annotated corpus sentences (Boas 2002)

1	[_{Interlocutors}Mr and Mrs Popple] *argued*^{Tgt} once a week. [_{Topic}INI]
2	[_{Interlocutors}Auction houses and buyers] *argue*^{Tgt} [_{Topic}over compensation].
3	[_{Interlocutors}They] *argued*^{Tgt} [_{Topic}about it].
4	Anne says [_{Interlocutors}they] *argue*^{Tgt} [_{Topic}about drinking beer].
5	[_{Interlocutors}One]can *argue*^{Tgt} [_{Topic}whether pizza is healthy].

presents a part of the FrameNet lexical entry for *argue* in the `Communication_Conversation` frame, corresponding annotated examples are given in Table 5.2.[11]

The next step involves the use of bilingual and monolingual dictionaries as well as electronic corpora to find German translation equivalents. For each combination of semantic and syntactic information recorded for an English LU by FrameNet, a German equivalent is identified that matches its meaning as closely as possible. For example, in cases when the INTERLOCUTORS and TOPIC FEs are realized as an external argument and an indefinite null instantiation as in (1) in Tables 5.1 and 5.2, the closest translation equivalents include the two sentences in Table 5.3. Note that both reflexive and non-reflexive usages of German

11 The discussion of *argue* evoking the `Communication_Conversation` frame reflects its status in FrameNet up to about 2005. Since then, the `Communication_Conversation` frame has been split up (or: re-framed) into several finer-grained communication frames, namely `Quarreling`, `Evidence`, `Reasoning`, and others. This finer-grained distinction is intended to reflect sub-classes of LUs sharing particular semantics that set them apart from other subclasses (see Petruck et al. 2004 and Ruppenhofer et al. 2006 for details). At the same time, the `Quarreling` frame, which is evoked in the re-framed version of FrameNet by the sense of *argue* in Table 5.1, inherits information from higher-level frames such as `Discussion` and `Communication`. As such the statements made in this paper regarding the status of *argue* in the `Communication_Conversation` frame are still valid.

Table 5.3: German equivalents for example (1) in Table 5.2 (Boas 2002)

1a	[_{<Interlocutors>}Herr und Frau Popple] *stritten*^{Tgt} ein mal pro Woche [_{<Topic>} INI].
1b	[_{<Interlocutors>}Herr und Frau Popple] *stritten*^{Tgt} [sich] ein mal pro Woche [_{<Topic>} INI].

Table 5.4: German equivalents for examples (2) and (3) in Table 5.2 (Boas 2002)

2a	[_{<Interlocutors>}Auktionshäuser und Käufer] *streiten*^{Tgt} [_{<Topic>}um die Entschädigung].
2b	[_{<Interlocutors>}Auktionshäuser und Käufer] *streiten*^{Tgt} [sich][_{<Topic>} um die Entschädigung].
3a	[_{<Interlocutors>}Sie] *stritten*^{Tgt} [_{<Topic>}darüber].
3b	[_{<Interlocutors>}Sie] *stritten*^{Tgt} [sich] [_{<Topic>}darüber].

streiten ('to argue') are possible equivalents expressing the same type of situation as that expressed by *argue* in the context of (1) in Table 5.2.

Similarly, the meanings expressed by *argue* in examples (2) and (3) in Table 5.2 can be expressed by reflexive and non-reflexive usages of *streiten* as Table 5.4 illustrates.[12]

Once a set of German translation equivalents is identified, electronic corpora are searched to find attested usages for each syntactic frame associated with a German LU. For example, based on the data in Tables 5.3 and 5.4, a corpus search for *streiten* is conducted to see (i) whether it is possible to find corpus attestations for each of the syntactic frames listed for the verb by traditional dictionaries, and (ii) whether there are any other syntactic frames associated with *streiten* that are not mentioned by traditional dictionaries. By supporting the search for corpus-attested example sentences with native speaker intuitions, this stage of the workflow typically reveals the full range of syntactic frames associated with a LU.[13] Semantic annotation of these corpus sentences yields examples showing how individual FEs of a semantic frame are realized syntactically by the German target LUs (see, e.g. Tables 5.3 and 5.4).

The next step involves the creation of German lexical entries that parallel their English counterparts. Each entry identifies a LU, a part of speech, and a frame. This is augmented by a list with explanations of the FEs used in the annotation together with the ways in which they can be syntactically realized, and a collection of selected and annotated corpus sentences that exhibit every attested

12 *Sich streiten* is not a prototypical reflexive, but is only used reciprocally.

13 This stage will require a detailed analysis of the semantics associated with a verb in combination with its various prepositional complements (cf. *streiten* [*um/über/für/. . .*]) as well as its English counterparts.

Table 5.5: Partial lexical entry for *streiten* (Boas 2002)

	Interlocutors	TARGET	Topic
1a	NP.Ext	streiten.v	INI
2a	NP.Ext	streiten.v	PP_um.Comp
3a	NP.Ext	streiten.v	PP_über.Comp

Table 5.6: Partial lexical entry for reflexive *streiten* (Boas 2002)

	Interlocutors	TARGET	Reflexive	Topic
1b	NP.Ext	streiten.v	sich	INI
2b	NP.Ext	streiten.v	sich	PP_um.Comp
3b	NP.Ext	streiten.v	sich	PP_über.Comp

combinatorial pattern for the lexical unit. Tables 5.5 and 5.6 are preliminary examples of the structure of lexical entries produced by German FrameNet. They contain partial summaries of the semantic and syntactic combinatorial properties for the lexical entries of the non-reflexive and reflexive usages of *streiten* in the `Communication_Conversation` frame. They are based on annotated examples of the type contained in Tables 5.3 and 5.4 above.

