FROM CRYSTAL-CLEAR TO LIMPIDE: TRANSLATING ENGLISH [NOUN+ADJ] COMPOUND ADJECTIVES WITH A FIGURATIVE-INTENSIFYING NOUN INTO FRENCH

Thomas Prinzie, Ferran Suñer, and Kristel Van Goethem
Université catholique de Louvain (UCLouvain), Belgium.

Abstract
English [Noun+Adj] compound adjectives containing an intensifying metaphor (e.g. *crystal-clear)* pose particular challenges for French translation, due in part to the absence of a direct equivalent construction. Our study examines morphosyntactic and conceptual-semantic translation procedures that capture how these challenges are resolved. We also explore the little-investigated aspect of translation variation (the number of different solutions for each item). We analyze the potential effects of two factors: the presence or absence of figurative intensification and the items' frequency of use in English. Our results indicate that translators prefer different morphosyntactic procedures for different compound subtypes. Overall, an adjective constituent is most frequently retained, although complete reformulations with a noun or verb also occur. Semantically, the intensifying meaning is often rendered non-figuratively, depending on what is available in idiomatic French usage. Intensification is also frequently dropped. Translation variation is remarkably high, due in part to extensive use of near-synonyms. High-frequency items do not appear to converge on a smaller number of translations, but instead provide more opportunities for diversification.

Keywords: Compound adjectives; intensification; translation procedures; translation variation; English - French.

1. Introduction

This study examines the French translation of English [Noun+Adj] compound adjectives where the noun metaphorically intensifies the adjective (e.g., *crystal-clear*, *razor-sharp*). These study objects combine three features that are of theoretical and practical interest. First, their compact information packing does not have a direct morphological counterpart in French, which may thus require a syntactic paraphrase. Second, the intensifying function (indicating the high degree of a quality) can be expressed using a wide range of forms, with different cross-linguistic preferences. Third, the presence of figurative language is known to be inherently problematic for even experienced translators (see below).

We perform a corpus-driven exploration of how French translators deal with these formal and functional challenges. Specifically, we describe and analyze translation solutions from three parallel corpora by coding separate

morphosyntactic and conceptual-semantic translation procedures.[1] Furthermore, we analyze the little-investigated aspect of translation variation, i.e. the number of different solutions observed for each item.

As it happens, the [Noun+Adj] class of compounds also contains other semantic subtypes without figurative or intensifying elements (e.g. *olive-green*, *nation-wide*, and *cost-effective*), and its members occur at a wide range of frequencies. Selecting additional items from this class thus provides an opportunity to explore the potential effects of the presence or absence of figurative intensification and of the individual items' frequency of use.

Section 2 describes our study objects and possible equivalent constructions in French, provides a brief overview of intensification and metaphor as factors that affect translation, and summarizes the research questions that guide our exploration. Section 3 presents methodologies for extraction and annotation of corpus data and proposes a targeted two-dimensional taxonomy of translation procedures. Section 4 presents and discusses the results. Qualitative and quantitative characterizations are followed by statistical analyses of potential factors. Section 5 discusses conclusions and some practical applications, as well as limitations of this research and suggestions for future research.

2. Overview of the literature

2.1 Study objects and corresponding French constructions

2.11 English [Noun+Adj] compound adjectives

English compound adjectives are very diverse in terms of word-class composition (Bauer, 1983). Given our interest in intensification and figurative language, we focus on the group constructed as [Noun+Adj]. Four semantic subtypes can be distinguished depending on the role of the noun (Huddleston and Pullum, 2002, p. 1656; Pierini, 2015):

Figurative-intensifying (e.g. *razor-sharp*): the noun is a metaphor that provides a standard of comparison for a high degree of the adjective quality. The comparison can be paraphrased syntactically as "(as) [Adj] as (a) [Noun]" (e.g. *sharp as a razor*).

Color-specifying (e.g. *ruby-red*): the noun specifies the shade of a color; there is a comparison but no intensification. Due to low numbers and frequencies, this subtype is not included in the study.

[1] The term "procedure" is used in the English translation of Vinay and Darbelnet (1995). Other authors use "technique" (Molina and Hurtado Albir, 2002) or "solution type" (Pym, 2016). The term "strategy" is best reserved for a translator's global approach, while "procedure" applies to local decisions regarding particular translation units (Delisle et al., 1999; Bardaji, 2009).

Spatio-temporal (e.g. *nation-wide, week-long*): the noun specifies an extent in space or time; the meaning can be paraphrased as "extending as far as (or throughout) a [Noun]".

Subordinative: the noun functions as an argument of the adjective, rather than for comparison or specification. A variety of semantic relationships is expressed by different prepositions in paraphrases (e.g. *site-specific ~ specific to a site, water-soluble ~ soluble in water, burglar-proof ~* 'providing protection' *against burglars*).

The distinct semantic nature of these subtypes provides an opportunity to explore their potential effect on translation choices.

2.1.2 Corresponding French constructions

Like other types of word-formation, compounds remain underrepresented in both contrastive and translation studies (Lefer and Grabar, 2015; Paillard, 2011). The available literature mainly concerns noun compounds, for which typological contrasts in synthetic and analytical tendencies have been extensively documented between Germanic and Romance languages (Arnaud and Renner, 2014; Van Goethem and Amiot, 2019). In English, [Noun+Noun] compounds are frequent, productive, and right-headed. French compounds differ in two important aspects: they are generally left-headed, and their demarcation from syntactic constructions is not as clear-cut (Van Goethem, 2009; Van Goethem and Amiot, 2019).

'True' [Noun+Noun] compounds are rare in French (Fradin, 2009), although Paillard (2011, p. 918) notes a contemporary trend (e.g. *coin cuisine* "kitchenette", *compte épargne* "savings account"). More frequently, French uses [Noun+Prep+Noun] constructions (e.g. *sac à main* "handbag"), [Noun+Adj] (*conseil municipal* "city council"), or derivational suffixation (*théière* "teapot"; Paillard, 2011; Arnaud and Renner, 2014). The status of the [Noun+Prep+Noun] constructions remains a matter of debate. Some authors argue that items that can be formed by syntax should not be considered compounds (Corbin, 1992; Villoing, 2012). Van Goethem (2009) contrasts this restrictive view with a more common one that encompasses all kinds of lexicalized multiword constructions, regardless of the formation process (cf. Paillard, 2011; Van Goethem and Amiot, 2019).

Cross-linguistic research on compound adjectives is quite rare. Pierini's (2015) English-Italian translation study provides a useful overview and interesting insights, but is based on exemplars from a single novel. For French, Villoing's (2012) survey only includes coordinated [Adj+Adj] constructions (e.g. *aigre-doux*) and an [Adj+Noun] form restricted to color names (e.g. *vert bouteille* 'bottle green'). Hendrikx (2019, p. 88) mentions *ivre-mort* ('dead drunk') as a rare example of an intensifying [Adj+Adj] compound. In the near-absence of a direct equivalent, and by analogy with the situation for noun compounds, French probably makes frequent use of [Adj+Prep+Noun] prepositional paraphrasing, but that remains to be confirmed.

