

Aligning constructicons across languages

A trilingual comparison between English, Swedish, and Brazilian Portuguese

Benjamin Lyngfelt, Tiago Timponi Torrent, Adrieli Laviola, Linnéa Bäckström, Anna Helga Hannesdóttir and Ely Edison da Silva Matos

This chapter addresses interlingual relations between constructions. The perspective is contrastive rather than typological, with an aim towards multilingual constructicon development. Building on previous work on the alignment of frame-based multilingual lexical databases, we explore possibilities and problems for multilingual constructicography. By comparing the dataset of Berkeley's English constructicon to Brazilian Portuguese and Swedish, we discuss the alignment of constructicons vis á vis the existence of more or less equivalent constructions or the deployment of different linguistic strategies in different languages.

Keywords: constructicon, construction, construction grammar, lexicography, constructicography, contrastive, bilingual, multilingual, English, Swedish, Brazilian Portuguese

1. Introduction

In this chapter we turn to the prospects for interlingual constructicography. Given the development of closely related constructicon resources for several languages, it is a natural next step to look into possibilities for connecting them. Such an endeavor requires contrastive construction analyses on the one hand, and the development of linking tools and a cross-linguistically useful representation format on the other.

To this end, we present an explorative trilingual comparison, where the full set of entries in the FrameNet English constructicon has been compared to Swedish and Brazilian Portuguese, respectively. This dataset is both intended as a startup material for a multilingual constructicon and as a testing ground for the practical and theoretical problems involved in such a development. The comparison

builds on previous bilingual studies of English-Swedish (Bäckström, Lyngfelt, & Sköldberg, 2014) and English-Brazilian Portuguese (Laviola, 2015), which approach the same set of English constructions with slightly different methodology. In the present paper we have harmonized and operationalized the approaches in a way intended to also be applicable to other languages (see Section 2). The results of the comparison are presented in Section 3.

We also tentatively address the question of how the interlingual relations between constructions can be accounted for in a multilingual online resource (Section 4). As constructicography may be perceived as a cross between construction grammar and lexicography (see Lyngfelt, this volume), we treat interlingual constructicography as a combination of contrastive construction grammar (Section 1.1) and interlingual lexicography (Sections 1.2–3). Regarding lexicography, Section 1.2 provides a general account of the bilingual lexicography tradition, in particular its notion(s) of equivalence and the role of directionality, as this perspective is central to the understanding of the present approach. In Section 1.3, we focus on frame-based computational lexicography, due to the similarities, both practical and theoretical, between contemporary *framenet*- and *constructicon* resources, and also the more or less close collaboration between ongoing *framenet*- and *constructicon* developments.

1.1 Contrastive construction grammar

Most – if not all – work in construction grammar (CxG) is based on the default assumption that constructions (cxns) are language-specific. This follows in part from the view of cxns as conventionalized form-function pairings (since conventions are at least to some extent dependent of historical circumstances), in part from the essentially data-driven approach. Thus, constructionists adopt the traditional structuralist practice, developed further in modern language typology, of addressing each language on its own terms, not presuming that distinctions and categories valid for one language are *a priori* applicable to others (F. Boas, 1911; cf. Haspelmath, 2007).

In CxG, this position is strongly advocated by Croft (2001), who states that “constructions as cross-linguistically valid configurations of morphosyntactic properties do not exist” (Croft, 2001, p. 283). A somewhat less categorical approach is not to rule out the possibility of at least some cross-linguistically valid cxns – as universals or as generalizations that hold for groups of languages – but hold off any strong claims in either direction until substantiated by detailed analysis of solid empirical evidence (Goldberg, 2013). Nonetheless, the working hypothesis remains that cxns are considered language-specific until convincingly demonstrated otherwise (e.g. Boas, 2010a).

Accordingly, the vast majority of work in construction grammar consists of case studies of particular cxns, or groups of cxns, in single languages. This does in no way, however, preclude cross-linguistic constructionist approaches. On the contrary, differences between languages are an excellent reason for comparative studies of constructions. While broad typological studies in construction grammar are rare (an exception being Croft, 2001, Chapters 8–9), contrastive studies are more common, typically comparing similar cxns in two or more closely related languages. Examples include Barðdal (2004) on impersonal cxns in German, Icelandic and Faroese, Hilpert (2008) on future cxns in Germanic languages, Kuzar (2012) on sentence patterns in English and Hebrew, the papers in Boas (2010b), and many more.

Contrastive CxG does not necessarily consist of interlingual comparisons between corresponding cxns *per se*. From a more onomasiological perspective, the starting point can be a functional space, or domain, which may be realized by different sets of cxns in different languages (e.g. Croft, 2001; Fried, 2006). The base of comparison could also be semantic frames (e.g. Hasegawa, Lee-Goldman, & Fillmore, 2014).¹ Furthermore, it is worth noting that even primarily monolingual studies are often contrastive to varying degrees, by contrasting properties of the cxn in question to those of similar cxns in other languages, chiefly English. A good example is Dooley's (2014) account of the Swedish comparative correlative *ju_desto* cxn (cf. *the_X-er_the_Y-er* in English).²

Another, somewhat less explored field for contrastive CxG concerns language contact in multilingual settings, including L2 varieties, translations, etc. (see, for example, the papers in Hilpert & Östman, 2014). In such contexts the question arises to what extent we are dealing with distinct varieties or more or less integrated linguistic systems. For example, Höder (2012; 2014) proposes that “multilingual speakers, psycholinguistically speaking, are not multiple monolinguals” (2014, p. 216) but rather possess multilingual grammars,³ for which he introduces the model of Diasystematic CxG.

While constructional equivalence across languages is rarely assumed explicitly in contrastive studies, some notion of equivalence is often presupposed. By asking “What are the properties of construction C in languages X, Y and Z?” it is not presumed that C^X , C^Y and C^Z are identical, but a perception of C as a cross-linguistically applicable phenomenon is clearly adopted. Likewise, a statement such as “Function F is expressed by an R construction (e.g., reflexive) in languages X and Y”, while not presupposing identical R cxns in X and Y, is based on the notion of R^X and R^Y

-
1. The role of frames in cross-linguistic studies will be discussed in Section 1.3.
 2. Throughout, names of particular constructions are marked by a sans serif font (Consolas).
 3. For a different view, see e.g. Wassenscheidt (2014).

as corresponding cxns in some sense (cf. also the relation between F , F^X and F^Y). To what extent such presumptions imply constructional equivalence is usually not a major issue, however, since their purpose in such studies is to serve as a base for comparison, not to establish correspondence relations.

In constructicography, on the other hand, as in lexicography (see Section 1.2), establishing equivalence relations is a central goal of cross-linguistic comparisons. Consequently, the stance towards equivalence is a key feature of whatever approach adopted. How equivalence is operationalized – and differences accounted for – in the present study is detailed in Section 2.

As a final remark, cross-linguistic studies of cxns are typically detailed accounts of a small set of closely related cxns, and large-scale comparisons are rare. Two approaches that account for a larger number and more diverse types of cxns – although by less detailed and thorough analyses – are Bäckström, Lyngfelt & Sköldberg (2014) and Laviola (2015), who compare the full set of construction entries in the FrameNet English Constructicon (Fillmore, Lee-Goldman, & Rhomieux, 2012) to Swedish and Brazilian Portuguese, respectively. They also differ from most other work in contrastive CxG in being oriented towards constructicography and therefore focusing more on (approximate) equivalence relations. As mentioned above, the present work is a continuation of these two studies.⁴

1.2 Bilingual lexicography and equivalence

As the present approach is a combination of CxG and lexicography, in a predominantly CxG oriented setting, the perspective of lexicography warrants some introduction. In this section, we present bilingual lexicography in general, whereas Section 1.3 reviews the perhaps somewhat more familiar tradition of frame-based lexicography.

Bilingual lexicography has a long history, dating back to ancient Mesopotamia some 4.000 years ago. The oldest bilingual word list we know consists of Sumerian words provided with Akkadian equivalents or explanations (Snell-Hornby, 1986). This text witnesses the earliest attempts to lexicographic activities – presenting the meaning of a word in one language in the form of an equivalent in another language. Monolingual lexicography, on the other hand, is a more recent development that did not appear until millennia later. Thus, monolingual lexicography grew out of its bilingual counterpart and not, as one might sometimes get the impression, the other way around.

4. Boas and Ziem (this volume) compare entries in the FrameNet English Constructicon with German. Unlike the present study, however, they present a more detailed comparison of a small number of cxns.

During the centuries, lexicographic trends have come and gone. Right up to the Middle Ages and the early modern time, most vocabularies were thematically organized in conventionalized topics. Due to the parallel thematic organization, each and every one of the present languages could provide access to the other languages. In course of time, this indeed interlingual lexicographic genre has become increasingly rare, replaced by the alphabetically organized semasiological bilingual dictionary.

In the alphabetically organized lexicographic description, bilingual as well as monolingual, the focus lies on the lexical item, the headword or lemma leading into the dictionary entry. Most lemmas are made up of a single word but also multiword expressions, recognized as “significant units of meaning” (Atkins & Rundell, 2008, p. 167), should be considered as lexical items on equal terms. The essence of the general dictionary entry is the description of the semantic properties of the lemma. In the monolingual dictionary these are presented in the form of a definition, near synonyms or a periphrastic explanation and in the bilingual dictionary as one or more equivalents or in the form of explanations, periphrastic or encyclopaedic. In addition to the semantic properties, also the pragmatic and to some degree discourse or functional properties are accounted for. However, the lexicographic perspective is as a rule strictly focused on the properties of the isolated lemma. Comments on the semantic, pragmatic or constructive properties of the lemma compared with these properties of its synonyms and near synonyms is not a recurring feature in general dictionaries.

The printed bilingual dictionary is necessarily monoscopal, viz. one of the languages is the source language (SL) and the other one the target language (TL). Further, the printed dictionary is monofunctional as it is conceived for a certain user group, either native speakers of the SL or native speakers of the TL. The description of each of the languages is adjusted to the intended users’ skills and needs. Thus dictionaries for SL speakers aim at assisting the user in encoding text in the foreign TL while dictionaries conceived for TL speakers are intended to support the users comprehension when decoding text in the foreign source language. Since each activity demands quite different language skills – and thus essentially different lexicographic assistance – the intended function of the dictionary, active for encoding and passive for decoding respectively, directs the information provided in the entries.

1.2.1 *Lexicographic equivalence*

The objective of the bilingual dictionary has been summarized as to “help translating from one language into another, or in producing texts in language other [than] the user’s native one, or both” (Zgusta, 1971, p. 213). Thus, the two disciplines, bilingual lexicography and translation science, share some of the central concepts – not only the different roles of the two languages involved, one being

the source language (SL) and the other one the target language (TL), but foremost the concept of equivalence: “Equivalence is the axis about which the activity of translation turns” (Kromann, Riiber, & Rosbach, 1991, p. 2717). These concepts are however far from identical in the two disciplines. In lexicography the SL unit is the isolated lexical item, completed with examples of usage and of the different senses that are identified, rendered in the TL in equivalent lexical items and perhaps translations of the examples of usage. In translation on the other hand it is the text that is the SL unit.

This is of course crucial also for the concept of equivalence in the two disciplines. In translation science different types of equivalence dimensions are distinguished, e.g. denotative, connotative or pragmatic equivalence, and the scope of the equivalence is the text (Koller, 2011, p. 219). The lexicographic equivalence on the other hand, albeit based on a meticulous contrastive analysis, merely focuses on one of these equivalence dimensions, viz. the relationship between the denotative meaning of the lemma and preferably one or more single word units in the target language. The denotative equivalence relation between the lemma and the equivalent can in turn be of various degrees. The equivalence can be total, i.e. there is a conventionalized TL item that matches the semantic properties of the SL expression, or it can be partial, i.e. the relationship between a lemma and an equivalent is such that one of the items is an interlingual hyperonym to the other one (Svensén, 2009, p. 255ff.).

Lately, however, the conventional concept of lexicographic equivalence has been questioned by metalexicographers and also by some lexicographers. The questions raised concerns e.g. whether equivalence is ‘discovered’, “(does it exist prior to being established by the lexicographer) or is it ‘created’ by the lexicographers act?” and also whether there is one kind of equivalence or many (Adamska-Sałaciak, 2010, p. 387 ff.). Another issue of present interest is the degree of conventionalization and lexicalization of concepts and expressions. A word can be accepted and frequently used even if the concept it denotes is vague and poorly conventionalized. It is then up to the lexicographer to establish some kind of equivalence between such units in the SL and units in the TL. In cases like that the types of adequate equivalence relations can be referential, denotative or nominal equivalence rather than the default types total or partial.

