

A multilingual corpus study of the competition between PAST and PERFECT in narrative discourse

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Abstract

It is widely known that the western European PRESENT PERFECT is subject to substantial cross-linguistic variation. This paper uses a new methodology called *Translation Mining* to detect the variation through a comparison of the original version and the translations of the French novel *L'Étranger* in Italian, German, Dutch, Spanish, Dutch and English. We do not only provide descriptive statistics of tense use, but visualize the variation through *Multidimensional Scaling*. This computational technique generates temporal maps that allow us to compare the tense-aspect grammars of individual languages. We find that the competition between PERFECT and PAST is scalar in nature rather than a dichotomy. An online interface that connects the maps to the underlying datapoints enables us to target specific contexts in which we can test hypotheses on the PERFECT generated by typological and semantic literature. The investigation also provides new insights into the grammar of the PERFECT: we find that all levels of meaning come into play in the competition between the PERFECT and the (PERFECTIVE) PAST, ranging from lexical semantics and compositional semantics to dynamic semantics and pragmatics.

1. Tense use in narrative discourse

Stories are traditionally told in the past tense (Fleischman 1990). The temporal structure of narrative discourse is driven by events that move the story line forward, while states temporally overlap with the last introduced event (Partee 1984, Hinrichs 1986, Kamp & Reyle 1993). In languages with a perfective/imperfective distinction, grammatical aspect drives the state/event distinction: the perfective past introduces the main events, and the imperfective past describes states that make up the background of the story. Kamp & Rohrer (1983) show that the standard narrative structure of French novels builds on an alternation of the *Passé Simple* and the *Imparfait*, where the *Passé Simple* reports foreground events, and the *Imparfait* background states. Of course, other verb forms appear in narrative discourse, such as the present tense (Fludernik 2003), but narrative discourse in general is strongly associated with the past tense and the event/state distinction as reflected in grammatical aspect.

The French novel *L'Étranger*, which appeared in 1942, stands out because the author Albert Camus does not use the *Passé Simple* to introduce the main events, but relies on the *Passé Composé* to do so. The configuration of an auxiliary (*avoir* 'have' or *être* 'be') in the present tense and a past participle makes the *Passé Composé* similar in morphosyntax to the English *Present Perfect*. However, the *Passé Composé* has a much broader distribution and a wider meaning than its English counterpart.

¹ The alphabetical order of the authors reflects a shared responsibility for the scientific content of this article. Martijn has been responsible for the computational side of the research, Bert managed the annotation of the data, and Henriëtte organized the ideas and wrote up the article.

The preference for the *Passé Composé* in *L'Étranger* is a deliberate choice of the author, and fits in with other features of the French novel such as the fact that it is written in the first person, and relates the events from the perspective of the protagonist Meursault. As the utterance time moves forward throughout the story, the novel reads as a diary with entries on different days. We know that the *Passé Composé* is subtly different from the *Passé Simple*, even when it is used in narrative discourse (see Section 2 below). As Sartre (1947) puts it, ‘every sentence is an island’ in *L'Étranger*, and he blames this on the use of the *Passé Composé*. It seems that the *Passé Composé* does not really tell the story, but describes the events in isolation, more like a list of things that happened than a coherent narrative. This factual style (in the terminology of Apothéloz 2016) induced by the *Passé Composé* keeps the reader at a distance. The inability of the reader to engage in the universe of the novel matches the protagonist’s feeling of alienation from the rest of the world. Tense choice in *L'Étranger* thus has a strong literary effect.

L'Étranger was well received in the post-war literary scene, and it has been translated in many languages. In English, it appeared under the title *The Stranger* (US editions) or *The Outsider* (UK editions). The novel’s tense use gives rise to a tricky translation problem. Camus pushes the *Passé Composé* to the limits of the French grammar, and there are few languages where we find the full range of meanings for its counterparts. If we view this as an instance of cross-linguistic priming (Hartsuiker & Pickering 2008), the translator may feel pressured to maximize PERFECT use in the target language. However, if the grammar of the target language does not allow the PERFECT in contexts where Camus uses the *Passé Composé*, the translator will have to switch to a different verb form. The translation bias makes *L'Étranger* a good source text to determine the range and limits of PERFECT use across languages. The aim of this paper is to develop a linguistic analysis of the distribution and meaning of the verb forms used to translate the *Passé Composé* in *L'Étranger* in Italian, German, Dutch, Spanish, English and modern Greek.²

The article is organized as follows. Section 2 motivates the choice for a strictly form-based approach that labels all tenses that build on the auxiliary *have* or *be* plus a past participle as a PERFECT. Under this definition, not only the English *Present Perfect* qualifies as a PERFECT, but so does the French *Passé Composé*, the Italian *Passato Prossimo*, the German *Perfekt*, etc. A form-based definition of the PERFECT creates room for a data-driven approach in which constraints on meaning are derived from the distribution of forms.

Section 3 outlines the *Translation Mining* methodology we developed, and illustrates it with the set of verb forms used in the translation of the *Passé Composé* in Chapters 1-3 of *L'Étranger* in Italian, Spanish, Dutch, German, English and modern Greek. We apply *Multidimensional Scaling* (Wälchli & Cysouw 2012) to generate a cartographic visualization of the verb forms in the multilingual dataset, which we call a temporal map. The comparison of temporal maps across languages reveals a distribution of labor between PERFECT and PAST. We use PAST as a label for verb forms like the English *Simple Past*, the Spanish *Preterito Indefinido*, the German *Präteritum*, etc. that are qualified as SIMPLE or PERFECTIVE PAST

² We are grateful to NWO for their financial support of the project 'Time in Translation' (# 360-80-070), which enabled us to carry out the research reported in this article. Note that we focus on European varieties of the languages under investigation, so we do not investigate variation across translations.

tenses in traditional grammars. Rather than a dichotomy between PERFECT and PAST, we find a subset relation ranging from more liberal to stricter PERFECT languages.

The investigation of key examples where the PERFECT gives way to a PAST in Section 4 shows how the cross-linguistic distribution mirrors the grammatical constraints on PERFECT meaning. The linguistic analysis relies on the four levels of lexical semantics (stative vs. dynamic verbs), compositional semantics (past time reference of the underlying event), dynamic semantics (narrative or non-narrative contexts) and pragmatics (deixis, information structure).

As long as we restrict ourselves to translations of the *Passé Composé*, we cannot tell whether the PERFECT in other languages has a more restricted distribution than in French, or whether its distribution is entirely different. In a search for PERFECTS in contexts where the French original uses a verb form other than the *Passé Composé*, Section 5 repeats the steps from Section 3 for a dataset consisting of all the verb forms in the first chapter of *L'Étranger* and their translations. The second dataset duplicates the patterns found in the first dataset, and the subset relation emerges again. The temporal maps of the second dataset further bring out the relevance of the aspectual distinction between perfective and imperfective aspect, and underline that the real competition is between the PERFECT and the PERFECTIVE PAST. Interestingly, we find some examples where the English translator introduces a *Present Perfect* as the translation of a French *Présent*. Although the number of examples is small, we suggest that they signal a second competition between PERFECT and PRESENT. Section 6 concludes the paper. Let's start now with some more background on cross-linguistic variation in the distribution and meaning of the PERFECT.

2. A comparative study of the PERFECT

The French *Passé Composé* is a compound tense formed on the basis of an auxiliary (*be* or *have*) in the present tense and a past participle, for example *il est parti* ('he has left'), *il a réussi* ('he has succeeded'). Other European languages have comparable forms in their grammar, for example the English *Present Perfect*, the Spanish *Pretérito Perfecto Compuesto* or the German *Perfekt*. Dahl & Velupillai (2013) call this morpho-syntactic configuration the HAVE-PERFECT, and show that it is a western European phenomenon. We restrict ourselves to a subset of the western European languages that instantiate this construction, and simply refer to these forms as PERFECTS. The paper focuses on the distribution of the *Passé Composé* and its counterparts, so when we talk about the PERFECT, we always mean the PRESENT PERFECT.

Even within the relatively small geographical area in which we find the construction *have/be* + past participle, PERFECTS do not have the same distribution or the same meaning. According to Lindstedt (2000) and Dahl & Velupillai (2013), the French *Passé Composé* has extended its use to the point that it has become a perfective past and no longer qualifies as a perfect 'gram', in the typological sense (see [WALS](#)). This meaning shift of the PERFECT is not restricted to French, but extends to varieties of Italian spoken in northern Italy as observed by Bertinetto (1986), and varieties of German spoken in the south of Germany and in Switzerland (Löbner 2002, Schaden 2009). Dahl & Velupillai situate modern Greek in the periphery of the HAVE-PERFECT area, because a less typical PERFECT is found in this language. For Comrie (1975), Dahl (1985), Bybee et al. (1994), Squartini & Bertinetto (2000), the patterns fit into a common diachronic development from perfect to past, called the Aorist drift. This paper is restricted to a synchronic perspective, and the diachronic implications of the empirical findings are left for further research.

The cross-linguistic variation raises the question of the delimitation between a (perfective) past tense and a perfect. In typology, the English *Present Perfect* is often put forward as a prototypical instance of the perfect gram (Dahl & Vellupillai 2013). Comrie (1976), McCawley (1981), Michaelis (1994), Portner (2003, 2011), Nishyama & Koenig (2010), Kamp et al. (2015), and others distinguish up to four readings of the *Present Perfect*:

- | | | |
|--------|---|----------------|
| (1) a. | Mary <i>has visited</i> Paris. (her past visit to Paris is relevant now) | [experiential] |
| b. | Mary <i>has moved</i> to Paris. (she currently lives in Paris) | [resultative] |
| c. | Mary <i>has lived</i> in Paris since 1990. (she currently lives in Paris) | [continuative] |
| d. | Malcolm X <i>has (just) been</i> assassinated. | [‘hot news’] |

The core meaning of the *Present Perfect* in (1) is a past event with current relevance. The idea goes back to Reichenbach (1947), who argued that both the *Present Perfect* and the *Simple Past* locate an event in the past, but for the *Simple Past*, the perspective (or reference time) is on the past event, whereas for the *Present Perfect*, the reference time is identified with the speech time. This difference explains why a past time adverbial requires a past tense (2a), and is incompatible with the *Present Perfect* (2b) (Klein 1992, Declerck 2006).

- | | | |
|--------|---|-------------------|
| (2) a. | Sara <i>left</i> the party at 6 o’clock. | [Simple Past] |
| b. | *Sara <i>has left</i> the party at 6 o’clock. | [Present Perfect] |

Partee (1973, 1984) takes the *Simple Past* to be definite and anaphoric, whereas the *Present Perfect* is conceived as indefinite and quantificational. Because of its non-anaphoric nature, the *Present Perfect* is not suitable for the description of sequences of past events in narrative discourse, as illustrated in (3).

- | | | |
|--------|---|-------------------|
| (3) a. | When John <i>noticed</i> me, he waved. | [Simple Past] |
| b. | *When John <i>has noticed</i> me, he has waved. | [Present Perfect] |

Anaphoricity provides the key to narrative discourse, which led to dynamic semantic analyses of the *Simple Past*, but not the *Present Perfect* in Partee (1984), Hinrichs (1986), Kamp & Reyle (1993), and Lascarides & Asher (1993). Current analyses of the *Present Perfect* are more sophisticated than Reichenbach’s analysis, but formal details aside, Michaelis (1994), Portner (2003; 2011), Nishyama & Koenig (2010), Kamp et al. (2015) and others are all set up to account for the sentence-level phenomena in (1) and (2), which locate the underlying event in an extended ‘now’, and exclude the *Present Perfect* from past time reference and narrative discourse (3).

Cross-linguistic investigations on patterns of compatibility with past time adverbials and narrative use in western European languages are carried out by de Swart (2007), Rothstein (2008) and Schaden (2009). They report configurations that do not match the contrasts in (1)-(3), the basic differences being the compatibility with past time adverbials and the possibility of narrative use. Comrie (1976), Binnick (1991) and Klein (1992) point out that the ban on past time adverbials is specific to the English *Present Perfect*, and does not generalize to its counterparts in languages like French, Italian and German, as we see in (4).

- | | | |
|--------|---|-----------|
| (4) a. | *Sara <i>has left</i> at six o’clock. | [English] |
| b. | Sara <i>is om zes uur vertrokken</i> . | [Dutch] |
| c. | Sara <i>est partie à six heures</i> . | [French] |
| d. | Sara <i>ist um sechs Uhr abgefahren</i> . | [German] |

The sentences in (4b, c and d) are the direct translations of (4a) in the *Voltooid Tegenwoordige Tijd*, the *Passé Composé* and the *Perfekt*. In contrast to the English *Present Perfect*, the PERFECT forms in Dutch, French and German are compatible with an adverbial that locates the event at a specific time in the past.

Reports on narrative use of the Italian *Passato Prossimo* and the French *Passé Composé* are found in Bertinetto (1986) and Vet (1992) respectively. Löbner (2002) draws attention to the narrative use of the German *Perfekt*. The criterion of appearance in *when*-clauses proposed by Boogaart (1999) supports these observations, as illustrated in (5) (from de Swart 2007):

- | | | | |
|-----|----|---|-----------|
| (5) | a. | *When John <i>has seen</i> me, he <i>has got</i> frightened. | [English] |
| | b. | *Toen Jan me <i>heeft gezien</i> is hij bang geworden. | [Dutch] |
| | c. | Quand Jean m' <i>a vu</i> , il <i>a eu</i> peur. | [French] |
| | d. | Als Johan mich <i>gesehen hat</i> , <i>hat</i> er Angst bekommen. | [German] |

The translations of (5a) in (5b-d) show that the French and German PERFECT verb forms can appear in narrative *when*-clauses, whereas the *Present Perfect* in (5a) bans narrative use. Note that Dutch patterns with French and German in its compatibility with past time adverbials (4b), whereas it behaves like English in resisting narrative use for the *Voltooid Tegenwoordige Tijd* in (4c). The fact that the two criteria in (2) and (3) do not give the same results for all languages further complicates the cross-linguistic picture. Even English is not as stable as originally thought: Werner (2013) challenges the incompatibility of the *Present Perfect* with definite time adverbials on the basis of corpus data and Ritz & Engel (2008) point to the 'vivid' narrative use of the *Present Perfect* in Australian English. Because of the substantial variation in the relation between form and meaning, Ritz (2012) concludes that the PERFECT is not a very stable cross-linguistic category. This instability raises a challenge for a cross-linguistically validated semantics of the PERFECT.

At this point, we do not doubt the characterization of the English *Present Perfect* as setting up a past event with current relevance (Michaelis 1994, Portner 2003, Nishiyama & Koenig 2010, Kamp et al. 2015). We can also see how this analysis can be carried over to Spanish (Schaden 2009, Howe 2013). However, if the PERFECTS in French, German and Italian retain the morpho-syntactic form *be/have* + past participle, but tolerate past time adverbials and narrative use, we cannot analyze them on a par with the English *Present Perfect*. We might be tempted to conclude with Lindstedt (2000) that the *Passé Composé* has developed into a perfective past, and the grammar of French, Italian and German no longer contains the perfect 'gram', but that conclusion might be a bit hasty, if only because a dichotomy does not account for the intermediate position of Dutch. In fact, there is not even consensus on the semantics of the *Passé Composé* in French linguistics.