2.2 Aspects of translation

2.2.1 On the platform for cross-linguistic comparison

The debate mentioned above concerning the compound status of certain French constructions raises a larger point: Regardless of terminology, there is no reason to expect different languages to use exactly parallel formal means. When English compounds are frequently translated as French prepositional constructions, it is these very translation equivalences that comprise a platform for cross-linguistic comparison or *tertium comparationis* (Altenberg and Granger, 2002). Similarly, Haspelmath has argued that cross-linguistic comparison should rely more on conceptual-semantic concepts than on structural linguistic categories (2010, p. 665, 669), in part because preferred forms in one language may not have exact equivalents in another (cf. Gast, 2012). Hence, the conceptual focus of our study is on the semantically uniform function of intensification, regardless of form. In our exploration of how this function is conveyed in French, we take all formal options for cross-linguistic correspondence into account.

2.2.2 Morphosyntactic and conceptual-semantic aspects of translation

The English compound adjectives selected for this study pose several potential morphosyntactic and semantic challenges for translation in French.

First, their bare juxtaposition of noun and adjective represents a compact and efficient way of 'packing' an implied semantic relationship, which explains their frequent use in English academic writing and news reporting (Adams, 2001, p. 98). Few translation studies have specifically addressed how cross-linguistic morphosyntactic differences affect translation. For the case of [Noun+Noun] compounds, recent studies by De Metsenaere et al. (2016) and Berg (2017) address this effect for German-Dutch and English-German translation, respectively.

There has been even less translation research with regard to compound adjectives, and the most complete discussion, by Chuquet and Paillard (1987), does not specifically address them. Given the typological differences between Germanic and Romance languages (section 2.1.2.), the effect may be more pronounced here; it is instructive that Pierini (2015, p. 18) considers compound adjectives "a major translation problem" due to asymmetries between English and Italian.

Given the marginal presence of 'true' compounding in French, we expect that translators 'unpack' the information at least in part as [Adj+Prep+Noun] (e.g. *earthquake-prone* → *susceptible aux tremblements de terre*). If so, the implicit semantic relationship between constituents needs to be expressed more explicitly in French, which may pose an additional challenge. This aspect of explicitation has been a topic of interest in translation studies (Olohan and Baker, 2000; De

Sutter and Lefer, 2020), and the present study may demonstrate to what extent this occurs in the different subtypes.

Second, intensification (a type of evaluative language that indicates the high degree of a scalar quality; Grandi, 2017, p. 10; Quirk et al., 1985, p. 445) can be expressed using a wide range of formal means. For instance, to express the meaning of "very clear", English speakers have available, at least in some contexts: *very clear, abundantly clear, crystal-clear, clear as a bell, loud and clear, the clearest possible, clear-cut, palpable, evident, with utmost clarity*, and many others besides. These intensifying means (1) may be applied to adjectives as above, but also to nouns (e.g., *hyperinflation*), verbs (*overwork*), or adverbs (*exceptionally well*); (2) may be morphological (compounding or prefixation) or syntactic (adverbial modification, prepositional constructions); and (3) may or may not involve figurative language. The intensifying nouns in our study objects require translators to decide whether and how to convey intensification in French.

In spite of growing recognition that languages often differ significantly in their preferred ways to express intensification, most research to date reflects a narrow focus on morphology and/or on adjective intensification (Grandi, 2017; Rainer, 2015; Malloggi, 2017; Van der Wouden and Foolen, 2017). There have also been few cross-linguistic comparisons, although this gap has started to be addressed (Rainer, 2015; Napoli and Ravetto, 2017; Van der Wouden and Foolen, 2017). One important contribution to comparative intensification comes from Hendrikx's (2019) SLA study on the acquisition of English and Dutch intensifying constructions by French-speaking students (which coincidentally include several of the items examined here). This work reveals language-specific preferences that partly confirm a proposed typological cline of Dutch – English – French, from more morphological to more syntactic constructions, although it also finds that adverbial modification is the dominant strategy in these languages.

A third potential challenge concerns the metaphor noun. The role and prevalence of figurative language in intensification has received scant attention in the literature to date. Metaphors conceptually transfer an element of comparison from a source domain to a target domain and are now generally recognized as a ubiquitous element in human cognition and language (Lakoff and Johnson, 1980). Note that our study concerns not conceptual metaphors but their linguistic realizations, since translators only deal indirectly with the underlying conceptual mapping (Schäffner, 2017, p. 251).

Since translation also involves a transfer of meaning, translating metaphors involves the additional challenge of a "double act of transfer" (Shuttleworth, 2014, p. 53). Metaphors have long been thought to pose a problem for translation due to cross-linguistic and cultural differences (e.g. Pym, 2016; Kövecses, 2014). Translators must decide whether to preserve the element of "force and levity" of figurative language (Miller and Monti, 2014, p. ix) and may be constrained by what is idiomatic in the target language. Although this perception as problem is now less widely held (Miller and Monti, 2014; Schäffner, 2017), process-oriented research provides evidence for increased cognitive load when translating

linguistic metaphors, both in translation studies (Tirkkonen-Condit, 2002; Sjørup, 2011) and in SLA (De Cock and Suñer, 2018; Suñer, 2018).

Our interest in the present study is to understand the decisions (conscious or not) made by translators in dealing with these challenges. To this end, we develop a taxonomy of morphosyntactic and conceptual-semantic procedures to capture relevant aspects of their solutions (section 3.3.3.). We also sample compound adjectives from three of the subtypes to explore the effect of their distinct semantic nature on these translation procedures. We note that this study is inherently product-oriented and cannot provide direct evidence for underlying decision processes. Still, parallel corpus data provide indirect access, since they show how individual instances are handled (Schäffner, 2017; Lefer, 2020) and can be seen as "parts of the same reality, that is, of the operations performed by the translator while translating" (Bardaji, 2009, p. 162).

2.2.3 Translation variation

Apart from coding and analyzing the various procedures used by translators, another approach is to evaluate the variation between multiple translation solutions for a given item. Translation variation appears to be surprisingly under-investigated, with the exception of a recent study by Castagnoli (2020), which is based on a small number of translations and uses N-gram extraction instead of investigating specific items.

After quantifying the number and distribution of different solutions for each source item, we consider two factors that may have an effect. Given the exploratory nature of this study, we do not present formal hypotheses but venture some expectations. First, we reason that the figurative-intensifying compounds involve additional decisions regarding the treatment of intensification and figurative language, and we therefore expect more variation in their translations compared to the other subtypes. Second, compound adjectives that have a high frequency of use in English are more likely to be lexicalized, in the sense of being listed in the translators' mental lexicon (see Hohenhaus (2005) regarding the role of frequency in lexicalization). We argue that translators are therefore more likely to have access to a previous translation and converge on one or a few solutions; in other words, we expect high-frequency items to have a lower number of solutions.

2.3 Research questions

We examine how French translators deal with the formal and conceptual-semantic challenges presented by English [Noun+Adj] compounds with a figurative-intensifying noun, as well as from two other subtypes. We consider two aspects of these translations: (1) the morphosyntactic and conceptual-semantic procedures, which may reflect the challenges described in section 2.2.2., and (2) translation variation. These aspects are described qualitatively and analyzed as a

function of the presence or absence of a figurative-intensifying noun and of the items' frequency of use.

To summarize, our explorations are guided by the following research questions:

RQ 1: For a selection of English compound adjectives: (a) What is the relative application of different morphosyntactic procedures in French translations? (b) How does their distribution differ between the three subtypes?