1.2.2 *Bilingual e-lexicography*

The description of bilingual lexicography above reflects the reality during the centuries, i.e. as long as the lexicographic efforts resulted in codices or, later on, in printed dictionaries. Now, in the age of the electronic dictionary with a variety of publication platforms, all the preconditions hitherto valid for the discipline have been thrown over.

Contrary to the printed dictionary the electronic dictionary is potentially bicultural as it – at least in theory – can offer equal access to both languages. Genuine electronic bilingual dictionaries are however still rare as most of the dictionaries published on electronic platforms are digitalized versions of already published, printed editions. The information provided is however still bound by the constraints of the printed form with one of the languages being the SL and the other one the TL. The possibilities and the challenges implied by e-lexicography have not yet been seriously adopted within the discipline but many of the central concepts must now be reconsidered and redefined. This goes for the lexicographic theory and methods alike (Hannesdóttir, 2015).

The core concept of bilingual lexicography, i.e. the distinction between source language and target language, is not consistent with e-dictionaries where the lexical units of both languages can be made equally accessible. Nor are the lexicographic functions in their absolute form, i.e. encoding v. decoding, valid in the e-dictionary. In contrast to the printed dictionary where the TL led a fairly anonymous existence, being accessible only through a specific SL unit, the lexicographic TL items can now be accessed just as easily as the ditto SL – and thus regarded as a SL by the user.

This means that the indirect lexicographic description of the TL as subordinate to the SL is no longer sufficient from the user's point of view. The arbitrary subset of the TL, motivated only by the equivalence relations to the carefully selected SL unit, is in the e-dictionary exposed as an equally representative subset of the actual language. Equivalent lacunae, unnoticeable in the printed dictionary, now appear as inauspicious lemma lacunae. Further, each of the two languages can be the L2 of the user. For bilingual dictionaries, conceived for electronic platforms, this entails a contrastive analysis and description of each of the languages as a foreign language, and for decoding and producing text alike. This in turn calls for adjustments of the information displayed. The bilingual e-dictionary is therefore not only a dictionary in the conventionalized meaning but rather an electronic resource in form of a parallel corpus completed with semantic, pragmatic, syntactic, phraseological etc. information based on contrastive analysis.

1.2.3 *Lexicography v. lexicology*

The monolingual lexicographic description is based on a lexical analysis. While lexicology involves studies of multiple linguistic aspects of the word, lexicography mainly focuses on the lexical semantics. The advances in that field, as e.g. within frame-based lexicography, has hitherto first and foremost gained monolingual lexicography. Contrastive lexicology concerning other features than semantics has not become a distinguished component in the bilingual lexicography.

The lexicographic description is a rather simplified presentation of lexical semantics. The division of word meaning into sub-senses is a way of structuring

dictionary entries rather than reflecting linguistic reality and “the lexicographic sense may bear, at best, a tenuous relationship to linguistic notions” (Lew, 2013, p. 285). Thus lexicographers and corpus linguists adopting a lexicological perspective on the lexicographic description now tend to speak of *meaning potential* rather than of *word senses* (Kilgarriff, 1997; Hanks, 2000). The dichotomy of form and meaning is not irrefutable; based on massive corpus evidence it can be claimed that there is a strong co-occurrence of these two entities: “like meanings tend to be expressed through like structures” (Lew, 2013, p. 286). Further, due to the dichotomy between the lexical and the grammatical perspective in linguistic studies a wide range of phenomena tends to be neglected in both disciplines, phenomena such as discrepancies in selection and collocational restrictions of near synonyms as well as similarities and discrepancies in construction patterns in a language specific as well as a contrastive perspective (e.g. preposition deletion in English & Swedish constructions; Ralph, 1975; Boas, 2008). Construction grammar offers a way of bridging this gap, in terms of linguistic levels. There is also, however, a gap in perspective between (theoretical) grammar and (applied) lexicography. Accommodating the two traditions is a key feature of construction development.

1.3 Frame-based computational lexicography

One form of lexicography that seems particularly relevant to consider in this context is FrameNet, for two reasons: First, because of the close historical, practical, and to some extent theoretical connections between constructions and framenets (see Lee-Goldman & Petruck, this volume; Lyngfelt, this volume; Lyngfelt, Bäckström et al., this volume; Ohara, this volume; Torrent et al., this volume). Second, due to the fact that FrameNet methodology has been extensively employed for bi- and multilingual lexicography – either using the English FrameNet infrastructure as a starting point to develop framenets for other languages (Boas, 2002, 2005; Subirats & Petruck, 2003) or creating frame-based multilingual resources (Sato, 2008; Schmidt, 2009; Boas & Dux, 2013; Torrent, Salomão et al., 2014; Peron-Corrêa et al., 2016).

In FrameNet, lexical meaning is characterized in relation to semantic frames, which are schematic scenarios including not only the words evoking the frame but also the participants involved in the situation, so-called Frame Elements (see e.g. Fillmore & Baker, 2010; Lee-Goldman & Petruck, this volume). Lexical units with the same background meaning, in the sense of evoking the same frame, may and do differ in other respects, regarding both semantics and morpho-syntax. Accordingly, multilingual framenet application is usually based on the assumption that at least some frames apply to different languages and the cross-language differences may be

attributed either to the lexical units instantiating the frames, or accounted for by editing parts of the frame structure. Thus, frames, their internal structure (the Frame elements, FEs) and the relations among them are taken from Berkeley FrameNet and applied – with the needed changes and adaptations – to the target language (a so-called expand approach, Vossen, 1998, p. 83f.; cf. Section 4.1 below).⁵

This approach has been used in the development of interlingual lexicographic analyses. As an example, while presenting the German FrameNet (GFN), Boas (2002) advocates in favor of defining German lexical units (LUs) based on the set of English LUs. With the aid of bilingual and monolingual dictionaries, and also taking into consideration the valence descriptions provided by Berkeley FrameNet, the GFN lexicographer would have the task of finding the best-fit equivalent to the English LU. After, the lexicographer would survey the German LU in corpora and check the analysis against language use evidence.

On a different, but related series of efforts, researchers in the field of multilingual lexicography have used FrameNet as a foundation for the development of Multilingual Lexical Databases (MLDs), some of which take advantage of already expanded *framenets*.

Sato (2008), for example, developed multilingual features for the FrameSQL tool. In such an application, databases from Berkeley FrameNet (Fillmore, Johnson, & Petruck, 2003; Fillmore et al., 2003), Spanish FrameNet (Subirats & Petruck, 2003), Japanese FrameNet (Ohara et al., 2004) and the German SALSA project (Burchardt et al., 2006) are aligned and fully searchable through multiple query types. Users can list LUs evoking a given frame in all the languages covered by the tool, as well as search for specific FEs and see how they are instantiated across languages. For defining lexical equivalences, FrameSQL (1) searches an electronic bilingual dictionary for words that are listed as equivalents to the source word, (2) searches the Berkeley FrameNet database for the LUs evoking the frame evoked by the target word, and (3) creates a set of the words that are listed as outputs of both (1) and (2).

Schmidt (2009) developed the *Kicktionary*, a trilingual lexicon of the language of football. In this resource, LUs are grouped in frames, which, in turn, are grouped in scenes. According to Schmidt, this approach is useful for linking multilingual lexica because scenes and frames, at least those modeling football, are language independent. He points out, however, issues such as differences in lexicalization patterns, problems with the creation of frames for entity nouns, lack of clear-cut boundaries between scenes and frames, and difficulties in defining which frames

5. Such adaptations include, for example, new sets of syntactic and morphological categories for the analyses (see Torrent & Ellsworth, 2013, for a detailed explanation of such a process).

would be included in a scene. Moreover, he claims that Kicktionary's scenes-and-frames approach does not include typical lexical relations such as equivalence. To address this issue, WordNet synsets (Fellbaum, 1998) were used to model cross-linguistic lexical relations.

Working on the domains of football – also – and tourism, Torrent, Salomão et al. (2014) developed the FrameNet Brasil World Cup Dictionary, a trilingual – English, Spanish and Brazilian Portuguese – electronic dictionary focused on non-specialist users. Unlike the Kicktionary, the World Cup Dictionary relies on framenet structure to automatically suggest equivalences between LUs in the three languages. In this software, the valence patterns derived from the annotation of sentences containing verbs and eventive nouns are compared between languages as a means of providing best-fit translations for the LU being searched by the user. Peron-Corrêa et al. (2016) describe the computational process involved and discuss its limitations.

Adopting a perspective centered on language pedagogy, Boas & Dux (2013) developed G-FOL – the German Frame-Semantic Online Lexicon – a tool for helping foreign language learners in vocabulary acquisition. In a G-FOL pilot study, the `Personal_relationship` frame was used to evaluate if students exposed to an adapted version of FrameNet would perform better in vocabulary acquisition. The authors show that the group who used G-FOL performed better than the control group in all vocabulary-related tests conducted, which focused on the semantic description of the vocabulary item, its situational uses, and syntactic properties.

The works in frame-based interlingual lexicography surveyed here, despite their very different goals, all approach some key issues in the field. First, they all claim that frames, the background cognitive systems relative to which lexical meaning is built, are a useful tool for comparing lexica across languages. Second, they all recognize that, although some frames may be very similar across languages, that doesn't hold for every frame in every language. Third, they all, at some point, recognize that even crosslingual frames may show differences in their LUs in regard to morphosyntactic properties, situational implications, distribution and frequency.

Hence, research on frame-based interlingual lexicography is usually carried out amidst the tension between the recognition of frames as crosslinguistically valid analytical tools and close consideration of the differences in lexicalization patterns. As noted by Boas (2005, p. 464), “although bilingual lexicon fragments might match in terms of their semantic and syntactic valences, they might differ in terms of domain, frequency, connotation, and collocation in the two languages.”

Frame-based interlingual lexicography relates to interlingual constructicography in at least two ways: First, grammatical constructions may evoke frames just like words (lexical cxns) presumably do. Therefore, it is possible that cross-linguistic relations between cxns can be established via frames in the same basic manner as

in frame-based lexicography. Such an approach is discussed by Bäckström, Lyngfelt & Sköldberg (2014) and Laviola (2015). However, it would hardly be equally applicable to all cxns; it seems that some cxns evoke frames and some do not (cf. Ohara, this volume; Lyngfelt, Bäckström et al., this volume).

Second, *framenets* have adopted a constructionally inspired annotation process (Torrent, Lage et al., 2014), in which (1) multilayer analyses map semantic information (the Frame Elements – FEs) to the linguistic realization of the Lexical Unit being analyzed (which may include Grammatical Functions and Phrase Types associated to the FEs), and (2) the meaning-form correspondence patterns derived from the analyses represent the minimal valence of the lexical construction being analyzed (see Fillmore, 2013, for a discussion of minimal valences as properties of lexical constructions).

Thus, *framenet* analyses include a lot of constructional information that may be useful for construction development in several ways, within and possibly across languages. How well a frame-based approach to interlingual constructicography would actually work remains to be tested. Its main usefulness should concern the semantics of the cxns (frames being foremost semantic units), whereas their morpho-syntactic structure involves features beyond what lexicography – frame-based or not – is usually concerned with.⁶

2. Comparing constructions across languages

As a step towards connecting constructions for different languages, we have conducted a three-part comparison between English, Swedish, and Brazilian Portuguese. The study is based on previous bilingual comparisons between English and Swedish (Bäckström, Lyngfelt, & Sköldberg, 2014), and between English and Brazilian Portuguese (Laviola, 2015). As in both these studies, our point of departure is the English *FrameNet* Constructicon (cf. Fillmore, Lee-Goldman, & Rhomieux, 2012), exploring to what extent there are Swedish and Brazilian Portuguese counterparts to the English construction entries. The comparison is thus unidirectional in the sense that English is always the source language; consequently, Swedish and Portuguese are only compared indirectly.

6. While *FrameNet* analyses yield valence patterns that may be regarded as lexical valence constructions, their formal realization would vary considerably across languages, making interlingual frame-based constructicography considerably more complex than ditto lexicography, even in the case of such lexical constructions. One must also take into consideration the tendency of *framenets* – and of lexicography in general – to adopt shortcuts so as to fit constructional phenomena into lexicographic analyses (cf. Ruppenhofer et al., 2016, p. 27).

The English FrameNet Constructicon (henceforth EngCcn) consists of 73 construction entries. Of these, 50 entries are fully developed and 23 are in a more preliminary stage, but all but seven were found explicit enough for the purposes of this study. The excluded entries were either too incomplete or too abstract to serve as a base for interlingual comparison. By “too abstract” we mean constructions that are defined irrespective of language-particular properties, for example head-complements, with the definition “A head selects for a set of complements”. Such an entry concerns the model of grammar assumed rather than properties of the language described, and it would be rather pointless to ask what the counterparts of this “English” source cxn would be in the target languages. The other cxn entries excluded from the comparison are *bare_arg_ellipsis*, *bare_noun_phrase.role*, *modifier-head*, *subject-predicate*, *the_ubiquitous_noun*, and *valence_sharing.raising*. Consequently, the comparison concerns 66 English construction entries. In the following these will be referred to as the *source constructions* (or *source cxns* for short).