The absence of the *Passé Simple* in EuroParl, the parallel corpus of the European Parliament, confirms that the *Passé Composé* has effectively replaced the *Passé Simple* in the spoken language, even in the highest registers (van der Klis et al. 2017). Yet, different semantic analyses of the *Passé Composé* have been put forward by Vet (1992), Caudal & Veters (2007), de Swart (2007), Schaden (2009), Bres (2010), Apothéloz (2016) and others. In some of these proposals, the *Passé Composé* is identified with a perfective past, because current relevance and a result state that holds now are notions that fade away in narrative contexts. Others insist that core ingredients of the perfect meaning such as its orientation towards the deictic center are maintained, even though the *Passé Composé* has extended its use. Thus it

proves harder than we might have been thought to draw a strict line between perfect and perfective meaning. What emerges from both the typological and the formal literature is the idea of a distribution of labor between PERFECT and PAST, where some languages extend their PERFECT at the expense of the PAST tense, and others don't. Michaelis (1994) and Schaden (2009) frame this in terms of a competition between PERFECT and PAST.

The lack of consensus among linguists suggests that there are unanswered empirical as well as theoretical questions. Our hunch is that a satisfactory cross-linguistically validated semantics for the PERFECT does not yet exist in the literature, because there is more variation in distribution and meaning than what has been outlined in the literature so far. In this paper, we sidestep the theoretical debate, and abstract away from pre-conceptualized meanings to focus on the linguistic features that are specific to the PERFECT in a cross-linguistic perspective.

3. How Translation Mining reveals the distribution of labor between PERFECT and PAST

In this section, we show how a *Translation Mining* strategy exploits a parallel corpus to provide insight into the use, distribution and meaning of the PERFECT. The overall approach and hypotheses are outlined in Section 3.1. Our first dataset consists of all instances of the *Passé Composé* extracted from Chapters 1-3 of *L'Étranger* and their translations in Italian, German, Dutch, Spanish, English and Modern Greek. Section 3.2 describes in more detail how *Translation Mining* generates an annotated dataset of tuples of verb forms in seven languages. Once the methodology is in place, we can apply it to the corpus. Section 3.3 presents the cartographic inventory of verbal tenses used to translate the *Passé Composé*. We rely on Wälchli & Cysouw (2012) for the *Multidimensional Scaling* algorithm, which enables us to look at the temporal structure of *L'Étranger* through the lens of different languages. This strategy reveals a subset relation in the cross-linguistic distribution of the PERFECT, and supports an inverse correlation between PERFECT and PAST. The interactive interface presented in Section 3.3 enables us to investigate the key examples where the PERFECT gives way to the PAST from one language to the next. The linguistic analysis in section 4 below reveals the ingredients of a cross-linguistic semantics of the PERFECT as grounded in lexical, compositional and dynamic semantics.

3.1 Overall approach and hypotheses

A parallel corpus investigation of the *have/be*+past participle configuration enables us to detect variation in context in a systematic way. One precursor of our work is Dahl & Wälchli's (2016) investigation of the perfect and the closely related category of iamitives in the Bible corpus. Their work relies on *Multidimensional Scaling* (Wälchli & Cysouw 2012) to find patterns of variation in a multilingual dataset, so we share the overall approach. Note that Dahl & Wälchli adopt a full-blown typological (world) perspective and abstract away from individual languages to compare groups of languages. In contrast, we focus on the HAVE-PERFECTS in western European languages, and investigate variation at the level of individual languages. One and the same methodology can thus be exploited to study both macro and microvariation.

A strictly form-based definition of the PERFECT allows us to formulate the following hypotheses. If Lindstedt (2000) and Dahl & Vellupillai (2013) are right, we may expect the *Passé Composé* in *L'Étranger* to be translated as a *Perfekt* in German or a *Passato Prossimo* in Italian (Bertinetto 1986 for Italian, Löbner 2002 for German). In contrast, languages like

English and Spanish should resort to the *Simple Past* and the *Pretérito Indefinido* in contexts where the grammar of these languages does not allow a PERFECT (Schaden 2009). Based on de Swart (2007), we expect the Dutch *Voltooid Tegenwoordige Tijd* to be more frequent than the Spanish and English PERFECTS, but less so than the German and Italian ones. Interestingly, if the *Passé Composé* retains characteristics of the classic perfect meaning, we expect to find *have/be* + past participle configurations in the translations as well. The inclusion in our dataset of Modern Greek, a language that makes a less typical use of the PERFECT according to Dahl & Velupillai (2013) takes the multilingual comparison beyond the Germanic and Romance languages.

The overall hypotheses are in line with the cross-linguistic generalizations of Dahl & Vellupillai (2013), Schaden (2009), and de Swart (2007), so the *Translation Mining* methodology functions as a test for claims that are generally based on native speaker intuitions and made up examples. The empirical setup further enables us to find ingredients of the meaning of the PERFECT that were overlooked so far. In this way, we come closer to a cross-linguistically validated semantics of the PERFECT.

3.2 Data Collection and Annotation

Our first dataset consists of all the occurrences of the *Passé Composé* extracted from Chapters 1-3 of *L'Étranger*, aligned with their translations in six languages, and enriched with a morpho-syntactic labeling of the translation of the type *Present Perfect*, *Simple Past*, *Simple Present*, etc. To create this dataset, we first converted the original and the translations into electronically readable documents. We extracted all the instances of the *Passé Composé* in the first three chapters by means of the *PerfectExtractor*, an algorithm that searches for configurations of an auxiliary (*être/avoir*) plus a past participle.³ These sentences in the *Passé Composé* were then aligned with their translations in English, Spanish, Italian, German, Dutch and Modern Greek. A human annotator entered the correspondence between the *Passé Composé* of the source language and its translation into the target language in the *TimeAlign* application. Figure 1 gives an example of the annotation interface.

The screenshot shows the TimeAlign annotation interface. It is divided into two main columns: 'French (original)' and 'English (translated)'. Under 'French (original)', there is a text box containing 'Aujourd' hui , maman est morte .'. Under 'English (translated)', there is a text box containing 'Mother died today .'. Below these text boxes, there are two checkboxes: the first is unchecked and labeled 'The selected words in the original fragment do not form a passé composé', and the second is checked and labeled 'This is a correct translation of the original fragment'. Below the checkboxes is a 'Comments' section with a text input field containing the word 'Comments'. At the bottom, there are two buttons: a blue 'Submit' button and an orange 'Go to another fragment' button.

Figure 1: the *TimeAlign* annotation interface

³ The algorithms we created for applications such as the *PerfectExtractor* and the *Time Align* application have been developed in collaboration with the [Utrecht Digital Humanities Lab](https://time-in-translation.hum.uu.nl/), and are available through the project's website, see <https://time-in-translation.hum.uu.nl/>. The technicalities of the *Translation Mining* methodology are outlined in Van der Klis et al. (2017), and illustrated with a multilingual dataset of PERFECTS extracted from [Europarl](#) (Koehn 2005). Here we focus on the use we make of the *Translation Mining* methodology for linguistic analysis. This work would have been impossible without the help of several students, who carried out the annotations. The page on Student Research of the project's website displays their papers and theses.

The *PerfectExtractor* selected *est morte* as a *Passé Composé*, and the annotator’s task is to select *died* as its English translation by clicking on the word *died*. If something went wrong with the alignment or the extraction by the *PerfectExtractor*, the annotator can remove the datapoint from the dataset by unticking the option ‘This is a correct translation of the original fragment’. Data points that lead to a non-verbal construction (e.g. a noun phrase) in the target language are also removed in this way. The outcome is a dataset of 348 examples in which all languages use a verb form as the translation of the *Passé Composé*.

The examples are exported to an Excel spreadsheet, and annotated manually. The annotation protocol follows the terminology familiar from the traditional grammar of the language in question, so we use *Present Perfect* for English, *Pretérito Perfecto Compuesto* for Spanish, *Perfekt* for German, *Voltooid Tegenwoordige Tijd* for Dutch, etc. Under the morpho-syntactic definition adopted in Section 2, we categorize the French *Passé Composé*, the Italian *Passato Prossimo*, and the German *Perfekt* as PERFECTS. From traditional grammar, we know that the German *Präteritum*, the Dutch *Onvoltooid Verleden Tijd* and the English *Simple Past* qualify as (SIMPLE) PAST tenses. The Spanish *Pretérito Indefinido* and the Greek *Aorist* are PERFECTIVE PASTS. Table 1 collects all the verb forms in the form-based categories PERFECT, (SIMPLE) PAST, PERFECTIVE PAST, IMPERFECTIVE PAST, PAST PERFECT, PRESENT, and other.

	French	Italian	German	Dutch	Spanish	English	Greek
PERFECT	<i>passé composé</i>	<i>passato prossimo</i>	<i>Perfekt</i>	<i>voltooid tegenwoordige tijd</i>	<i>pretérito perfecto compuesto</i>	<i>present perfect</i>	<i>parakimenos</i>
(SIMPLE) PAST			<i>Präteritum</i>	<i>onvoltooid verleden tijd</i>		<i>simple past</i>	<i>past</i>
PERFECTIVE PAST	<i>passé simple</i>				<i>pretérito indefinido</i>		<i>aorist</i>
IMPERFECTIVE PAST	<i>imparfait</i>	<i>imperfetto</i>			<i>pretérito imperfecto</i>		
PAST PERFECT	<i>plus-que-parfait</i>	<i>trapassato prossimo</i>		<i>voltooid verleden tijd</i>			<i>ipersintelikos</i>
PRESENT	<i>présent</i>	<i>presente</i>	<i>Präsens</i>	<i>onvoltooid tegenwoordige tijd</i>		<i>simple present</i>	<i>enestotas</i>
Other		<i>infinito</i>	<i>Konjunktiv</i>	<i>infinitief</i>		<i>present participle</i>	

Table 1: correspondences between language-specific verb forms and tense-aspect categories

As the annotation is always carried out at a language-specific level, we generate the descriptive statistics in Table 2 with the labels per language. In order to facilitate the cross-linguistic comparison, the rows order the forms by morpho-syntactic category. An empty cell either means that a language does not dispose of a certain form (e.g. Spanish does not have a SIMPLE PAST, German does not have a PERFECTIVE PAST) or that a particular form does not show up in the dataset (e.g. English has a PAST PERFECT, but it happens not to be used as a translation of the *Passé Composé* in Chapters 1-3 of *L’Étranger*). The order of presentation of in Table 2 (left to right and top to bottom) takes us from languages with the most frequent to least frequent PERFECT use in the dataset.

category	Italian	#	German	#	Dutch	#
PERFECT	passato prossimo	338	Perfekt	326	voltooid tegenwoordige tijd	39
(SIMPLE) PAST			Präteritum	20	onvoltooid verleden tijd	305
PERFECTIVE PAST						
IMPERFECTIVE PAST	imperfetto	5				
PAST PERFECT	trapassato prossimo	1			voltooid verleden tijd	1
PRESENT	presente	2	Präsens	1	onvoltooid tegenwoordige tijd	1
other	infinito	2	Konjunktiv	1	infinitief	2
	Spanish	#	English	#	Modern Greek	
PERFECT	pretérito perfecto compuesto	16	present perfect	11	parakimenos	1
(SIMPLE) PAST			simple past	328	past ⁴	8
PERFECTIVE PAST	pretérito indefinido	331			aorist	328
IMPERFECTIVE PAST	pretérito imperfecto	1			paratatikos	4
PAST PERFECT					ipersintelikos	2
PRESENT			simple present	3	enestotas	4
other			present participle	6	mellontas stigmieos	1

Table 2: inventory of the verb forms used in the translation of the 348 instances of the *Passé Composé* in Chapters 1-3 of *L'Étranger*

Table 2 shows that Italian uses the *Passato Prossimo* basically as freely as French uses the *Passé Composé*: in 338 out of 348 cases, the PERFECT from the original is maintained in the Italian translation. With 326 occurrences, the number for the German *Perfekt* is a bit lower, but still very high. With 39 instances of the *Voltooid Tegenwoordige Tijd*, the number of Dutch PERFECTS is much lower than German, but somewhat higher than Spanish and English, where we find only 16 instances of the *Pretérito Perfecto Compuesto* and 11 instances of the *Present Perfect*. With only 1 occurrence of the *Parakimenos*, modern Greek displays a less typical use of the PERFECT, in line with Dahl & Velupillai (2013). The presence of PERFECT forms in Spanish and English is in line with claims in the semantic literature that the French *Passé Composé* may have extended its distribution, yet preserves certain features of the classic perfect as a past with current relevance, and is thus not simply to be identified with a *Passé Simple* (see Section 2).

Table 2 provides us with useful information on the number of PERFECTS in the translations, but it only sketches overall tendencies. In order to get a grip on the patterns of PERFECT use in

⁴ Greek has a grammatical distinction between perfective and imperfective past, but for some verbs, we cannot see this in the morphology. Such verb forms are annotated as 'past', and labeled under the category of (SIMPLE) PAST for convenience.

individual languages, we need to compare tense use across languages for each datapoint. In Figure 1 for instance, we see that the English translator uses a *Simple Past* as the translation of *est morte*. We have not only annotated the English translation of *est morte* for its verb form, but also its Italian, German, Dutch, Spanish and modern Greek translations, so in a second step, we combined the annotations from individual languages to generate a 7-tuple < *Passé Composé*, Italian/German/Dutch/Spanish/English/modern Greek verb form > for each datapoint. Once we have 7-tuples of tenses for all 348 datapoints, we can see which combinations of verb forms are more frequent than others in the dataset.

We find that the combination < *Passé Composé*, *Passato Prossimo*, *Perfekt*, *Onvoltooid Verleden Tijd*, *Pretérito Indefinido*, *Simple Past*, *Aorist* > is used in the great majority of the cases (266 out of 348 datapoints). We conclude that the *Passé Composé* is usually translated by a PERFECT in Italian and German, and by a SIMPLE or PERFECTIVE PAST in Dutch, English, Spanish, and modern Greek. The numbers suggest that the translators relied on the expanded use of the PERFECT in Italian (Bertinetto 1996) and German (Löbner 2002) to capture the literary effects of the novel. The similarities between Spanish and English provide empirical evidence in support of Dahl & Velupillai's (2013) and Schaden's (2009) claims that these languages have not extended their HAVE-PERFECT in the direction of a PAST.

Interestingly, we also find other configurations in our dataset in sizable numbers. There are 18 instances of the 7-tuple < *Perfekt*, *Simple Past*, *Pretérito Indefinido*, *Passé Composé*, *Passato Prossimo*, *Voltooid Tegenwoordige Tijd*, *Aorist* >, in which Dutch uses a PERFECT along with French, Italian and German. Furthermore, there are 15 instances of the 7-tuple < *Präteritum*, *Simple Past*, *Pretérito Indefinido*, *Passé Composé*, *Passato Prossimo*, *Onvoltooid Verleden Tijd*, *Aorist* >, in which German uses a PAST, along with Dutch, Spanish, English and modern Greek. The frequency of these configurations is much lower than that of the dominant pattern, but the numbers are high enough that they might suggest a specific linguistic constellation. We tentatively conclude that German is not quite as liberal as French and Italian, and Dutch is possibly not as restricted as Spanish and English. All other configurations have fewer than 10 occurrences, so we are unable to say more about them on the basis of numbers alone.

As we can see from this preliminary discussion based on the descriptive statistics, it is much easier to find patterns in the translations if we categorize the verb forms from individual languages as belonging to categories like PERFECT and PAST. The descriptive statistics are illuminating, and provide empirical evidence supporting claims made in the typological and semantic literature, but do not answer all relevant questions. The numbers do not tell us, for example, in which contexts the German translator decided against the use of a *Perfekt* and chose a *Präteritum*. We do not know either what licenses the 39 instances of the Dutch *Voltooid Tegenwoordige Tijd*, a number which does not come anywhere near the 326 instances of the German *Perfekt*, but is nevertheless sizably higher than the number of PERFECTS we find in Spanish (16) or English (11). In order to bring the translation data amenable to a linguistic analysis, we need to determine the linguistic factors that govern the distribution of labor between PERFECT and PAST in individual languages, and compare them to each other. The human brain has a hard time inferring statistical generalizations over 348 contexts in seven languages. Here, *Multidimensional Scaling* comes in (Wälchli & Cysouw 2012). We use this computational visualization technique to map out the competition between PERFECT and PAST in the seven languages under investigation.