RQ 2: For the figurative-intensifying compound adjectives: (a) What is the relative application of different conceptual-semantic procedures in French translations?

RQ 3: For a selection of English compound adjectives: (a) What is the variation (number and distribution) of translation solutions in French? (b) What is the effect of the presence or absence of a figurative-intensifying noun? (c) What is the effect of the items' frequency of use in English?

3. Methodology

After identifying and selecting English compound adjectives from the [Noun+Adj] class, we explored their French translations in three parallel corpora, coded the translation procedures and the variation of solutions, and analyzed these in terms of the factors discussed above.

3.1 Extraction and selection of compound adjectives

A list of compound adjectives was extracted from EnTenTen15, a large web-based English reference corpus (15.4 billion tokens; Jakubíček, 2013) using SketchEngine (Kilgariff et al., 2014). Compound adjectives in attributive position are often spelled with a hyphen (to avoid confusion: compare *a man eating shark* and *a man-eating shark*; Quirk et al., 1985: 1613), so we extracted a wordlist of all hyphenated items that are POS tagged as adjectives. Eighty of the 1,000 most frequent compounds were constructed as [Noun+Adj], with 48 subordinative and 30 spatio-temporal items, but only two figurative-intensifying ones (*brand-new* and *crystal-clear*). We were able to identify five additional figurative-intensifying compound adjectives by searching for corresponding simile expressions, using the search string "[Adj] + as (a) + [Noun]" (e.g. *sharp as a razor → razor-sharp*). Some low-frequency items (*rock-hard, bone-dry*) were excluded for lack of translations.

Table 1 lists the 12 selected study objects. For these items, we obtained counts of their non-hyphenated (open and closed) as well as hyphenated spellings and combined them to calculate relative frequencies per million words ('Freq PM'). Counts were manually checked for relevance; where necessary, they were prorated on the basis of a sample. For instance, the initial search on *nationwide* gave 235,699 hits, but 31 of 100 sampled concordances were adverbs (e.g., "*The*

industry was distributing its products nationwide"), so the estimated count of relevant closed spellings was reported as 235,699 x 0.69 = 162,632.

Table 1. [Noun+Adj] compound adjectives selected as study objects and their frequencies.

Item	Subtype	Open	Hyphen	Closed	Total Freq	Freq PM
brand-new	fig-intensifying	230137	35853	1068	267058	14.52
crystal-clear	fig-intensifying	15670	5789	20	21479	1.17
rock-solid	fig-intensifying	6428	5224	45	11697	0.64
ice-cold	fig-intensifying	4547	4537	62	9146	0.50
sky-high	fig-intensifying	2718	5962	117	8797	0.48
razor-sharp	fig-intensifying	3894	4513	68	8475	0.46
lightning-fast	fig-intensifying	1937	2355	3	4295	0.23
nation-wide	spatio-temporal	2994	19945	162632	185571	10.09
week-long	spatio-temporal	13809	44954	15666	74429	4.05
cost-effective	subordinative	47208	147715	630	195553	10.63
site-specific	subordinative	10161	35609	147	45917	2.50
water-soluble	subordinative	5240	8306	93	13639	0.74

The frequency of use varies widely. In order to permit comparison and evaluation of the effect of this variable, the items in the spatio-temporal and subordinative subtypes were selected from a range of frequencies. For instance, in the subordinative category, *cost-effective*, *site-specific*, and *water-soluble* represent the highest, middle and low end of frequencies in the wordlist.

3.2 Parallel corpus data

French translations of these 12 compound adjectives were obtained from three parallel corpora available in SketchEngine:

EUR-Lex: contains technical and legal documents on a wide range of subjects (629.72 million tokens; Baisa et al., 2016);

Europarl7: contains records of debates held at the European Parliament (53.83 m tokens; Koehn, 2005); and

OPUS2, subcorpus OpenSubtitles2011: contains film and television subtitles (815.78 m tokens; Tiedemann, 2012).

Combining data from these three corpora (and from three source spellings as above) made it possible to obtain sufficient translation instances for some low-frequency items. The distinct registers also permit an analysis of differential usage patterns (Lefer and Grabar, 2015), but that analysis is beyond the scope of this study. Misaligned and duplicate concordances were deleted.

In translation studies, the original source language and direction of translation are important factors to be considered. Unfortunately, the metadata in the present corpora are either missing or unreliable (speaker language in Europarl is identified as "none" in 49.5% or often listed differently in different columns). This is expected to be an acceptable limitation for translations from English, since the first two corpora use English as a pivot language and the great majority of sources in OpenSubtitles are in English.

For a few high-frequency items, more concordances were extracted than could reasonably be coded. Where the number exceeded 100 (separately for each spelling and each corpus), we obtained a random sample of 100 concordances before combining the data.

3.3 Coding the translations

3.3.1 Translation solutions

For each parallel concordance, we isolated the nearest translation equivalent of the source compound adjective from the target sentence. As discussed in section 2.2.1., these equivalents can be of any form, from a simple adjective to a highly modified clause. Cases where the translator did not express the source item in the target text were coded 'N'.

Individual instances often had minor differences in inflection or determiner which were not relevant for the present analysis, and these were lemmatized to masculine singular forms and combined into simplified translation 'solutions'; for instance, *spécifique(s) à ce site, à un site, aux sites* were all coded as the solution *spécifique au site*. Differences in the main constituents and prepositions (e.g. *lié au site, propre à l'installation*) were retained as separate solutions.

3.3.2 Translation variation

To present the variation in translation solutions, we counted the number of different solutions and of those that occur at least twice. We also calculated the proportion of translations represented by the dominant solution as a way to express the shape of their frequency distribution.

3.3.3 Morphosyntactic and conceptual-semantic translation procedures

When formulating equivalents between two languages, translators make many lexical, grammatical, and conceptual choices. We annotated the translation solutions by coding those morphosyntactic and conceptual-semantic procedures that may reflect the challenges discussed in section 2.2.2.

For the purpose of the study, we developed a novel two-dimensional coding scheme based on previous taxonomies of procedures (Vinay and Darbelnet, 1995; Chuquet and Paillard, 1987) by first exploring the range of French translations for *crystal-clear*, then refining the coding incrementally as additional solutions were identified in other items. The resulting classification is presented in Table 2, with brief descriptions and examples. The morphosyntactic dimension is presented in order of increasing modification. Since the source items have two constituents, two potential levels of transposition need to be considered separately. Vinay and Darbelnet (1995, p. 33) define 'literal' translation as a direct transfer into grammatically appropriate French; in the present case, this means expressing the English pre-modifying noun as a post-modifying prepositional phrase. In partial

transposition ('Ptrans'), the adjective head is retained, but the noun is transposed to an adverb or absent. In complete transposition ('Ctrans'), both constituents are changed, resulting in a completely modified syntactic construction. 'Omit' indicates that the source item has no identifiable equivalent in the target sentence.