2.1 A four step comparison

Determining equivalence between words, let alone constructions, is no trivial task. From the very basic assumption that equivalence is considered a relation, with a certain value, between (at least) two entities, Adamska-Sałaciak (2010, p. 387) derives the following seven questions for a bilingual lexicographer to consider:

1. where (at what level of organisation) should we look for the entities between which the relationship obtains?
2. what exactly are those entities?
3. what is the nature of the relationship between them (e.g. identity, interchangeability, similarity, correspondence)?
4. what is the feature according to which the relationship is established or measured (e.g. meaning, reference, message, effect)?
5. is equivalence a unitary concept or should different types thereof be recognised?
6. is equivalence ‘discovered’ (does it exist prior to being established by the lexicographer) or is it ‘created’ by the lexicographer’s act?
7. are our answers to 1–6 in agreement with the findings of linguists and translation theorists?

Given that the entities on the source side of the relationship were established beforehand, in our case the construction entries in EngCcn, our objective was to first look for more or less equivalent entities in the target languages and then, by comparative analysis, discern the relationships between the source and target entities in terms of meaning/function, form, and organization. As an operationalization of

this task, each English source construction was compared to Swedish and Brazilian Portuguese with respect to four questions:

1. Is there a corresponding construction, or set of constructions, in the target language?
2. Is there one construction in the target language, that covers the full functional range of the source construction and is not a superordinate construction?
3. Are the source construction and the closest target construction formally similar, except for lexical differences?
4. Do all formal differences follow from other constructions not of the same type as the source-target constructional pair?

These questions follow an ordered sequence where the first is a blocking question – i.e. in the case of a negative answer, no further questions were asked – and the fourth question was only asked in case of a negative answer to the third (see Figure 1). All four of them are polarity questions, to enable a numerical score for each pairing. Positive answers give a score of 1 and negative answers a score of 0, except for the fourth question where a positive answer renders 0.5 (see below). Thus, the maximum score for each pairing, in the case of both formal and functional equivalence, is 3.

1. Correspondence	2. Functional equivalence	3. Formal similarity	4. All differences external
No: 0	–	–	–
Yes: 1	Yes: 1 / No: 0	Yes: 1 No: 0	– Yes: 0.5 / No: 0

Figure 1. Comparison flowchart

Question 1, whether there is a corresponding cxn (or set of cxns), concerns *constructional equivalence* in the same sense as lexical equivalence in a bidirectional dictionary. In a very practical sense, it means whether there are any constructions to present as target equivalents in an interlingual constructicon. This does not presuppose (full) formal or functional equivalence, but requires cxns similar enough to be considered linkable. A negative answer to this question renders the following questions irrelevant and results in a total score of 0. Examples of such non-pairings are *subject_auxiliary_inversion*, which is not naturally employed in Portuguese, and *be_present-participle*, which is lacking in Swedish (cf. Section 3 below).

Question 2 regards *functional equivalence*, but only in a unidirectional sense. It addresses whether there is a target cxn covering the full functional range of the source cxn, but not whether the same holds in the other direction. The latter would

require investigations beyond the scope of this study (see Section 2.2). At the same time, superordinate cxns are ruled out, in order not to collapse the distinction between functional equivalence and inclusion (which would follow from an unrestricted application of a unidirectional approach).⁷

Furthermore, we are well aware that complete functional equivalence is a rare thing, if it exists at all, especially if distribution is taken into account. This is not, however, what question 2 is meant to capture, even had we had the time to conduct the distributional investigations this would require. Rather, the purpose is to distinguish cases where a target cxn only covers part of the function of the source cxn or where the coverage is split between several target cxns. Hence, functional equivalence in this context is to be understood as absence of clear functional differences, not as full identity.

Question 3 concerns *formal similarity*, by which we mean similarity in morpho-syntactic structure. Purely lexical differences between corresponding construction elements of the same part-of-speech are disregarded. For example, the Swedish counterpart to *comparison_inequality* (as in *harder than Kryptonite*) is considered formally similar, since the only difference involved is that between *than* (En.) and *än* (Sw.). The Brazilian Portuguese counterpart, on the other hand, is considered formally different, since it differs not only by its use of *que* but also with regard to the comparative adjective phrase. Whereas English and Swedish employs both morphological and periphrastic comparative (e.g. *sturdier* vs. *more sturdy*) productively, the morphological pattern is used with only four adjectives in Brazilian Portuguese, and even those adjectives also occur in the periphrastic variant.⁸

Question 4 concerns whether the formal differences are construction-specific or *follow from other constructions*. For example, there are general word order differences between especially Portuguese and English/Swedish; both Portuguese and Swedish generally display gender agreement, whereas English basically lacks grammatical gender, etc. Such wide-ranging differences affect a large number of

7. The exclusion of superordinate constructions is operationalized in the following way: if a target cxn corresponds to a cxn in the source language that is superordinate to the source cxn, the target cxn is considered superordinate. Note that a superordinate target cxn may still qualify as a constructional equivalent (according to question 1), but it would not be considered functionally equivalent. Such a case is the *what-with_absolute* cxn, which is a special variant of *with_absolute*, where the same target cxn is employed for both cxns in both Swedish and Brazilian Portuguese (see Section 3). The alternative to this approach would be to conclude that *what-with_absolute* is lacking in these languages and consequently offer no constructional equivalent in an interlingual constructicon.

8. While there are clearly distributional differences between English and Swedish in the use of morphological vs. periphrastic comparative, that level of detail is not taken into account here. For present purposes, the relevant fact is that both variants are commonly used in both languages.

cxns without necessarily being distinguishing properties of each of them. Arguably, such features are associated with very general cxns and then hold for more specific ones by inheritance. Such differences are still noted with respect to question 3, but, in cases where all formal differences are external in this sense, the comparison is adjusted for by a positive 0.5 score for question 4.

For a formal difference to count as external, it has to be inherited by a construction not too closely related to the source and target cxns. Consider for instance the family of `adjective_as nominal` cxns, which all share the property of lacking a nominal head. While the specific variants `Adjective_as nominal.abstract` (*the inevitable*), `Adjective_as nominal.anaphoric` (context-dependent), and `adjective_as nominal.people` (*the poor*) may be said to inherit this property from their mother cxn, it is still a salient feature of all of them. To the extent they display number-, gender- and definiteness marking, however, such agreement features are rather associated with general noun phrase cxns. Hence, external differences are defined as those that are not salient characteristics of the particular cxns at hand.

2.2 Methodological remarks

Before turning to the results of the trilingual comparison, there are a few methodological issues to consider. In particular, we will address (a) the numerical notation, (b) the deep-seated bias ensuing from our unidirectional approach, (c) why functional and formal differences are recorded, and (d) the role of theoretical and editorial considerations.

To begin with (a), the numerical scores are not intended as a measure of relative similarity. The individual features are essentially binary, with no attempt at grading the differences recognized but giving equal weight to minor and major ones. Instead, the scores serve as a tool for sorting different kinds of correspondences and indicating what kinds of differences would have to be taken into account for multilingual construction applications. In addition, despite several rounds of fine-tuning the criteria and harmonizing the approaches of different analysts, some subjective component to the scoring clearly remains. Consequently, any attempt to interpret the deceptively distinct numbers as measures of similarity between cxns must be undertaken with caution. Interpreting them as a measure of relative similarity between the languages involved should not be done at all.

Secondly (b), the comparison is unidirectional, which means that we have only studied to what extent entries in the English construction (EngCcn) are matched by Swedish and Brazilian Portuguese cxns, not the degree of equivalence in the opposite direction. Thus, the comparison is based on constructional distinctions in EngCcn and biased accordingly. For example, the closest Swedish equivalent to the

English `let_alone_cxn` is `för_att_inte_tala_om` (lit. ‘for to not speak about’). This does not, however, imply that the converse relation holds; an alternative close at hand would be the cognate `cxn not_to_mention`. How well these two (and potentially other) English expressions correspond to Swedish `för_att_inte_tala_om` will not be addressed here.

Furthermore, the comparison is not only influenced by English conditions but also specifically by EngCcn, i.e. based on English constructions *as they are presented in EngCcn*. This means that editorial decisions in EngCcn are in principle treated as general facts about English, on the one hand, and that nuances and variants that for some reason are not presented in EngCcn are not taken in consideration, on the other. We will return to this issue under (d) below.

Adopting a unidirectional approach follows standard practice in interlingual lexicography and was the only feasible way to perform a comparison over the whole set of `cxn` entries in EngCcn. Still, any methodological choice has consequences, and the bias in this case seems to be towards similarity. While the similarities between the source and the target `cxn` are often straight-forwardly noticeable, identifying the differences require further analysis. The closer the analysis, the more differences were found.⁹

Thirdly (c), it may not be obvious why formal and functional differences are recorded. Since the comparison is to pave the way for eventually connecting the constructicons, why not merely determine which `cxns` to link to? However, this is an investigation, not just a matching procedure, and correspondence is not a binary property. Even from a linking perspective, it is highly relevant to establish not only which `cxns` match but also how well they match and in what respects they differ. This is all the more the case since the links must connect `cxn` descriptions, not just their names (which are usually not fully transparent). Therefore information about salient differences matter for how the `cxns` are to be represented in a cross-linguistically adequate format.

Furthermore, both formal and functional differences concern the network relations within the resources. On the one hand, not all matches are one-to-one relations. On the other hand, some similarities and differences follow from inheritance, and it is not *a priori* obvious if, where and how such information should be presented. In addition, the investigation is not only an internal affair with a narrow focus on application development. The contrastive results should also be of interest to the linguistic community.

9. After comparing EngCcn to Swedish (Bäckström, Lyngfelt, & Sköldberg, 2014), several Swedish construction entries were developed from the comparison to their English counterparts. The additional investigation involved in that process usually revealed more differences than the initial comparison. The same holds for Brazilian Portuguese (Laviola 2015).

Finally (d), it should be stressed that the comparison depends not only on cross-linguistic contrasts but also on a number of theoretical and editorial decisions – and not only those concerning the source resource EngCcn. An illustrative example is the *be_recip* cxn, which comes in two variants, one symmetrical (*Watson and Sherlock are close friends*) and one asymmetrical (*Watson is close friends with Sherlock*), both with the relational noun in the plural. In both Brazilian Portuguese and Swedish, the symmetrical case would be expressed similarly, whereas a singular noun would be used in the asymmetrical structure. One way to picture the contrast is that all three languages have a plural reciprocal cxn, but the ones in the target languages are more restricted (a functional difference). An alternative account is that they all have a general reciprocal cxn but differ in how it is expressed (a formal difference). A third possibility would have been to handle the symmetrical and asymmetrical patterns separately, but that option is precluded by the existing, unified treatment of *be_recip* in EngCcn. Thus, the choice is partly linguistically grounded – a unified account makes more sense for English than for the other languages – partly *ad hoc*.

Thus, even this minor a difference is enough to raise questions about how to delimit the cxns. In this case, the practical effects hardly matter. The fact that symmetrical and asymmetrical reciprocals correspond differently will have to be specified in an interlingual construction, however the cxn entries are delimited.¹⁰ Nonetheless, the dependence on partially *ad hoc* choices remains a factor to be wary of and to take into account.

A particular issue with potentially far-reaching consequences is the relation to FrameNet. EngCcn is aligned with the English FrameNet and, where applicable, constructional distinctions are therefore aligned with (English) lexical frames. This means that some decisions in EngCcn may ultimately be grounded in lexical rather than constructional properties;¹¹ the FrameNet analysis of the English lexicon has thus influenced the analysis of English (grammatical) cxns, which in turn restricts the interlingual cxn comparison. This favors compatibility between framenets and constructicons but is also a potential source for mismatches. One case at hand concerns *rate* cxns in English and Swedish; see Lyngfelt, Bäckström et al. (this volume; cf. also Bäckström, Lyngfelt, & Sköldberg, 2014).

To conclude, the unidirectional approach makes the comparison somewhat biased, the more so given the dependence on not entirely objective analytical

10. The solution chosen in this case was to assume a functional difference, partly because the asymmetric variant in Portuguese and Swedish is not strictly reciprocal but tending towards the English pattern *a friend of Sherlock*.