3.3 A cartographic inventory of the data

Multidimensional Scaling (MDS) is a computational technique that recognizes distributional patterns in a multilingual dataset, and generates a cartographic visualization of such patterns (Wälchli & Cysouw 2012). The application of MDS to our dataset generates maps that cluster tense forms in context. Recall from Section 3.1 that the morpho-syntactic annotation in the *TimeAlign* application gives rise to tuples where, for each example, the *Passé Composé* is matched with the verb form of its translation. The descriptive statistics provided an overview of the 7-tuples of verb forms in French, Italian, German, Dutch, Spanish, English and modern Greek, which we can use to calculate the similarities and differences between contexts. By way of an example, the matrix in Table 3 lists three 7-tuples.

#	French	Italian	German	Dutch	Spanish	English	Greek
1	passé composé	passato prossimo	Perfekt	voltooid tegenwoordige tijd	pretérito perfecto compuesto	present perfect	aorist
2	passé composé	passato prossimo	Präterium	onvoltooid verleden tijd	pretérito indefinido	simple past	aorist
3	passé composé	passato prossimo	Perfekt	voltooid tegenwoordige tijd	pretérito perfecto compuesto	simple past	aorist

Table 3: Example tense attributions to three contexts

The dissimilarity between contexts is measured in terms of the number of distinct forms per language. Each row in Table 3 represents a context, for instance the sentence *Maman est morte* from Figure 1 and all its translations. There is a distance of 4/7 between the 7-tuples 1 and 2, because the verb forms in French, Italian and modern Greek are the same, while the German, Dutch, Spanish and English verb forms are different from row 1 to row 2: for German we observe a switch from *Perfekt* to *Präterium*, for Spanish we observe a switch from *Pretérito Perfecto Compuesto* to *Pretérito Indefinido*, etc. By the same calculation, there is a difference of 1/7 between 7-tuples 1 and 3, and a difference of 3/7 between 7-tuples 2 and 3. Table 3 shows that some 7-tuples are more similar to each other than others.

Multidimensional Scaling algorithm relies on the dissimilarities between tuples to generate the type of cartographic representation we see in Figure 2.

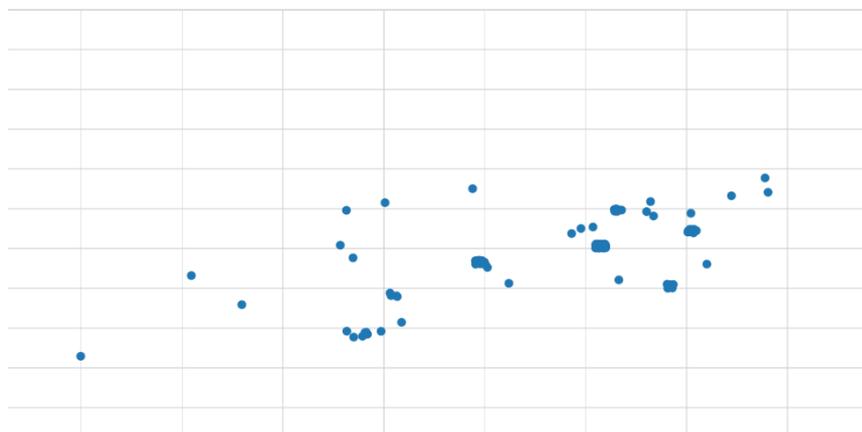


Figure 2: cartographic representation of patterns of PERFECT use in *L'Étranger*

Dots that are closely together represent contexts in which the seven languages use similar verb forms, whereas dots that are far away from each other represent contexts in which verb forms are dissimilar, as defined by the dissimilarity matrix in Table 3. We added some noise to the multidimensional scaling solution, so that not all the dots that represent the same tuple configuration end up on top of each other. Even so, we should be aware of the fact that some dots hide others, which explains why we see fewer than 348 dots in Figure 2.

The spread of the dots indicates the range of the cross-linguistic variation. Recall that the system is purely driven by formal distinctions, and some languages make a more extended use of the PERFECT than others (see Table 2). The application of *Multidimensional Scaling* to our dataset means that we expect tuples that contain a *Present Perfect* to cluster in the same area of the cartographic representation, and tuples that contain a *Simple Past* to appear in a different area of the cartographic representation, simply because tuples which include the English *Present Perfect* are more similar to each other than tuples in which one contains the *Present Perfect* and the other contains the *Simple Past*. As long as we restrict ourselves to two or three languages, we could carry out this comparison manually, but the beauty of *Multidimensional Scaling* is that it carries out the comparison of tuples for all seven languages at the same time. So the algorithm provides an optimal clustering of the tuples containing the Italian *Passato Prossimo* together, as well as the tuples implying the German *Perfekt*, the Dutch *Voltooid Tegenwoordige Tijd*, the Spanish *Pretérito Perfecto Compuesto* and the Greek *Parakimenos*.

Figure 2 provides the overall representation of the temporal structure of *L'Étranger* in its original form and the six translations. One way of showing how the individual languages are related is to look at the distribution of the dots through the lens of each language. Based on the correspondences in Table 1 between language-specific verb forms and generic categories, we color the PERFECT dots blue, and the PAST dots green. We can now generate seven copies of the map in Figure 2 in which the language specific verb form determines the color of the dots. We draw borders around the clusters of blue and green dots to determine the PERFECT domain and PAST domain in each language. To keep the maps readable when printed in black and white, the border of the PERFECT domain is shown as a solid line, and the border of the PAST domain as a dotted line. Figures 3.1-3.7 below show the output of the process of converting the cartographic representation in Figure 2 to clusters of PERFECT and PAST use for the French original and its Italian, German, Dutch, Spanish, English and Greek translations.

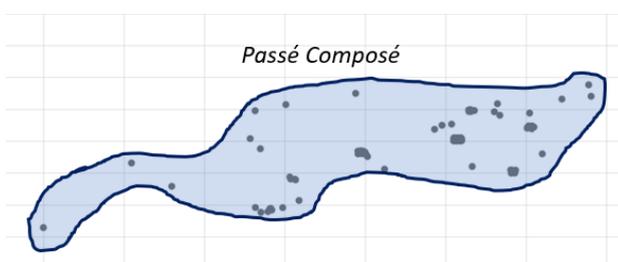


Figure 3.1 French

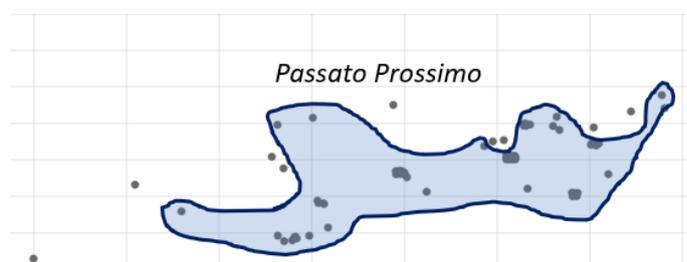


Figure 3.2 Italian

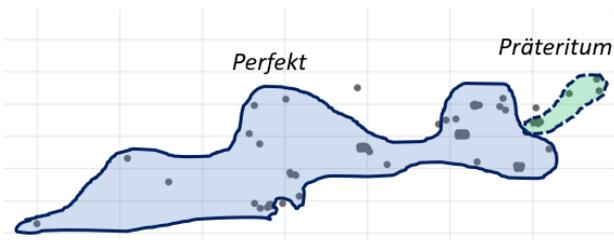


Figure 3.3 German

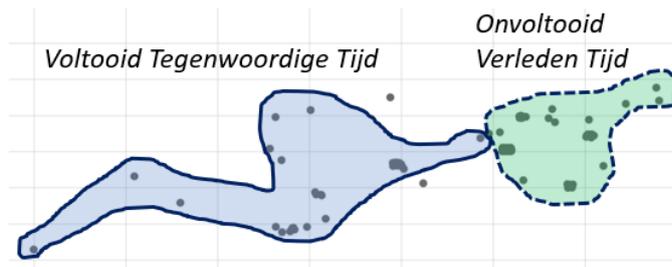


Figure 3.4 Dutch

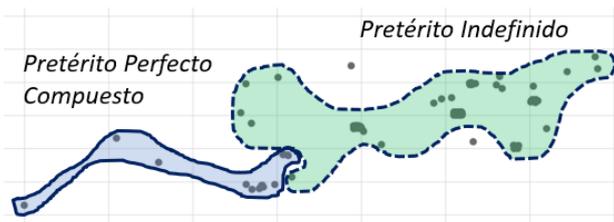


Figure 3.5 Spanish

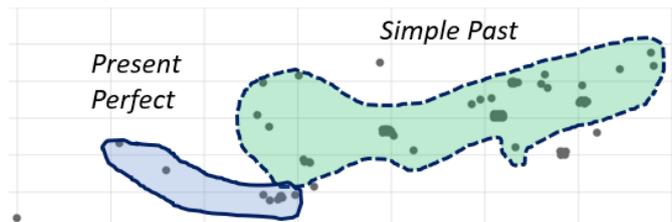


Figure 3.6 English

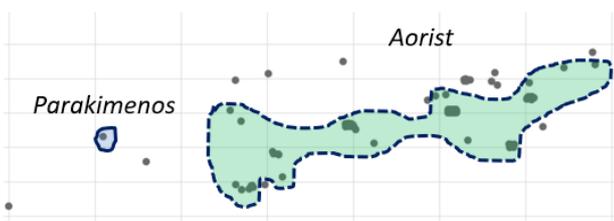


Figure 3.7 Modern Greek

Figure 3: the distribution of labor between PERFECT and PAST in *L'Étranger*

Figures 3.1-3.7 are all copies of the cartographic representation in Figure 2, with an indication of the clusters of the temporal map covered by PERFECT and PAST verb forms in each language. Figure 3 presents the languages from left to right and from the top to the bottom in the order of most frequent to least frequent PERFECT use, based on the descriptive statistics.

The French map in Figure 3.1 copies Figure 2 and shows it to be entirely blue with an uninterrupted line as a border. This is unsurprising, because we only extracted examples in the *Passé Composé* from *L'Étranger*. The blue domains with solid lines in the Italian and German versions of the map in Figures 3.2 and 3.3 are quite large, which reflects the extended use these languages make of the *Passato Prossimo* and the *Perfekt* respectively. The PERFECT domain of the Dutch map in Figure 3.4 is in between the large blue domains of Italian and German, and the small blue domains of English and Spanish in Figures 3.5 and 3.6. The PERFECT domain in the Greek map in Figure 3.7 consists of a single dot, because there is only one instance of the *Parakimenos* in our dataset.

The striking feature of Figure 3 is that frequency correlates with distribution over contexts: every time a dot loses its blue color and becomes green, it remains green in the following maps. This shrinking of the blue domain with a solid line as its border from right to left and top to bottom in Figures 3.2-3.7 indicates that the contexts in which the PERFECT is

appropriate in German are a subset of the contexts in which French and Italian use the PERFECT, the Dutch PERFECT covers a subset of the contexts in which German uses the PERFECT, and so on. The pattern in Figure 3 supports the subset relation in Figure 4, which indicates that PERFECT distribution is narrowed down from each language to the next.

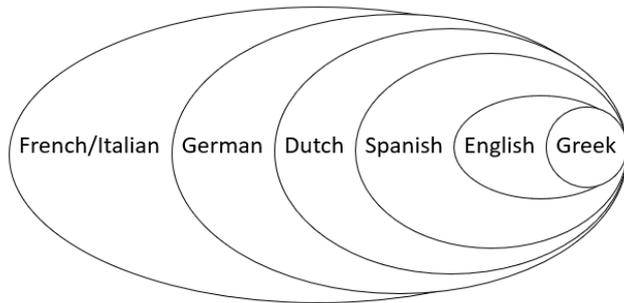


Figure 4: subset relation in the distribution of the PERFECT

Note that the gradual reduction of the blue PERFECT domain from top to bottom in Figure 3 correlates with an increase of the green domain with a dotted line as its border, which corresponds to PAST contexts. There is no clear pattern in verb forms other than the PERFECT in Italian, so there are no other colors besides blue in Figure 3.2. Starting with the German map in Figure 3.3, we see the emergence of a green cluster with a dotted line at the right of the map. The PAST domain shows the inverse subset relation from Figure 4: the green dots that signal PAST tense use in German are a subset of the set of context that take the PAST tense in Dutch, and so on. The fact that the blue cluster with the solid border shrinks while the green cluster with the dotted border expands at every transition between Figures 3.2-3.7 does not only support the subset relation in Figure 4, but provides evidence in favor of a distribution of labor or a competition between PERFECT and PAST (Michaelis 1994, Schaden 2009). The data support a scale with extremes, but also intermediate positions, rather than a strict dichotomy between PERFECT and PAST oriented languages.

The more fine-grained picture of the cross-linguistic distribution of the PERFECT that emerges from the dataset raises the question which linguistic features determine the choice between PERFECT and PAST verb form in the grammars of the languages under consideration. The distribution of green and blue clusters in Figures 3.1-3.7 leads us to think that the contexts more to the left on the temporal map reflect more typologically stable characteristics of the PERFECT, whereas there is more competition between PERFECT and PAST forms in the contexts towards the right of the map. We hypothesize that the stepwise restriction in distribution of the PERFECT in the dataset is indicative of a gradual narrowing down of the PERFECT meaning. In order to support the inferences from distribution to grammar, we need access to the contexts underlying the datapoints in the map. In that way, we can determine for each language the linguistic criteria that drive PERFECT and PAST use. If these linguistic criteria differ from language to language, we can connect the grammar of individual languages to the subset relation in Figure 4. Section 3.3 develops the interactive interface that allows us to go back and forth between maps and underlying data.

3.3 An interactive interface: from maps to the underlying data

Recall that all dots in the maps in Figures 3.1-3.7 represents contexts with the same configuration of verb forms. As the PERFECT and PAST clusters are very well delineated, it

makes sense to assume that the distribution of verb forms in context reflects the grammar of tense and aspect in the individual languages. If we can investigate the contexts underlying the dots that switch from PERFECT to PAST from one map to the other in the series, we may be able to detect the linguistic principles driving the subset relation in Figure 4. This is where the interactive *Time in Translation* interface comes in.

Figure 5.1 shows that pointing the mouse at a dot in the online environment visualizes the original example and all the verb forms used in its translations. When we click on a point of the map, we get the list of all the contexts that have the same configuration of verb forms (Figure 5.2), in this case the 266 contexts for the most frequent 7-tuple <passé composé, passato prossimo, Perfekt, vtt, pretérito indefinido, simple past, aorist>. For each example, we can see which chapter it occurs in (document), which sentence numbers it appears in (sentence XML-id), what are the target words used in the *TimeAlign* interface (such as *est morte* in Figure 1), and what further actions can be performed. Another mouse click on the magnifying glass under actions reveals the underlying data, that is to say the original sentence with its translations and enriched with their morpho-syntactical labeling (Figure 5.3).