For the conceptual-semantic dimension, we build on previous taxonomies proposed for the translation of linguistic metaphors. Simplifying from Newmark (1981), Schäffner (2017, p. 250) summarizes their treatments as (1) metaphor into same metaphor (direct translation); (2) substitution by a different metaphor in the target language; and (3) metaphor into sense (literal paraphrasing). We apply the same logic to procedures for translating intensification. We first consider whether intensification is retained, increased, or lost. When it is retained, the translator may use a figurative expression, using a figure that is similar to the source ('SimFig') or different ('DiffFig'). Alternatively, the intensifying function is expressed non-figuratively, using an explicit intensifier or other more stylistically marked solutions, including duplication, reversed polarity, and 'lexical' intensification. The latter is our term for marked lexical choices that "stand out as unusual" (Munday, 2016, p. 99); this often corresponds to Paradis's (2001, p. 52) 'extreme' adjectives, i.e. implicit superlatives that represent the bounded extreme of a scale and are thus less likely to be modified with a scalar degree adverb.

Table 2. Two-dimensional coding scheme of translation procedures (unless specified, translations are of *crystal-clear*).

Morphosyntactic procedures		
Parallel: [Noun + Adj]		*water-soluble → hydrosoluble*
'Literal': [Adj + Prep + Noun]		*crystal-clear → clair comme de l'eau de roche ; water-soluble → soluble dans l'eau*
'Ptrans': Partial Transposition: the [Adj] is retained, but the [Noun] constituent is transposed to an adverb or absent.		*parfaitement clair ; limpide*
'Ctrans': Complete Transposition: both constituents are modified; the compound's adjectival function is expressed with an adverb, prepositional phrase, noun, verb, or clause.		*clairement ; d' une clarté absolue ; préciser ; ne laisser rien au hasard*
Omit: the source item is not expressed in the target text.		
Conceptual-semantic procedures		
(figurative-intensifying items only)		
Intensification is retained, using:		
SimFig: A similar figurative image from the same source domain.		*cristallin ; clair comme du cristal*
DiffFig: a different figurative image from an unrelated source domain that expresses the same meaning.		*clair comme de l'eau de roche*
Explicit: an explicit non-figurative intensifier, such as an adverb or prepositional phrase.		*très clair ; établir avec certitude*
Lex: 'lexical' intensification, i.e. a marked word choice with implicitly intensified meaning.		*limpide (vs clair) ; insister (vs clarifier)*
Duplic: a duplication with two coordinated adjectives.		*clair et net*
Reverse: using polarity reversal.		*sans ambiguïté ; rock-solid → irréfutable*
'Incr': Intensification is increased.		*comprendre extraordinairement bien ; d' une clarté absolument évidente*
'Lost': Intensification is lost (includes cases of omission).		*clair*
NA: none of the above categories applies when the source compound adjective does not contain a figurative or intensifying noun.		

3.4 Analysis

Following qualitative descriptions of the morphosyntactic and conceptual-semantic translation procedures and of translation variation, we analyze both aspects as a function of the presence or absence of figurative intensification and, in the case of translation variation, of the items' frequency of use in English.

Descriptive and analytical statistical analyses were performed using R (version 4.2; R Core Team, 2016). Shapiro-Wilk and variance F tests indicated that the data met requirements of normality and variance homogeneity for parametric tests (Student t, Pearson correlation). To conform with standard practices for corpus data analysis, we also reported the non-parametric Wilcoxon signed rank test. For the chi-square test, we report the effect size as Cramer's V, a coefficient of correlation that is unaffected by sample size and permits interpretation of the strength of association.

4. Results and discussion

4.1 RQ 1: Morphosyntactic translation procedures

4.1.1 RQ 1(a): Relative application of different morphosyntactic procedures

As described in section 3.1., we have selected 12 English compound adjectives to represent three semantic subtypes within the [Noun+Adj] class as well as a range of frequencies of use. Table 3 shows the distribution of morphosyntactic procedures used by translators, ordered from less to more modification. We first present overall trends with corpus examples. Note that 24 of the 49 instances of *sky-high* occur as part of an idiomatic construction (*blow [something] sky-high*).

Table 3. Distribution of morphosyntactic procedures in French translations.

Item	Subtype	Freq PM	N	Parallel	Literal	Ptrans	Ctrans	Omit
brand-new	fig-intensifying	14.52	147	0	0	134	7	6
crystal-clear	fig-intensifying	1.17	219	0	28	121	65	5
rock-solid	fig-intensifying	0.64	26	0	4	15	7	0
ice-cold	fig-intensifying	0.50	38	0	1	33	3	1
sky-high	fig-intensifying	0.48	25	0	0	16	9	0
razor-sharp	fig-intensifying	0.46	12	0	1	9	2	0
lightning-fast	fig-intensifying	0.23	4	0	1	1	2	0
	subtotal		**471**	**0**	**35**	**329**	**95**	**12**
cost-effective	subordinative	10.63	101	0	11	75	14	1
site-specific	subordinative	2.50	101	0	60	18	23	0
water-soluble	subordinative	0.74	109	52	53	3	0	1
	subtotal		**311**	**52**	**124**	**96**	**37**	**2**
nation-wide	spatio-temporal	10.09	200	0	0	95	92	13
week-long	spatio-temporal	4.05	14	0	0	0	12	2
	subtotal		**214**	**0**	**0**	**95**	**104**	**15**
	Total		**685**	**52**	**159**	**520**	**236**	**29**
	%			5%	16%	52%	24%	3%

Since this entire construction (rather than the compound adjective) was treated as a translation unit, these instances were removed from analysis.

As expected, parallel [Noun+Adj] constructions are very rare in French. The neoclassical compound *hydrosoluble* occurs for *water-soluble*. However, *hydro* is not a native free lexeme, and such cases are best neatly distinguished (Villoing, 2012).

In section 2.1.2., we speculated that French translation likely uses prepositional constructions of the form [Adj+Prep+Noun], by analogy with the situation for noun compounds. In fact, its use for compound adjectives appears to be less frequent: it is observed in 16% of instances.

(1) *If the product has a **water-soluble** foil …*
Si le produit comprend un emballage soluble dans l'eau …
(EurLex)

The dominant translation procedure is partial transposition (52%), where the English [Noun+Adj] is rendered in French with an adjective, either alone or modified with an adverb. The distinction between these two cases is discussed in Section 4.2.

(2) *… survey the most **cost-effective** means by which those needs may be met.*
*… analyser les moyens les plus **rentables** d'y répondre. (EuroParl)*
(3) *We must now send a **crystal-clear** message …*
*Il nous appartient maintenant d'envoyer un message **très c**lair … (EuroParl)*

Complete modification of the syntactic construction is attested in 24% of instances and most often results in a prepositional phrase or a clause. This procedure is particularly prevalent for *crystal-clear* and *nation-wide*.

(4) *The starting point of this Directive is **crystal clear**.*
*Le point de départ de cette directive est **d'une clarté limpide**. (EuroParl)*

Finally, in 3% of translations, the compound adjective is omitted in the target text.

(5) *That is why the NAACP is calling for a **nationwide** boycott …*
L'Association pour l'Avancement des Noirs demande un boycottage … (OpenSub)

4.1.2 RQ 1(b): Differences between the three semantic subtypes

We also evaluate the distribution of morphosyntactic procedures as a function of the semantic subtypes (see subtotals in Table 3; the single parallel form is removed from analysis). A chi-square test for independence indicates that their application varies very significantly ($\chi 2 = 326.9$; df = 6; $p < 0.0001$) and the effect size is strong (Cramer's V = 0.832).