Since frames encode semantic relationships between FEs, the inventory of FEs is used to compare how a given combination of semantic and syntactic information encoded by a LU in the source language (e.g. English) is realized in the target language (e.g. German). This means that for each semantic and syntactic combinatorial property of a given LU in the source language we will ideally have a correspondence link to its counterpart in the target language that makes use of the semantic frame as a structuring device. Figure 5.4 illustrates schematically how semantic frames can be employed for linking corresponding subparts of parallel lexical entries to each other.[14]

As discussed above, lexical entries contain exhaustive listings of the semantic and syntactic combinatorial properties. Assigning each subpart of a lexical entry a number makes it possible to identify a specific syntactic frame occurring with a given LU. When establishing correspondence links between English and German lexical entries, this numerical indexing system allows us to refer

14 Similar proposals in favor of using semantic frames as structuring devices to link English lexical entries to German lexical entries have been made by Boas (2001, 2003, 2005a, 2009). See also Burchardt et al. (2009) for a detailed description of a large-scale FrameNet-like resource for German.

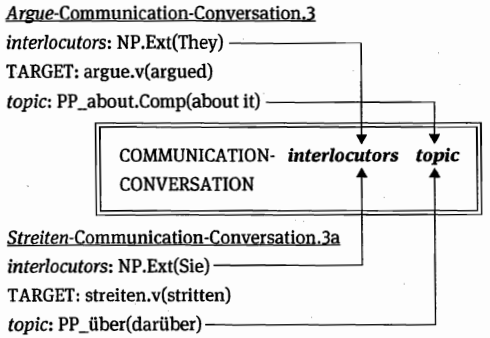

Figure 5.4: Semantic frame as a structuring device to link subparts of English and German lexical entries (Boas 2002)

precisely to a given subpart of a lexical entry in the source language when linking it to the corresponding subpart of a lexical entry in the target language. For example, index "3" in Figure 5.4 indicates that a specific syntactic frame of *argue* is used to encode the semantics of the `Communication_Conversation` frame (cf. Table 5.1). The German equivalent is indexed with "3a" (cf. Table 5.5), referring to a specific subpart of the lexical entry for *streiten* in the `Communication_Conversation` frame and thereby indicating that this is the German translation equivalent. This numerical indexing system allows for cross-referencing between subparts of multiple lexical entries across English and German lexicon fragments in combination with semantic frames. With respect to translation equivalents for *argue* in the `Communication_Conversation` frame in Figure 5.4, other links could be added to the `Communication_Conversation` frame. One such option includes a link to a subpart of the lexical entry for the reflexive version of German *streiten*. In this case, this link would be established to the syntactic frame of the reflexive (reciprocal) usage of *streiten* that is indexed with "3b" in Table 5.6.[15] Note that the linking of parallel lexicon

15 Using semantic frames in combination with numerical indexing mechanisms is different from the Inter-Lingual-Index (ILI) employed by EuroWordNet that aims to create a minimalized and efficient list of sense-distinctions (Vossen 1998; Peters et al. 1998). In contrast to ILI-records, GFN employs frame semantic descriptions to record lexicographically relevant corpus attestations of semantic and syntactic combinatorial properties of a lexical item without minimalizing sense distinctions.

fragments as outlined in Figure 5.4 only reflects a fraction of the entire lexicon entries. The steps described above thus need to be repeated until all subparts of an English lexical entry are linked to corresponding subparts of the parallel German lexical entry, eventually leading to a complete parallel lexical entry structured by a semantic frame.

The process for creating parallel lexicon fragments has been successfully applied to typologically diverse languages, such as French (Pitel 2009; Schmidt 2009), Hebrew (Petruck 2009; Petruck and Boas 2003), Japanese (Ohara 2009; Ohara et al. 2003), and Spanish (Subirats 2009; Subirats and Petruck 2003). While the creation of parallel lexicon fragments for other languages rely on different methodologies, tools, and resources, they all demonstrate that it is in principle possible to re-use semantic frames derived on the basis of English as an interlingual representation for the creation of parallel lexicon fragments for other languages (Boas 2005a). The advantages of this approach are the following: (i) Re-using semantic frames derived on the basis of English results in a common methodology for structuring dictionaries of different languages; (ii) When translators need to access lexical information about words in different languages, semantic frames allow for a more systematic way of searching and comparing with the help of semantic frames than traditional bi- or multi-lingual dictionaries whose lexical entries are organized alphabetically; (iii) Multilingual FrameNet dictionaries are unique resources that can aid the translation process because they provide detailed conceptual information (both generalizations and idiosyncrasies) about the types of semantic information shared by LUs across languages.[16]

5 Some issues with using semantic frames for translation purposes

Using semantic frames for structuring multilingual dictionaries for translation purposes is not always a straightforward process. For one, the procedure for

16 Another advantage of this approach is its compatibility with current versions of Construction Grammar (Croft 2001; Goldberg 2006; Sag 2012), which does not assume a strict separation between syntax and the lexicon but instead views them as a continuum see Fillmore (1985b). In this view, grammatical constructions are also capable of evoking semantic frames. With respect to translation, a constructional view of language is advantageous because grammatical constructions (pairings of forms with meanings) can function as a *tertium comparationis* that make it possible to compare and contrast similar types of constructions across languages. For details, see the various contributions in Boas (2010).

creating parallel lexicon fragments can be extremely time-consuming because of the intense manual work that goes into identifying translation equivalents, finding corresponding example sentences, and annotating them. Thus, it is important to recognize that the procedure outlined above only covers a very small section of a lexical entry for *argue* in the `Communication_Conversation` frame. To create a full-blown parallel lexicon fragment of *argue* in another language the procedure discussed above must be repeated for every single valence pattern showing how particular FE configurations are realized syntactically (see also Boas 2005a). For example, the FE configuration INTERLOCUTOR and TOPIC in Table 5.1 may be realized in terms of five distinct valence patterns. Taking the remaining FE configurations and their valence patterns into consideration, the FrameNet entry of *argue* in the `Communication_Conversation` frame exhibits a total of 13 distinct valence patterns. Finding translation equivalents for each valence pattern in a FrameNet entry is not always an easy task as the following sections illustrate. Each of the issues highlighted below reflect different types of procedural and conceptual issues faced by translators when trying to find proper translation equivalents in other languages.