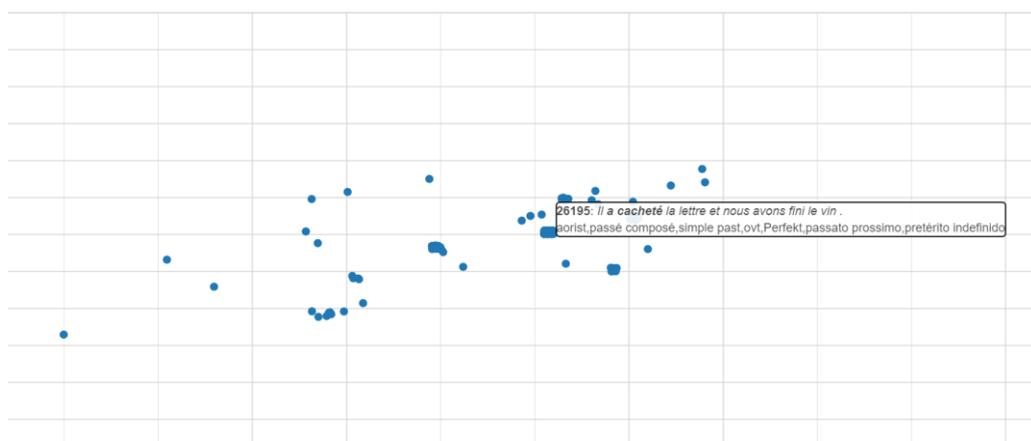


Figure 5.1: pointing to a context with the mouse visualizes the sentence from the original plus the verb forms used in the translation

266 fragments with labels: *perfekt, aorist, ovt, passato prossimo, passé composé, pretérito indefinido, simple past*

Document	Sentence XML-id	Target words	Actions
3.xml	s13.14	ai dit	
3.xml	s13.16	a cacheté	
3.xml	s13.16	avons fini	
3.xml	s13.18	avons entendu	
3.xml	s13.19	ai dit	
3.xml	s13.21	a remarqué	
3.xml	s13.23	a dit	
3.xml	s13.25	a expliqué	
3.xml	s14.1	a serré	
3.xml	s14.1	a dit	
1.xml	s13.10	ai eu	

Figure 5.2: a mouse click brings up the contexts with the same constellation of verb forms.

French 3.xml **passé composé**

↻ s13.16 Il a cacheté la lettre et nous **avons fini** le vin . 1 2

Translations

<p>German Perfekt ✎</p> <p>Er hat den Brief zugemacht , und wir haben den Wein ausgetrunken .</p>	<p>English simple past ✎</p> <p>He put the letter in the envelope and we finished off the wine .</p>
<p>Spanish pretérito indefinido ✎</p> <p>Cerró el sobre y terminamos el vino .</p>	<p>Italian passato prossimo ✎</p> <p>Ha chiuso la lettera e abbiamo finito il vino .</p>
<p>Dutch ovt ✎</p> <p>Hij plakte de brief dicht en wij dronken de rest van de wijn op .</p>	<p>Greek aorist ✎</p> <p>Έκλεισε το γράμμα και τελειώσαμε το κρασί .</p>

Figure 5.3 : a mouse click on an example shows the underlying linguistic data

We make strategic use of this interactive interface to zoom in on the cut-off points between the clusters as the key to understanding cross-linguistic variation. We group Italian with French, because there is no competition between PERFECT and PAST in the Italian tense attribution. For the other languages, we investigate the contexts at the borderline of the PERFECT and PAST in Figures 3.2-3.7. For instance, the comparison of Italian and German in Figures 3.2 and 3.3 reveals that German makes a fairly extended use of the PERFECT, but there is a cluster on the far right of the map in which French and Italian use a PERFECT, and German a PAST. By using the interactive interface, we can click on the datapoints in which German uses a *Präteritum* and analyse the individual examples to try and explain why the German translator avoided the *Perfekt* in these contexts. In sum, going back and forth between maps and their underlying data via the interactive interface connects language use to grammar.

4. From language use to grammatical meaning: a linguistic analysis of the variation

As outlined in Section 1, we take the literary value of the *Passé Composé* to push the translator to maximize PERFECT use in the target language. The translator needs to overcome the translation bias to switch to a different verb form, so when this happens, we are most likely dealing with a configuration in which the PERFECT is blocked by the tense-aspect grammar of the target language. In this section, we exploit the interactive interface to provide a linguistic interpretation of the boundaries on PERFECT use between Italian and German, German and Dutch, Dutch and Spanish, Spanish and English in Figures 3.1-3.7. Section 4.1 starts with the cut-off points between Italian and German in Figures 3.2 and 3.3. Sections 4.2-4.4 report on the boundaries between German/Dutch, Dutch/Spanish and Spanish/English respectively.

In order to situate the examples, it might be helpful to have a global idea of the content of Chapters 1-3 of *L'Étranger*. In the first chapter, we learn about the death of Meursault's mother, and follow him to the old people's home about 50 kilometers from his hometown Algiers for the funeral. Chapters 2 and 3 relate events of Meursault's daily life at the office and at home, as well as his emerging love affair with Marie. Recall that the novel is written in the first person, so we view the events from the perspective of the protagonist.

4.1 From Italian to German: the role of stative verbs

The German translator makes a fairly extended use of the *Perfekt*, but even so, there are 20 occurrences of the *Präteritum* in the dataset. They are clustered in the green domain with a dotted border at the far right of Figure 3.3. German sides with Dutch, Spanish, English and modern Greek in its preference of the PAST: access to the data underlying the dots shows that in 15 contexts, the *Präteritum* appears in the configuration <*Präteritum, aorist, ovt, passato prossimo, passé composé, pretérito indefinido, simple past*>. In 11 out of 15 cases, we are dealing with a stative verb like *to be, to have* as in (6) or a verb describing a cognitive state (*to think, to find, to believe, to want, etc.*), as we see in (7).

- (6)
- a. Il faisait très chaud dans le bureau et le soir, en sortant, j'*ai été* heureux de revenir en marchant lentement le long des quais. [French]
 - b. In ufficio faceva molto caldo e la sera, all'uscita, *sono stato* felice di risalire a piedi, lentamente, tutto il lungomare. [Italian]
 - c. Es war sehr heiß im Büro, und abends, beim Weggehen, *war* ich froh, langsam über die Kais zurückzuschleudern. [German]
 - d. Het was erg heet op kantoor en 's avonds toen ik wegging *stemde* het mij gelukkig langzaam wandelend langs de kaden naar huis terug te keren. [Dutch]
 - e. Hacía mucho calor en la oficina, y cuando salí, al atardecer, *gocé* viniendo lentamente a lo largo de los muelles. [Spanish]
 - f. It was very hot in the office and in the evening, when I left, I *was* glad to walk slowly back along by the docks. [English]
- (7)
- a. J'*ai voulu* fumer une cigarette la fenêtre. [French]
 - b. Ancora *ho voluto* fumare una sigaretta alla finestra. [Italian]
 - c. Ich *wollte* eine Zigarette am Fenster rauchen. [German]
 - d. Daarna *wilde* ik nog een sigaret aan het raam roken. [Dutch]
 - e. Me *apeteció* fumar un cigarrillo en la ventana. [Spanish]
 - f. I *wanted* to smoke a cigarette at the window. [English]

Based on the subset relation in Figure 4, we expect the languages displayed in Figures 3.3-3.6 to also use a PAST form in this context. The translations in (6d-f) and (7d-f) confirm this by the use of the *Onvoltooid Verleden Tijd* in Dutch, the *Pretérito Indefinido* in Spanish, and the *Simple Past* in English.

For the 5 contexts outside the dominant pattern, we find that they involve various verb forms, but the verb is always stative. The example with the modal verb 'have to' in (8) follows the pattern in (6) and (7) except for the switch to the PAST PERFECT in the Italian translation:

- (8)
- a. J'*étais* un peu étourdi parce qu'il *a fallu* que je monte chez Emmanuel pour lui emprunter une cravate noire et un brassard. [French]
 - b. Ero un po' intontito perché *ero* anche *andato* su da Emanuele a farmi prestare una cravatta nera e una benda per il braccio. [Italian]
 - c. Ich war etwas abgelenkt, weil ich noch zu Emmanuel hinauf *musste*, um mir einen schwarzen Schlips und eine Trauerbinde von ihm zu borgen. [German]

- d. Ik was een beetje versuft, omdat ik bij Emmanuel een zwarte das en een rouwband *moest* gaan lenen. [Dutch]
- e. Yo estaba un poco aturdido, porque *fue necesario* que subiera a casa de Emmanuel para que me prestase una corbata negra y un brazalete. [Spanish]
- f. I was in a bit of a daze because I *had* to go up to Emmanuel 's place to borrow a black tie and armband. [English]

The conclusion that stative verbs have a special status in our dataset may come as a surprise to those who are familiar with the literature on the English *Present Perfect*, in which stative verbs with continuative meanings as in (1c) play an important role (Michaelis 1994, Portner 2003, and others). However, the stative verbs discussed here occur in a narrative context: the protagonist finds himself feeling happy when he leaves the office in (6), and the wish to smoke a cigarette in (7) or the need to acquire a black tie and armband in (8) come up as the next relevant situation in the storyline. Thus we formulate a lexical generalization for the cut-off point between French/Italian on the one hand and German/ Dutch/Spanish/English/modern Greek on the other hand: French and Italian tolerate stative verbs in the PERFECT in narrative sequences, whereas the other languages do not, and switch to the PAST in such contexts. Lexical semantics is thus one of the ingredients of the grammar of the PERFECT.

4.2 From German to Dutch: narrative use

As can be seen in the sizable expansion of the PAST domain between the maps of Figures 3.2 and 3.3, Dutch makes a more restricted use of the PERFECT than German. The descriptive statistics in Section 3.2 indicate that there are 20 instances of the German *Präteritum* in the dataset against 305 instances of the Dutch *Onvoltooid Verleden Tijd*. We find 19 occurrences of the *Onvoltooid Verleden Tijd* in contexts in which German uses a *Präteritum*, which confirms the special status of stative verbs in the dataset, as well as the subset relation in Figure 4. The most frequent tuple in the dataset is the configuration <Perfekt, Aorist, Onvoltooid Verleden Tijd, Passato Prossimo, Passé Composé, Pretérito Indefinido, Simple Past> with 266 occurrences, so this is the dominant pattern for the *Onvoltooid Verleden Tijd*. The investigation of the datapoints in which the German translation sides with Italian in maintaining the PERFECT from the French original, but the Dutch translator switches to the PAST reveals that the *Voltooid Tegenwoordige Tijd* resists narrative use. One criterion for narrative use implies complex sentences involving a *when*-clause, as argued in Section 1 (see example (3) above). Where we find such configurations in the Camus dataset, French, Italian and German use a PERFECT in both the main and the subordinate clause, but the Dutch, Spanish and English translators switch to a PAST tense, as we see in (9):

- (9) a. Quand il m'a dit le nom de la femme, j'ai vu que c'était une Mauresque. [French]
- b. Quando mi ha detto il nome della donna, ho visto che era un' araba. [Italian]
- c. Als er mir den Namen der Frau genannt hat, habe ich gemerkt, daß es eine Maurin war. [German]
- d. Toen hij mij de naam van de vrouw zei, bemerkte ik dat het een Moorse was. [Dutch]
- e. Cuando me dijo el nombre de la mujer, comprendí que era una mora. [Spanish]
- f. When he told me the girl's name, I realized she was Moorish. [English]

There are 4 complex sentences with this pattern in our dataset. Outside of complex sentences, we took datapoints that are integrated in a sequence of events that follow each other in time to exemplify narrative use. This was consistently the case in the set of most frequent verb forms, and is illustrated in (10):

- (10)a. Le concierge *s'est penché* vers elle, lui *a parlé*, mais elle *a secoué* la tête, *a bredouillé* quelque chose, et *a continué* de pleurer avec la même régularité. [French]
- b. Il portinaio si è *chinato* verso di lei, le *ha parlato*, ma la donna *ha scosso* la testa, *ha biascicato* qualcosa e *ha continuato* a piangere con la stessa regolarità. [Italian]
- c. Der Pförtner *hat sich zu ihr hin gebeugt*, *hat mit ihr gesprochen*, aber sie *hat den Kopf geschüttelt*, *hat etwas gestammelt* und mit derselben Stetigkeit weiter *geweint*. [Germ]
- d. De conciërge *boog* zich naar haar toe, *praatte* tegen haar, maar zij *schudde* het hoofd, *mompelde* iets en *zette* met dezelfde regelmaat haar gesnik voort. [Dutch]
- e. El conserje se *inclinó* hacia ella, le *habló*, pero la mujer *sacudió* la cabeza, *musitó* algo y *siguió* llorando con la misma regularidad. [Spanish]
- f. The caretaker *leant* over and *spoke* to her, but she *shook* her head, *mumbled* something and *went* on sobbing with the same regularity as before. [English]

In (10a,b,c), we interpret the sequence of PERFECTS as describing a series of events that succeed each other in time. In (10d,e,f) we need a SIMPLE or PERFECTIVE PAST tense to achieve temporal progress. De Swart (2007) emphasizes that the way Camus is telling the story in *L'Étranger* does not make the *Passé Composé* equivalent to the *Passé Simple*. The *Passé Composé* introduces an event in the past, that elaborates on the utterance situation (deictic orientation). The *Passé Composé* does not block narration as long as progress in time is induced by other means. In (10a) the series of PERFECTS elaborates on the night of the wake, and the events are perceived by default as appearing in a natural order.

Narrative progress is often supported by lexical content. In (11a), we see a lexical entailment relation at work: once the door is closed, the protagonist finds himself on the landing as the spatial result of him leaving the room and blocking out the light (Asher and Sablayrolles 1995).

- (11) a. En sortant de chez lui, j'*ai refermé* la porte et je *suis resté* un moment dans le noir, sur le palier. [French]
- b. Uscendo *ho richiuso* la porta e *sono rimasto* un momento sul pianerottolo, al buio. [Italian]
- c. Beim Hinausgehen *habe* ich die Tür *zugemacht* und *bin* einen Moment im Dunkeln auf dem Treppenabsatz *stehengeblieben*. [German]
- d. Toen ik bij hem vandaan *ging deed* ik de deur dicht en *bleef* een ogenblik in het donker op het trapportaal staan. [Dutch]
- e. Al salir de su habitación, *cerré* la puerta y *permanecí* un momento en la oscuridad, sobre el rellano. [Spanish]
- f. I *went* out and, closing the door behind me, I *paused* for a moment in the dark, on the landing. [English]

The connection between space and time leads to progress in time in configurations like (11). The sequential interpretation of (12a) also relies on a lexical entailment relation: it is not until one is seated that legs can be crossed.

- (12) a. Il *s'est assis* derrière son bureau, il *a croisé* ses petites jambes. [French]
 b. Si è *seduto* alla scrivania, *ha incrociato* le sue gambette. [Italian]
 c. Er *hat* sich hinter seinen Schreibtisch *gesetzt*, *hat* seine kurzen Beine über einander *geschlagen*. [German]
 d. Hij *nam* achter zijn bureau plaats en *legde* zijn korte beentjes over elkaar. [Dutch]
 e. Se *sentó* detrás de su mesa y *cruzó* sus pequeñas piernas. [Spanish]
 f. He *sat* down behind his desk and *crossed* his short legs. [English]

Camus also relies more broadly on world knowledge, such as scripts and scenarios. In (13a), we see a dinner script at work, where shopping, cooking and eating are presented in a natural temporal order:

- (13) a. Je *suis descendu* acheter du pain et des pâtes, j'*ai fait* ma cuisine et j'*ai mangé* debout.
 b. *Sono andato* giù a prendere del pane e della pasta, mi *sono fatto* da mangiare e *ho cenato* in piedi. [Italian]
 c. Ich *bin* Brot und Nudeln einkaufen *gegangen*, *habe gekocht* und im Stehen *gegessen*.
 d. Ik ging naar beneden om brood en vlees te kopen, maakte mijn eten klaar en at staande. [Dutch]
 e. *Bajé* para comprar pan y pasta, *cociné* y *comí* de pie. [Spanish]
 f. I *went* down to buy some bread and some pasta, I *did* my cooking and I *ate* standing up. [English]

Although the discourse is less script like, the natural order of events in (10) is also supported by world knowledge. In all the examples in (10)-(13) then, we don't need the verb form to actively induce a rhetorical relation of narration, because there are other lexical and pragmatic means to induce progress in time. The Italian and German translations in (10)-(13) support an extension of the observations made by de Swart (2007) about French to Italian and German, as we expect on the basis of the literature (Bertinetto 1986, Schaden 2009, Dahl & Vellupilai 2013). The presence of lexical and pragmatic support is not enough to license temporal sequencing with a PERFECT form in Dutch, Spanish and English. The grammar of these languages bans the PERFECT from narrative contexts altogether, and requires the use of the SIMPLE or PERFECTIVE PAST tense to introduce past events that succeed one another in time.