Translators strongly prefer partial transposition for figurative-intensifying items, complete transposition for spatio-temporal items, and the [Adj+Prep+Noun] form for subordinative items. This pattern of preferences can be explained in part by distinct linguistic phenomena in the three subtypes. For the figurative-intensifying items, the disproportionate use of 'Ptrans' results because translators frequently retain the adjectival structure but express intensification with an adverb (see example 3) rather than a noun.

In subordinative compounds, the bare juxtaposition of [Noun] and [Adj] implicitly contains a variety of semantic relationships, posing a challenge for translators when this relationship needs to be expressed explicitly. The [Adj+Prep+Noun] paraphrase is frequently used here (e.g., *site-specific* → *spécifique au site; water-soluble* → *soluble dans l'eau*). The semantic relationship in *cost-effective* appears to be more difficult to pinpoint; translators resort to complex prepositions (*efficace en termes de coûts, efficace par rapport au coût*) or more frequently use partial transposition (*rentable*).

For the spatio-temporal compounds, the meaning of the source adjective (*wide, long*) is not translated with an equivalent adjective (e.g., **répandu dans tout le pays*). Instead, the notion of extent is often expressed with completely transposed constructions using prepositions, nouns (*envergure*), or verbs (*couvrir*). Incidentally, constituent lexemes like *wide* or *long* are increasingly regarded as grammaticalized affixoids, although there are as yet no agreed-upon criteria (Bauer et al., 2013). This view is supported by our translations. While we might have interpreted these items as derivations and not compounds and excluded them *a priori*, we note that exploring their translations has provided useful evidence.

4.2 RQ 2: Conceptual-semantic translation procedures

4.2.1 RQ 2(a): Relative application of different conceptual-semantic procedures

The figurative-intensifying source items may pose additional conceptual-semantic challenges (section 2.2.2.). For convenience of discussion, we present the relative application of procedures as a hierarchical nested sequence of decisions, although we do not claim that this reflects the actual process:

(a) whether to retain intensification;

(b) if so, whether to use a figurative expression; and

(c) if so, whether to retain the source image or replace it with an unrelated French idiom.

Table 4. Distribution of conceptual-semantic procedures in French translations.

item	N	SimFig	DiffFig	Explicit	Lex	Duplic	Reverse	Incr	Lost	NA
brand-new	147	17	2	65	3	1	0	0	59	0
crystal-clear	219	10	33	78	20	5	16	5	52	0
rock-solid	26	4	8	5	0	0	1	0	8	0
ice-cold	38	15	2	0	0	0	0	0	13	8
sky-high	25	0	18	6	1	0	0	0	0	0
razor-sharp	12	2	4	1	0	0	0	0	5	0
lightning-fast	4	2	2	0	0	0	0	0	0	0
Total	**471**	**50**	**69**	**155**	**24**	**6**	**17**	**5**	**137**	**8**
%		10.6%	14.6%	32.9%	5.1%	1.3%	3.6%	1.1%	29.1%	1.7%
retain intensification?		69.2%							29.1%	
retain figurative?		25.3%		43.9%						

Intensification is lost in a surprisingly large proportion of instances (29.1%; Table 4), where translators have opted to use neutral adjectives without adverbial modification. Given that intensification is by no means uncommon in non-translated French, this loss may in part reflect a universal tendency of translated language towards simplification (Munday, 2016, p. 185).

(6) *… reducing the costs involved in adapting to a* ***brand new*** *organisational culture.*
… les coûts induits par une adaptation à une ***nouvelle*** *culture organisationnelle. (EuroParl*)

Still, intensification is retained in the majority of translations (69.2%), most frequently with non-figurative means (43.9%). Translators predominantly use explicit intensifiers, mainly adverbs (32.9%), as in (7). This confirms Hendrikx's (2019) finding of adverbial modification as the dominant means of intensification (section 2.2.2.).

(7) *the* ***brand new*** *Lisbon Treaty establishes territorial cohesion …*
le ***tout nouveau*** *traité de Lisbonne consacre la cohésion territoriale … (EuroParl)*
(8) *There were many difficult issues and not always* ***crystal clear*** *…*
Il y a eu de nombreux sujets complexes et qui n'étaient pas toujours d' une ***clarté absolue*** *… (EuroParl)*

Other non-figurative means of intensification were initially identified in translations of *crystal-clear* but turn out to be rare elsewhere. These more stylistically marked procedures include 'lexical' intensification (a marked word choice with implicitly intensified meaning; e.g. *crystal-clear* → *limpide* vs *clair*), duplication (two coordinated adjectives; *clair et net*), and a litotes-like polarity

reversal (*sans la moindre ambiguïté*). Intensity is occasionally increased (*d'une clarté absolument évidente*).

Figurative means to express intensification occur in 25.3% of translation instances. Overall, translators appear to use similar (9) and different (10) figurative images roughly equally (10.6% vs 14.6%).

(9) *You'll get **ice cold** hands, man!*
*Tu vas avoir de vieilles mains **glacées**, mec! (OpenSub)*

(10) *I read a **razor-sharp** satire on the political degeneration of Romania …*
*J'ai lu une satire **acérée** de la dégénérescence politique de la Roumanie … (EuroParl)*

However, the use of a similar or different image is highly item-specific and may not reflect a choice, insofar as translators are constrained by what is available and idiomatic in the target language. For instance, translations of *rock-solid* use either similar or different images (*solide comme un roc* vs. *à toute épreuve, en béton*), but in the case of *sky-high*, the sky metaphor is not available and translators reach for other images instead: *astronomique, vertigineux, gigantesque, monter en flèche*.

Finally, expressions that at first appear metaphorical are occasionally used in an entirely literal sense (coded 'NA'); in such cases, decisions regarding intensification or metaphors naturally do not come into play.

(11) *'Rapid chilling' means cooling the asparagus with **ice-cold** water ...*
*L'opération consiste à refroidir le produit … au moyen d'eau **glacée** … (EurLex)*

As mentioned, we find that translators prefer non-figurative paraphrases over figurative means to express intensification (43.9% vs. 25.3%). Carter (2014) similarly notes a high rate of paraphrasing of French metaphors in English translation. Finding this preference in both directions is suggestive of the difficulties faced when translating metaphors between these two languages. By contrast, Shuttleworth (2014) identifies metaphor retention as the default in multilingual translations of popular-scientific article. However, scientific metaphors are frequently intrinsic parts of the terminology, whereas their function as intensifiers in our study appears to be more optional.

4.3 RQ 3: Translation variation

4.3.1 RQ 3(a): The number and frequency distribution of translation solutions

We now examine the number and distribution of different solutions for each item (Table 5). Translation instances for each item were combined for different spellings and from three parallel corpora, and minor differences in inflection or determiner were consolidated into translation solutions.

Solutions that are attested only once may not represent standard translation practice; for this reason, the following analysis considers the number of solutions that occur at least twice ('N Sol (min 2)' in Table 5). The frequency distribution of solutions for a given item generally follows an expected Zipfian pattern, with one or a few dominant solutions and a long tail of increasingly rare alternatives. As illustrated in Figure 1, the shape of this distribution varies considerably: for instance, the French solutions for *crystal-clear* are broadly distributed, while one solution clearly dominates for *cost-effective*. To capture this variation, we report the proportion of all translations represented by the 'top' solution ('Prop of Top Sol').