5.1 Differences in profiling particular aspects of semantic frames

Semantic frames offer a more finely-grained conceptual structure for multi-lingual dictionaries, thereby overcoming some of the difficulties relating to finding adequate corresponding verbs in the translation process (for some examples, see Boas 2003, 2005a; Fillmore and Atkins 2000). This methodology effectively shifts well-known issues surrounding polysemy from the level of words to the level of semantic frames and FEs, allowing us to account for both overlapping and diverging polysemy (cf. Altenberg and Granger 2002; Boas 2001; Ravin and Leacock 2000; Salkie 2002).

At the same time, however, there are instances where it is not sufficient simply to identify translation equivalents and link their parallel lexicon fragments. To provide adequate translation equivalents it sometimes becomes necessary to give more detailed information about how different aspects of a frame are realized in another language. For example, in the case of the `Communication_Statement` frame discussed above, I have argued that *announce* is quite flexible in how it allows the different perspectives of a communication event to be expressed (Boas 2002). This semantic flexibility is reflected by the various syntactic realizations of FEs. Table 5.7 presents an abbreviated selection of the full list of valence patterns recorded by FrameNet for *announce*.

Table 5.7: Syntactic frames highlighting different parts of the `Communication_Statement` frame with *announce* (Boas 2002: 1370)

1	[_{<speaker>}They] *announced*[Tgt] [_{<message>}the birth of their child].
2	[_{<medium>}The document] *announced*[Tgt] [_{<message>}that the war had begun].
3	[_{<speaker>}The conductor] *announced*[Tgt] [_{<message>}the train's departure] [_{<medium>}over the intercom].

Table 5.8: A selection of syntactic frames of *announce* and corresponding German verbs (Boas 2002: 1370)

1	**speaker**	**TARGET**	**message**	
	NP.Ext	announce.v	NP.Obj	
	bekanntgeben, bekanntmachen, ankündigen, anzeigen			
2	**medium**	**TARGET**	**message**	
	NP.Ext	announce.v	Sfin_that.Comp	
	bekanntgeben, ankündigen, anzeigen			
3	**speaker**	**TARGET**	**message**	**medium**
	NP.Ext	announce.v	NP.Obj	PP_over.Comp
	ankündigen, ansagen, durchsagen			

While *announce* is quite flexible in the types of situations it can describe, the various German translation equivalents differ significantly in the perspectives they offer of communication events. For example, Table 5.8 shows that German requires different verbs as translation equivalents for each of the three perspectives taken on the `Communication_Statement` frame by *announce*: when *announce* occurs with the syntactic frame [NP.Ext __ NP.Obj] to realize the SPEAKER and MESSAGE FEs, German offers several choices, such as *bekanntgeben*, *bekanntmachen*, *ankündigen*, or *anzeigen*. More specifically, the choice depends on a finely-grained distinction (including contextual background information) that formally distinguishes between the semantics of individual verbs. For example, *anzeigen* is used in a more formal sense than the other verbs, *ankündigen* is primarily used to refer to an event that will occur in the future, *bekanntmachen* refers to some way of spreading information publicly, and *bekanntgeben* implies that the information comes from an official source (perhaps due to pressure) (see also Boas 2002).

Each of these German verbs comes with their own specific syntactic frames that express the semantics of the `Communication_Statement` frame. The two other syntactic frames of *announce* in Table 5.7 and their German translation equivalents in Table 5.8 demonstrate how a difference in perspective on the

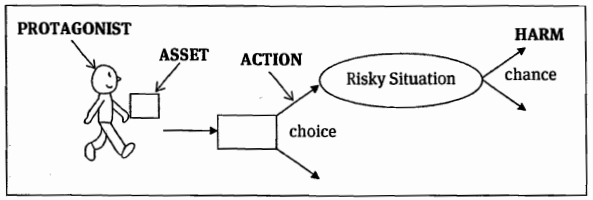

Figure 5.5: The schema for the Risk frame (Hasegawa et al. 2006)

frame is reflected by different syntactic frames in English as well as different translation equivalents in German (see also Boas 2005b for details). For example, when the communication event involves a medium such as a loudspeaker or a megaphone to transmit the message (e.g. *Joe announced the arrival of the pizza over the intercom*), German offers *ansagen* and *durchsagen* as more specific translation equivalents of *announce* besides the general *ankündigen* for describing situations in which a message is transmitted via a medium. In other words, the choice between different German translation equivalents of *announce* directly depends on subtle meaning differences of the frame and the perspective given of a situation.

Similar observations are made by Ohara (2009), who investigates the Japanese translation equivalents of the English verb *risk*.[17] Analyzing the different correspondences between English and Japanese expressions involving the concept of RISK in Figure 5.5 (cf. Fillmore and Atkins 1992; Hasegawa et al. 2006), Ohara shows that some Japanese translation equivalents of *risk* such as *kakeru* involve only one perspective on RISK-related scenes, which include the `Jeopardizing` frame (e.g. *He risked his life [for a man he did not know]*), the `Incurring` frame (e.g. *He risked losing his life savings*), and the `Daring` frame (e.g. *I wouldn't risk talking like that in public*). At the same time, at least one Japanese expression, namely *kiken_o_okasu*, is compatible with all three different frames associated with the English verb *risk*. When finding corresponding Japanese equivalents of the different RISK-related scenes it is thus necessary to pay close attention to the different perspectives that Japanese LUs offer of the frames and to ensure that they are in fact proper translation equivalents of the English LUs.

