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Diachronic trends in Homeric translations

Yuri Bizzoni, Marianne Reboul and Angelo Del Grosso

Introduction

The goal of this paper is a diachronic study of Homeric translations.

This field of study is part of the more general “Classical Receptions” studies that try to analyze the influence and adaptation of classical texts in modern and contemporary literature, theater, cinema, and many other artistic fields. While Greek texts have been analyzed by scholars since more than two thousand years, research about classical translations is a relatively unexplored area. In recent years this theme has raised a growing interest in the academic community.

With this intent, we built a program that can align textual blocks, such as one book of the *Odyssey*, without need of previous training, segmentation, or textual tagging. Furthermore, it can obtain reasonable results on very free and literary translations, a problem that was not generally considered by textual aligners since recent studies¹. While other programs allow an upper bound for one-to-many alignments (for example with a maximum of four translated elements aligned to the same original element) this algorithm allows n-to-n alignments, with no limit to the number of translated elements that can be aligned to an original, or vice-versa. The aligner is based on an implementation of Needleman-Wunsch algorithm and on a string-based similarity approach between textual segments. The aligner needs to establish proper names as anchor words, as they are a relatively stable feature through different translations and are generally similar in different languages.

Thanks to the alignments thus obtained, we can explore Homeric translations in a number of ways. We will illustrate the creation of an interface to visualize French Homeric translations making it possible to highlight aligned portions of texts and the translation of single words. We will finally show some resulting syntactic analyses carried out on a small sample of texts taken from a corpus of one hundred unabridged French translations of the *Odyssey* and we will try to demonstrate that the study of diachronic translations throughout algorithms of computational linguistics can produce interesting results for literary and linguistic studies.

Background

The *Odyssey* can be considered as one of the major pillars of modern literature. It has been translated in all Indo-European languages for many centuries. We have been able to digitize an important corpus of French translations, from the XVI century to the XX: indeed, we gathered about 100 unabridged translations of the *Odyssey*, on a total of 207 translations. In this paper we shall try to demonstrate, through a chosen corpus, how we could enlighten potential trends and literary movements throughout these centuries, by massively analyzing the corpus with our own algorithms.

¹ See Ma, 2006: “Most data mentioned in the literature are relatively clean. For example, 1-1 alignment constitutes 89% of the UBS English-French corpus in (Gale and Church, 1991), and 1-0 and 0-1 alignments constitute merely 1.3%.”

We chose, in this paper, to focus on book XI. First, it is a very well known episode of the *Odyssey*, often called the *nekuia*, a dialog with the dead, and the *katabasis*, the descent into Hell. But it is also an essential episode for translators: in France, from the XVI to the XX century, the three most translated books were the I, VI and XI. For the time being, we may be able to distinguish three different types of translations: a first type of translation is made for scholastic readers who specialize in Ancient Literature; a second type is made for school use, for students who need to learn about Greek Literature; the third type, the most complex, in literary terms, appears to be a kind of stylistic exercise, and often an echo or an announcement of future works. Book XI is most peculiar because every translator who chose to translate it finally ended by translating the whole of the *Odyssey*. It appears as a trial book, a book to test, and maybe improve, literary skills and style. As a result, we could sketch the translator's virtual portrait: every single translator of book XI has, at some point, devoted himself to defending the literary value of Ancient Literature, and more precisely, every one of them has seen in the Ancient corpus a source for inspiration, a stylistic potential to unravel. That is why we chose, in this paper, for the sake of clarity, to analyze this one book only. Concerning the Greek text, it is mostly based on a specific reading (Eustathes the Thessalonian).

To analyze trends or literary tendencies, the use of alignment algorithms and post NLP (Natural Language Processing) treatment appeared as a novelty. Indeed, many works already existed about aligning translations with their original texts, including the *Odyssey*, but, in essential, these ideas appeared for two reasons: first, scholars wanted to evaluate a translation considering its source, but also scholars wanted to create a possible alternative to this translation. As a result, the translation itself, as a literary work of art, was underestimated. Aligning translations one to another gives the art of translation its rightful place: an authentic literary experience, considering that each translation in itself is an object of art and study. We therefore decided to focus on dividing and aligning each translation, in order to identify possible stylistic trends, and possible echos to the literary world each translator lived in.