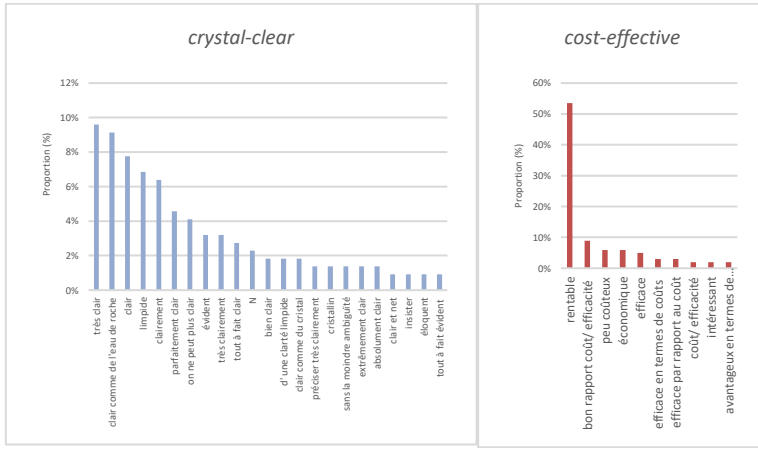
The sheer number of solutions is an important finding in itself. For instance, the 219 translations of *crystal-clear* contain 74 different solutions. This remarkable creativity cannot be explained exclusively by the range of morphosyntactic and conceptual-semantic procedures described in the preceding sections.

Table 5. Number of translation instances, number of different translation solutions, number of solutions that occur at least twice, and proportion of the most common solution, for selected compound adjectives.

Item	Subtype	Freq PM	N Transl	N Sol	N Sol (min 2)	Prop of Top Sol (%)
brand-new	fig-intensifying	14.52	147	18	12	23
crystal-clear	fig-intensifying	1.17	219	74	23	10
rock-solid	fig-intensifying	0.64	26	15	4	19
ice-cold	fig-intensifying	0.50	38	10	5	37
sky-high	fig-intensifying	0.48	49	33	9	8
razor-sharp	fig-intensifying	0.46	12	10	1	25
lightning-fast	fig-intensifying	0.23	4	4	0	25
cost-effective	subordinative	10.63	101	18	10	53
site-specific	subordinative	2.50	101	19	12	39
water-soluble	subordinative	0.74	109	4	2	48
nation-wide	spatio-temporal	10.09	200	27	13	46
week-long	spatio-temporal	4.05	14	5	2	57

One additional source of variation is the extensive use of near-synonyms. Among translation solutions for *crystal-clear* that apply identical procedures (namely, partial transposition and explicit non-figurative intensification), we find *très clair* but also *parfaitement, absolument, extrêmement, totalement*, and *tout à fait clair*. Adjectives also vary (*site-specific* → *spécifique, propre, associé*, and *particulier au site*), and combining near-synonymous choices at two or more slots has a cumulative effect on N Sol. Translation variation also increases due to different meanings of the source adjective. For instance, translators favor different solutions for *ice-cold*, depending on whether the context is concrete or abstract (e.g., *an ice cold beer* → *une bière bien fraîche*, vs. *an ice-cold declaration of war* → *une froide déclaration de guerre*). In fact, studying the translations of a source item can shed fresh light on its semantic range, as demonstrated in work by Noël (2003) and Dyvik (2004).

Figure 1. Distribution of translation solutions ('N Sol (min 2)') for *crystal-clear* and *cost-effective.*



4.3.2 RQ 3(b): Effect of presence or absence of a figurative-intensifying noun

In section 2.2.3., we predicted a higher variation of solutions for figurative-intensifying compounds compared to the other subtypes, since translators have at their disposal a range of conceptual-semantic options for both intensification and metaphors. We find that the average 'N Sol (min 2)' does not differ significantly between the figurative-intensifying items (M = 7.71) and those that do not (M = 7.80; t(10) = -0.022, p = 0.983). However, the difference in 'Prop of Top Sol' (reflecting the skewness of distribution) is highly significant (figurative-intensifying items: M = 21.0; SD = 9.88; others: M = 48.6; SD = 6.88; t(10) = -

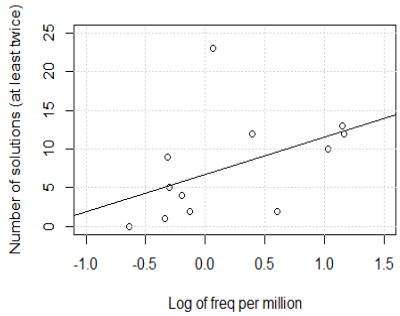
5.704, $p < 0.001$). In other words, compounds containing a figurative-intensifying noun do not differ in the raw number of solutions but are more likely to have a broad distribution without a single dominant solution.

4.3.3 RQ 3(c): Effect of the items' frequency of use in English

We also argued that translators would converge on a smaller number of solutions for compounds with a high frequency of use in English as a result of lexicalization and familiarity. Figure 2 visualizes the relationship between the compounds' frequency of use in English (after a standard logarithmic transformation; Gries, 2013, p. 160 and 293) and their 'N Sol (min 2)'. Both variables are normally distributed (Shapiro-Wilk $W = 0.905$ and 0.898, $p = 0.184$ and 0.150 respectively). Pearson correlation results indicate an intermediate to high positive correlation and suggest that frequency accounts for 21% of variation in 'N Sol (min 2)' ($r(10) = 0.455$, $R^2 = 0.2067$); however, the linear model is not significant ($F = 2.61$, $p = 0.137$).

This positive correlation[2] runs counter to our prediction. It appears instead that high frequency offers more opportunities for the proliferation of diverse translation equivalents.

Figure 2. Correlation between the compounds' frequency of use in English (log) and their 'N Sol (min 2)'.



5. Conclusions

English [Noun+Adj] compound adjectives containing an intensifying metaphor pose particular challenges for French translators due to cross-linguistic differences

[2] The number of solutions for a given item is naturally affected by the available number of translation instances, which may itself be related to frequency. However, analysis of a 'curtailed' dataset, setting the maximum instances to 50 and removing *lightning-fast* for which 'N Sol (min 2)' = 0 (not reported here), yields very similar results.

in preferred means of expression. Our study examines data from three parallel corpora by encoding morphosyntactic and conceptual-semantic translation procedures intended to capture how French translators deal with these challenges. We also explore the little-investigated aspect of translation variation, i.e. the number of different solutions observed for each item. In addition to qualitative and quantitative descriptions, we analyze the potential effects of two factors: the presence or absence of figurative intensification and the individual items' frequency of use in English.

Our results indicate that translators most frequently retain an adjective, either alone or with adverbial modification, although complete reformulation with a noun or verb also occurs. Prepositional paraphrases of the form [Adj+Prep+Noun], which might be thought to constitute the grammatically appropriate 'literal' translation (Vinay and Darbelnet, 1995, p. 33), turns out to be less common.

Translators strongly prefer different procedures for the three semantic compound subtypes investigated here: partial transposition for figurative-intensifying items, complete transposition for spatio-temporal items, and [Adj+Prep+Noun] for subordinative items. We relate this pattern to distinct linguistic phenomena in the three subtypes.

The presence of figurative intensification presents translators with additional decisions on whether and how to convey intensification in French. Non-figurative intensification, mainly adverbial, is predominant. When translators use figurative means, the decision to use a similar or unrelated figure is highly item-specific and appears to depend on what is available and idiomatic in French. Surprisingly, the intensification is also frequently lost altogether, which may constitute a form of simplification.