The procedures needed for finding adequate German and Japanese translations of English LUs evoking the `Communication_Statement` and `Risk`

17 For an analysis of the `Risk` frame in English and Spanish, see Rojo and Valenzuela (1998).

frames show that semantic frames are helpful tools for systematically capturing adequate translation equivalents. At the same time, however, careful attention must be paid to the intricate differences in how LUs that are often thought to be translation equivalents of other differ in their profiling properties of frames. Such difficulties also represent positive aspects of semantic frames, as they are useful structuring devices for expressing subtle differences between translation equivalents, which in turn is a useful tool for translation purposes.

5.2 Differences in lexicalization patterns

When using frames as translation tools, typological differences between how languages lexicalize particular patterns (see Talmy 1985) are also important issues that need to be addressed. For example, Talmy's typology of motion events makes a broad distinction between satellite-framing languages in which the image schemas are included in verbs of motion as in English (e.g. *[find] way + in; [find] way + out*), and verb-framing languages such as Spanish, in which image schemas are indicated separately from verbs (e.g. *entrar* 'enter', *salir* 'leave') (see also Beavers, Levin, and Tham 2010; Croft et al. 2010; Ibarretxe-Antuñano and Filipović, this volume; Slobin 1996). To see how typological differences are relevant when semantic frames are used comparing languages, Ellsworth et al. (2006) discuss systematic differences between the English, Spanish, Japanese, and German versions of chapter 14 of *The Hound of the Baskervilles*. Focusing on motion and location-related verbs they show that there are a number of differences in how the various concepts of motion are associated with different types of semantic frames. Consider the following sentences.

(2) a. *The wagonette was paid off and ordered to* ***return***$_{\text{•Return}}$ ***to***$_{\text{Goal}}$ *Coombe Tracey forthwith, while we started to walk to Merripit House.*

b.

Despedimos	*a*	*la*	*tartana*	*y*	*ordenamos*	*al*
said.goodbye	to	the	old.scrap	and	ordered	to.the
cochero	*que*	***regresara***$_{\text{•Return}}$		***a***$_{\text{Goal}}$	*Coombe*	*Tracey*
driver	that	returned		to	Coombe	Tracey
de	*inmediato,*	*al*	*mismo*	*tiempo*	*que*	*nos*
of	immediate	to.the	same	time	that	we.REFL
poníamos	*en*	*camino*		*hacia*	*la*	*casa*
put	in	path		towards	the	house
Merripit.						
Merripit						

c. *Der Wagen wurde bezahlt und* ***nach***$_{Goal}$ *Coombe Tracey*
the cart was paid and to Coombe Tracey
zurückgeschickt$_{Sending}$, *bevor wir uns zu Fuß in*
back-sent before we us on foot in
Richtung auf Merripit House aufmachen.
direction to Merripit House go-on

All sentences in (2) share the property that the concept of motion is incorporated into indirect causation. For example, in (2a), the LU *return to* overtly expresses the notion of motion through the preposition *to*. However, there is a difference in the types of LUs evoking different frames. While English *return* and Spanish *regresar* both evoke the `Return` frame, German *zurückschicken* evokes the `Sending` frame. This difference shows that although the concept of motion is incorporated into indirect causation, the frames expressing indirect causation may vary from language to language. Next, consider how different subparts of motion are expressed cross-linguistically.

(3) a. *The wagonette was paid off and ordered to return to Coombe Tracey forthwith, while we started to* ***walk***$_{Self\_motion}$ ***to***$_{Goal}$ *Merripit House.*

b. *Despedimos a la tartana y ordenamos al*
said.goodbye to the old.scrap and ordered to.the
cochero que regresara a Coombe Tracey de
driver that returned to Coombe Tracey of
inmediato, al mismo tiempo que nos ***poníamos***
immediate to.the same time that we.REFL put
en camino$_{Setting\_out}$ ***hacia***$_{Direction}$ *la casa Merripit.*
in path towards the house Merripit

c. *Der Wagen wurde bezahlt und nach Coombe Tracey*
the cart was paid and to Coombe Tracey
zurückgeschickt, bevor wir uns zu ***Fuß***$_{Means\_of\_motion}$
back-sent before we us on Foot
in ***Richtung***$_{Direction}$ *auf Merripit House*
in direction to Merripit House
aufmachten$_{Setting\_out}$.
go-on

While English *walk* evokes the `Self_Motion` frame, its Spanish and German translations evoke the `Setting_out` frame, which is a subtype of the `Self_Motion` frame. Another difference is that while English *walk* includes the manner of walking in the verb, German *aufmachen* does not. Instead, the manner of

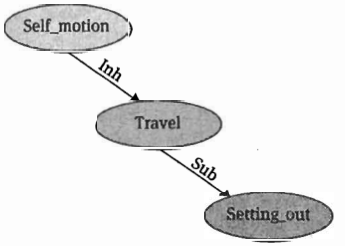

Figure 5.6: `Self_Motion` translated with subframes of its subtype (Ellsworth et al. 2006)

motion is expressed by a separate phrase *zu Fuss* 'on foot', which indicates the MEANS_OF_MOTION. Variations such as those in (3) show that in translation there are often subtle differences in how a particular concept is expressed in a language. The important point here is that such differences are not entirely unsystematic and that they can be captured effectively by applying frame-semantic analysis to the translation process. In the case of the Spanish and German translations in (3b) and (3c) this means that the `Setting_out` frame evoked by the respective LUs is a subframe of the `Travel` frame, which in turn inherits information from the `Self_Motion` frame as illustrated by Figure 5.6 (see Petruck et al. 2004 for more information on frame-to-frame relations such as inheritance). As such, differences in how an English `Self_Motion` LU such as *walk* is translated into Spanish or German boils down to differences in granularity of the semantic frames.[18]

Besides systematically aiding in the translation process between typologically different languages such as verb-framing and satellite-framing languages, there are also more fine-grained differences in how frames are lexicalized across languages. For example, Burchardt et al. (2009: 225) discuss cases in which the meanings of German verbs sometimes cut across frame distinctions made on the basis of English data. German *fahren* 'to drive', for example, is a translation equivalent of both *drive*, which evokes the `Operate_vehicle` frame with the FE DRIVER, and *ride*, which evokes the `Ride_vehicle` frame with the FE PASSENGER. Burchardt et al. (2009: 225) point out that in German it is often not possible to make a clear distinction between the two frames based on context as in the following example.