There are 305 instances of the Dutch *Onvoltooid Verleden Tijd* in the dataset, 266 of which occur in the configuration <Perfekt, Aorist, Onvoltooid Verleden Tijd, Passato Prossimo, Passé Composé, Pretérito Indefinido, Simple Past>. The remaining tuples contain various configurations of verb forms, for instance the present participle in the English (14f).

- (14)a. Il *est sorti*, *est revenu*, *a disposé* des chaises. [French]
 b. (...) è *uscito*, è *rientrato*, *ha disposto* delle sedie e (...). [Italian]
 c. Er *ist hinaus gegangen*, *ist wieder gekommen*, *hat Stühle aufgestellt*. [German]
 d. Hij *ging* naar buiten, *kwam* weer terug en *zette* stoelen neer. [Dutch]

- e. *Salió, volvió y colocó* la sillas. [Spanish]
 f. He *went* in and out, arranging chairs. [English]

Such examples always include a German *Perfekt*, and they confirm that the Dutch *Onvoltooide Tijd* is needed for story telling. In the context of a novel, the significant drop in numbers of PERFECT occurrences between German and Dutch is not surprising once we realize that the *Voltooid Tegenwoordige Tijd* resists narrative use altogether.

The Dutch/Spanish/English pattern is in line with the typological perspective (Lindstedt 2000), as well as semantic theory (Partee 1973, 1984) (see Sections 1 and 2 above). If we take narrative use to be key, the French/Italian/German pattern supports the hypothesis that the PERFECT in these languages is developing into a (perfective) past (Bybee et al. 1994, Dahl & Vellupillai 2013). The dataset suggests that this cannot be the full story, because German tolerates a narrative use for dynamic verbs, but not for stative verbs, as we saw in Section 4.1. Dynamic semantics is thus a second ingredient of the analysis of the PERFECT, next to lexical semantics. Section 4.3 will identify compositional semantics as a third ingredient.

4.3 From Dutch to Spanish: past time reference

There are 39 instances of the Dutch *Voltooid Tegenwoordige Tijd* in our dataset, and 16 occurrences of the Spanish *Pretérito Perfecto Compuesto*. We find 15 tuples in which the Spanish *Pretérito Perfecto Compuesto* pairs up with the Dutch *Voltooid Tegenwoordige Tijd*, so the Spanish PERFECT domain is a proper subset of the Dutch PERFECT domain. In this section, we investigate the 24 contexts in which the Dutch translator follows the French original in maintaining the PERFECT, but the Spanish translator switches to a PERFECTIVE PAST.

It turns out that the borderline between Dutch and Spanish resides in a preference of Dutch to report past events in the *Voltooid Tegenwoordige Tijd*, as long as they do not occur in narrative contexts (Le Bruyn et al. 2019). The notion of event is here defined at the compositional level, as a quantized eventuality in the sense of Krifka (1991) and de Swart (1998), and thereby includes accomplishments, achievements as well as activities bounded by a measurement expression. Bounded states are quantized in the compositional sense as well, but they are not found in the *Voltooid Tegenwoordige Tijd*, because Dutch is subject to the same constraint that bans stative verbs from appearing in the PERFECT as German (see Section 4.1 above). The Spanish translator uses the *Pretérito Indefinido* for past time reference, because of the hodiernal nature of the *Pretérito Perfecto Compuesto* (Howe 2013), which requires the underlying event to appear in the extended now (See Section 2 above). The sensitivity to past time reference manifests itself in sentences that include a past time adverbial or a temporal connective.

Starting with Klein (1992), the combination of a past time adverbial with the PERFECT has been a focus of attention. As outlined in Section 1, the cross-linguistic analyses by de Swart (2007) and Schaden (2009) have shown that Spanish shares with English the ban against past time adverbials with the PERFECT, whereas Dutch resembles French, Italian and German in freely combining the PERFECT with past time adverbials. There are few past time locating adverbials in the dataset, but the shift from PERFECT in (15a-d) and (16a-d) to PAST in (15e,f) and (16e,f) confirms the patterns put forward in the literature concerning the cross-linguistic constraints on PERFECT use imposed by the past time adverbial (underlined).

- (15) a. Il *a perdu* son oncle, il y a quelques mois. [French]
 b. Lui *ha perso* suo zio qualche mese fa. [Italian]
 c. Er *hat vor ein paar Monaten* seinen Onkel *verloren*. [German]
 d. Hij *heeft* zijn oom een paar maanden geleden *verloren*. [Dutch]
 e. *Perdió* a su tío hace algunos meses. [Spanish]
 f. He *lost* his uncle, a few months ago. [English]
- (16) a. J'en *ai fait* la remarque un jour à mon patron. [French]
 b. Una volta l'*ho fatto* notare al principale. [Italian]
 c. Ich *habe* meinen Chef eines Tages darauf *hingewiesen*. [German]
 d. Ik *heb* er mijn baas eens een opmerking over *gemaakt*. [Dutch]
 e. Se lo *señalé un día* a mi patrón. [Spanish]
 f. I *mentioned* this once to my boss. [English]

According to de Swart (1999), locating time adverbials interrupt the narrative structure of the text: instead of a smooth series of events that naturally follow one another, the time adverbials makes us jump to a different moment in time, which creates a gap in the temporal structure. The time adverbials in (15) and (16) thus signal that we are not in a narrative context. In such a context, the preference to introduce events by means of a PERFECT leads to the use of the *Voltooid Tegenwoordige Tijd* in (15d) and (16d), but the hodiernal nature of the Spanish *Pretérito Perfecto Compuesto* leads to a shift to the *Pretérito Indefinido* in (15e) and (16e).

Temporal connectives fall in the same category as past time adverbials as far as past time reference to events is concerned. The Dutch translator regularly opts for the *Voltooid Tegenwoordige Tijd* in the presence of a temporal connective like *ensuite* ('after that'), *puis* ('then'), *alors* ('then'), *à partir de ce moment* ('from that point on'), etc. Examples (17) and (18) illustrate, the connective is underlined.

- (17) a. Tout *s'est passé* ensuite avec tant de précipitation, de certitude et de naturel, que je ne me souviens plus de rien. [French]
 b. In seguito tutto si è *svolto* con tanta precipitazione e esattezza, tutto è stato così naturale, che non mi ricordo più nulla. [Italian]
 c. Danach *ist* alles so überstürzt, vorschriftsmäßig und natürlich *abgelaufen*, daß ich mich an nichts mehr erinnere. [German]
 d. Daarna *is* alles zo snel, met zoveel zekerheid en natuurlijkheid *gegaan* dat ik mij niets meer herinner. [Dutch]
 e. Todo *pasó* después con tanta precipitación, exactitud y naturalidad; que no me acuerdo de nada. [Spanish]
 f. After that everything *happened* so quickly and seemed so inevitable and natural that I don't remember any of it any more. [English]
- (18) a. Et puis, je lui *ai dit* ses vérités. [French]
 b. E poi le *ho detto* il fatto suo. [Italian]
 c. Und dann *habe* ich ihr die Meinung *gesagt*. [German]
 d. En daarna *heb* ik haar eens goed de waarheid *gezegd*. [Dutch]
 e. Le *dije* cuatro verdades. [Spanish]
 f. And then I told her a few home truths. [English]

Temporal connectives like *puis* operate on the discourse level, where they impose progress in time by licensing the rhetorical relation of narration (Bras et al. 2003). Temporal connectives create a similar break in rhetorical structure as the time adverbials in (15) and (16) do. We conclude that the presence of overt markers of rhetorical structure and temporal sequencing in the form of past time adverbials and temporal connectives ensures that the tense form is not responsible for establishing narration. The non-narrative environment activates the Dutch preference for the PERFECT to locate events in the past. The switch to the *Prétérito Indefinido* in (15)-(18) reveals that Spanish is not sensitive to the distinction between narrative and non-narrative discourse, and blocks the *Prétérito Perfecto Compuesto* with past time reference.

The claim that the Dutch PERFECT is sensitive to reference to past time reference of events at the compositional level is confirmed by the behavior of bounded activities in the dataset. Boundedness is an ingredient of the PERFECT in French, Italian, German and Dutch, but it is part of the semantics of the PERFECTIVE PAST as reporting a quantized event that is located in the past in Spanish. Key examples are in (19) and (20), where a measurement expression (underlined) delimits the homogeneous activity in time (19) or in space and time (20).

- | | | | |
|------|----|--|-----------|
| (19) | a. | <i>J'ai travaillé <u>tout l'après-midi</u>.</i> | [French] |
| | b. | <i>Ho lavorato <u>tutto il pomeriggio</u>.</i> | [Italian] |
| | c. | <i>Ich habe <u>den ganzen Nachmittag</u> gearbeitet.</i> | [German] |
| | d. | <i><u>De hele middag</u> heb ik gewerkt.</i> | [Dutch] |
| | e. | <i>Trabajé <u>toda la tarde</u>.</i> | [Spanish] |
| | f. | <i>I worked <u>all afternoon</u>.</i> | [English] |
| (20) | a. | <i>J'ai dormi <u>pendant presque tout le trajet</u>.</i> | [French] |
| | b. | <i>Ho dormito quasi <u>tutto il percorso</u>.</i> | [Italian] |
| | c. | <i>Ich habe fast <u>während der ganzen Fahrt</u> geschlafen.</i> | [German] |
| | d. | <i><u>De hele rit bijna</u> heb ik geslapen.</i> | [Dutch] |
| | e. | <i>Dormí durante casi <u>todo el trayecto</u>.</i> | [Spanish] |
| | f. | <i>I slept <u>almost all the way</u>.</i> | [English] |

Example (21) is set in the context of the protagonist taking a bus from Algiers to the village of the old people's home where his mother lived, so the activity of sleeping is here delimited in space and time through the motion context (Asher and Sablayrolles 1995).

We take boundedness to be responsible for tense choice in example (21) as well.

- | | | | |
|------|----|--|-----------|
| (21) | a. | <i>Aujourd'hui j'ai <u>beaucoup travaillé</u> au bureau.</i> | [French] |
| | b. | <i>Oggi ho avuto <u>molto</u> da fare in ufficio.</i> | [Italian] |
| | c. | <i>Heute habe ich im Büro <u>viel</u> gearbeitet.</i> | [German] |
| | d. | <i>Vandaag op kantoor heb ik <u>hard</u> gewerkt.</i> | [Dutch] |
| | e. | <i>Hoy trabajé <u>duro</u> en la oficina.</i> | [Spanish] |
| | f. | <i>I worked <u>hard</u> at the office today.</i> | [English] |

The adverbial quantifier *beaucoup* ('a lot, hard') in (21a) has an object related reading in which the adverbial characterizes the amount of work carried out as high (Doetjes 1997). Through its measurement of the amount of work, adverbial *beaucoup* presents the activity of working as a delimited whole. The bounding role of the adverbial quantifier carries over to its

translations, and licenses the PERFECT in Italian, German and Dutch, but not in Spanish and English, which opt for the *Pretérito Indefinido* and the *Simple Past*, notwithstanding the presence of the deictic adverbial *hoy/today* (see Section 4.4 below).

Boundedness in the sense of describing the situation as a single whole, including the beginning and the end is a familiar ingredient of the Romance PERFECTIVE PAST (Kamp & Rohrer 1983, de Swart 1998). But boundedness has been associated with the French *Passé Composé* as well, for instance by Bres (2010) and Apothéloz (2016). The analysis Kamp et al. (2015) formulate for the German *Perfekt* also relies on reference to a quantized event. The examples in (19) and (20) show that a bounded activity can be expressed by a PERFECT or PERFECTIVE PAST, depending on the rules of the language-specific grammar for locating events in the past.

In sum, Dutch makes more frequent use of the PERFECT than Spanish, because Dutch shares with German a preference for reporting past events in the PERFECT (Le Bruyn et al. 2019), whereas the Spanish *Pretérito Perfecto Compuesto* is hodiernal, and doesn't allow past time reference of events. The observation that bounded activities with past time reference are reported in the *Voltooid Tegenwoordige Tijd* supports the role of compositional semantics as a third ingredient in the semantics of the PERFECT, next to lexical semantics (Section 4.1) and dynamic semantics (Section 4.2).

4.4 From Spanish to English: pragmatically presupposed events and deixis

According to Schaden (2009), the Spanish *Pretérito Perfecto Compuesto* and the English *Present Perfect* share a large number of semantic characteristics, and the data in Sections 4.1-4.3 lend support to the similarities. Yet the distribution of the English PERFECT is slightly more restricted than that of its Spanish counterpart. According to Table 2, there are 16 instances of the *Pretérito Perfecto Compuesto* in the dataset against 11 occurrences of the *Present Perfect*. We find that 10 out of the 11 occurrences of the *Present Perfect* occur in combination with the *Pretérito Perfecto Compuesto*, which confirms the subset relation in Figure 4. We focus on the 4 contexts in which Spanish uses a PERFECT, but English does not.

Michaelis (1994) points out that a past event with current relevance is not enough to license the *Present Perfect* in English. She argues that pragmatically presupposed events cannot be reported in the *Present Perfect*, but require the *Simple Past*. So not only does the past event have to have current relevance, it has to be hearer new. This pragmatic constraint explains why newspaper headlines as in (1d) read like 'hot news': reporting Malcolm X's death in the *Present Perfect* attracts the attention to a hearer new event. We argue that this pragmatic constraint is at work in (22), where all languages except English use a PERFECT.

- (22) a. Il a bégayé un peu : « On l'a *couverte*, mais je dois dévisser la bière pour que vous puissiez la voir. » [French]
- b. Mi ha detto balbettando un po': «L'*hanno coperta*, ma devo svitare la cassa perché voi possiate vederla.» [Italian]
- c. Er hat ein bißchen herum gestottert: « Man *hat* sie *zugemacht*, aber ich muß den Sarg nur aufschraube , damit Sie sie sehen können. » [German]
- d. Hij stotterde een beetje: '*Ze hebben* het deksel er op *gedaan*, maar ik moet het losschroeven om u in de gelegenheid te stellen uw moeder te zien.' [Dutch]

- e. Tartamudeó un poco : «La *hemos cubierto*. Pero desatornillaré el féretro para que pueda usted verla. » [Spanish]
- f. He stuttered a bit. ‘We *covered* her up. But I was to unscrew the coffin to let you see her.’ [English]

In order to understand why the English translator switches to the *Simple Past* in (22f), it is relevant to take into account the previous discourse. A few sentences before (22), the protagonist has entered the mortuary, in which rests his mother’s coffin, and the English translation reads as follows: “The lid was on, but a row of shiny screws, which hadn’t yet been tightened down, stood out against the walnut-stained wood.” In this setting, the closed coffin is not a new piece of information when the reader comes across (22), so we can appeal to the constraint on pragmatically presupposed events to explain why the English translator avoids the *Present Perfect*. The fact that the event of closing happened in the last 24 hours supports the use of the Spanish *Pretérito Perfecto Compuesto*. The example in (23) is similar:

- (23) a. L’un m’a même crié: “On les *a eus!*” [French]
- b. Uno mi ha persino gridato : “Li *abbiamo fregati.*” [Italian]
- c. Einer hat mir sogar zugerufen : « Wir *haben sie fertiggemacht.* » [German]
- d. Eén van hen schreeuwde mij zelfs toe : ‘Wij *hebben ze ingemaakt.*’ [Dutch]
- e. Uno gritó incluso : “Les *hemos ganado.*” [Spanish]
- f. One of them even shouted to me, “We *thrashed* them.” [English]

For all languages other than English, this is a plain hodiernal PERFECT, which locates an event in the immediate vicinity of the speech time. Just like in (22f), the use of the *Simple Past* in (23f) makes sense in view of the ban against pragmatically presupposed events. In the discourse preceding (23), we learn that Meursault has been sitting at the window for a while, and observed the passengers boarding the tram to the stadium to attend the game. A few hours later he sees them coming back all excited, and yelling things, as we see in (23). World knowledge tells us that a game always ends with a winner and a loser. The question under discussion arguably deals with the identification of the winner, rather than the fact that there is a winner. We take the familiarity of the event of winning in the context of a game to be responsible for the *Simple Past* in (23f). The contrast between (22e/f) and (23e/f) suggests that the Spanish *Pretérito Perfecto Compuesto* is not incompatible with pragmatically presupposed events, and reports the result of a hodiernal past event, just like the other languages. The difference between Spanish and English thus resides in pragmatics.