11. Even presuming that lexical items are (lexical) constructions, they do not equal the source constructions but are one step further removed from the target cxns.

decisions. This source of error should be borne in mind, both to minimize the bias and to avoid drawing too strong conclusions from the results. At the same time, however, the effects of the bias should not be exaggerated. On the whole, the comparison presented in the following section should give an accurate account of the state of affairs.

3. Comparison of English, Swedish and Brazilian Portuguese constructions

In this section, we present the results of the contrastive analyses. After an account of the overall results, we will in turn discuss relations of high (Section 3.1), low (Section 3.2) and medium (Section 3.3) equivalence. A numeric summary of all the analyses is presented in the appendix.

Out of 66 English construction entries, linkable construction equivalents were found for all but five cxns in Brazilian Portuguese and four in Swedish, as shown in Table 1. Furthermore, the vast majority of the constructional pairings (56 for Portuguese and 54 for Swedish) qualify as functionally equivalent, which means the relation can be handled as a one-to-one correspondence.

Table 1. Correspondence and functional equivalence

	Brazilian Portuguese	Swedish
1. Correspondence	61	62
2. Functional equivalence	56	54

The data also allow for an indirect comparison between Brazilian Portuguese and Swedish: Corresponding cxns were found in both languages in 58 cases.¹² Out of those, 52 matches can be indirectly deduced as potentially functionally equivalent.¹³ Note, however, that these numbers only indicate potential matches, since they are derived from an indirect comparison via English. The indirect score for

12. One cxn (subject-auxiliary-inversion.exclamation) is missing in both target languages, four additional cxns are lacking in Brazilian Portuguese and three in Swedish, for a total of eight.

13. In 50 cases, both languages scored 1 for functional equivalence to the English source cxn. There are also two cases where both languages scored 0 for the same reason: neither language has a specific counterpart of the particular what-with_absolute cxn variant (see footnote 6 in relation to the functional equivalence discussion in Section 2.1), and both languages have a more restricted counterpart of the be_recip cxn (see Section 2.2). In one case, inversion_with_preposed_element, both languages scored 0 but for different reasons. The particular scorings are shown in the appendix.

correspondence is probably still fairly accurate, but the indications of functional equivalence can be no more than a promising starting point for future investigation (all the more so since the initial comparisons with English are unidirectional; see Section 2.2). Nevertheless, the relatively high number of matches is promising for future work towards linking the resources.

Turning to the formal side of the cxns, we find more differences, as shown in Table 2. In both languages, more cxns display formal differences than not. It is striking – and somewhat surprising – that Brazilian Portuguese displays far fewer cases of construction-specific formal differences vs. English. While we could expect more external differences in Portuguese, these do not *per se* preclude there also being cxn-specific differences. In general, slightly more differences have been noted for Swedish than for Brazilian Portuguese, which should of course not be taken to indicate that Swedish is less similar to English than Portuguese is. Rather, it seems to be due to a combination of random effects of the sample, the human factor involved in the analyses, and perhaps different editorial policies of the Swedish and Brazilian construction projects.

Table 2. Formal similarity

	Brazilian Portuguese	Swedish
Formally similar (1)	18	18
All differences external (0,5)	20	13
Formally different (0)	23	31
Total	61	62

The significance of these formal differences depends on what applications are considered. For identification tasks, formal differences may or may not be important. From a production perspective, they certainly are. Whether only construction specific differences matter, or also those inherited from more general cxns, depends not only on the intended application but also on the network structure of the resource. We will return to such issues in Section 4, after addressing the results in terms of degree of equivalence.

In the following sections, results are presented and discussed according to the level of equivalence found between constructions, even though we recognize that equivalence is a tricky concept for lexical let alone grammatical constructions as repeatedly pointed out throughout this chapter.

As is the case for lexical items, full equivalence would only hold if the items being compared had not only similar form and meaning, but also allowed for the same pragmatic inferences and presented similar distribution and contextual restrictions (Boas, 2005; Farø, 2004; cf. Atkins & Rundell, 2008; Svensén, 2009). As

already pointed out in Section 1.1, equivalence is directly grounded in the four criteria adopted in the comparison, and since none of them address issues such as distribution and contextual restrictions, we are actually dealing with some kind of idealized, or potential, equivalence between constructions.

Three levels of equivalence are proposed: high, medium and low. Each level translates into a score range, respectively, 3–2.5, 2–1.5, and 1–0. As mentioned above (Section 2.2), it should be borne in mind that the differences behind the numbers are not graded. For instance, the Brazilian Portuguese counterpart of the `degree_so_cxn`, differs from the English source `cxn` in several respects, but since the differences are all inherited from more general `cxns` the pairing still qualifies for a high level of equivalence with a score of 2.5 (see Section 3.1) – whereas the Swedish counterpart of `measurement_plus_prepositional_phrase`, although similar to English in most respects, displays one small functional difference and one small formal difference, hence earning a score of 1 and a status of low equivalence (see Section 3.2). In other words, the numbers only indicate *whether* there are functional or formal differences, not how many or how big they are.

We start by presenting and discussing in Sections 3.1 and 3.2 the high and low points in the continuum, and then move, in Section 3.3, to constructions with medium equivalence.

3.1 Constructions with high equivalence

Constructions presenting the final score of 3 and 2.5 are taken as having high equivalence to the English source constructions. These are pairings judged to be both functionally equivalent and formally similar or where the only formal differences are those that follow from more general `cxns`.¹⁴ Table 3 shows the number of constructions presenting final scores of 3 and 2.5 for each language.

Table 3. Final scores per language – scores 3 and 2.5

Score	Language	
	Brazilian Portuguese	Swedish
3	17	17
2.5	18	13

14. As noted in Section 2.1, purely lexical differences are disregarded, such as choice of preposition or the obvious but in this context trivial difference between the conjunctions *and* (English), *e* (Brazilian Portuguese), and *och* (Swedish).

Pairings converging on both form and function (score 3) typically concern fairly basic functions that are not dependent on particular morphosyntactic marking. A typical example is the coordination *cxn*, which is defined in EngCcn as follows: “Coordinates – units of identical or like types – are coordinated by a Conjunction. If more than two Coordinates are present, then all but the last must be followed by a Conjunction, or alternatively, only the penultimate Coordinate must be followed by a Conjunction.” Such a definition holds for both Swedish and Brazilian Portuguese, and, therefore, the Coordination construction in English is taken as highly equivalent to those in Swedish and Brazilian Portuguese, both in terms of function and form. Other typical examples of 3 score pairings in both Brazilian Portuguese and Swedish are *gapping*, *integrated_appositive* and *tautology*.¹⁵

Matches that receive a score of 3 in only one of the languages typically display some formal difference in the deviating language. For instance, *noun-noun_compound* in Swedish stands out by the use of a linking morpheme, and *rather-than_coordination* in Portuguese differs by the use of a different grammatical structure linking the conjuncts being coordinated.

A score of 2.5 means that some formal difference can be found between the source and the target constructions, but only differences following from more general constructions. Such differences are typically basic morphosyntactic properties such as general agreement patterns. The *degree_so* construction (*so long/terrible (that) S*) exemplifies this situation for both Swedish and Brazilian Portuguese. Examples (1)–(2) present constructs licensed by *degree_so* and its closest counterparts in the target languages, (1) comparing English and Swedish and (2) comparing English and Portuguese.

- (1) a. These horns can be so long and incurved that there is a danger of damage to the animal's cheeks (if they are not carefully trimmed at the tips)
- b. Hornen kan bli så långa och inåtsvängda att
horn.PL.DEF can.PRS become.INF so long.PL and incurved.PL that
det är risk för skada på djurens kinder
there be.PRS risk for damage on animal.PL.DEF.GEN cheek.PL

The relevant difference in Swedish concerns the adjectival head, which agrees in number and gender with its antecedent noun. A case of number agreement is illustrated in (1b), where the *-a* suffix marks the adjectives for plural. This property is not particular to *degree_so*, but is a general feature of adjectival *cxns* in Swedish (in adnominal position, adjectives also agree with respect to definiteness).

15. For those English construction entries that are only referred to here, full accounts are available online at <<http://www1.icsi.berkeley.edu/~hsato/cxn00/21colorTag/index.html>>. Several of them are also described in Fillmore, Lee-Goldman, & Rhomieux (2012).

Agreement on the adjective also applies to Portuguese. In addition, the complementizer is mandatory, not optional as in English (and Swedish). This is illustrated in (2):

- (2) a. The smell is so terrible you want to throw up
- b. O cheiro é tão ruim que você vai querer
 the smell.SG be.PRS so bad.SG that you go.PRS want.INF
 vomitar.
 throw_up.INF

Neither of these differences are related to this construction exclusively, but to adjectives and complementizers in general. Also note that the existence of more differences in Portuguese than in Swedish does not affect the numerical score, since they are all external.

3.2 Constructions with low equivalence

Pairings of low equivalence are on the one hand cases where a corresponding target cxn is missing (score 0), and on the other hand cxns that differ in both form and function (score 1). As mentioned above, there are five non-pairings for Brazilian Portuguese and four for Swedish (where one English source cxn is missing in both languages). Pairings that differ in both form and function are six in Swedish and only two in Brazilian Portuguese.

Table 4. Final scores per language – scores 0 and 1

Score	Language	
	Brazilian Portuguese	Swedish
0	5	4
1	2	6

The cxns missing in Brazilian Portuguese are two `subject_auxiliary_inversion` cxns (out of seven) and the three `way` cxns. `Inversion` is actually lacking in general, but for the other five inversion cxns in `EngCcn`, Portuguese performs the same functions with different means. As for the `way` cxns, they all employ the structure [NP V one’s way PP] to express self motion,¹⁶ where *one’s* is a possessive pronoun coindexed with the NP agent and the PP is the goal or direction, as illustrated in (3). There are three subtypes of this cxn, based on the meaning of the verb: means (a), manner (b) or neutral (c).

16. In FrameNet terms, they evoke the `Motion` frame.

- (3) a. He squeezed his way down the stairs.
- b. She danced her way into Europe.
- c. My problem was to make my way from the entrance to a vacant table.

In Portuguese there is no construction with the same functional characteristics. To translate the sentences in (3), one would have to use two or more argument structure constructions. In Swedish, on the other hand, there are reflexive cxns filling roughly the same functions as the English *way* cxns.¹⁷

The four cxns missing in Swedish are *be_present-participle*, *tagged_sentence_subjectless*, *rate.milage* and *subject_auxiliary_inversion.exclamation* (ex. *Don't I know it!*). The participial cxn (*be V-ing*) is missing because Swedish does not mark aspect systematically, at least not in a similar way, whereas *tagged_sentence_subjectless* (ex. *Giving you trouble, was he?*) is a kind of particular cxn simply not expected to have counterparts in every language. *rate.milage* is one of four rate cxns in EngCcn. Swedish has counterparts of the other three, but this particular variant is missing.¹⁸

The *inversion* cxn is a somewhat more complex case. Since Swedish is a V2 language (verb second), VS word order, or “inversion”, is the standard pattern whenever the subject is not clause initial. In English, on the other hand, there are a number of specific inversion patterns (seven inversion cxns in EngCcn), which are scattered remnants from an older V2 system (cf., e.g., Fischer et al. 2000, Chapter 4). Most of them have Swedish counterparts, but this is a cxn where the striking non-SVO order has come to be associated with certain pragmatic effects that seem to depend on that word order being non-ordinary; it is also particularly based on *do*-support, which is not employed in Swedish.¹⁹

Turning to cxns that do have correspondences in the target languages but the target cxns differ in both form and function, there is one English cxn where this is the case for both Brazilian Portuguese and Swedish, namely *what-with_absolute* (ex. *What with health budgets being pruned and cut back I'm asking the health board if staff shortages perhaps were a contributory factor here*). This is an informal variant of the *with_absolute* cxn, where both target languages have a counterpart of the standard cxn but lack the informal variant. Hence, the corresponding general cxns are the closest counterparts of the special case as well.

17. The Swedish reflexive counterpart of *way_manner* is more restricted, but there is a particle cxn covering the remaining cases.

18. Note that the Swedish counterparts to the other rate cxns do not cover *rate.milage*; hence the 0 score (unlike the *what-with_absolute* cxn; see below).

19. Other English cxns with *do*-support do (sic!) have Swedish counterparts, although without *do*.

The data contains one more case where a Brazilian Portuguese target cxn differs in both form and function from its English counterpart (*inversion_with_preposed_element*), whereas another five were found in Swedish. There is nothing special about these cxns – they are simply a diverse set of cases where different formal and functional restrictions have been conventionalized in the respective languages. An illustrative Swedish example is the *measurement_plus_prepositional_phrase* cxn, as *in seven feet in width* and *twelve years of age*. The corresponding Swedish cxn is similar in most respects, but differs in form by the complement of the preposition usually being definite (lit. ‘on the width’) and is functionally restricted in not occurring with age expressions. These are instead expressed with an adjective, which is an option in English as well (cf. the *measurement_plus_adjective* cxn; ex. *twelve years old*). Thus, even minor differences may result in a low score.