18 See also Ohara et al. (2003) for differences in how Japanese motion verbs realize different types of paths in contrast to English motion verbs.

(4) a. *In* *14* *Armeefahrzeugen* ***fuhren*** *sie* *von* *dem*
In 14 army-vehicles drove they from the
abgezäunten *Gelände,* *das* *der* *Besatzungsmacht* *28*
fenced-in area which the Occupying-force 28
Jahre *lang* *als* *Hauptquartier* *gedient* *hatte.*
Years long as headquarter served had

b. With 14 army vehicles they **departed** from the enclosed area that had served the occupying forces as headquarters for 28 years.

In (4a), it is not clear whether *sie* 'they' refers to people as passengers or as drivers of the 14 vehicles, which in turn makes it difficult to determine which frame is evoked by *fahren*. To capture the fact that *fahren* in contexts such as (4a) is often underspecified, FrameNet includes one higher-level frame `Use_vehicle`, which subsumes both the `Operate_vehicle` frame and the `Ride_vehicle` frame. While the more abstract `Use_vehicle` frame is not lexicalized in English (where *drive* either evokes the `Operate_vehicle` frame or the `Ride_vehicle` frame), this frame is the proper level of abstraction to capture the regularly occurring underspecified meaning of *fahren*, according to Burchardt et al. (2009: 226). By including higher-level frames it thus becomes possible to systematically capture distinct lexicalization patterns exhibited by translation equivalents at different levels of granularity in the hierarchy of semantic frames. Knowledge of frame-to-frame relations and how LUs that are translation equivalents across languages evoke frames at different levels of abstraction also presents a helpful tool for translation purposes because it offers translators access to conceptual information that other translation resources do not provide.

5.3 Divergent translation equivalents and zero translations

One of the more complicated issues translators have to deal with is the divergence of translation equivalents and the issue of zero translations. In such instances, a frame-semantic analysis of the LUs in their relevant contexts may often yield helpful insights that facilitate the translation process. Consider, for example, the frame `Notification_of_charges`, which is part of a larger frame of `Criminal_Process`, and is evoked by LUs such as *accuse*, *charge*, and *indictment*. Figure 5.7 illustrates the `Criminal_Process` frame, with its various subframes, including `Notification_of_charges` in the bottom left corner.

Bertoldi (2010), in his work on contrastive legal terminology in English and Brazilian Portuguese, addresses the question of whether it is possible to find

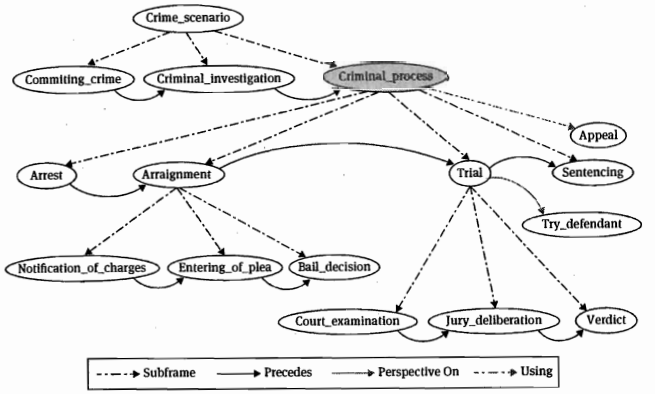

Figure 5.7: The (English) `Criminal_Process` frame in FrameNet (Bertoldi 2010: 1)

systematically adequate translation equivalents for these LUs in Portuguese. While he finds that there are Portuguese translation equivalents, he also shows that the polysemy and multi-faceted meaning of some of the English LUs, as shown in Figure 5.8, poses a number of issues.

The first issue is that although there are corresponding Portuguese LUs, they do not evoke the same `Notification_of_charges` frame as the English LUs, but rather a frame that could best be characterized as `Accusation`. More specifically, Bertoldi points out that the six Portuguese translation equivalents of the English LUs evoking only the `Notification_of_charges` frame, namely *acusar* 'to accuse, to incriminate', *acusação* 'charge, complaint', *denunciar* 'to denounce', *denúncia* 'accusation', *pronunciar* 'prenounce, label, judge', and *pronúncia* 'pronunciation' potentially evoke three different frames. This leads Bertoldi to argue that the LUs *acusar*, *acusação*, *denunciar*, and *denúncia* may evoke two different `Criminal_Process` sub-frames, besides other general language, non-legal specific frames, as is illustrated by Figure 5.9.