Aligner Component Design

The computational philology field requires procedures able to align different kinds of entities at different levels of granularity. In addition, these entities can differ both concerning their digital structure and their inherent nature. For example, as explained in (Boschetti, 2009), scholars often need to align texts at character granularity in order to evaluate the accuracy of the OCR (i.e. the alignment of automatic outcomes with the relative ground-truth); furthermore, tools as CollateX (Dekker et al., 2014), which support the scholarly editing process, need to align different texts at word granularity in order to extract variant readings for supporting the correct editorial choices; and more, the cross-lingual studies, like the study of classical texts in modern and contemporary literature, need to align texts in different languages in order to discover and demonstrate several aspects of a literary tradition.

Due to its wide applicability, the design of a software component dealing with the alignment service emphasizes a number of general software design principles. These latter underpin the development of a modular library tailored on the scholarly editing needs. Two aspects characterize the process of such a design: 1) considering and putting into effect general and proven solutions to recurring design problems in a specific application context (design patterns, Gamma et al., 1995), and 2) taking into account suitable Application Programming Interfaces

(APIs) as the actual means to separate services from the implementation details (Tulach, 2008; Henning, 2009).

In this way the aligner component, firstly developed as a specific module for OCR alignment and then generalized (Boschetti, 2014), attempts to be flexible and reusable. Such a design allows the internal structures of the aligner to be as loosely coupled as possible. Consequently, the design of this component exploits not only basic object-oriented mechanisms as abstraction or polymorphism, but also advanced techniques as object cooperation, interface programming, separation of responsibilities and resilience to changes.

As a result, the component design attempts to achieve a high degree of extensibility with a low degree of modification (Open-Close principle in Robert, 2000). In particular, the aligner puts into effect several design patterns such as the factory pattern and the strategy pattern.

The first pattern provides components to separate behavior from concrete implementations. Indeed, library clients have to work only with the Abstract Data Types (ADTs) which have no part in the implementation mechanisms. Doing so, clients rely only on well-defined Application Programming Interfaces (APIs) which are exported by the component providers.

The second design pattern allows to define a family of algorithms free to vary according to customizable policies. In fact, the alignment process can use a number of algorithms beyond the current-implemented Needleman-Wunsh as well as a number of mechanisms for the evaluation of string similarities.

Automatic Alignment Method

Since segment alignment is widely considered a necessary step in order to proceed toward any kind of word alignment attempt, a good textual alignment is regarded as an important prerequisite for many studies about automatic translation.

In our case, the main problem was the necessity to align long and non segmented texts with translations that are often noisy, literary and inaccurate. Furthermore, Homeric poems are not divided on small scale: rhapsodies are hundreds of lines long and episodes can be undetermined.

There is a variety of elements that can be used as anchors in a text: depending on its nature, the best anchors could be high frequency words, when the original and its translation are very similar; or low frequency words, as technical terms, if we are sure they will always be translated in the same way or within a very reduced number of variants; or even numbers, that are translated always in the same way in any kind of translation.

But in the case of Homeric translations, these systems are not reliable. We can find very different and free translations of Homer, with every sort of periphrasis, interpolation and stylistic compromise. For example, many translators found repetition a negative stylistic feature and consistently used synonyms or periphrases where the original text had simply the same word repeated twice: so high frequency nouns or verbs could be unreliable. Other translators could just do the opposite, making low frequency words unreliable.

For these reasons, in order to segment our texts and their different translations we chose to use proper nouns as anchor words. proper nouns are a relatively stable feature in

Homeric translations. In fact, even the most free translations we found tend to maintain the majority of proper nouns given by the original text, as rare and irrelevant as they can be. It is possible to look through many different translations and find that proper nouns generally tend to remain phonetically similar with their Greek source:

Μέντορι εἰδομένη ἡμὲν δέμας ἥδὲ καὶ αὐδὴν. (Od. 24.548)
Ayant pris les traits et la voix de **Mentor** (Bitaubé)
Elle a pris et la taille et la voix de **Mentôr** (Lebrun)
Empruntant les traits et la voix de **Mentor** (Dugas-Montbel)
Semblable à **Mentôr** par la figure et la voix (Leconte de Lisle)
De **Mentor**, elle avait et l'allure et la voix (Bérard)

Anyway, this does not mean that proper nouns are completely reliable: duplications, interpolations, substitutions or unusual translations happen in the onomastic field too.

Here are described the main steps to the creation of textual blocks and their alignment to create and align parallel blocks.