What is note-worthy is not the existence of such cases but their relative rarity in the material, especially in Brazilian Portuguese. The main reason is probably the way that the comparison was carried out; had the investigation of functional equivalence involved more detailed distributional analyses, more functional differences would clearly have been discerned (see Section 2.1).

3.3 Constructions with medium equivalence

The middle group mainly consists of cxns that differ in either function or form. More specifically, it includes cases that are formally similar but functionally different (score 2), cases that are functionally equivalent but have cxn-particular formal differences (score 2), and cases with functional differences and no cxn-specific formal differences but displaying formal differences that follow from more general cxns (score 1.5).

As shown in Table 5, this middle group contains strikingly few cases of functional difference, only two for each language. These include the counterparts of the aforementioned *be_recip* cxn in both languages (see Section 2.2 above), with a score of 2 for Swedish and 1.5 for Portuguese. The other Swedish cxn in this group is *inversion_with_preposed_element* (score 2), and the other Portuguese case is *postpositive_adjective* (score 2). The latter is defined as follows in EngCcn:²⁰

A Noun is modified by an *Adjective_phrase* that appears entirely following the Noun. This construction is required for some adjectives (e.g., *galore*), and for most adjectives with complements (*people late to the party*). Adjectives with obligatory complements, such as *bent* (on) also must combine with nouns via this construction.

20. <<http://www1.icsi.berkeley.edu/~hsato/cxn00/21colorTag/index.html>>.

Table 5. Final scores per language – scores 2 and 1.5

Score	Languages	
	Brazilian Portuguese	Swedish
2 (functional difference)	1	2
2 (formal difference)	22	24
1.5	1	0

As can be seen from the definition, this construction is required by a specific class of adjectives in English, which present a syntactic behavior that deviates from that of the majority of English adjectives. In Brazilian Portuguese, however, the norm is precisely to put adjectives after the nouns they modify. Hence, although there is a construction for postpositive adjectives in Brazilian Portuguese, it does not have the same function as the one in English.²¹

While the low numbers for functional differences are striking, both in this section and the previous one, it is perhaps not so surprising given the present method of comparison. A more detailed investigation of distributional properties would clearly have revealed more functional differences. Such an investigation, however, would go beyond the present purpose of exploring the basic preconditions for aligning constructicons.

Turning to formal differences, these are saliently associated with the cxns in question, as opposed to the inherited differences mainly treated in Section 3.1 above). In some cases this is because these are the cxns from which the differences are inherited, such as `determined_noun_phrase`, where agreement patterns are specified that affect most other cxns involving noun phrases.

The majority, however, concern more particular properties. For example, the Swedish counterparts of the two `location_in_calendar` cxns in EngCcn behave differently with regard to definiteness. Past time locations are typically definite

21. One might also view this pairing as a case where the target cxn covers the full range of the source cxn, which would then count as functional equivalence according to the unidirectional approach employed in this study. It is also somewhat hazardous to assume a functional difference when the function of the source cxn is not clearly defined. Still, there is arguably a functional difference following from the fact that this word order pattern is marked in English but unmarked in Portuguese, lending it more of a rhetoric potential in the former language, hence the score of 2. Also, it correlates directly with the valence of the adjectival head, which is not a factor influencing the adjective phrase construction in Portuguese.

A similar reasoning applies to `subject-auxiliary_inversion` in Swedish: on the one hand, due to being a more general pattern, it has less of a rhetorical effect than in English; on the other hand, there are also more clearly defined differences in that certain rhetoric patterns have been conventionalized (see Section 3.4).

(*förra veckan* ‘last week.DEF’) whereas future ones are usually indefinite (*nästa vecka* ‘next week.INDEF’). Although there are general differences between English and Swedish regarding definiteness marking, this particular distinction is specific to time expressions. Another Swedish example is tag questions, which are not of the form [be + Negation + Pronoun] as in English (*isn’t it, aren’t you*, etc.) but instead have the fixed form *eller hur* (lit. ‘or how’).

A Brazilian Portuguese example is the *there*.presentational cxn. While, in English, this construction features the word *there* as the subject of the verb *to be* after which an entity is presented, in Portuguese, the verbs *haver* ‘exist’ or *ter* ‘have’ are used with a null subject. Having null subjects is not a general property of these verbs – especially for *ter* – but a specific configuration they take in this construction.

While these formal differences are often as particular as the cxns they apply to, there are also cases that derive from more general differences but are still saliently associated with the cxns in question. Such a case is the Brazilian counterpart of *subject_auxiliary_inversion_conditional*, which differs from the English source cxn in not involving inversion. This is clearly a general property of Brazilian Portuguese, but it is also a salient difference regarding this particular pairing. Therefore it counts as a construction-specific difference.

4. Prospects for multilingual constructicography

We will now turn to the prospects for future alignment of the three constructions – and for eventually involving corresponding resources for other languages as well. In general, the issue can be broken down into a matter of linking, on the one hand, and questions of representation, on the other. Both aspects, especially representation, play out somewhat differently depending on the intended uses and users. The major distinction in this regard concerns the difference between language technology applications and human users. In the case of human users there is also the added dimension of presentation: metalanguage, visual appearance, instructional text, etc.

Regarding the linking issues, the results presented in the previous section are mostly encouraging for future attempts to align the three resources, while also indicating several non-trivial problems to handle. For all but a few of the English construction entries, linkable construction equivalents were found in both Brazilian Portuguese and Swedish. Furthermore, the vast majority of the constructional pairings qualify as functionally equivalent, in the sense that the relation can be treated as a one-to-one correspondence. Hence, it seems that the mapping should be a relatively simple matter in most of the cases, at least as long as the source language is English.

It should be borne in mind, however, that the established correspondences are unidirectional. Just because a link holds from English to Brazilian Portuguese or from English to Swedish it does not necessarily follow that the relation is equally straight-forward in the opposite direction, let alone between Brazilian Portuguese and Swedish. This will have to be tested. Still, the high degree of correspondence found suggests that such analogous explorations should be fruitful. At the same time, however, the remaining – blessedly few – non-matches, and the non one-to-one mappings, are challenges that will need to be handled.

Turning to representation, the main issue is how to represent the structure of the constructions in a cross-linguistically applicable way. To what extent, and in what way, structural differences should be explicitly indicated depends on the intended application. Whereas functional differences (non straight-forward linking relations) should be highly relevant for most purposes, formal differences, to the extent they are relevant, may be derivable from the descriptions as such – depending on the description format. For some purposes, however, it is probably useful to point out salient formal differences directly, especially regarding any forms of language pedagogy.

In the following, we will treat computational alignment and adaptation for human users separately. The linking issues will mainly be treated in the language technology Section (4.1), since the resources are digital and the linking will thus be handled computationally even for human-oriented uses. Matters of representation will be addressed from both perspectives, whereas questions regarding presentation are particular to application for humans (Section 4.2).

4.1 Computational alignment

The comparison presented in Section 3 is concerned with linguistic units and linguistic structure, not the database structure of the three resources. Computational alignment of constructions, on the other hand, would deal with relations between database entries. Thus, the core issue would be how the linguistic relations distinguished in the analyses are to be modeled. In terms of linking, the mapping relations to implement (or at least consider) are of three kinds:

1. one-to-one (functionally equivalent pairings)
2. non one-to-one (correspondence but not functional equivalence)
3. non correspondence (possibly a non-mapping, but still something that needs to be handled).

The other side of the alignment problem is how to represent the entities (the cxn entries) in a useful way. What properties of the cxns need to be represented and how are these to be formalized?

To make an informed decision on which aspects of constructions should be modeled and which kinds of links should be proposed, one would need first to determine the purpose of the alignment effort. For example, if the alignment is meant for language understanding and not language production, then partially correspondent constructions may be linked in a less strict way, allowing the system to generate semantic interpretations of the input. On the other hand, if the task also involves language generation, as is the case for machine translation systems, then, partial correspondences should either involve language internal rules or rely on a statistical model of the target language to reorder text sequences.

In computational terms, a construction may be implemented in a relational database where constructions and their constituents are represented as entries in tables. Relations between those can be either directly written in the database, or modeled using intermediate tables. In the first case, the existence of some connection between the two entries being related is stated, but no information about the relation itself is provided. In the second case, it is possible to model information about the relation itself, such as the type of the relation or the constraints applying to it. Relations of this type can model both constructional constituency, that is, represent how a construction is composed in terms of its elements, and links between constructions.

In this scenario, the alignment of constructional databases can be implemented by proposing new relation types connecting them. Following Vossen (1998), Lönneker-Rodman (2007) presents two methodologies for aligning lexical resources: the expand approach and the merge approach. In the first, already mentioned in 1.2, the structural backbone of the source resource is transferred to the target language and populated with language-specific data. Adaptations of the original structure may be needed, based on the analysis of the language material in the target resource. In the second, two already existing resources are mapped to each other based on correspondences in their nodes. Alignment may be partial, since the resources were built independently.

The comparison between the entries in the EngCcn and their corresponding pairs in the Brazilian Portuguese and Swedish pursued in the previous session indicates that no trivial expand approach from the EngCcn is possible if one wants to both link the similar aspects of constructions and stress the relevant differences between them. Therefore, the merge approach seems to be the most suitable for aligning constructional resources.

The easiest cases in this scenario are those in which a given construction in the source language finds a correspondent structure in the target language, and such

correspondence holds for both the functional scope and the formal aspects of the construction. To computationally represent these one-to-one form-function correspondences, a relation between the two constructions could be modeled. If the databases being connected are relational, it means that the construction entries in them are entities, and relations between those entities would be modeled through tables building correspondences between the entities' internal structures.

Moreover, one would also need to decide whether the type of correspondence relation just sketched is uni- or bidirectional.

Additional complications arise, when the kind of link to be modeled holds between constructions with partial correspondence, that is, constructions that overlap to some extent in their functional scope but also play somewhat different roles in their respective languages. Such cases usually lead to one-to-many links in the database, since the source construction may end up being partially correspondent to two or more structures in the target language.

Finally, cases of non-correspondence, such as those involving the *way* cxns for Brazilian Portuguese and the *be_present-participle* cxn for Swedish, for example, call for yet another decision: that of whether cases of non-correspondence will be addressed at all. Taking the *way* cxn as an example, Brazilian Portuguese would use two constructions to properly express the general meaning of this construction. If one decides to computationally represent that sort of relation, besides modeling the links between the source construction and the target constructions, one would also need to model a language internal rule connecting the two or more target constructions.

Lönneker-Rodman (2007) also points out that there are two scales against which the effort of aligning resources should be evaluated: organizational similarity and interrelatedness. The first refers to the underlying principles that guided the development of the resource, while the second concerns the possibility of connecting not only the resources and entities in them as wholes, but also their constituent parts. Hence, all the choices regarding how to link constructions across language models are dependent on how the resources represent constructions computationally, both in terms of their constituency, and in terms of granularity, that is, in terms of which aspects of the form and the meaning of the constructions will be expressed in the representation.

So far, no attempt has been made of computationally aligning constructional resources. However, following the path designed for aligning lexical resources, FrameNet Brasil included a set of relations and constraints in the Brazilian Portuguese Constructicon (BPCcn) that may be useful for pursuing the computational alignment of constructions. In the following, we will outline the way such relations and constraints are modeled in FrameNet Brasil.

4.1.1 *Relations and constraints in FrameNet Brasil*

FrameNet Brasil has been developing computational tools to model relations and constraints applying to constructions. Two relations and four constraint types have already been modeled:

1. the Constructional Inheritance relation
2. the Construction to Frame relation
3. the Construction Element to Construction constraint
4. the Construction Element to Frame constraint
5. the Construction Element to Frame Family constraint
6. the Construction Element ordering constraint.

Constructional Inheritance models the fact that a given construction in the database has all the properties of its parent construction plus some other specific properties. This relation reduces the modeling effort, to the extent that general properties of a given construction have to be modeled only once. Through the Construction to Frame relation, on the other hand, constructions can be linked to the frame(s) they evoke – if they evoke a frame at all – and, if this is the case, a CE to FE mapping can be proposed. For example, consider the Brazilian Portuguese *non-agentive_intransitive* cxn in (4).

- (4) [O vaso_{Subj}] [quebrou_{Pred}]
 The vase break.PST
The vase broke

This construction features two constituents: the SUBJECT and the PREDICATE. Any regular constructionist approach would claim that the SUBJECT of the *non-agentive_intransitive* cxn must have the property of being a Patient affected by the verb in the PREDICATE.