The constraint on pragmatically presupposed events must be extended if we want to use it for other examples in the dataset. According to the English literature, adverbs referring to the extended now are in principle compatible with the *Present Perfect* (Portner 2003 and others), see (1c). However, in our dataset the translator prefers a *Simple Past* in (21f) as well as (24f), notwithstanding the presence of the deictic adverbial *aujourd’hui* (‘today’) in both examples.

- (24) a. Aujourd’hui, maman *est morte*. Ou peut-être hier, je ne sais pas. [French]
- b. Oggi la mamma è *morta*. O forse ieri, non so. [Italian]
- c. Heute ist Mama *gestorben*. Vielleicht auch gestern, ich weiss nicht. [German]
- d. Vandaag is moeder *gestorven*. Of misschien gisteren, ik weet het niet. [Dutch]
- e. Hoy, mamá *ha muerto*. O tal vez ayer. No sé. [Spanish]
- f. Mother *died today*. Or maybe yesterday, I don’t know. [English]

Spanish aligns with English in (21e), but not in (24e). The preference for the *Preterito Perfecto Compuesto* in (24e) is in line with the hodiernal nature of the Spanish PERFECT (Howe 2013), but the *Preterito Indefinido* in the presence of *hoy* in (21e) shows that this cannot be the entire story. Michaelis' (1994) ban on pragmatically presupposed events does not help in this case, because there is no previous discourse: (24) is the opening sentence of the novel. The ability of the PERFECT to negotiate a new topic was first signaled by Nishiyama & Koenig (2010), and is exploited here in French and all other languages except English to set the stage for the story. As already observed by Michaelis (1994), English speakers sometimes prefer a *Simple Past* in non-anaphoric contexts where a *Present Perfect* would also be possible. Note further that the English translation has a slightly different information structure, which is signaled by the change in word order between the French original and the English translation: the sentence-initial position of *aujourd'hui* makes today the temporal frame for the main clause event (Hinrichs 1986). The postposition of the adverbial *today* in the English translation turns it into a modifier of the main clause event, rather than a temporal frame (de Swart 1999). The fact that the subsequent sentence questions the location in time of the event of dying seems to make it possible to appeal to accommodate the event of dying upon introduction, and place the emphasis on the location in time of the past event, rather than the current relevance of the result state of the passed away mother.

The appeal to presupposition accommodation under an extended interpretation of the ban against pragmatically presupposed events can help us to explain the use of the *Simple Past* in the English translation of (24), but an extended interpretation of Michaelis' pragmatic constraint is not always easy to come by. Example (25) shows that all languages including Spanish maintain the PERFECT in the presence of a deictic adverbial like *ce mois-ci* ('this month'), but the English translator switches to a *Simple Past*.

- (25) a. Je t'*ai acheté* un ensemble ce mois-ci, je te paye vingt francs par jour, je te paye le loyer et toi, tu prends le café l'après-midi avec tes amies. [French]
- b. Ti *ho comprato* un vestito questo mese, ti do venti franchi al giorno, ti pago l'affitto, e tu bevi il caffè il pomeriggio con le tue amiche. [Italian]
- c. Ich *habe* dir diesen Monat eine Garnitur *gekauft*, ich bezahle dir zwanzig Francs am Tag, ich bezahle deine Miete, und du, du trinkst nachmittags mit deinen Freundinnen Kaffee. [German]
- d. Ik *heb* deze maand nog een mantel en een jurk voor je *gekocht*, ik betaal je twintig francs per dag, ik betaal de huur en jij doet niet anders dan 's middags een beetje koffiedrinken met je vriendinnen. [Dutch]
- e. Te *he comprado* un conjunto este mes, te pago veinte francos por día, me encargo del alquiler y tú tomas café con tus amigas después de comer. [Span.]
- f. I *bought* you a new suit this month, I give you twenty francs a day, I pay your rent and you go and have coffee with your friends every afternoon. [English]

The interval denoted by the deictic time adverbial in (25) extends substantially beyond the utterance situation, but is easily perceived as placed in an extended now. The continuation of the sentence in the PRESENT emphasizes the current relevance of the past event as indicative of the speaker's generosity. In (25a-e), this is enough to license the use of a PERFECT, but the *Simple Past* in (25f) shifts the focus to the event of buying the outfit rather than the addressee having the outfit. A more precise account of the pragmatic differences between the Spanish

Prétérito Perfecto Compuesto and the English *Present Perfect* is beyond the scope of this paper, but the examples discussed so far indicate that deixis and information structure at the discourse level are crucial to a better understanding of the differences between the two languages. Pragmatics thus constitutes a fourth ingredient of a cross-linguistically robust semantics of the PERFECT.

4.5 ‘Classic’ PERFECT configurations and the more restricted PERFECT use in modern Greek

The investigation of the 11 datapoints in which the English translator opts for the *Present Perfect* shows that they instantiate the ‘classic’ configurations familiar from the literature discussed in Sections 1 and 2, and illustrated in (1). We find the resultative PERFECT in (26) and (27), which is conveyed by an auxiliary+past participle in all languages under investigation, except for Modern Greek.

- (26) a. Dans l' escalier, il m'a expliqué : « Nous l'*avons transportée* dans notre petite morgue. » [French]
- b. Scendendo le scale, mi ha spiegato : “L'*abbiamo trasportata* nel nostro piccolo obitorio.” [Italian]
- c. Auf der Treppe hat er mir erklärt : « Wir *haben* sie in unsere kleine Leichenhalle *gebracht*. » [German]
- d. Op de trap vertelde hij mij: “Wij *hebben* haar naar ons lijkenhuisje *gebracht*.” [Dutch]
- e. En la escalera me explicó : « La *hemos transportado* a nuestro pequeño depósito. » [Spanish]
- f. On our way downstairs he explained, “We’ve *transferred* her to our little mortuary.” [English]
- g. Στη σκάλα, μου εξήγησε : « Τη *μεταφέραμε* στο μικρό μας νεκροθάλαμο. » [Greek]
- (27) a. Et le fait est que la mort de Mme Meursault l’a beaucoup *affecté*. [French]
- b. E senza dubbio la morte della signora Meursault è *stata* un colpo duro per lui. [Italian]
- c. Und tatsächlich *ist* ihm Madame Meursaults Tod sehr nahe *gegangen*. [German]
- d. En het is een feit dat de dood van mevrouw Meursault hem erg *heeft aangegrepen*. [Dutch]
- e. Y la verdad es que la muerte de la señora Meursault lo *ha afectado* mucho. [Spanish]
- f. And the fact is that Mrs. Meursault's death *has affected* him very badly. [English]
- g. Και είναι γεγονός πως ο θάνατος της κυρίας Μερσώ του *στοίχισε* πολύ. [Greek]

In examples (26) and (27), the current relevance of the result state licenses the PERFECT in all languages except for Greek, which uses an *Aorist* in both (26g) and (27g).

Another classic configuration is the existential PERFECT, especially with negation. The Greek translation in (28g) provides the one and only example of the *Parakimenos* in our dataset.

- (28) a. Depuis huit ans, ils n'ont pas *changé* leur itinéraire. [French]
 b. Da otto anni non *cambiano* il loro itinerario. [Italian]
 c. Seit acht Jahren *haben* sie ihre Route nicht *geändert*. [German]
 d. In al die acht jaar *hebben* zij hun wandelroute niet *veranderd*. [Dutch]
 e. Al cabo de ocho años, no *han cambiado* de itinerario. [Spanish]
 f. In eight years they *haven't changed* their route. [English]
 g. Εδώ κι οχτώ χρόνια δεν *έχουν αλλάξει* διαδρομή. [Greek]

We also find an existential PERFECT in combination with a negative universal quantifier (*jamais* 'never' in 29); note that Greek uses a PAST PERFECT here.

- (29) a. Je les voyais comme je n'*ai jamais vu* personne et pas un détail de leurs visages ou de leurs habits ne m'échappait. [French]
 b. Li vedevo come non *ho mai visto* alcuno e non mi sfuggiva il minimo articolare dei loro volti e dei loro vestiti. [Italian]
 c. Ich sah sie, wie ich nie jemanden *gesehen habe*, und keine Einzelheit in ihren Gesichtern oder an ihrer Kleidung entging mir. [German]
 d. Ik zag hen zoals ik nog nooit iemand *heb gezien*, en geen onderdeel van hun gezichten of van hun kleren ontsnapte aan mijn aandacht. [Dutch]
 e. Los veía como nunca *he visto* a nadie y ni un solo detalle de sus rostros o de sus trajes se me escapaba. [Spanish]
 f. I saw them more clearly than I've ever *seen* anyone and not a single detail of either their faces or their clothes escaped me. [English]
 g. Τους κοιτούσα όπως δεν *είχα κοιτάξει* ποτέ κανέναν κι ούτε μια λεπτομέρεια απ' τα πρόσωπα τους ή απ' τα ρούχα τους δε μου διέφυγε. [Greek]

Nishiyama & Koenig (2010) draw attention to instances of inverse causality, where the past event does not cause the result state, but the state that currently holds is the reason why the past action is taken. Example (30) instantiates this configuration in *L'Étranger*.

- (30) a. Maintenant il est trop grand pour moi et j'*ai dû* transporter dans ma chambre la table de la salle à manger. [French]
 b. Adesso è troppo grande per me e *ho dovuto* trasportare in camera mia la tavola della sala da pranzo. [Italian]
 c. Jetzt ist sie zu groß für mich, und ich *habe* den Esszimmer Tisch in mein Zimmer *räumen müssen*. [German]
 d. Maar nu zijn zij te groot voor mij, zodat ik de huiskamertafel naar mijn eigen kamer *heb moeten brengen*. [Dutch]
 e. Es ahora demasiado grande para mí y *he tenido* que traer a mi habitación la mesa del comedor. [Spanish]
 f. But now it's too big for me and I've had to move the dining-room table into my bedroom. [English]
 g. Τώρα είναι πολύ μεγάλο για μένα και *μετέφερα* στο δωμάτιο μου το τραπέζι της τραπεζαρίας. [Greek]

Sentence (30a) in the *Passé Composé* conveys that the protagonist moved the table into the bedroom because the apartment (the referent of the pronoun *il*) was too big for a single person. The translations in (30b-f) confirm that all the languages in our study use a PERFECT to convey inverse causality, except for Modern Greek, which uses an *Aorist* in (30g).

We conclude that the ‘classic’ PERFECT readings familiar from the literature on the English *Present Perfect* are also found in the other languages in our dataset. Modern Greek is the only exception, with a clearly more restricted distribution of the *Parakimenos*, but we need a larger dataset to provide a linguistic analysis of the Greek PERFECT (see Askitidis 2018).

4.6 Intermediate conclusion

Most of the theoretical literature focuses on the ‘classic’ PERFECT readings found in English and Spanish, but we think that languages that display a narrower distribution (such as modern Greek) as well as languages with a more liberal PERFECT use (such as French and Italian) should play a role in a cross-linguistically validated analysis of the PERFECT. In the competition between PERFECT and PAST, we should not forget the intermediate position occupied by languages like German and Dutch either. In this section, we determined the language-specific constraints that underlie the division of labor between PERFECT and PAST. Figure 6 sums up the results.

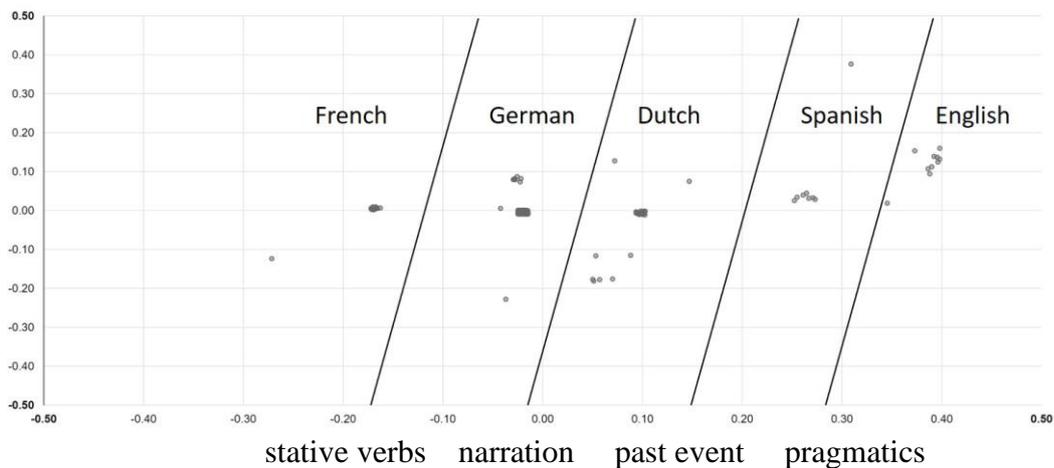


Figure 6: linguistic principles governing the competition between PERFECT and PAST

If we were dealing with a dichotomy between PAST and PERFECT oriented languages, we would expect a single linguistic criterion to drive the opposition. However, Figure 6 indicates that the grammar of the PERFECT is sensitive to lexical semantics (stative vs. dynamic verbs), compositional semantics (boundedness), dynamic semantics (narration), and pragmatics (deixis and information structure). The fact that different factors come into play in the cross-linguistic grammar of the PERFECT supports the scalar approach to the PERFECT-PAST competition we established in Section 3.

Summing up the results achieved so far, we find that *Translation Mining* offers a detailed view on the PERFECT. The descriptive statistics nicely accounts for the overall patterns of cross-linguistic variation, but we need the temporal maps generated by *Multidimensional Scaling* to reveal the contexts where the variation in PERFECT usage resides. The interactive

interface allows us to investigate key examples at the cluster boundaries, which inform us about the language-specific grammar of the PERFECT. In this way, we have established a correlation between restriction of use (Figure 4) and progressive narrowing down of linguistic meaning (Figure 6). One thing we should keep in mind is that these conclusions are based on a dataset that takes its starting point in the behavior of the French *Passé Composé*. The methodology followed so far prevents us from generating a super-set of French, because we have not extracted all the PERFECTS of the other languages. If the distribution of the PERFECT in other languages is not more restricted, but simply different from French, it is possible that we find PERFECT examples in translation in contexts where Camus chooses a tense form other than the *Passé Composé*. This raises the more general question whether tense use varies only for the PERFECT or whether other verb forms also give rise to similar cross-linguistic variation. We created a second dataset to answer these questions.