Translation variation is remarkably high; for instance, the 219 translations of *crystal-clear* contain 74 different solutions. This is reminiscent of Gilquin's (2008, p. 32) observation that "each language has a wide range of alternatives available to express a similar meaning, more in accordance with its distinctive characteristics". In addition to the range of translation procedures described above, an additional source of variation is the extensive use of near-synonyms. Contrary to our expectation, high-frequency items do not appear to converge on a smaller number of standardized translations, but instead provide more opportunities for diversification.

We have noted significant gaps in the literature on intensification, especially as regards cross-linguistic research and descriptions beyond morphology. The same can be said for contrastive work on compound adjectives, and for the little-explored topic of translation variation. We believe the present study, while modest in terms of sample size, makes theoretical and methodological contributions in these areas. Our results may also have practical relevance. Since cross-linguistic differences with respect to form, intensification, and use of figurative idioms pose difficulties for both translators and language learners, the diversity of

constructions documented here may be useful in pedagogical materials for translator training and language teaching.[3]

Interpretation of this study's results is limited by the modest sample of compound adjectives investigated and especially the absence of translation data for some low-frequency items. To complement the present translation study, we plan a contrastive study using monolingual reference corpora, which will aim to identify cross-linguistic preferences for different intensifying and figurative strategies in general English and French. Future research could also consider the effect on translation of the distinct registers of the three parallel corpora used here (cf. Lefer and Grabar, 2015), and of the broader semantic context of source items, in particular the relationship between a compound adjective and the noun it modifies.

6. References

Adams, V. 2001. *Complex Words in English*. London: Longman.

Altenberg, B. and S. Granger. 2002. *Lexis in contrast: Corpus-based approaches*. Philadelphia: John Benjamins Publishing Company. https://doi.org/10.1075/scl.7

Arnaud, P. and V. Renner. 2014. English and French [NN]$_N$ lexical units: A categorial, morphological and semantic comparison. *Word Structure*, *7*(1): 1-28. https://doi.org/10.3366/word.2014.0054

Bauer, L. 1983. *English word-formation*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781139165846

Bauer, L. 1998. When is a sequence of two nouns a compound in English? *English Language and Linguistics* 2: 65–86. https://doi.org/10.1017/S1360674300000691

Bauer, L., R. Lieber, and I. Plag. 2013. *The Oxford reference guide to English morphology.* Oxford: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198747062.001.0001

Bardaji, A. G. 2009. Procedures, techniques, strategies: Translation process operators. *Perspectives: Studies in Translatology*, *17*(3): 161-173 https://doi.org/10.1080/09076760903249372

Berg, T. 2017. Compounding in German and English. A quantitative translation study. *Languages in Contrast*, *17*(1): 43-68. https://doi.org/10.1075/lic.17.1.03ber

Castagnoli, S. 2020. Translation choices compared: Investigating variation in a learner translation corpus. In S. Granger and M.-A. Lefer (eds). *Translating and Comparing Languages: Corpus-based Insights*. Corpora and Language in Use Proceedings 6. Louvain-la-Neuve: Presses Universitaires de Louvain: 25-44.

Corbin, D. 1992. Hypothèses sur les frontières de la composition nominale. *Cahiers de Grammaire, 17*: 27-55.

Chuquet, H. and M. Paillard. 1987. Approche linguistique des problèmes de traduction anglais-français. Paris: Editions Ophrys.

De Cock, B. and F. Suñer. 2018. The influence of conceptual differences on processing taboo metaphors in the foreign language. In A. Pizarro (ed). *Linguistic Taboo Revisited. Novel Insights*

[3] Regarding the similar mediated nature of translated language and learner language, see Gaspari and Bernardini (2010) and Granger (2018). De Sutter and Lefer (2019) call for interdisciplinary comparisons to increase our understanding of both translation and language acquisition.

from Cognitive Perspectives. Cognitive Linguistics Research Series. Amsterdam: Mouton de Gruyter: 379–395. https://doi.org/10.1515/9783110582758-011

De Metsenaere, H., S. Vandepitte, and M. Van de Velde. 2016. Dutch and German NN compounds in translation. *Lebende Sprachen, 61*(1): 175-205. https://doi.org/10.1515/les-2016-0006

De Sutter, G. and M.-A. Lefer. 2019. On the need for a new research agenda for corpus-based translation studies: a multi-methodological, multifactorial and interdisciplinary approach. *Perspectives: Studies in Translation Theory and Practice 28*(1): 1-23. https://doi.org/10.1080/0907676X.2019.1611891

Delisle, J., H. Lee-Jahnke, and M. Cormier (eds). 1999. *Translation Terminology*. Amsterdam and Philadelphia: John Benjamins.

Dyvik, H. 2004. Translations as semantic mirrors: from parallel corpus to WordNet. *Language and Computers*, 49(1): 311-326.

Fradin, B. 2009. "I.E., Romance: French." In R. Lieber and P. Štekauer (eds). *The Oxford Handbook of Compounding*. Oxford: Oxford University Press: 417-435.

Gaspari, F. and S. Bernardini. 2008. Comparing non-native and translated language: Monolingual comparable corpora with a twist. In R. Xiao (ed). *Proceedings of The International Symposium on Using Corpora in Contrastive and Translation Studies*. Newcastle upon Tyne: Cambridge Scholars: 215– 34.

Gast, V. 2012. Contrastive linguistics: Theories and methods. In B. Kortmann and J. Kabatek (eds). *Dictionaries of Linguistics and Communication Science Linguistic theory and methodology*. Berlin: Mouton de Gruyter.

Gilquin, G. 2008. Causative 'make' and 'faire': A case of mismatch. In G. de los Ángeles and M. González (eds). *Current Trends in Contrastive Linguistics: Functional and Cognitive perspectives*. Amsterdam, Philadelphia: John Benjamins Publishing Company: 177-201. https://doi.org/10.1075/sfsl.60.11gil

Grandi, N. 2017. Evaluatives in morphology. In R. Lieber (ed). *Oxford Research Encyclopedia in Linguistics.* Oxford: Oxford University Press: 1-19.
https://doi.org/10.1093/acrefore/9780199384655.013.250

Granger, S. 2018. Tracking the third code: A cross-linguistic corpus-driven approach to metadiscursive markers. In A. Čermáková and M. Mahlberg (eds). *Corpus as Discourse*. *Studies in Corpus Linguistics*. Amsterdam, Philadelphia: John Benjamins Publishing: 185–204. https://doi.org/10.1075/scl.87.08gra

Gries, S. T. 2013. *Statistics for linguistics with R: A practical introduction*. Amsterdam: Mouton De Gruyter. https://doi.org/10.1515/9783110307474

Haspelmath, M. 2010. Comparative concepts and descriptive categories. *Language* 86: 663-687.
https://doi.org/10.1353/lan.2010.0021

Hendrikx, I. 2019. The acquisition of intensifying constructions in Dutch and English by French-speaking CLIL and non-CLIL students. Cross-linguistic influence and exposure effects. Unpublished PhD thesis. Louvain-la-Neuve: Université catholique de Louvain.