First, two texts are uploaded and tokenized. They could be the Ancient Greek original text and a translation, two different translations or, as we will see, translations in some other languages. If one of the texts is in Ancient Greek, some phonetic transformations are carried out over its potential anchor words so to make them more similar to the translated ones. These transformations simply follow the normal historical linguistics rules that carried from many Ancient Greek names to their modern European equivalents. So, for example, in Πτολεμαῖος, Πτ becomes *T*, αῖ is reduced to *e* and the final ς is deleted, obtaining *Tolemeo*. If both texts are translations, there is no need to use a set of transformation functions on them. Two lists are then created, one for each text, containing all words that could be proper nouns.

The next step is the creation of a dictionary of anchor words. This dictionary is automatically generated matching similar words from the two lists of potential proper nouns. Greek names, being transformed and converted, will be linked much more easily to their correct equivalent. The dictionary will thus be composed of an Ancient Greek name and one or more equivalent translations automatically detected. It is not necessary to use lemmatized texts to successfully carry on this operation. So for example, supposing that we are aligning a non-lemmatized Greek Odyssey to a French translation, our dictionary will be structured in the following way:

Ἑρέβευς – Erèbe, Erebe
Μενελάου – Ménélas
Μέντορι – Mentor, Mentôr
....

where to each flexed Ancient Greek name is linked a number of detected French equivalents, with their occasional phonetic variants.

We can finally apply the main alignment algorithm, an implementation of Needleman-Wunsch algorithm. The Needleman-Wunsch is an algorithm for global alignment originally designed to align protein sequences. The algorithm confronts two sequences of elements trying to align each element of the first sequence to an element of the second sequence. The essential

idea of the Needleman-Wunsch algorithm is that a similar alignment can be done breaking down the general problem of aligning two series in a number of smaller problems consisting in aligning each element.

The algorithm starts constructing a grid to compare the two sequences. To align the elements of the series, it will be necessary to choose a scoring system. For example, a basic scoring system is the following: if two elements are equal (two identical letters, two similar numbers, etc.) they will score 1, otherwise 0. Using its scoring rule, the algorithm will fill in the grid, so that every possible comparison on the table will have an alignment score. Once this is done, the optimal alignment can be reconstructed: starting from the end – the bottom-right corner of the table – the algorithm is able to trace an alignment path through the grid. This path is usually represented with arrows or colors (as in Figure 1) to show how the optimal way was tracked, through all the potential alignments, back to the origin of the grid – the upper-left corner. If an element could not be aligned, the algorithm will align it to a *gap* inserted in the other sequence (Figure 2).

D(i,j)		P	A	W	H	E	A	E
	0 ⁰	0 ⁰	0 ⁰	0 ⁰	0 ⁰	0 ⁰	0 ⁰	0 ⁰
H	0 ⁰	0 ⁰	0 ⁰	0 ⁰	1 ¹	1 ⁰	1 ⁰	1 ⁰
E	0 ⁰	0 ⁰	0 ⁰	0 ⁰	1 ⁰	2 ¹	2 ⁰	2 ¹
A	0 ⁰	0 ⁰	1 ¹	1 ⁰	1 ⁰	2 ⁰	3 ¹	3 ⁰
G	0 ⁰	0 ⁰	1 ⁰	1 ⁰	1 ⁰	2 ⁰	3 ⁰	3 ⁰
A	0 ⁰	0 ⁰	1 ¹	1 ⁰	1 ⁰	2 ⁰	3 ¹	3 ⁰
W	0 ⁰	0 ⁰	1 ⁰	2 ¹	2 ⁰	2 ⁰	3 ⁰	3 ⁰
G	0 ⁰	0 ⁰	1 ⁰	2 ⁰	2 ⁰	2 ⁰	3 ⁰	3 ⁰
H	0 ⁰	0 ⁰	1 ⁰	2 ⁰	3 ¹	3 ⁰	3 ⁰	3 ⁰
E	0 ⁰	0 ⁰	1 ⁰	2 ⁰	3 ⁰	4 ¹	4 ⁰	4 ¹
E	0 ⁰	0 ⁰	1 ⁰	2 ⁰	3 ⁰	4 ¹	4 ⁰	5 ¹

Figure 1. An example of Needleman-Wunsch grid.

S1:	-HEAGAWGHE-E
S2:	P--A--W-HEAE

Figure 2. An example of Needleman-Wunsch alignment of two strings.