Bertoldi's (2010) analysis illustrates that semantic frames are not only useful for comparing and contrasting translation equivalents, but that they are also helpful when it comes to highlighting differences in polysemy networks between languages and for showing how systematic cultural differences have direct repercussions for the organization of the conceptual system. In this case, the Brazilian legal system differs from the American legal system in that there is no exact frame that corresponds to `Notification_of_charges`. This difference

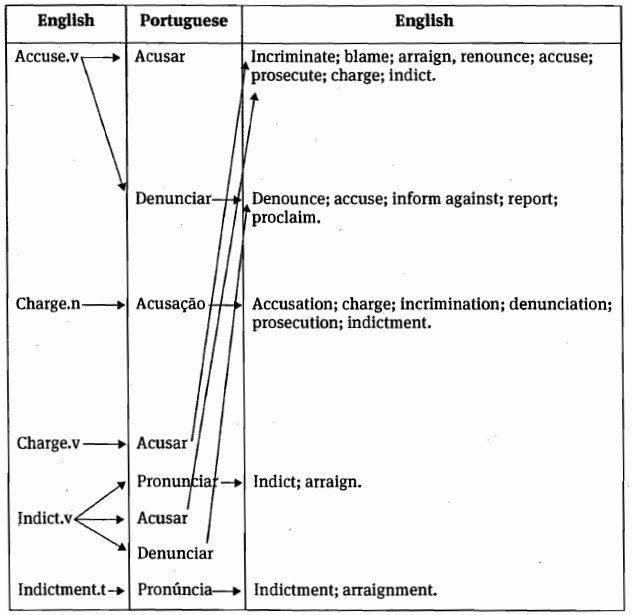

Figure 5.8: English LUs from the frame `Notification_of_charges` and their Portuguese translation equivalents (Bertoldi 2010: 6)

necessitates a different type of framal organization for the Brazilian Portuguese `Crime_scenario` frame as in Figure 5.9, which in turn serves as the organizational background for frame-evoking LUs that at first sight appear to be translation equivalents of English LUs, but in fact denote quite different situations in how the criminal process plays out in Brazil. More precisely, instead of a `Notification_of_charges` frame, the Brazilian legal system relies on two different frames, namely `Accusation` and `Preliminary_hearing`, as shown in Figure 5.9.[19]

19 For a discussion of the role of linguistic motivation in structuring semantic frames across languages, see Petruck and Boas (2003) on `Calendric_unit` frames in English, German, and Hebrew.

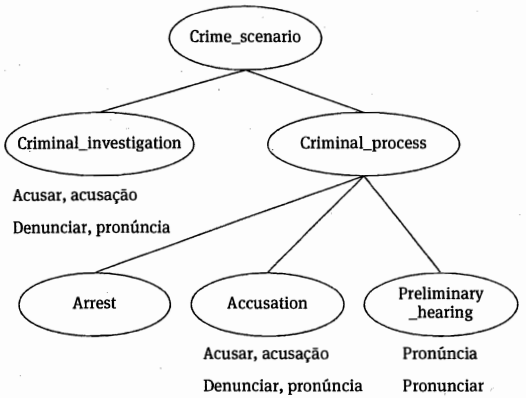

Figure 5.9: LUs evoking multiple frames in the Portuguese `Crime_scenario` frame (Bertoldi 2010: 7)

Another problematic area concerning divergent translation equivalents are cases in which two LUs evoke the same semantic frame but differ in their part of speech. Schmidt's (2009) parallel frame-semantic analysis of football language in German, English, and French provides an illustrative example by discussing the French translation equivalent of the English verb to *nutmeg* (e.g. *[Hector Font]*$_{PLAYER\_WITH\_BALL}$ *tried to nutmeg [Ioannis Skopelitis]*$_{OPPONENT\_PLAYER}$) in the `Beat` frame.[20]

(5) *[Bastian Schweinsteiger]*$_{PLAYER\_WITH\_BALL}$ *manquait le cadre après*
Bastian Schweinsteiger missed the target after
avoir réussi un petit pont [sur William Gallas]$_{OPPONENT\_PLAYER}$.
have pass a little bridge to William Gallas
'Bastian Schweinsteiger missed the target after having nutmegged William Gallas' (Schmidt 2009: 108)

While there appears to exist no adequate French verbal translation equivalent of the English verbal LU *nutmeg*, the nominal LU *petit pont* 'little bridge' serves this

20 For more details of Schmidt's analysis of football language, see http://www.kicktionary.de and Schmidt (2009).

purpose in (5). This example shows that semantic frames are a useful tool for translators because they make it possible to recognize instantaneously how different parts of speech in two languages are capable of expressing the same concept. At the same time, semantic frames may also help translators find potential paraphrases in the target language, as in the following example, where the French nominal LU *(faire le) coup du sombrero* (lit. 'to do the coup of the sombrero' or 'to do the sombrero move') evokes the Beat frame.

(6) *[Ronaldinho]*$_{\text{PLAYER\_WITH\_BALL}}$ *[lui]*$_{\text{OPPONENT\_PLAYER}}$ *faisait le* ***coup du sombrero***. (Schmidt 2009: 108)

According to Schmidt (2009), the French term *coup du sombrero* 'sombrero move' as used in (6) describes an act of getting past an opponent by lobbing the ball over them, rounding him and retrieving the ball behind his neck. Since neither English nor German have an exact translation equivalent of *coup du sombrero*, a frame-based analysis of the term may help identify potential paraphrases. More specifically, since *coup du sombrero* evokes the Beat frame, one would have to look at lexical entries in other languages to determine which English and German LUs come closest to matching the meaning of *coup du sombrero*. In this case, Schmidt (2009: 109) points out that while English *round* or German *ausspielen* 'out-play' are not an exact translation equivalent of *(faire le) coup du sombrero*, they nevertheless are fairly adequate (if less specific) translations of it.

Missing translation equivalents are other instances in which frame-based multilingual dictionaries are useful for translation purposes. This is the case when the target language does not have a translation equivalent, and it nevertheless is often possible to use another member of the corresponding frame together with an appropriate FE, according to Schmidt. An example is the missing German translation equivalent for English *side-foot*, i.e. to shoot with the side of the foot, as in the following example.