Hendrikx, I. 2020. The learnability of English intensifying constructions in French-speaking learners receptive versus productive competence. In M. Schlechtweg (ed). *The learnability of complex constructions* (*Trends in Linguistics: Studies and Monographs* 34). Berlin: De Gruyter Mouton: 127-164. https://doi.org/10.1515/9783110695113

Huddleston, R. and G. Pullum (eds). 2002. *The Cambridge Grammar of the English Language.* Cambridge: Cambridge University Press. https://doi.org/10.1017/9781316423530

Kövecses, Z. 2014. Conceptual metaphor theory and the nature of difficulties in metaphor translation. In D. R. Miller and E. Monti (eds). *Tradurre Figure / Translating Figurative Language*, Quaderni del Centro di Studi Linguistico-Culturali, Atti di Convegni CeSLiC, Bologna: AMSActa: 25-40.

Lefer, M.-A. 2020. Parallel Corpora. In M. Paquot and S. T. Gries (eds). *Practical Handbook of Corpus Linguistics*. Berlin: Springer. https://doi.org/10.1007/978-3-030-46216-1_12

Lefer, M.-A. and N. Grabar. 2015. Super-creative and over-bureaucratic: A cross-genre corpus-based study on the use and translation of evaluative prefixation in TED talks and EU parliamentary debates. *Across Languages and Cultures*, 16(2): 187-208. https://doi.org/10.1556/084.2015.16.2.3

Malloggi, P. 2017. Intensifying structures of adjectives across German and Italian. In M. Napoli and M. Ravetto (eds). *Exploring intensification: Synchronic, diachronic and cross-linguistic perspectives. (Studies in Language Companion Series*). Amsterdam: John Benjamins Publishing: 251-264. https://doi.org/10.1075/slcs.189.13mal

Miller, D. R. and E. Monti. 2014. Introduction. In D. R. Miller and E. Monti (eds). *Tradurre Figure / Translating Figurative Language*, Quaderni del Centro di Studi Linguistico-Culturali, Atti di Convegni CeSLiC, Bologna: AMSActa: ix-xii.

Molina, L., and A. Hurtado Albir. 2002. Translation techniques revisited: A dynamic and functionalist approach. *Meta 4*: 498–512. https://doi.org/10.7202/008033ar

Munday, J. 2016. *Introducing translation studies: Theories and applications.* London and New York: Routledge. https://doi.org/10.4324/9781315691862

Napoli, M., and M. Ravetto. 2017. *Exploring intensification: Synchronic, diachronic and cross-linguistic perspectives. (Studies in Language Companion Series)*. Amsterdam: John Benjamins Publishing. https://doi.org/10.1075/slcs.189

Newmark, P. 1981. *Approaches to Translation*, Oxford, UK: Pergamon.

Noël, D. 2003. Translations as evidence for semantics: An illustration. *Linguistics*, 41(4): 757-785. https://doi.org/10.1515/ling.2003.024

Olohan, M. and M. Baker. 2000. Reporting *that* in translated English. Evidence for subconscious processes of explicitation? *Across Languages and Cultures*, 1(2): 141–158. https://doi.org/10.1556/Acr.1.2000.2.1

Paillard, M. 2011. English-French contrasts in word-formation. Morphological patterns and stylistic effects. *Poznan Studies in Contemporary Linguistics*, 47-4: 913-927. https://doi.org/10.2478/psicl-2011-0043

Paradis, C. 2001. Adjectives and boundedness. *Cognitive linguistics*, *12*(1): 47-65. https://doi.org/10.1515/cogl.12.1.47

Pierini, P. 2015. Translating English compound adjectives into Italian: problems and strategies. *Translation and Interpreting*, *7*(2): 17-29. https://doi.org/10.12807/ti.107202.2015.a02

Pym, A. 2016. Translation solutions for many languages. Histories of a flawed dream. Bloomsbury Academic.

Quirk, R., S. Greenbaum, G. Leech, and J. Svartvik. 1985. *A Comprehensive Grammar of the English Language*. London: Longman.

Rainer, F. 2015. Intensification. In P. O. Müller, I. Ohnheiser, S. Olsen, and F. Rainer (eds). *Word-Formation: An International Handbook of the Languages of Europe*. Berlin/Boston: De Gruyter Mouton: 1340-1351.

Schäffner, C. 2017. Metaphor in translation. In E. Semino and Z. Demjén (eds). *The Routledge handbook of metaphor and language*. London and New York: Routledge: 247-262.

Shuttleworth, M. 2014. Scientific rich images in translation: A multilingual study. *JoSTrans*, *2*: 35–51.

Sjørup, A. C. 2011. Cognitive effort in metaphor translation: An eye-tracking study. In S. O'Brien (ed). *Cognitive Explorations of Translation*. London: Continuum International Publishing Group: 197-214.

Suñer, F. 2018. The interplay of cross-linguistic differences and context in L2 idiom comprehension. *Research in Language*, *16*(4): 495-513. https://doi.org/10.2478/rela-2018-0024

Van Goethem, K. 2009. Choosing between A+N compounds and lexicalized A+N phrases: The position of French in comparison to Germanic languages. *Word Structure*, *2*(2): 241-253. https://doi.org/10.3366/E1750124509000439

Van Goethem, K., and D. Amiot. 2019. Compounds and multi-word expressions in French. In B. Schlücker (ed). *Complex Lexical Units. Compounds and Multi-Word Expressions*. Amsterdam: De Gruyter: 127-151. https://doi.org/10.1515/9783110632446-005

Villoing, F. 2012. French compounds. *Probus, 24*: 29–60. https://doi.org/10.1515/probus-2012-0003

Vinay, J., and J. Darbelnet. 1995. *Comparative Stylistics of French and English: A Methodology for Translation* (translated and edited by J. C. Sager and M.-J. Hamel). Amsterdam and Philadelphia: John Benjamins Publishing. [Original: *Stylistique comparée du français et de l'anglais*. Paris: Didier, 1973].

Corpora and analysis tools

Baisa, V., J. Michelfeit, M. Medveď, and M. Jakubíček. 2016. European Union Language Resources in Sketch Engine. In *Proceedings of the Tenth International Conference on Language Resources and Evaluation (LREC'16)*. European Language Resources Association. Portorož, Slovenia.
https://www.sketchengine.eu/eurlex-corpus/

Jakubíček, M., A. Kilgarriff, V. Kovář, P. Rychlý, and V. Suchomel. 2013. The TenTen corpus family. In *7th International Corpus Linguistics Conference*: 125-127.
https://www.sketchengine.eu/ententen-english-corpus/

Kilgarriff, A., V. Baisa, J. Bušta, M. Jakubíček, V. Kovář, J. Michelfeit, P. Rychlý, and V. Suchomel. 2014. The Sketch Engine: ten years on. *Lexicography*, 1: 7-36.
https://www.sketchengine.eu

Koehn, P. 2005. Europarl: A parallel corpus for statistical machine translation. In MT summit, Vol. 5: 79-86.
https://www.sketchengine.eu/europarl-parallel-corpus/

R Core Team. 2016. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. https://www.R-project.org/

Tiedemann, J. 2012. Parallel Data, Tools and Interfaces in OPUS. In *Proceedings of the 8th International Conference on Language Resources and Evaluation (LREC'2012)*.
https://www.sketchengine.eu/opus-parallel-corpora/