The core of this complex part is a similarity score function that gives a score of similarity to original and translated blocks following these three main principles:

- The presence of an 'anchor pair' of words as recognized by the dictionary, as **Ἀχιλλῆος** – *Achille*.
- The frequency of the words of that pair in text and translation, so that **Ἀχιλλῆος** – *Achille* will have a different weight than **Ἀντιφος** – *Antiphos*.
- The difference in length of original and translated blocks, so that blocks very similar in character length, as **Ἴλιον εἰς εὐπωλον ἔβη**, – *Ilion aux beaux coursiers* will be aligned more easily than blocks showing larger discrepancies in length, as **Ἴλιον εἰς εὐπωλον ἔβη** – *Ilion, et qu'avec eux partit le prudent Ulysse; je lui annonçai qu'après avoir souffert mille maux*

The word frequency is an important feature. Since the frequency of proper nouns, like that of words in general, follows a Zipfian distribution, we give to proper nouns a similarity score which is inversely proportional to their frequency. In this way, the myriad of low frequency proper nouns present in the poems will form better anchors than the relatively few very frequent names which, being used so often, could easily be misleading. Naturally, *this* feature will work better on lemmatized texts: if it is true that flexed forms of frequent names will also be more frequent than flexed forms of rare names, so that **Ἀχιλλῆος** will be anyway more frequent than **Μαστορίδης**, it is also true that rare or under-used flexions of a frequent name could be computed as low frequency terms.

When this process is done, we have a list of aligned chunks, with gaps when the Needleman-Wunsch found no possible alignment, as in the following example:

Λειώκριτος ἀντίον ηὔδα· "
Léocríte, lui répondit:

Μέντωρ, ὅς ρ'
 ▲

for some reason, the chunk **Μέντωρ, ὅς ρ'** has not found a good alignment and was thus paired with a gap.

Two post-processing steps are then performed:

- All gaps are removed from our results. In other words, every time an original or translated block is found without an aligned companion, it is merged with the preceding block. This creates larger blocks - always of a contained size anyway - but makes us more confident about the translation equivalence.

- Due to the potential presence in names' lists of false proper nouns (for example nouns that appeared only once and after a dot) and of alignment errors, we check again through the dictionary that the starting names are actually translation of one another but this time we use a lower similarity threshold and merge the blocks that do not match.

Now we have textual blocks in high number and, hopefully, well aligned. The result is a series of aligned pairs like the following:

Grec. 9. 1 αἱ δ' ἄγέροντο ψυχὰι ὑπὲξ

Fran. 9. 2 Les âmes des morts se rassemblaient du fond de l'

Grec. 9.2 Ἑρέβευς

Fran. 9.3 Erèbe

Textual blocks can be eventually refined recollecting the beginning and end of their opening and closing sentences, so to have sensed blocks that start and end with complete sentences, although this procedure requires some precaution.

Once the alignment of the corpus has been done, we use a word-to-word aligner called MGiza++, the most recent version of Giza++. As it is multi-threaded, the program is much quicker, uses less memory, and the training process is more supple and modifiable. The word-to-word alignment is done in two steps: first the production of a co-occurrence tab (with the pre-implemented sent2cooc algorithm), and an alignment based on "training models" (recursively modifiable). MGiza++ uses IBM (a source and a target sequence, predicting, for each word of the source sequence a word of the target sequence, on the 1:n model of alignment) and HMM (the probability of an occurrence is based on the preceding one) Models, suggesting that each word in a corpus has its own non-arbitrary place, forming potential clusters with the others, and that the position of the source and target words is highly dependent on what surrounds them.

We decided to try to improve MGiza++ models by applying the incremental training method. MGiza++ uses training models for a first word-to-word alignment, and if an alignment has already been made, provides an improvement of the previous one, and changes the models already used. In their article, Qin Gao, Will Lewis, Chris Quirk et Mei-Yuh Hwang state that a possible improvement would be to create Language models on a large corpus, and then divide the corpus in secondary sequences, to incrementally train each one of them.

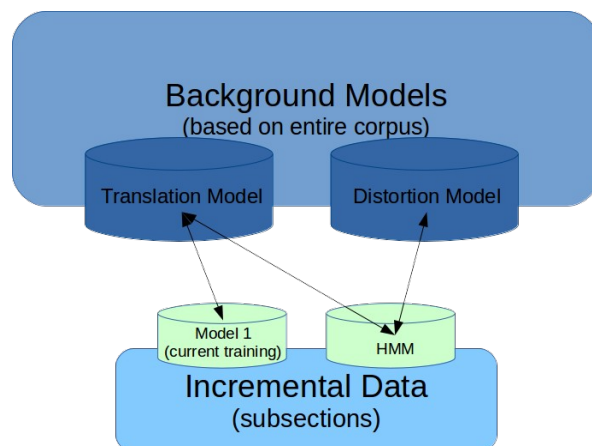


Figure 3. Incremental training with MGiza++

Translation models and distortion models are the models originally obtained when a full alignment has been made on an entire corpus by MGiza++. The first is the file often seen as Phrase-table.gz (to which we would like to add a syntactic translation model). The distortion model reorders the input sentence. These two Models are produced by MGiza++, in order to proceed to automatic translation, but are not reused in case of another word-to-word alignment on a smaller corpus. The other Models are the ones currently used by Giza, Giza++, MGiza, MGiza++ for word-to-word alignment (see MGiza++ configuration examples²). The whole process could be sketched as such:

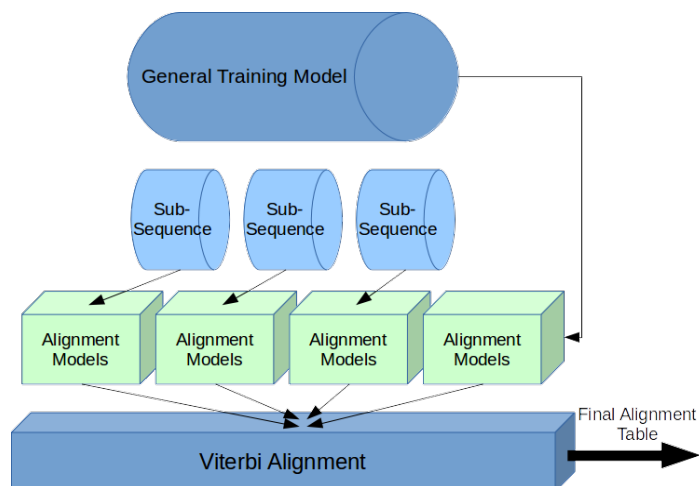


Figure 4. MGiza++ general process with incremental training

It so happens that the *Odyssey*, and many other works of Ancient Literature, is perfectly adapted to this kind of improvement. Indeed, each book, although not clearly divided, appears to be regularly cut by typical Homeric lines, called “ring verses” or “formulaic verses” (e.g.: one of the most famous verses,” ἦμος δ’ ἠριγένεια φάνη ροδοδάκτυλος Ἥως”: “then, when the child of morning, rosy-fingered Dawn, appeared”). That is to say, each book, at crucial points of its

² Many examples online, e.g.: <http://pastebin.com/b1ksHtUy>

The next figure is an example of the automatic alignment possibilities of the interface (still under development):

Would the reader want to compare more translations, the corpus will be soon released as open data.

The abstracts correspond to two textual chunk IDs (as explained before), and have been aligned to the Greek text word-to-word. We then made a frequency and syntactic study of each chunk (provided by the program). This is an example of the possible interpretations of such results. The legend for each text is: **addition**, **amplification**, **omission**, **low frequency**, **high frequency**, **hapax**, **length similitude** (less than four word additions compared with the Greek).

- Source:

τοὺς δ' ἐπεὶ εὐχολῆσι λιτῆσί τε, ἔθνεα νεκρῶν,
ἐλλισάμην, τὰ δὲ μῆλα λαβὼν ἀπεδειροτόμησα
ἐς βόθρον, ῥέε δ' αἶμα κελαινέφες· αἱ δ' ἀγέροντο
ψυχαὶ ὑπὲξ Ἑρέβους νεκύων κατατεθνηώτων.
νύμφαι τ' ἠΐθεοί τε πολύτλητοί τε γέροντες
παρθενικαὶ τ' ἀταλαὶ νεοπενθέα θυμὸν ἔχουσαι,
πολλοὶ δ' οὐτάμενοι χαλκήρεσιν ἐγχείησιν,
ἄνδρες ἀρηίφατοι βεβρωτῶμένα τεύχε' ἔχοντες·
οἱ πολλοὶ περὶ βόθρον ἐφοίτων ἄλλοθεν ἄλλος
θεσπεσίη ἰαχῇ· ἐμὲ δὲ χλωρὸν δέος ἦρει.