Because the BPCcn is directly connected to the frames database of FrameNet Brasil, it is possible to associate this construction to the *Undergoing* frame,²² which is defined as follows: “An ENTITY is affected by an EVENT”. The Evoking relation would then connect the CEs in the construction to their corresponding meaning, represented as the FEs in the frame: the SUBJECT CE is mapped to the ENTITY FE, while the PREDICATE CE is mapped to the EVENT FE. Such a mapping models the external semantic properties of the construction, while the constraints model internal aspects of both its form and meaning.

22. Frame names are written in a sans serif font (Consolas) with an initial capital letter, similar to cxns in the first regard but distinctive from them in the second. Frame elements (FEs) are distinguished from construction elements (CEs) in the same manner, both being written in SMALL CAPS but only FEs with an initial capital letter.

The CE to Construction constraint stores the information that a given CE is licensed by another construction. For the non-agentive_intransitive cxn, this constraint models the fact that the SUBJECT CE is a *determined_NP*, while the PREDICATE CE is an *intransitive_VP*. Figure 2 shows a graphic representation of the relation and the constraint discussed so far.

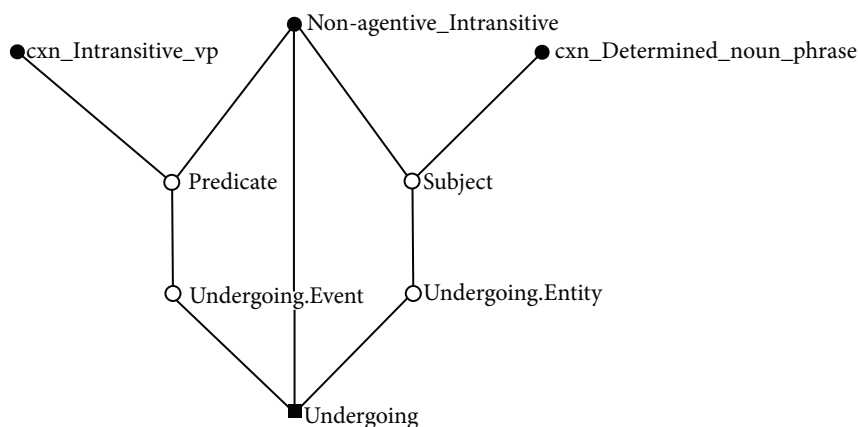


Figure 2. Graphic representation of the non-agentive_intransitive cxn in BPCcn

The following two constraints model slot filling restrictions in constructions. In general, they delimit the set of lexical items that can fill the head of a given CE to, in the case of (4), the LUs evoking a given frame, and, in the case of (5), the LUs evoking a given frame plus all the LUs evoking frames that inherit from that. Those constraints were conceived as a means to model semantic restrictions on the constituents of a construction. For example, when a given construction requires its subject to be human, or its verbal head to be of a certain semantic type.

The last constraint models constituent order and is applied to constructions in which word order is fixed.

Although these relations and constraints were initially conceived for better representing the properties of constructions, they can play a role in alignment across languages. The assumption that two constructions in two different languages evoke the same frame but have formal differences could be modeled, for example, as both of them having an evoke relation with the same frame, but, on the other hand, have different constraint configurations. For non frame-evoking constructions (see Fillmore, 1999; Fillmore, Lee-Goldman, & Rhomieux, 2012; Lyngfelt, Bäckström et al., this volume; Ohara, this volume), other relations and constraints would be required. Similarly, the kinds of external differences analyzed in Section 3.1 and 3.3 – those leading to the 2.5 and 1.5 scores – could to some extent be modeled via

the Inheritance relations connecting constructions to their parents. Finally, new cross-linguistically oriented constraints may be added to the database, as a means of highlighting salient differences or similarities between constructions. How far the current set holds, and what additions will be needed, is to be determined through actual implementation.

4.2 Resources for human users

From the view-point of a human user, the representation of constructions and their properties is secondary to the presentation of the resource in general. The first crucial factor is the basic meta-language. All the existing constructicons (ccns) are monolingual resources, mainly presented in the same language as they are describing.²³ This means that a simple link from, say, a Swedish cxn entry to a corresponding Brazilian Portuguese entry would take the user from a resource presented in Swedish to one in Portuguese. Hence, any multilingual application useful for humans would require either translations between the languages involved or a meta-language common to all the connected resources – in which case English would be the only realistically plausible *lingua franca*.

An almost equally important factor is the design of the user interface. Even if all the ccns concerned were translated into English, the fact that they are structured and presented differently would remain a daunting threshold. A user being directed from one ccn to the other would be cast into a new kind of environment, the interpretation of which would require a great deal of adaptation, even if the same language is employed in both ccns.

Consequently, any multilingual application intended for human users would require the development of a multilingual infrastructure with some kind of common interface. Merely connecting the existing ccns could never be sufficient, regardless of how it is done.

Presuming these obstacles are overcome, the development of a usable, let alone user-friendly, multilingual resource would also face the same challenges as any comparable monolingual resource: making it answer to the needs and convenience of the intended users. Thus, the design features required would depend on what the resource is to be used for, on the one hand; and on what previous knowledge can be expected from the user, on the other. In this regard, constructicography is largely analogous to lexicography (cf. Atkins & Rundell, 2008; Svensén, 2009), especially e-lexicography (L'Homme, 2014), except that constructicography also concerns grammatical structure.

23. Both the Swedish and the Russian constructicon also provide some metatext in English.

This is where the representation format comes in. The conventional representations of syntactic structure employed in valence dictionaries (e.g. Herbst et al., 2004), while attractively simple, would need to be enriched to be able to account for more complex cxns, and they are clearly insufficient to account for structural differences between languages. Linguistic standards such as the Leipzig glossing rules (Lehmann, 1982), on the other hand, are well adapted for the latter purpose but require a familiarity with linguistic meta-language rare outside academia. Hence, the general knowledge of linguistic terminology and description formats is a strongly limiting factor, and the usability of some functions may in practice be restricted to language professionals or even linguists. That is, unless some mode of representation less dependent on technical terminology is developed.

5. Concluding remarks

In this chapter we have approached the prospects for multilingual construction application, chiefly by means of a comparison between English, Brazilian Portuguese and Swedish. Starting out from the existing cxn entries in the English ccn, we have explored to what extent corresponding target cxns may be distinguished in Brazilian Portuguese and Swedish. After establishing (or failing to establish) approximate correspondences, we have also for each pairing recorded functional and formal differences between the source and the target cxn.

This highly explorative study was meant to give an indication of whether alignment of ccns across languages is a fruitful path to pursue, and shed some light on what kinds of possibilities and challenges it involves. Naturally, a desired outcome was also that the dataset obtained could serve as startup material for such a development, and the study was designed accordingly.

A secondary purpose was to develop a format for comparison that is useful for future work in this direction. This means on the one hand that the methodology is applicable to comparison with other languages as well as other cxns, and on the other hand that the information recorded is both relevant and sufficient for the actual alignment. We are, however, well aware that the last point is highly dependent on the purpose of the alignment, but hope that the present format may at least serve as a point of departure for future adjustments.

Two important limitations should be borne in mind here. First, correspondence in this context is a matter of linkability between resources, in the same basic sense as in bilingual lexicography. It does not imply any presumptions of full equivalence. Thus, the study is not fully comparable with typical contrastive CxG accounts, due to its focus on approximate correspondence and its fairly rough mode of comparison. Neither is it fully comparable with bilingual lexicography, which is mainly

concerned with semantic (and, to a lesser extent, pragmatic) correspondence, whereas the current work involves grammatical structure as well and thus also a formal comparison. Rather, the approach is a blend between the two, which is why we have adopted the label (interlingual) *constructicography*.

Second, the comparison is unidirectional, not only being conducted on the terms of English but also taking the analyses in the Berkeley English ccn for granted. Such asymmetry between the source language and the target languages follows traditional practice in bilingual lexicography, and it was justified in the days of paper lexicography, when directionality was a precondition for a (paper) dictionary. Electronic resources are not subject to the same limitations, and the user can go back and forth, effectively making the role distinction between source and target language apply to individual operations rather than to the resources in general. However, the methods in lexicography have not yet caught up with the technical developments, and in constructicography even less so. It is obvious that many desired uses for multilingual ccn application would require the present work to be complemented by additional investigations taking the opposite perspective or, better still, taking both directions into account.

Bearing this in mind, the results from the comparison are mostly encouraging, at least as regards linkability and LT application. With only a scant few exceptions, corresponding target cxns could be established in both Brazilian Portuguese and Swedish, and the matchings obtained should serve as a good test set for developing a connecting infrastructure. Such testing will include how to handle formal and functional discrepancies, as well as the development of a cross-linguistically applicable description format. An important aspect to consider in this regard is suitability for and adaptation to different kinds of application.

For applications pertaining to human users, on the other hand, the basic problem to solve has less to do with linking and more with presentation. Clearly, the user of one ccn resource, in a certain language and with a certain user's interface, would in most cases need better help than a mere link to another ccn resource in a different language and with a different interface. Therefore, multilingual ccn applications for humans would require a common platform, preferably with the same organization, description format, and interface for all the languages involved, and either using the same meta-language or having translations of all the information presented. Hence, the main task is not about connecting existing resources but rather developing a new one. While a desirable goal for future development, it is probably not the immediate next step.

Acknowledgments

We are grateful to Lars Borin and two anonymous reviewers for valuable comments to an earlier version of this chapter.

References

- Adamska-Salaciak, A. (2010). Examining equivalence. *International Journal of Lexicography*, 23(4), 387–409. doi:10.1093/ijl/ecq024
- Almeida, V. G. (2016). *Identificação Automática de Construções de Estrutura Argumental: um experimento a partir da modelagem linguístico-computacional das construções Transitiva Direta Ativa, Ergativa e de Argumento Cindido* [Automatic Identification of Argument Structure Constructions: an experiment using the Direct Active Transitive Cxn, the Ergative Cxn and the Split Argument Construction]. M.A. Thesis. Federal University of Juiz de Fora.
- Atkins, B. T. S., & Rundell, M. (2008). *The Oxford Guide to Practical Lexicography*. Oxford/New York: Oxford University Press.
- Bäckström, L., Lyngfelt, B., & Sköldberg, E. (2014). Towards Interlingual Constructicography. On correspondence between construction resources for English and Swedish. *Constructions and Frames*, 6(1), 9–32. doi:10.1075/cf.6.1.02bak
- Barðdal, J. (2004). The semantics of the impersonal construction in Icelandic, German and Faroese: Beyond thematic roles. In W. Abraham (Ed.), *Focus on Germanic Typology* (pp. 101–130). Berlin: Akademie Verlag.
- Boas, F. (1911). Introduction. *Handbook of American Indian languages*, Vol. 1 (pp. 5–83). Washington: Government Print Office.
- Boas, H. C. (2002). Bilingual FrameNet Dictionaries for Machine Translation. In *Proceedings of the Third International Conference on Language Resources and Evaluation* (pp. 1364–1371). Las Palmas, Spain: European Language Resources Association.
- Boas, H. C. (2005). Semantic Frames as Interlingual Representations for Multilingual Lexical Databases. *International Journal of Lexicography*, 18(4), 445–478. doi:10.1093/ijl/ecio43
- Boas, H. C. (2008). Determining the structure of lexical entries and grammatical constructions in Construction Grammar. *Annual Review of Cognitive Linguistics*, 6, 113–144. doi:10.1075/arcl.6.06boa
- Boas, H. C. (Ed.) (2009). *Multilingual FrameNets in Computational Lexicography: Methods and Applications*. Berlin/New York: Mouton de Gruyter. doi:10.1515/9783110212976
- Boas, H. C. (2010a). Comparing constructions across languages. In H. C. Boas (Ed.), *Contrastive Studies in Construction Grammar* (pp. 1–20). Amsterdam/Philadelphia: John Benjamins. doi:10.1075/cal.10.02boa
- Boas, H. C. (Ed.) (2010b). *Contrastive Studies in Construction Grammar*. Amsterdam/Philadelphia: John Benjamins. doi:10.1075/cal.10
- Boas, H. C., & Dux, R. (2013). Semantic frames for foreign-language education: Towards a German frame-based dictionary. *Veredas*, 17(1), 81–100.
- Burchardt, A., Erk, K., Frank, A., Kowalski, A., Padó, S., & M. Pinkal, M. (2006). The SALSA Corpus: a German corpus resource for lexical semantics. *Proceedings of the LREC 2006*. Genoa, Italy: European Language Resources Association.