5. A multilingual comparison of all verb forms

We need a second dataset to investigate the possibility of PERFECT forms in the translations that are not driven by a *Passé Composé*. A dataset consisting of all the verb forms in the first chapter and their translations can also provide insight into the stability and variation in distribution of a wider range of tenses. We have no algorithm that can extract all the finite verb forms for us, so we manually collected them from the French original, and then followed the procedure of alignment and enrichment of morpho-syntactic labeling described in Section 3. The descriptive statistics (Section 5.1) and temporal maps (Section 5.2) reveal limited variation in tense forms other than the PRESENT PERFECT. Interestingly, the data reproduce the subset relation in Figure 4. Once we zoom in on the languages in our dataset with a perfective/imperfective distinction, we find that the competition is specifically between the PERFECT and the PERFECTIVE PAST. Section 5.3 discusses some examples where the English translation uses a *Present Perfect* as the translation of a French *Present*. They confirm that the continuative reading exemplified in (1c) is specific to English. We take these datapoints to be indicative of a second competition between PERFECT and PRESENT.

5.1 Annotation and descriptive statistics

The extraction of all the finite verbs from Chapter 1 of *L'Étranger* gives rise to a larger set of forms than we have seen in the first dataset, in the original as well as in the translations. Since we are interested in the competition between the finite, indicative forms, we leave aside the n-tuples with non-finite forms (participles, infinitive) or non-indicative forms (subjunctive, conditional). Table 4 is restricted to the 311 datapoints where all languages use a finite indicative verb form.

category	French	#	Italian	#	German	#	Dutch	#
PERFECT	passé composé	162	passato prossimo	161	Perfekt	154	voltooid tegenwoordige tijd	18
(SIMPLE) PAST					Präteritum	119	onvoltooid verleden tijd	251
PERFECTIVE PAST	passé simple	1	passato remoto	1				
IMPERFECTIVE PAST	imparfait	105	imperfetto	105				

PAST PERFECT	plus-que-parfait	10	trapassato prossimo	9	Plusquam perfekt	7	voltooid verleden tijd	9
PRESENT	présent	28	presente	28	Präsens	29	onvoltooid tegenwoordige tijd	33
FUTURE	futur	5	futur	5	Futur	2		
other			stare + gerundio	2				
	Spanish		English	#	Modern Greek	#		
PERFECT	pretérito perfecto compuesto	7	present perfect	6	parakimenos	0		
(SIMPLE) PAST			simple past	235	past	46		
PERFECTIVE PAST	pretérito indefinido	160			aorist	156		
IMPERFECTIVE PAST	pretérito imperfecto	104	past continuous	24	paratatikos	66		
PAST PERFECT	pretérito plusquamp.	8	pluperfect	11	ipersintelikos	12		
PRESENT	presente	27	simple present	26	enestotas	26		
FUTUR	futuro	5	future	9	mellontas stigmieos	5		

Table 4: Inventory of 311 finite indicative tense forms in Chapter 1 of *L'Étranger*.

We rely on Table 1 for the correspondences between language-specific labels and generic categories like PERFECT, PAST, PRESENT, PLUPERFECT and FUTURE. Note that we lost the one and only example of the *Parakimenos* that was part of the first dataset. The example in (30) above does not appear in Chapter 1, so the second dataset does not contain any instances of the Greek PERFECT.

The numbers for the PRESENT and PAST PERFECT verb forms are very similar in Table 4. Looking at the tuple frequency, we find that in 22 out of 28 instances, the French *Présent* is matched with a PRESENT tense in all the other languages. As for the remaining 6 instances, we find 4 tuples in which a PRESENT tense form appears as the translation of the French *Présent* in five out of six translations, and 2 tuples in which a PRESENT is found in four other languages. There is some indication of a competition between PRESENT and FUTURE, with German and Dutch exemplifying more PRESENTS, and fewer FUTURE forms, but the numbers are too low to draw solid conclusions. We conclude that the PRESENT tense only presents minor cross-linguistic variation in the Camus dataset.

As for the PAST PERFECT, 6 out of 10 occurrences of the *Plus-que-parfait* appear in the 7-tuple <*Plusquamperfekt, Pluperfect, Pretérito Pluscuamperfecto, Plus-que-parfait, Trapassato Prossimo, Voltooid Verleden Tijd, Ipersintelikos*> of all PAST PERFECT verb forms. The remaining 4 instances of the *Plus-que-parfait* appear in various constellations, but they are always accompanied by a PAST PERFECT in at least one other language. The numbers might be a bit low to draw hard conclusions, but Table 4 doesn't indicate much cross-linguistic variation in the distribution of the PAST PERFECT in the seven languages under consideration.

Table 4 shows that, in languages that have a grammaticalized PERFECTIVE/IMPERFECTIVE distinction, the IMPERFECTIVE PAST is the second most frequently occurring verb form in Chapter 1. This finding supports the hypothesis that Camus uses the alternation between *Passé Composé* (162 instances) and *Imparfait* (105 instances) to tell the story (see Section 1). When we look at tuple frequency, we find that in 100 out of 105 examples, the French *Imparfait* is translated by means of the Italian *Imperfetto* and the Spanish *Pretérito Imperfecto*. This distributional pattern suggests that the Romance IMPERFECTIVE PAST forms occur largely in the same contexts. With only 66 instances of the *Paratatikos*, the number for the Greek IMPERFECTIVE PAST is substantially lower, but the fact that we find 47 PASTs that are morphologically indistinguishable between PERFECTIVE and IMPERFECTIVE means that we have a less precise picture here. We conclude that the use of IMPERFECTIVE PAST is cross-linguistically quite stable in the Camus dataset, at least in the Romance languages.

So far, we find reasonable cross-linguistic stability, but there is also variation, mainly in the PERFECT/PAST distribution. Table 4 duplicates the pattern familiar from the first dataset: the high numbers for the *Passé Composé* (162) are mirrored in Italian (161 instances of the *Passato Prossimo*) and German (154 instances of the *Perfekt*), so these languages are PERFECT oriented. The most frequent verb forms in Spanish and Greek are the *Pretérito Indefinido* (160) and the *Aorist* (156). When we look at tuple frequency, we find that in 153 out of 162 contexts, the French *Passé Composé* is translated by means of the Italian *Passato Prossimo* and the Spanish *Pretérito Indefinido*. These numbers suggest a clear distribution of labor between the PERFECT and the PERFECTIVE PAST in Romance languages.

As the Germanic languages lack a morphological contrast between PERFECTIVE/IMPERFECTIVE aspect, we are not surprised to find that the German *Präteritum* (119) and the Dutch *Onvoltooid Verleden Tijd* (251) appear in the translation of both the *Passé Composé* (162) and the *Imparfait* (105). However the *Präteritum* mostly shows up as the translation of an *Imparfait* (106 tuples), and only 7 times as the translation of a *Passé Composé*. For Dutch, the distribution is more balanced, with 140 tuples in which the *Onvoltooid Verleden Tijd* translates the *Passé Composé* and 105 tuples in which it renders the *Imparfait*.

English is the only language in our dataset to have a PROGRESSIVE aspect (morpho-syntactically realized by the continuous form in *-ing*), but the number of *Past Continuous* forms (24) is much lower than that of the French *Imparfait* (106). The fact that in 22 out of 24 tuples the *Past Continuous* shows up in the company of the French *Imparfait*, the Italian *Imperfetto* and the Spanish *Pretérito Imperfecto* lends support to Comrie's (1976) claim that the PROGRESSIVE meaning is subsumed under the IMPERFECTIVE.

In sum, the descriptive statistics from Table 4 support the claim that most tense forms have a cross-linguistically stable distribution, except for the competition between PERFECT and PAST that we are familiar with from Sections 3 and 4. The contrast between PERFECTIVE and IMPERFECTIVE PAST tenses suggests that the real competition is between the PERFECT and the PERFECTIVE PAST. In order to relate the numbers to meaning, we apply *Multidimensional Scaling* to generate a visualization of tense use in context.

5.2 A cartographic inventory of the distribution of verbal tenses

The application of *Multidimensional Scaling* to the tuples of all finite, indicative tenses in the first chapter of *L'Étranger* gives rise to the temporal map in Figure 7 for French.

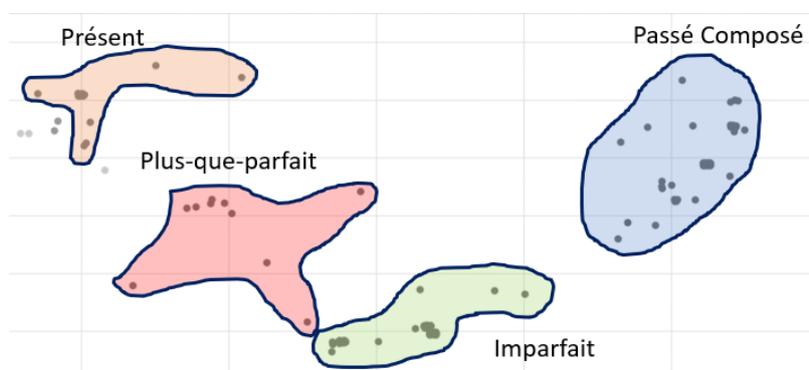


Figure 7 : map of all finite, indicative French tense forms in Chapter 1 of *L'Étranger*

The *Multidimensional Scaling* algorithm clusters the *Passé Composé* (blue) on the right, the *Imparfait* (light green) in the middle at the bottom of the map, the *Plus-que-Parfait* (red) in the lower left, and the *Présent* (orange) in the upper left part. We draw lines around the clusters to indicate the main patterns. The algorithm generated the cartographic representation based on a multilingual comparison, so the proper delimitation of the various tenses suggests a set of well-defined uses. Figure 7 is therefore a good starting point to address the question how translators have solved translation problems in different contexts of use.

The maps are identical as far as the position of the dots in two-dimensional space is concerned. Variation in color for individual dots indicates tense shift in a particular context between languages. We find that all languages locate the PRESENT and PAST PERFECT cluster in the upper left and the middle of the map. This stability is not surprising, because the descriptive statistics in Section 5.1 indicated just minor cross-linguistic variation in the distribution of these verb forms. In order to keep the maps readable, we do not draw lines around the domains of PRESENT and PAST PERFECT, but focus on the PAST and PERFECT, which constitute the key areas of cross-linguistic variation. The French map in Figure 7 is duplicated in Figure 8.1, with the domain of the PERFECT (*Passé Composé*) shown in blue, with a solid border, and the domain of the IMPERFECTIVE PAST (*Imparfait*) colored in light green, with a striped and dotted border. Other languages further introduce SIMPLE and PERFECTIVE PAST tenses in the translations, the domain of which appears in dark green, with a dotted border.

The top-down order of the maps in Figure 8 is different from that in Figure 3, because we are now starting with the languages that have an aspectual PERFECTIVE/IMPERFECTIVE distinction (Italian, Spanish, Greek in Figures 8.2-8.4), followed by those who do not (German, Dutch in Figures 8.5-8.6). We end with the SIMPLE/PROGRESSIVE contrast in English (Figure 8.7).

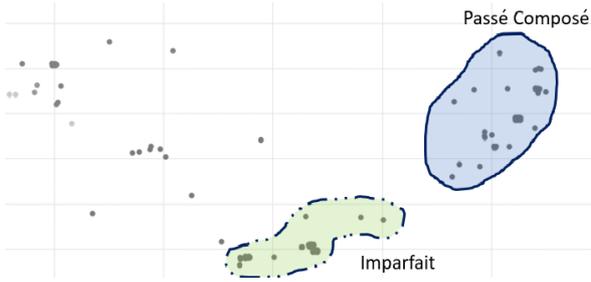


Figure 8.1 French

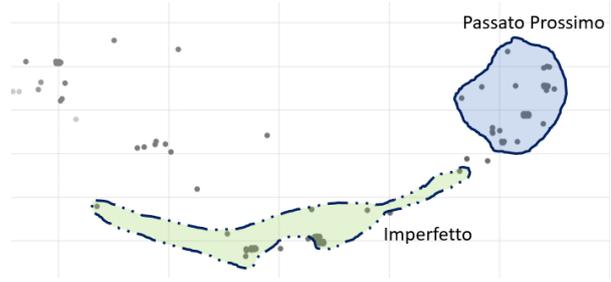


Figure 8.2 : Italian

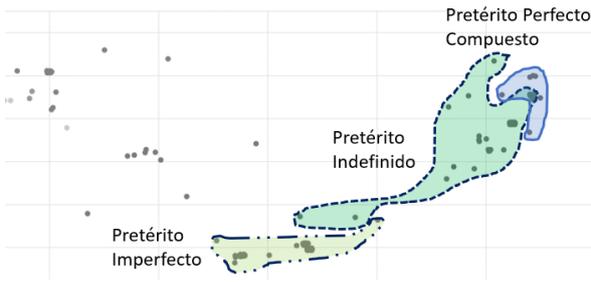


Figure 8.3: Spanish

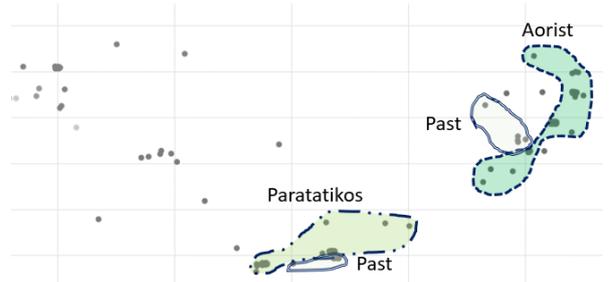


Figure 8.4: Modern Greek

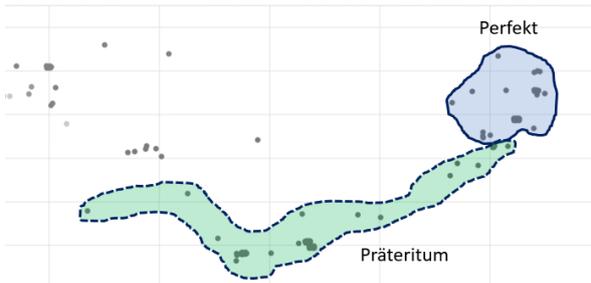


Figure 8.5: German

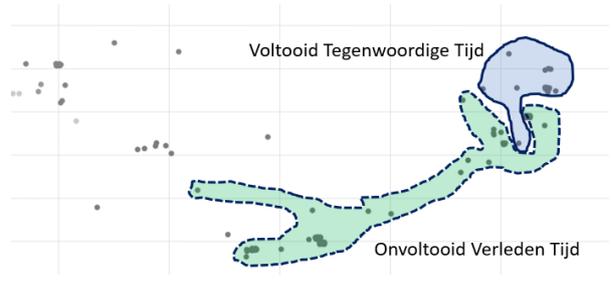


Figure 8.6: Dutch

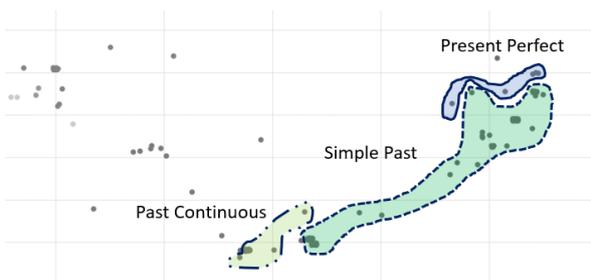


Figure 8.7: English

Figure 8: Distribution of PERFECT, PERFECTIVE PAST, SIMPLE PAST and IMPERFECTIVE PAST in Chapter 1 of *L'Étranger*

The Italian map in Figure 8.2 is very close to the French map in Figure 8.1. The domain of the *Imperfetto* is a bit more stretched out than that of the *Imparfait*, indicating some variation at the edges of the IMPERFECTIVE PAST and PERFECT domains. As we have seen in terms of the numbers (see Section 5.1), this constitutes a couple of isolated points, though. The close

similarities in the clusters suggest that the tense-aspect grammar of the two languages is very much alike, not only in its inventory of verb forms, but also in its contextual meaning.