- Salomon Certon, 1604

*Lorsque j'eue par mes vœux & supplications
Appaisé les esprits, fait mes oblations,
J'égorge les brebis au-dessus de la fosse:
De sang couloit dedans une rivière grosse
Et du coup une humeur noirastre distilloit.
X Lors une quantité autour de moy voloît
De simulacres vains, ceux que la Mort cruelle
Avoit à toute force entrainez apres elle:
Les jeunes vigoureux, et les foibles vieillars
A l'environ de moy courent de toutes pars:
Maintes Nymphes encor, et filles miserables
Que le deuil au trépas a conduit pitoyables:
D'autres y avoient de grands coups transpercez,
De piques & de dars les estomacs blessez,
Les armes tout en sang: ils couroient à la fosse
Et s'y precipitoient en multitude grosse,
Sifflans autour de moy d'une frelle rumeur.
Tout le corps me glaça de frisson & tremeur,
Et le sang me figea de peur de misère.*

We first chose to compare Salomon de Certon's translation with the others. The immediate post-Renaissance period is a very rich time for Greek and Latin culture. The idea that a cultural regeneration is deeply related to linguistic regeneration flourishes. That is to say that French poets tend to seek their own style within Ancient Epics. The general idea is that the skilful translator shall not slavishly imitate the author's genius, but enrich it by giving it his own

skill and language (*translatio studii*). Translating appears therefore to be highly linked with imitation (as Du Bellay says, “on pillait sans conscience les sacrés trésors de ce temple delphique³”). The same tradition is tangible in Ronsard’s followers’ works, such as in Amadis Jamyn’s *Iliad* in hexameters.

What we can see, comparing Certon’s translation with the others is that he translates in alexandrins, and tends to drastically develop the Greek text (one of the longest texts in our corpus). There is the tree we obtained with the program, compared, arbitrarily, with Jaccottet’s translation (XX century).

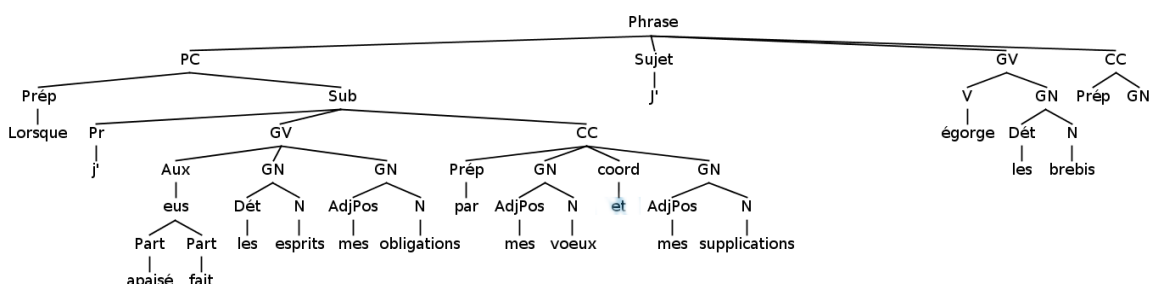


Figure 7. Certon's first sentence tree

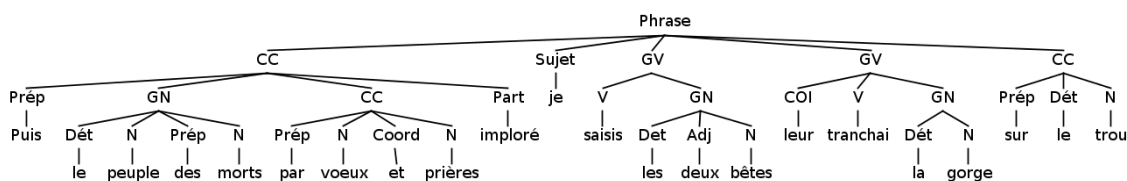


Figure 8. Jaccottet's first sentence tree

With these two images we can clearly see that Certon’s translation is, on a syntactic point of view, much more complex, based on many layers (6 levels versus 3 in Jaccottet’s). Certon published his *Odyssey* just after Jamyn’s *Iliad* and the Le Pelletier’s two first books of the *Odyssey*. He also translates in “alexandrins” and tends to widely develop the Greek text (frequency study: 10 Greek lines for 17 French lines). The second line is a pure addition, and the verb λαβὼν simply disappears from the third. The word κελαινεφές, literally “in black smoke”, becomes “une rivière grosse et du coup une humeur noirastre distilloit” (“an enormous river and from the neck a black liquid ran”), which is a clarification and an amplification. Many of Certon’s connotations cannot be deduced from the Greek text, such as souls “qui volent” (“flying”), “vaines” (“empty”) (Christian heritage of the soul’s lightness); Death is personified, which is quite far from the traditional pagan belief of the souls’ peregrination. The tragic connotation is amplified. The Ἑρέβευς completely disappears. In fact, in his whole translation, Certon tends to emphasize the gleam and shine of French. Therefore, we may say that, if there is a kind of imitation of the Greek text, it is more the imitation of a spirit rather than servile literal

³ “we pillaged without further ado the sacred treasures of this Delphic temple”, Du Bellay, *Deffence et Illustration de la Langue Françoyse*

imitation. Many authors tend to free themselves from literalism, sometimes so much that the translations do not mean what the Greek text means.