- Croft, W. (2001). *Radical Construction Grammar. Syntactic theory in typological perspective*. Oxford/New York: Oxford University Press. doi:10.1093/acprof:oso/9780198299554.001.0001
- Dooley, S. (2014). The Swedish Comparative Correlative Construction: *Ju ... Desto ...* and Variations. In *Constructions* (special issue on Swedish constructions, Ed. by B. Lyngfelt & C. Wide). Available online at <<http://constructions-journal.com/>>
- Farø, K (2004). Hvornår går man over åen efter vand? Idiomatiske ækvivalensproblemer i leksikografi og leksikologi. Med dansk og tysk som eksempel ['When do you cross the river for water? Issues of idiomatcity and equivalence in lexicography and lexicology. The example of Danish and German']. *LexicoNordica*, 11, 85–108.
- Fellbaum, C. (1998). *WordNet: an electronic lexical database*. Cambridge, Mass.: MIT Press.
- Fillmore, C. J. (1999). Inversion and Constructional Inheritance. In G. Webelhuth, J. P. Koenig & A. Kathol. *Lexical and Constructional Aspects of Linguistic Explanation* (pp. 113–128). Stanford: CSLI.
- Fillmore, C. J. (2008). Border Conflicts: FrameNet Meets Construction Grammar. In E. Bernal & J. DeCesaris (Eds.), *Proceedings of the XIII EURALEX International Congress* (pp. 49–68). Barcelona: Universitat Pompeu Fabra.
- Fillmore, C. J. (2013). Berkeley Construction Grammar. In Th. Hoffmann & G. Trousdale (Eds.), *The Oxford Handbook of Construction Grammar* (pp. 111–132). Oxford/New York: Oxford University Press.
- Fillmore, C. J., & Baker, C. (2010). A Frames Approach to Semantic Analysis. In B. Heine & H. Narrog (Eds.), *Oxford Handbook of Linguistic Analysis*. Oxford: Oxford University Press.
- Fillmore, C. J., Johnson, C. R., & Petruck, M. R. L. (2003). Background to FrameNet. *International Journal of Lexicography*, 16(3), 235–250. doi:10.1093/ijl/16.3.235
- Fillmore, C. J., Petruck, M. R. L., Ruppenhofer, J., & Wright, A. (2003). FrameNet in action: the case of attaching. *International Journal of Lexicography*, 16(3), 297–332. doi:10.1093/ijl/16.3.297
- Fillmore, C. J., Lee-Goldman, R., & Rhomeux, R (2012). The FrameNet Constructicon. In H. C. Boas & I. A. Sag (Eds.), *Sign-Based Construction Grammar* (pp. 309–372). Stanford: CSLI Publications.
- Fischer, O., van Kemenade, A., Koopman, W., & van der Wurff, W. (2000). *The Syntax of Early English*. Cambridge/New York: Cambridge University Press.
- FrameNet. <<https://framenet.icsi.berkeley.edu/fndrupal/>>
- Fried, M. (2006). Agent back-grounding as a functional domain: reflexivization and passivization in Czech and Russian. In B. Lyngfelt & T. Solstad (Eds.), *Demoting the Agent: passive, middle, and other voice phenomena* (pp. 83–109). Amsterdam/Philadelphia: John Benjamins. doi:10.1075/la.96.06fri
- Fried, M., & Östman, J.-O. (Eds.) (2004). *Construction Grammar in a cross-language perspective*. Amsterdam/Philadelphia: John Benjamins. doi:10.1075/cal.2
- Goldberg, A. E. (2013). Constructionist approaches. In Th. Hoffmann & G. Trousdale (Eds.), *The Oxford Handbook of Construction Grammar* (pp. 15–31). Oxford/New York: Oxford University Press.
- Hanks, P. (2000). Do word meanings exist? *Computers and the Humanities*, 34, 205–215. doi:10.1023/A:1002471322828
- Hannesdóttir, A. H. (2015). What is a target language in an electronic dictionary? In I. Kosem, M. Jakubiček, J. Kallas & S. Krek (Eds.), *Electronic lexicography in the 21st century: linking lexical data in the digital age*. Proceedings of the eLex 2015 conference, 11–13 August 2015,

- United Kingdom. Ljubljana/Brighton: Trojina, Institute for Applied Slovene Studies/Lexical Computing Ltd. <https://elex.link/elex2015/proceedings/eLex_2015_15_Hannesdottir.pdf>
- Hasegawa, Y., Lee-Goldman, R., & Fillmore, C. J. (2014). On the universality of frames: Evidence from English-to-Japanese translations. *Constructions and Frames*, 6(2), 170–201. doi:10.1075/cf.6.2.03has
- Haspelmath, M. (2007). Pre-established categories don't exist: Consequences for language description and typology. *Linguistic Typology*, 11(1), 119–132. doi:10.1515/LINGTY.2007.011
- Herbst, Th., Heath, D., Roe, I. F., & Götz, D. (2004). *A Valence Dictionary of English*. Berlin: de Gruyter Mouton. doi:10.1515/9783110892581
- Hilpert, M. (2008). *Germanic future constructions*. Amsterdam/Philadelphia: John Benjamins. doi:10.1075/cal.7
- Hilpert, M., & Östman, J. -O. (Eds.) (2014). Reflections on Constructions across Grammars. Special issue of *Constructions and Frames*, 6(2). doi:10.1075/cf.6.2.01int
- Höder, S. (2012). Multilingual constructions: A diasystematic approach to common structures. In K. Braunmüller & Ch. Gabriel (Eds.), *Multilingual individuals and multilingual societies* (pp. 241–257). Amsterdam/Philadelphia: John Benjamins. doi:10.1075/hsm.13.17hod
- Höder, S. (2014). Phonological elements and Diasystematic Construction Grammar. *Constructions and Frames*, 6(2), 202–231. doi:10.1075/cf.6.2.04hod
- Kilgarriff, A. (1997). I don't believe in word senses. *Computers and the Humanities*, 31(2), 91–113. doi:10.1023/A:1000583911091
- Koller, W. (2011). *Einführung in die Übersetzungswissenschaft*. 8., neuarbeitete Auflage. Unter Mitarbeit von Kjetil Berg Henjum. Tübingen & Basel: A Francke Verlag.
- Kromann, H. -P., Riiber, Th., & Rosbach, P. (1991). Principles of Bilingual Lexicography. In H. Steger & H. E. Wiegand (Eds.), *Wörterbücher/Dictionaries/Dictionnaires. Ein internationales Handbuch zur Lexikographie*, 1989–91 (Handbücher zur Sprach- und Kommunikationswissenschaft), Band 5.1–3 (pp. 2711–2728). Berlin & New York: Walter de Gruyter.
- Kuzar, R. (2012). *Sentence Patterns in English and Hebrew*. Amsterdam/Philadelphia: John Benjamins. doi:10.1075/cal.12
- Lakoff, G. (1987). *Women, Fire, and Dangerous Things: What categories reveal about the mind*. Chicago: University of Chicago Press. doi:10.7208/chicago/9780226471013.001.0001
- Laviola, A. B. (2015). *Frames e Construções em Contraste: uma análise comparativa português-inglês no tangente à implementação de constructions* [Frames and Constructions in Contrast: a Portuguese-English comparative analysis in regards to the implementation of constructions]. MA Thesis, Federal University of Juiz de Fora.
- Lehmann, Ch. (1982). Directions for interlinear morphemic translations. *Folia Linguistica*, 16, 199–224. doi:10.1515/flin.1982.16.1-4.199
- Lew, R. (2013). Identifying, Ordering and Defining Senses. *The Bloomsbury Companion to Lexicography* (pp. 284–302). London, New Delhi, New York, Sydney: Bloomsbury.
- Lönneker-Rodman, B. (2007). *Multilinguality and FrameNet*. Technical Report. Berkeley: International Computer Science Institute.
- L'Homme, M. -C. (2014). Why Lexical Semantics Is Important for E-Lexicography and Why It Is Equally Important to Hide Its Formal Representations from Users of Dictionaries. *International Journal of Lexicography*, 27(4), 360–377. doi:10.1093/ijl/ecu019

- Ohara, K. H., Fujii, S., Ohori, T., Suzuki, R., Saito, H., & Ishizaki, S. (2004). The Japanese FrameNet Project: An Introduction. *Proceedings of the LREC 2004 Satellite Workshop: Building Lexical Resources from Semantically Annotated Corpora*. Lisbon, Portugal.
- Peron-Corrêa, S. R., Diniz da Costa, A., Lara, M. S., Matos, E. E. S., & Torrent, T. T. (2016). FrameNet-Based Automatic Suggestion of Translation Equivalents. In J. Silva, R. Ribeiro, P. Quaresma, A. Adami & A. Branco (Eds.), *Computational Processing of the Portuguese Language* (pp. 347–352). Berlin: Springer.
- Ralph, B. (1975). On the Nature of Preposition Deletion in Swedish. In K. -H. Dahlstedt (Ed.), *The Nordic Languages and Modern Linguistics 2*. *Proceedings of the Second International Conference of Nordic and General Linguistics*. University of Umeå, June 14–19, 1973 (pp. 666–684). Stockholm.
- Ruppenhofer, J., Ellsworth, M., Petruck, M. R. L., Johnson, C. R., & Scheffczyk, J. (2016). *FrameNet II: extended theory and practice*. Berkeley: ICSI. <<https://framenet2.icsi.berkeley.edu/docs/r1.7/book.pdf>>.
- Sato, H. (2008). New Functions of FrameSQL for Multilingual FrameNets. In *Proceedings of the Sixth International Language Resources and Evaluation Conference* (pp. 758–762). Marrakech, Morocco: European Language Resources Association.
- Schmidt, T. (2009). The Kicktionary – A Multilingual Lexical Resource of Football Language. In H. C. Boas (Ed.), *Multilingual FrameNets in Computational Lexicography* (pp. 101–134). Berlin: Mouton de Gruyter.
- Snell-Hornby, M. (1986). The Bilingual Dictionary – Victim of its own tradition? In R. R. K. Hartmann (Ed.), *The history of lexicography. Papers from the dictionary research seminar at Exeter, March 1986* (pp. 207–218). Amsterdam/Philadelphia: John Benjamins.
- Subirats, C., & Petruck, M. R. L. (2003). Surprise: Spanish FrameNet! In *Proceedings of the 17th International Conference of Linguists*. Prague, Czech Republic.
- Svensén, B. (2009). *A Handbook of Lexicography. The Theory and Practice of Dictionary-Making*. Cambridge & New York: Cambridge University Press.
- Torrent, T. T., & Ellsworth, M. (2013). Behind the labels: criteria for defining analytical categories in FrameNet Brasil. *Veredas*, 17(1), 44–65.
- Torrent, T. T., Lage, L. M., Sampaio, T. F., Tavares, T. S., & Matos, E. E. S. (2014). Revisiting border conflicts between FrameNet and Construction Grammar: annotation policies for the Brazilian Portuguese Constructicon. *Constructions and Frames*, 6(1), 34–51. doi:10.1075/cf.6.1.03tor
- Torrent, T. T., Salomão, M. M. M., Campos, F. C. A., Braga, R. M. M., Matos, E. E. S., Gamonal, M. A., Gonçalves, J., Souza, B. P., Gomes, D. S., & Peron-Corrêa, S. R. (2014). Copa 2014 FrameNet Brasil: a frame-based trilingual electronic dictionary for the Football World Cup. In: *Proceedings of COLING 2014, The 25th International Conference on Computational Linguistics: System Demonstrations* (pp. 10–14). Dublin, Ireland: ACL.
- Vossen, P. (1998). Introduction to EuroWordNet. *Computers and the Humanities*, 32 (2–3), 73–89 doi:10.1023/A:1001175424222
- Wassenscheidt, Ph. (2014). Constructions do not cross languages: On cross-linguistic generalizations of constructions. *Constructions and Frames*, 6(2), 305–337. doi:10.1075/cf.6.2.07was
- Zgusta, L. (1971). *Manual of Lexicography*. Janua Linguarum. Series maior. 39. Prague: Academia; The Hague & Paris: Mouton. doi:10.1515/9783111349183

Appendix. Summary of the contrastive analyses²⁴

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
absolute_clause	Pt-Br	1	1	1	–	3
	Swe	1	1	0	0	2
	Pt-Br: Similar Swe: Functional equivalence on the present level of abstraction, less so regarding subtypes. Formally, less hospitable to gerunds (among other differences)					
adjective_as_nominal. abstract	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0.5	2.5
	Pt-Br: Agreement in gender and number Swe: Agreement in gender (neuter) and definiteness (definite)					
adjective_as_nominal. anaphoric	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0.5	2.5
	Pt-Br: Agreement in gender and number Swe: Agreement in gender, number and definiteness (definite)					
adjective_as_nominal. people	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0.5	2.5
	Pt-Br: Agreement in gender and number Swe: Agreement in number (plural) and definiteness (definite)					
as.role	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0.5	2.5
	Pt-Br: A temporal conjunction can also be used instead of the correlative conjunction Swe: Typically no definite article, characteristic of predicative uses in general					
attributive_degree_ modification	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: Article may be definite or indefinite. Different CE order. Swe: No article (nor preposition) between the adjective phrase and the nominal head					
be_present-participle	Pt-Br	1	1	1	–	3
	Swe	0	–	–	–	0
	Pt-Br: Similar Swe: No general cxn marking progressive aspect					

24. For full accounts of the English construction entries, see <<http://www1.icsi.berkeley.edu/~hsato/cxn00/21colorTag/index.html>>.