The Spanish map in Figure 8.3 places the *Imperfecto* in the lower part of the map, and the light green domain with the striped-dotted border is included in the IMPERFECTIVE PAST cluster of French, Italian and Spanish (Figures 8.1-8.3). The domain of the *Imperfecto* looks slightly smaller than that of the *Imparfait*, but again, this is due to a few outliers, and the main patterns are stable, as we established on the basis of the descriptive statistics in Section 5.1. The descriptive statistics and the temporal maps in Figure 8 confirm the cross-linguistic stability of the IMPERFECTIVE PAST in Romance. In contrast, the *Passé Composé* cluster from Figure 8.1 is divided into two parts in Figure 8.3, one smaller part for the *Preterito Perfecto Compuesto* (blue domain with solid line all the way at the top right) and a larger part for the *Preterito Indefinido* (dark green cluster with dotted line, in between the blue and light green domains). From Schaden (2009) and the analysis of the first dataset, we already know that Spanish makes a more restricted use of the PERFECT than French and Italian, and the second dataset confirms this finding.

The Modern Greek map resembles the Spanish map, except for the fact that the blue domain of the *Passé Composé* in Figure 8.1 turns entirely dark green with a striped-dotted border in Figure 8.4. This color change highlights the absence of the *Parakimenos* in the Greek dataset, which correlates with the dominance of the *Aorist*. The fact that the Greek PERFECT does not emerge as the translation of a different tense form supports the thesis put forward by Dahl & Velupillai (2013) that Modern Greek has a narrower distribution of PERFECT than other European languages. The split of the PAST tense in Figure 8.4 into two clusters associated with the *Aorist* on the one hand and the *Paratatikos* on the other reflects the absence of a morphological distinction between PERFECTIVE and IMPERFECTIVE forms for a subclass of verbs. We could not clearly deduce this from the descriptive statistics (see Section 5.1), but the temporal maps do in fact confirm the cross-linguistic stability of the IMPERFECTIVE PAST in all the languages in our dataset.

The conclusion that the IMPERFECTIVE PAST has a stable distribution across contexts in French, Italian, Spanish and Greek has interesting consequences for our take on the competition between PERFECT and PAST. Once we realize that the light green clusters with dotted-striped borders are largely the same in Figures 8.1-8.4, but the blue clusters with the solid border are not, we can conclude that the PERFECT does not compete with the IMPERFECTIVE PAST. In other words, we are not simply dealing with a competition between PERFECT and PAST, but more specifically with a competition between PERFECT and PERFECTIVE PAST. Of course, we found very few IMPERFECTIVE PASTS in the translation of the *Passé Composé* in the first dataset (see Table 2), but the second dataset shows that this is a solid pattern. The pattern is expected under the approach on the Aorist drift taken by Bybee et al. (1994) and others (see Section 2), but the maps in Figures 8.1-8.4 are relevant, because they clearly visualize the competition between the PERFECTIVE PAST and the PERFECT.

Interestingly, we find indirect confirmation for the claim that the PERFECT competes with the PERFECTIVE PAST in the Germanic languages. Figures 8.5 and 8.6 show that the dark green domains with the dotted border of the German *Präteritum* and the Dutch *Onvoltooid Verleden Tijd* cover the area of the *Imparfait* as well as part of the domain of the *Passé Composé*. This

is what we expect from languages that do not grammaticalize the distinction between PERFECTIVE and IMPERFECTIVE. Within the Germanic languages, we see a difference in the distribution of labor between PERFECT and SIMPLE PAST, though, with a smaller blue cluster in Dutch (Figure 8.6) than in German (Figure 8.5). This difference relates to the freedom of the German *Perfekt* to appear in narrative contexts, in contrast to the Dutch preference for the *Onvoltooid Verleden Tijd* to tell the story (see Section 4.2 above). There is no cross-linguistic variation in the translation of the *Imparfait*, though: the light green cluster with the striped-dotted border from Figure 8.1 is included in the dark green clusters with the dotted lines in Figures 8.4 and 8.5. In sum, the temporal maps confirm that the Germanic SIMPLE PAST tense is aspectually underspecified, and has a PERFECTIVE as well as an IMPERFECTIVE value (Boogaart 1999). In their IMPERFECTIVE value, the German *Präteritum* and the Dutch *Onvoltooid Verleden Tijd* pattern alike. Only in its PERFECTIVE value, the Germanic PAST enters into a competition with the PERFECT. The outcome of this competition is that German is more PERFECT oriented than Dutch, and most occurrences of the *Präteritum* appear in the area covered by IMPERFECTIVE PAST forms.

English represents a mixed case, because it does not have a grammaticalized PERFECTIVE/IMPERFECTIVE distinction the way we find it in Romance, but unlike the other Germanic languages, it has a PROGRESSIVE aspect. In Figure 8.7, a subset of the French *Imparfait* domain from Figure 8.1 is taken up by the *Past Continuous* (light green cluster with striped-dotted border). We take this pattern to confirm Comrie's (1976) thesis that the PROGRESSIVE corresponds with a specialized part of the meaning of the IMPERFECTIVE. The dark green cluster with a dotted border shows the overlap between the *Simple Past* and the *Imparfait* on the one hand and the *Passé Composé* on the other. The non-progressive *Simple Past* thus covers the IMPERFECTIVE minus the PROGRESSIVE contexts on the left plus the contexts covered by the PERFECTIVE PAST of languages like Spanish and Modern Greek on the right side of the map. The blue domain with the solid line of the English *Present Perfect* is as small as the Spanish *Preterito Compuesto Perfecto* cluster in Figure 8.3. The two blue domains are not identical, though, so the differences in distribution between the PERFECT in the two languages we found in the first dataset (see Section 4.4) are preserved in the second dataset.

Overall, we see that the *Translation Mining* methodology reveals both cross-linguistic stability and variation. The color shifts from blue to green in the series of maps from Figures 8.1-8.7 show how the second dataset repeats the subset relation we established on the basis of the first dataset. The second dataset also confirms that the PERFECT/PAST competition is scalar in nature, rather than an absolute opposition. These patterns are in line with claims in the literature (de Swart 2007, Schaden 2009, Dahl & Velupillai 2013) that French and Italian make the widest use of PERFECT, German and Dutch occupy an intermediate position, Spanish and English make a fairly restricted use of the PERFECT, and modern Greek has a very narrow distribution of the PERFECT. The cross-linguistic stability of the IMPERFECTIVE PAST in the second dataset further confirms insights from the literature (Bybee et al. 1994) that the PERFECT competes with the PERFECTIVE PAST. These results make the second corpus study a valuable addition to the first one.

The question raised at the end of Section 4 was whether there are configurations in which one or more translators introduce a PERFECT while Camus uses a verb form other than the *Passé Composé*. If other languages make an overall different use of the PERFECT, the findings from

the second dataset could potentially invalidate the subset relation in Figure 4. Interestingly, the patterns we find in Figure 8, duplicate the ones established earlier in Figure 3. Crucially, none of the maps in Figures 8.2-8.7 show a second cluster of blue dots, distinct from the *Passé Composé* domain to the right of the map in Figure 8.1. Based on the temporal maps of the second dataset, we have no indication that any of the languages use their PERFECT in contexts that are radically different from the ones we discussed in Section 4. This result upholds the claims made in Sections 3 and 4.

5.3 PERFECTS introduced by the translator: a competition between PERFECT and PRESENT

The temporal maps in Figure 8 clearly confirm the subset relation from Figure 4, yet there are some contexts in which the translator introduces a PERFECT while the French original does not contain a *Passé Composé*. Most examples involve modal verbs, and we leave them aside here, because the cross-linguistic variation in past tense reference with modals has been well established (Chen et al. 2017). Interestingly, there are a few instances in which the English translator introduces a *Present Perfect* in contexts where the French original contains a *Présent*. We find an example in (31).

- (31) a. J'ai dit au concierge, sans me retourner vers lui : « Il y a longtemps que vous êtes là ? » [French]
 b. Ho detto al portinaio senza voltarmi: "È molto tempo che siete qui?" [Italian]
 b. Ich habe, ohne mich umzudrehen, zum Pförtner gesagt: "Sind sie schon lange hier?" [German]
 a. Zonder mij naar de conciërge om te keren zei ik tegen hem: "Hoe lang bent u al hier?" [Dutch]
 b. Sin volverme hacia él, dije al conserje: « ¿Hace mucho tiempo que está usted aquí? » [Spanish]
 e. Without turning round, I said to the caretaker, "have you been here long?" [English]

Example (31) illustrates the continuous meaning of the *Present Perfect*, which has been much discussed in the literature (Portner 2003 and others, see example (1c)). The continuous PERFECT describes a state or process that began in the past and continues until now. The continuation until the speech time implies an overlap with the domain of the PRESENT. Indeed, we see that in (31), all languages except for English use a PRESENT verb form. The continuous PERFECT is rare in a typological perspective (Comrie 1976; Dahl & Velupillai 2013), so it may not be surprising that we do not find it in the languages in our dataset other than English.

The continuous *Present Perfect* is close to what is called in the literature the "hot news" PERFECT (McCawley 1981, see example (1d)). The "hot news" PERFECT reports a recent event (van der Klis 2018) that is hearer new (Michaelis 1994), and to which the speaker attaches current relevance. The proximity of the two readings is confirmed by the translations in (32).

- (32) a. Il a pris le téléphone en main et m'a interpellé : « les pompes funèbres sont là depuis un moment. » [French]
 b. Er hat den Telefonhörer in die Hand genommen und hat mich dabei angesprochen: "Die Angestellten des Bestattungsinstituts sind eben gekommen." [German]
 c. Hij nam de telefoon in de hand en richtte zich tot mij: "De mannen van de begrafenisdienst zijn zojuist aangekomen." [Dutch]

- d. Con el teléfono en la mano me dijo: « Los empleados de pompas fúnebres ya *esperan* hace un momento. » [Spanish]
- e. He picked up the telephone and addressed me. “The undertaker’s men *have* just arrived.” [English]

The French original in (32a) uses a stative verb in the *Présent*, in combination with an adverbial complement introduced by *depuis* (‘since’). This configuration corresponds well with the continuous PERFECT, because it describes a state that began in the past, and continues until the speech time. The continuous meaning is echoed by the Spanish translator who adopts a parallel construction, and uses the *Presente*. However, the other translators opt for an interpretation of the original in terms of an event that has just happened. Such a recent past meaning is typically rendered by means of the PERFECT in combination with an adverb that indicates recency: *eben* in German, *zojuist* in Dutch, *just* in English. With *venir de* and *acabar de*, French and Spanish have grammaticalized separate constructions that convey reference to a recent past. The French original does not resort to the RECENT PAST with *venir de*, so this may explain why the Spanish translation in (32d) maintains the PRESENT from the French original (32a). For more discussion on the recent past, we refer to Van der Klis (2018) and references therein.

Although we see a transition from a French *Présent* to an English *Present Perfect* in both examples, the multilingual comparison reveals essential differences between the two contexts in (31) and (32). In a broader perspective, the discussion of these two examples underlines the advantages of the *Translation Mining* approach over a manually carried out contrastive analysis. We emphasize that the examples in (31) and (32) are isolated cases in our dataset, and there is just a handful of contexts in which the English translator uses a *Present Perfect* while Camus uses a tense form other than the *Passé Composé*. Outside the domain of modal verbs and the example in (32), none of the other translators introduce a PERFECT in Italian, German, Dutch, Spanish or modern Greek. Therefore, the translation patterns do not provide any reason to doubt the conclusions drawn in Section 5.2 above. However, the fact that the continuous and hot news readings of the PERFECT are rare does not mean they do not constitute true ingredients of the grammar of the *Present Perfect*. Rather than taking such examples to challenge the subset relation depicted in Figure 4, we take the presence of PRESENT tenses in the languages other than English to signal a second competition, namely a competition between the PERFECT and the PRESENT. Clearly, we would need more datapoints than the two examples in (31) and (32) to substantiate this idea, so we leave a full investigation of the competition between PERFECT and PRESENT for a later study.

In sum, the second dataset duplicates the subset relation that emerged from the first dataset. The dataset further shows that the PERFECT only competes with the PERFECTIVE PAST, and that the IMPERFECTIVE PAST, the PRESENT and the PAST PERFECT are largely cross-linguistically stable. The rare contexts in which one or more of the translators introduce a PERFECT to translate a verb form other than the *Passé Composé* suggest the existence of a second competition between the PERFECT and the PRESENT.

6. Conclusion

We know from the literature that the PRESENT PERFECT is subject to cross-linguistic variation. Most approaches take their starting point in the distribution and use of the English *Present*

Perfect, and although there are analyses of its counterparts in individual languages like French, Italian, German and Spanish, the implications of cross-linguistic variation for the semantics of the PERFECT are not fully explored. Most of the literature works with constructed examples and focuses on theoretically motivated criteria such as modification by past time adverbials and narrative use. In this paper, we leave pre-conceptualized meanings aside, and use a form-based definition of the PERFECT as HAVE/BE + past participle. *Translation Mining* serves as an empirical methodology to study the HAVE PERFECT configuration in a multilingual dataset. *Translation Mining* allows us to match forms in the original language with their translations, visualize the cross-linguistic variation in distribution, and analyze the linguistic patterns underlying language use in context.

Our corpus consists of the French novel *L'Étranger* and its translations in Italian, German, Dutch, Spanish, English and modern Greek. Because Camus pushes the use of the *Passé Composé* to the limits of the French grammar to create a special literary effect, we expect translators to be under pressure to maximize PERFECT use. If they nevertheless switch to a different verb form, we take it that the grammar of the target language forces them to do so. The extraction of all instances of the *Passé Composé* and their translations from the first three chapters of the novel reveals that the PERFECT competes with the PAST. The fact that we find a competition is in line with insights from the literature, but we found new evidence that we are dealing with a scalar opposition rather than a dichotomy. The investigation of the cut-off points between pairs of languages in the interactive interface reveals that a range of linguistic factors at the level of lexical semantics, compositional semantics, dynamic semantics and pragmatics come into play in the grammar of individual languages to determine when the PERFECT gives way to a PAST. The emergence of the linguistic factors underlying the scalar opposition yields the key ingredients of a cross-linguistic semantics of the PERFECT.

Because the first dataset was built on instances of the French *Passé Composé*, we could not exclude the possibility that other languages make a completely different use of their PERFECT. In order to remedy this situation, we created a second dataset in which we extracted all the finite verb forms in the first chapter of *L'Étranger* and matched them with their translations in Italian, German, Dutch, Spanish, English and modern Greek. The second dataset confirmed the subset relation that emerged from the first dataset. The few examples of PERFECTS introduced by the translator suggest the existence of a second competition between PERFECT and PRESENT. The second dataset revealed only minor cross-linguistic variation in the PRESENT, PAST PERFECT and IMPERFECTIVE PAST. Thus the real competition is between PERFECT and PERFECTIVE PAST. We find this idea already in literature on the Aorist drift, but the *Translation Mining* methodology visualizes the key patterns, and provides empirical support for this hypothesis from synchronic variation. The methodology can of course be used to analyze other language phenomena as well, so *Translation Mining* can more generally be seen as an enrichment of our linguistic toolbox.

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Appendix: source text and translations

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