- Achille de la Valterie, 1681

Après ces premières cérémonies, on immola les animaux, dont le sang couloit dans cette fosse mystérieuse. Les ombres y accoururent aussi-tost, comme on voit que les oyseaux s'assemblent dans un bois qui leur plaist. J'estois touché du fort de tant de jeunes garçons & de jeunes filles que je voyois. Ils semblaient avoir regret d'estre sortis de la vie & que la fleur de leur âge eust si peu duré. X Je voyais aussi des vieillards qui n'avoient pû se rebutter des incommoditez de leur vieillesse. Mais je fus surpris d'entendre des cris horribles de Capitaines, qui avoient peri dans les combats. Ils rouloient au tour de cette fosse avec une extreme impatience de boire du sang dont elle estoit pleine. Je les éloignais à coups d'épée.

This tendency is generalized in the century, and sometimes even to a critical point. La Valterie's translation is an explicit example of the exaggeration of this tendency. For him, he should first write a moral work, but also write it with "élégance". There is no philological ambition there. La Valterie used the Greek text to translate, but openly boasted about the fact that he translated the *Odyssey* from a Latin version and still made a better translation than his predecessors. Indeed, our program does help us to see immediately that La Valterie's translation is extremely far from the original text, and even contradictory with its supposed source. Providing a study of frequency, we can see that the whole (or mostly) of La Valterie's translation is sewed with hapaxes (it is both far from the Greek text and never used in any of the French translations), which made it the most difficult text to align. We can also see that, although most translators tend to reproduce important syntactic marks in Greek (full stops, etc), La Valterie's translation is the only one with no resemblance whatsoever with the Greek syntax. This is visible in our example: sentences are long, there are frequent clarifications, tangible modalisations, and, of course, many mistakes. The word "cérémonies" may be justified (though it erases the polysemic εὐχῶλῃσι and λιτῆσί, both supplications and liturgical prayers), "se rebutter des incommodités de leur vieillesse" ("grieving about the harshness of old age") does not take into account the nobility often implied by πολὺτλητος (mainly used to qualify Laertes). The word "Capitaines" is a condensation of war heroes adapted to the XVII century. Those two translators, Certon and La Valterie, may indeed be symbolic portraits of the way the post-Renaissance translators conceived their work: something pleasant, moral, and adapted to their customs.

- Anne Dacier, 1716

Figure 9. Madame Dacier's original edition

Après que j'eus adressé à ces morts mes vœux & mes prieres, je pris les victimes & je les égorgeai sur la fosse. Le sang coule à gros bouillons; les ombres viennent de tous côtés du fond de l'Erebe [1]. On voit pêle mêle de jeunes femmes, de jeunes hommes, des vieillards dessechés par de lons travaux, de jeunes filles décédées à la fleur de leur âge, des guerriers couverts de larges blessures, victimes du Dieu Mars, & dont les armes étoient encore teintes de sang. Ils se pressent tous autour de la fosse avec des cris aigus. Une frayeur pâle me saisit.

[1] Les six vers qui suivent celui-ci : Parce, disoient-ils, qu'il n'est pas encore temps que ces Ames viennent, & que d'ailleurs il n'est pas possible que les blessures paroissent sur les Ames. Mais cette critique me paroît très-fausse.

Pourquoi n'est-il pas temps que ces Ames viennent, Homere ne dit-il pas que les *ombres des morts viennent de tous côtes du fond de l'Erebe*? & ne reçoivent-ils pas ce vers? Les six qui le suivent n'en font que l'explication. Quant aux blessures, il est bien vrai qu'elles ne peuvent paroître sur la partie spirituelle de l'Ame, aussi n'est-ce pas de celle-là dont Homere parle, puisque les Morts ne l'avoient plus; il parle du corps subtil de l'Ame, & tout ce qui avoit blessé le corps terrestre, avoit aussi blessé le corps subtil, & y avoit laissé sa marque. Voilà pourquoi il est dit que dans les songes on voit les Ames dans le même état où sont les corps, & voilà aussi d'où vient la difference qu'Ulysse remarque dans ces ombres. Ce qui me paroît le plus surprenant ici, c'est ce qu'Ulysse ajoute, que ces Ames avoient encore leurs armes, & que *ces armes étoient encore teintes de sang*. Comment ces Ames, ces Ombres, qui n'étoient que le corps subtil de l'Ame, pouvoient-elles conserver leurs armes? Je croi que c'est un point nouveau qu'Ulysse ajoute ici à la Theologie reçue, & qu'il ajoute, parce qu'il parle aux Pheaciens, peuple peu instruit. Cependant cette opinion s'est si bien établie, que Virgile s'y est conformé, & n'a pas dédaigné de la suivre.