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
be_recip	Pt-Br	1	0	0	0.5	1.5
	Swe	1	0	1	–	2
	Pt-Br: Only symmetrical valence is possible. Asymmetrical valence does not entail reciprocity. Swe: Target cxn covers only the symmetric variant					
comparison	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0.5	2.5
	Pt-Br: Comparison operator generally involves an adverb before the first conjunct and a <i>wh</i> -word before the second Swe: Agreement in gender and number					
comparison_equality	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0.5	2.5
	Pt-Br: Comparison operator involves the intensifier <i>tanto/tao</i> ‘so’ before the first conjunct and <i>quanto</i> ‘how much’ before the second Swe: Agreement in gender and number					
comparison_equality_ metalinguistic	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: Comparison operator involves the intensifier <i>tanto/tão</i> ‘so’ before the first conjunct and <i>quanto</i> ‘how much’ before the second Swe: Two word order variants with partially different lexical marking					
comparison_inequality	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0.5	2.5
	Pt-Br: Comparison operator involves the intensifiers <i>mais</i> ‘more’ or <i>menos</i> ‘less’ before the first conjunct and <i>(do) que</i> ‘(of) that’ before the second Swe: Gender and number agreement in the periphrastic variant					
coordination	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar Swe: Basically similar (although tends to be more hospitable to ellipsis; cf. <i>gapping</i>)					
degree_modification	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0.5	2.5
	Pt-Br: Different morphologic and syntactic strategies in all types of degree modification Swe: Number and gender agreement in most variants					

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
degree_so	Pt-Br:	1	1	0	0.5	2.5
	Swe:	1	1	0	0.5	2.5
	Pt-Br: Agreement in number and gender					
	Swe: Agreement in number and gender; complementizer obligatory					
deictic_dayname_inverted	Pt-Br	1	1	0	0.5	2.5
	Swe	1	0	0	0	1
	Pt-Br: Agreement in number and gender					
	Swe: Mostly lacking this pattern, instead relying on general use of the non-inverted counterpart; also, no preposition preceding the noun phrase					
determined_noun_phrase	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: Agreement in gender and number (salient property of this cxn; hence the score of 2, not 2.5 as in the cxns inheriting from this one)					
	Swe: Agreement in gender, number, and definiteness (salient property of this cxn; hence the score of 2, not 2.5 as in the cxns inheriting from this one)					
determined_proper_name	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0.5	2.5
	Pt-Br: Agreement in number and gender					
	Swe: Agreement in number and definiteness					
dimension_conjunction	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	1	–	3
	Pt-Br: Dimension expressed by a PP, not an AP, which is a general property of this type of modifier, hence the 0.5					
	Swe: Only lexical difference, but different part of speech (<i>gänger</i> ‘times’ instead on Eng. <i>by</i>)					
exocentric_adjectival_compound	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0.5	2.5
	Pt-Br: Uses PP modification instead of a compound					
	Swe: Agreement in gender, number and definiteness					
gapping	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar					
	Swe: Similar, except for distributional differences (less restricted in Swe)					

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
have_with	Pt-Br	1	1	1	–	3
	Swe	1	1	0	0	2
	Pt-Br: Essentially similar, except that the preposition <i>com</i> ‘with’ may be cliticized to the pronoun Swe: A reflexive in the complement of <i>med</i> ‘with’					
infinitival_relative_ modal	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Basically similar, except for known distributional differences Swe: Basically similar, probably distributional differences					
integrated_appositive	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar Swe: Similar					
inversion_with_ preposed_element	Pt-Br	1	0	0	0	1
	Swe	1	0	1	–	2
	Pt-Br: Functional restriction limiting the adverb to ‘so’. Formal difference because there is no auxiliary inversion Swe: Different functional restrictions; also less of a rhetorical effect due to this word order being less marked					
let_alone	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	1	–	3
	Pt-Br: Conjunction must include complementizer, as is generally the case for conjunctions in BP Swe: Similar, except for lexical and distributional differences					
location_in_calendar_ subunit	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0	2
	Pt-Br: Agreement in gender and number Swe: Normally definite expressions for past dates and indefinite for future ones (both this cxn and <i>location_in_calendar_unit</i> are covered by the same cxn in SweCcn)					
location_in_calendar_ unit	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0	2
	Pt-Br: Agreement in gender and number Swe: Normally definite expressions for past dates and indefinite for future ones (both this cxn and <i>location_in_calendar_subunit</i> are covered by the same cxn in SweCcn)					

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
measurement_plus_ adjective	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0.5	2.5
	Pt-Br: BP uses only measurement_plus_PP					
	Swe: Agreement in gender, number and definiteness					
measurement_plus_ prepositional_phrase	Pt-Br	1	1	1	–	3
	Swe	1	0	0	0	1
	Pt-Br: Similar					
	Swe: Not used with age expressions; complement of preposition is definite					
noun-noun_compound	Pt-Br	1	1	1	–	3
	Swe	1	1	0	0	2
	Pt-Br: Similar					
	Swe: Commonly occurring with a linking morpheme					
ones_very_eyes	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0	2
	Pt-Br: Agreement in gender and number					
	Swe: Different idiom with a similar function					
open_interrogative. non-subject	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: No inversion					
	Swe: Inversion not restricted to auxiliaries (hence, no <i>do</i> -support)					
own_right	Pt-Br	1	1	0	0	2
	Swe	1	0	0	0	1
	Pt-Br: Different idiom					
	Swe: Related idioms with overlapping function but different restrictions					
postpositive_adjective	Pt-Br	1	0	1	–	2
	Swe	1	1	0	0	2
	Pt-Br: Postposed adjectives are the standard in BP, not a marked expression					
	Swe: Different formal and distributional restrictions, but no obvious functional differences					
proper_name_ embellishments	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0	2
	Pt-Br: Agreement in gender and number					
	Swe: Embellishments usually definite (except for certain titles)					

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
rate.cost_time	Pt-Br	1	1	1	–	3
	Swe	1	1	0	0	2
	Pt-Br: Similar Swe: Two different cxns, definite denominator in the most common version (same two cxns also corresponding to rate.frequency and rate.speed)					
rate.frequency	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: Only prepositional variant Swe: Two different cxns, definite denominator in the most common version (same two cxns also corresponding to rate.cost_time and rate.speed)					
rate.mileage	Pt-Br	1	1	0	0	2
	Swe	0	–	–	–	0
	Pt-Br: Only prepositional variant Swe: Structurally most similar correspondent takes opposite perspective; same perspective requires paraphrase					
rate.speed	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: Only prepositional variant Swe: Two different cxns, definite denominator in the most common version (same two cxns also corresponding to rate.cost_time and rate.frequency)					
rather_than_coordination	Pt-Br	1	1	0	0	2
	Swe	1	1	1	–	3
	Pt-Br: Different POS in the coordination structure Swe: Two lexical variants with slightly different meanings, both consistent with the general function of the English source cxn					
shared_Completion	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar Swe: Similar					
stripping	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar Swe: Similar					

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
subject_auxiliary_ inversion. closed_interrogative	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: No inversion					
	Swe: Inversion not restricted to auxiliaries (hence, no <i>do</i> -support)					
subject_auxiliary_ inversion. conditional	Pt-Br	1	1	0	0	2
	Swe	1	1	1	–	3
	Pt-Br: No inversion					
	Swe: Inversion not restricted to auxiliaries (hence, no <i>do</i> -support)					
subject_auxiliary_ inversion. emphatic_negative_ imperative	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: No auxiliary (yet, VS word order)					
	Swe: No <i>do</i> -support (yet, VS word order)					
subject_auxiliary_ inversion. exclamation	Pt-Br	0	–	–	–	0
	Swe	0	–	–	–	0
	Pt-Br: No inversion					
	Swe: Inversion not restricted to auxiliaries (hence, no <i>do</i> -support)					
subject_auxiliary_ inversion	Pt-Br	0	–	–	–	0
	Swe	1	0	0	0	1
	Pt-Br: No subject auxiliary inversion					
	Swe: Functional differences due to general V2 (verb second); formally, not restricted to auxiliaries (hence, no <i>do</i> -support)					
subject_auxiliary_ inversion. optative	Pt-Br	1	1	0	0	2
	Swe	1	1	1	–	3
	Pt-Br: No inversion					
	Swe: Despite general differences between inversion patterns in Eng and Swe, this particular cxn actually similar (except for distributional differences)					
superlative	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0.5	2.5
	Pt-Br: Different N-Adj word order, derived from more general AdjP cxn					
	Swe: Definite marking on adjective and noun, agreement in gender and number on the determiner					
supplement_ascriptional	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar					
	Swe: Similar					

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
supplement_ specificational	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar					
	Swe: Similar					
tagged_sentence. canonical	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0	2
	Pt-Br: Usually does not express the subject, nor inverts its position with that of the auxiliary. Both distinctions, however, follow from more general cxns.					
	Swe: Employs fixed phrase (<i>eller hur?</i>) instead of pronominal question					
tagged_sentence	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0	2
	Pt-Br: Usually does not express the subject, nor inverts its position with that of the auxiliary. Both distinctions, however, follow from more general cxns.					
	Swe: Employs fixed phrase (<i>eller hur?</i>) instead of pronominal question					
tagged_sentence_ subjectless	Pt-Br	1	1	0	0.5	2.5
	Swe	0	–	–	–	0
	Pt-Br: Usually does not express the subject, nor inverts its position with that of the auxiliary. Both distinctions, however, follow from more general cxns.					
	Swe: Tagged sentences not used in this way; no directly corresponding cxn					
tautology.deep_tautology	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar					
	Swe: Similar					
tautology.nominal	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar					
	Swe: Similar					
tautology.nostalgia	Pt-Br	1	1	1	–	3
	Swe	1	1	1	–	3
	Pt-Br: Similar					
	Swe: Similar					

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
there.presentational	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: Subjectless <i>haver</i> 'exist' or <i>ter</i> 'have' used instead of <i>there</i> 'to be' Swe: Less restricted than the English source cxn (does not count as a functional difference from a unidirectional Eng > Swe perspective); employs expletive <i>det</i> 'it' rather than <i>där</i> 'there'.					
there_be_a_time_when	Pt-Br	1	1	0	0	2
	Swe	1	1	0	0	2
	Pt-Br: Subjectless <i>haver</i> 'exist' or <i>ter</i> 'have' used instead of <i>there</i> 'to be' Swe: Different kind of expletive (<i>det</i> 'it'); different verbs (also different way of expressing future, which is, however, an external difference)					
uniqueness	Pt-Br	1	1	0	0.5	2.5
	Swe	1	1	0	0	2
	Pt-Br: Agreement in gender and number Swe: Finite relative clause instead of infinitival relative (also definiteness marking and agreement)					
way_manner	Pt-Br	0	–	–	–	0
	Swe	1	0	0	0	1
	Pt-Br: Two argument structure cxns needed to express this function Swe: Formally closest variant (reflexive without <i>way</i>) more restricted; there's also an alternative pattern with a particle cxn					
way_means	Pt-Br	0	–	–	–	0
	Swe	1	1	0	0	2
	Pt-Br: Two argument structure cxns needed to express this function Swe: Reflexive cxn without <i>way</i>					
way_neutral	Pt-Br	0	–	–	–	0
	Swe	1	1	0	0	2
	Pt-Br: Two argument structure cxns needed to express this function Swe: Reflexive cxn without <i>way</i>					
what-with_absolute	Pt-Br	1	0	0	0	1
	Swe	1	0	0	0	1
	Pt-Br: Cxn lacking, covered by general <i>with_absolute</i> cxn Swe: Cxn lacking, covered by general <i>with_absolute</i> cxn					

Source lang. English	Target lang.	Criteria				
		Correspon- dence	Functional equivalence	Formal similarity	All differences external	Total score
with_absolute	Pt-Br	1	1	1	–	3
	Swe	1	1	0	0	2
	Pt-Br: Similar Swe: When complement of <i>med</i> ‘with’ is associated with a contextually salient referent, which is commonly the case, it is marked by only a definite article, or sometimes a possessive reflexive, instead of an ordinary possessive pronoun (as in e.g. English)					