(7) *[He]*$_{\text{SHOOTER}}$ *calmly rounded Marshall before* ***side-footing*** *[the ball]*$_{\text{BALL}}$ *[into the net]*$_{\text{TARGET}}$. (Schmidt 2009: 109)

The verb *side-foot* evokes the Shot frame, which is also evoked by several other German verbal LUs whose meanings are realized with different FEs relating to PART_OF_BODY in a diverse range of contexts. When one of them, *bugsieren*, occurs with the FE PART_OF_BODY denoting the foot (or part thereof), then it is possible to arrive at an adequate translation paraphrase, as (8) shows.

(8)

[Er]$_{\text{SHOOTER}}$	*spielte*	*Marshall*	*aus*	*und*	*bugsierte*	*[den*
He	played	Marshall	out	and	steered	the
Ball]$_{\text{BALL}}$	*[mit*	*dem*	*Innenrist]*$_{\text{PART\_OF\_BODY}}$		*[ins*	*Netz]*$_{\text{TARGET}}$.
ball	with	the	instep		into-the	Net

'He outplayed Marshall and steered the ball with his instep into the net.'

The important point in all of this is that frames facilitate the finding of appropriate translation paraphrases because they are used to structure LUs in different languages, where each LU may offer a slightly different perspective of an event while at the same time also expressing the more general idea of an LU such as *side-foot*.

5.4 "Universal" and "culture-specific" frames

Semantic frames are also helpful for translation purposes when it comes to comparing, contrasting, and highlighting cultural differences between words that either have rough translation equivalents or have no translation equivalents at all (see, e.g. Rojo 2002). Examples of the latter are culture-specific frames whose entire meanings are lexicalized by LUs in one language, but not necessarily in others. Leino (2010) discusses the case of the Finnish intransitive verb *saunoa* (literally 'to sauna') in (9) as an example of cultural differences that may lead to situations where objectively the same situation is classified as belonging to different situation types in different languages.

(9) *Kalle* *saunoo*. (Leino 2010: 131)
Charlie.NOM saunoa.3SG.
Roughly: 'Charlie is in the sauna/goes to sauna/is enjoying sauna'

In discussing the conceptual underpinnings involved in interpreting the verb *saunoa* in Finnish, Leino (2010: 131) points out that

> [. . .] the fact that the sauna is an essential part of Finnish culture leads to the fact that Finns very probably experience going to the sauna as a significantly different type of event than e.g. Americans do. Correspondingly, Finnish has the intransitive verb *saunoa* which roughly expresses a situation in which the referent of the subject goes to the sauna, is in the sauna, participates in the sauna event, or something of the like. English has no corresponding verb, and, therefore, there is no one-to-one corresponding way of translating the sentence.

The rough English paraphrase of the Finnish example in (9) shows that the entire chain of events encoded by the Finnish Sauna frame and lexicalized by

the Finnish verb *saunoa* has no single translation equivalent. Instead, an English paraphrase of the type in (9) needs to enumerate the different types of sauna activities by employing a number of verbs. In cases such as the Finnish `Sauna` frame, semantic frames are helpful for translation purposes because they combine parallel lexicon fragments that allow translators to find appropriate paraphrases consisting of a series of expressions even in cases where there is no direct translation equivalent.

Semantic frames are also useful for highlighting cultural differences between LUs that are not exact translation equivalents of each other. One such example is Bertoldi's (2010) contrastive analysis of LUs in the English and Portuguese `Criminal_process` frame discussed above. Another example of culturally-infused frames is the (English) `Personal_Relationship` frame, whose words have to do with people and the personal relationships they are or can be a part of. Some of the words in this frame denote people engaged in a particular kind of relationship, others denote the relationship, yet others denote the events bringing about or ending the relationships. Many of the words presuppose an understanding of states and events that must have occurred before another event takes place or before a person can be classified in a certain way (FrameNet definition).

Finding translation equivalents for words such as *friend*, *boyfriend*, *girlfriend*, *sugar daddy*, and *to date* is at times difficult because "the concept of 'friend', and the relationship linked with it, are important to Anglo culture, but it is an illusion to think that they must have their counterparts in all other cultures and that they are somehow part of human nature" (Wierzbicka 1997: 32). To determine whether it is in principle possible to apply the English `Personal_Relationship` frame to other languages, Atzler (2010) discusses German translation equivalents of English LUs evoking the `Personal_Relationship` frame. Her main finding is that the English `Personal_Relationship` frame cannot easily be (re-)used for the analysis of personal relationship terminology in German. For example, while some German LUs such as *Freund* 'friend' offer a reasonably close approximation of meaning of its English counterpart *friend* (e.g. *Er ist mein Freund* 'He is my friend'), this is not the case with other LUs in the same frame. To wit, German *Freundin* can imply both *girlfriend* and *female friend* in English. A more extreme example is the term *sugar daddy*, which has no exact counterpart in German, but instead requires a lengthy paraphrase such as *spendabler älterer Mann, der ein junges Mädchen aushält* 'generous older man who supports a young girl' to render the concept of this particular type of personal relationship in German (Atzler 2010: 40).

This example shows that while previous studies seem to suggest that a wide variety of frames such as `Motion` and `Communication` may in fact be found in

a very broad array of languages and could hence be considered as some type of "universal frames" (with slight variations between languages), frames such as `Criminal_process` and `Personal_Relationship` are not.

One way of re-using semantic frames derived on the basis of English as translation aids for culturally-infused terms would be to expand existing (English) frame descriptions with cultural scripts from Wierzbicka's Natural Semantic Metalanguage (NSM). This approach assumes that meaning is the key to insightful and explanatory descriptions of most linguistic phenomena. To describe meanings, the NSM approach to semantic description proposes a decompositional system of meaning representation based on empirically established universal semantic primes, i.e. simple identifiable meanings which appear to be present as word-meanings in all languages (Goddard 2010: 459). Semantic primes include substantives such as I, YOU, SOMETHING/THING, PEOPLE, BODY; descriptors such as BIG and SMALL; and speech such as SAY, WORDS, and TRUE.

Besides universal combinations of semantic primes to model the meanings of words, the vocabulary of each language also contains a great deal of culture-specific items that are typically difficult to translate into other languages, such as English *reasonable*, *fair*, *right*, and *probably*. According to Wierzbicka (2006), such terms have emerged and been shaped over the last centuries in the service of a body of cultural scripts that characterize the values and habits of thought that are reflected in the use of them. To overcome this issue, Wierzbicka proposes cultural script explications consisting of formulations that use semantic atoms (primes, primitives). Such scripts are formulated in simple words and grammatical patterns which have equivalents in all languages, according to Wierzbicka. Using such cultural scripts makes it possible to articulate cultural norms, values, and practices in terms which are clear, precise, and accessible to cultural insiders and to cultural outsiders alike (Goddard and Wierzbicka 2004). An example of a cultural script is based on the idea that "individual freedom" and "personal autonomy" are among the primary ideals of mainstream Anglo culture. One script reflecting a component of the dominant "cultural ideology" in predominantly English-speaking countries like Australia, the United States and Great Britain is the following.

(10) *Anglo cultural script for "personal autonomy"*
[many people think like this:]
when someone does something,
it is good if this someone can think like this:
"I am doing this because I want to do it"

According to Goddard (2010: 482), the cultural script in (10) can inhibit speakers of mainstream English from using the bare imperative when they want someone to do something. In such cases, Anglo speakers usually prefer to frame their directives in a more elaborated (and sometimes indirect) fashion, using WH-interrogatives such as *Will you [. . .]?*, *Would you [. . .]?*, *Can you [. . .]?*, *Could you [. . .]?*, *Would you mind [. . .]?*, etc.

One way of integrating Wierzbicka's cultural scripts into frame-semantic descriptions would be to augment frame-semantic entries with cultural scripts where appropriate. For example, in cases where English LUs in the `Personal_Relationship` frame do not have an appropriate translation equivalent, such as *sugar daddy*, a lexical entry would also record the (arguably non-standard) cultural norms, values, and practices associated with an LU. When parallel lexicon fragments are linked via semantic frames, a translator would then have access to culture-specific information about a LU such as *sugar daddy* in order to arrive at an adequate paraphrase for a language such as German, which does not have a corresponding lexical equivalent. A very preliminary – and perhaps controversial – version of a cultural script for *sugar daddy*, which would be included in its FrameNet entry, would look as follows.

(11) *Anglo cultural script for "sugar daddy"* (preliminary version)
[Some people think like this:]
It sometimes happens that older rich men enjoy the company of younger women.
It sometimes happens that younger women like to have goods or other favors from older rich men.
Because of this, when older rich men and younger women spend time together based on mutually agreed terms.
It is good that older men give goods and other favors to younger women and younger women spend time with older men.

6 Conclusions

In this paper I discussed how semantic frames are useful tools for translation purposes. In contrast to other lexical resources used for translation purposes such as traditional multi-lingual dictionaries, the frame-semantic approach to lexical organization makes it possible to relate words across languages in a systematic way. The various examples presented here show that Frame Semantics offers a unique way of capturing both generalizations and idiosyncrasies in the description of semantically related words across languages. In addition, by employing the frame as an analytic tool, it is possible to include references to culturally significant categories in the lexicon. Moreover, taking the frame as a universal cognitive structuring device provides the apparatus for analyzing semantic fields both within and across languages, thus providing a perspicuous way of characterizing cross-linguistic differences.

Future research is required to investigate extending a Frame Semantic approach by including more detailed information about culturally relevant categories. To illustrate, consider the discussion of the term *sugar daddy* and the types of problems it poses when trying to find an adequate German translation equivalent. By adopting some key insights from Wierzbicka's (2006) cultural scripts I proposed a preliminary strategy for capturing more fine-grained cultural differences between specific types of words and their possible translation paraphrases in other languages. Clearly, much more research remains to be done to combine key insights from Frame Semantics with cultural scripts, thereby refining frame-based lexical resources for translation purposes.

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Eva Samaniego Fernández

The impact of Cognitive Linguistics on Descriptive Translation Studies: Novel metaphors in English-Spanish newspaper translation as a case in point*

1 Introduction

The translation of metaphor has always been of concern to Translation Studies (henceforth, TS) but, paradoxically, it is an issue that is still generally treated with a prescriptive focus, and mostly from a traditional, not a cognitive point of view. Not until very recently has a cognitive perspective been incorporated into the translational analysis of metaphor, and TS are benefiting considerably from such an approach. Apart from a few articles (Stienstra 1993; Kurth 1999; Mandelblit 1996; Barcelona Sánchez 1997; Cristofoli, Dyrberg, and Stage 1998; Saygin 2001; Al-Harrasi 2001; Tirkkonen-Condit 2001; Schäffner 2004; Dickins 2005; Al-Hasnawi 2007; Maalej 2008; and a few more), there are not many studies dealing with the translation of metaphor from a cognitive perspective and, even so, some of these papers show a prescriptive bias.

Before moving on to the sections of this paper, it seems appropriate to explain the terms *prescriptive* and *descriptive* within DTS. Prescriptive is a term used by Toury (1980, 1985) to refer to approaches to Translation Studies that are normative, that is, which impose criteria stipulating the way a translation should be made in a particular culture (Shuttleworth and Cowie 1997: 130). The term is used to refer to traditional, linguistic, static, source-oriented approaches to translation. These approaches take the ST as the model to be copied, and thus they focus, with few exceptions, on the losses or mistakes in the translation process and tend to offer closed lists of translation procedures. They are called prescriptive because they *prescribe*, that is, they say how a translation should be made in order to be as faithful to its original as possible, for the only purpose of all translations is thought to be faithfulness to their source

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