The first turning point in contrast with this tendency seems to appear with Madame Dacier's translations (from what we gathered from the program, studying the texts diachronically). Anne Lefebvre Dacier (known as "Madame Dacier"), wrote her translations as a reaction to these Homeric imitations. She is the paragon of scientific and archeological knowledge of Homer's works. She tends to justify shocking descriptions or attitudes (to her fellow readers) in the *Odyssey* by saying that those were acceptable because they were different, and justifies her assertions both philologically and archaeologically. She also tends to erase most of Homer's stylistic specificities, as they have no scientific purpose. Dacier uses common terms for the society she lives in, uses simplified syntax, and above all annotates her text enormously (citations of other translations and explanations represent one third of each of her books). We included the notes and explanations directly in the text but did not align them: as a result it is directly visible that Dacier's tendency to explain and justify scientifically what she translates is most important. And so it is in many following translations, such as Bitaubé's. What is most visible in this chunk is that Dacier tends to respect the length and syntax of the Greek text. She erases the polysemy of the Greek word *κλεινεφές*, interpreting it in a logical and clarified way (leaving aside both the smoky effect and its blackness). She just translates the expression *νεκύων κατατεθνηώτων* by "les ombres", erasing the redundancy like "the dead that have lived". Dacier definitely wants to imitate the Greek syntax, keeping the paratactic *τε*. She also chooses to clarify the polysemous word *νεοπενθέα*, with the images of both sorrow and flowers. She adapts the deity Ares in something corresponding to her audience, Mars. We decided to add the footnote included in Dacier's edition, as it shows Dacier's rational will to explain the war heroes' death, adapted to christian beliefs. She explicitly highlights the scientific legitimacy of her work. Briefly, we may say that Dacier and her followers can be taken as examples of a new tendency: from the imitative flowery pomp we got from the previous century, we now get a form of puritanism from the erudite translator.

- Paul-Jérémie Bitaubé, 1785

Après avoir adressé aux morts mes prières et mes vœux, j'égorge les victimes sur la fosse. Le sang coule en noirs torrens. Bientôt du fond de l'Erèbe s'élève de tout côté le peuple léger des ombres. On voit confondus les épouses, les hommes enlevés dès leur printemps, les vieillards courbés sous le faix des ans et des travaux, les jeunes filles gémissent d'avoir exhalé à leur tendre aurore le souffle de la vie, une foule de guerriers, victimes de Mars, couverts de profondes blessures et chargés d'armes ensanglantées. Ces ombres se pressaient autour de la fosse avec des hurlements affreux ; j'étais glacé par la terreur.

The same tendency is visible in Bitaubé's works. Bitaubé's native language is German. When he decides to learn French, he sees it as a scholar language, a language that tends to

excellence. Thanks to his first publication of the *Odyssey*, he becomes an academician in Berlin. He decides for a scholar style that he calls “prose cadencée” (“prose in rhythm”): “il n’est pas aisé d’écrire dans une prose cadencée, harmonieuse, qui s’élève (elle le peut), au ton de la poésie; et je soutiens que la gêne d’une grande fidélité, lorsqu’on s’y assujettit scrupuleusement, n’est pas si éloignée qu’on le pense de celle de traduire en vers⁴.” To assert this scientific ambition, Bitaubé is one of the first to explicitly mention any translator before him. What is more, not only does Bitaubé want to be exact in the meaning, he also aims at accuracy concerning style, imitating, as much as possible, Homer’s *brevitas*. As a result, in only one century, the reader goes from imitative flowery pomp to scholar puritanism. In our text, Bitaubé tries to maintain both the Greek syntax (just as Dacier did), but also its polysemous terms. For example, where Dacier used two coordinates, for λαβὼν and ἐλλισάμην, Bitaubé chooses juxtaposition, maintaining the Greek hypotyposis. The blackness and the liquid aspect of the κελαινεφές is now explicit (“les noirs torrents”). Bitaubé also attempts, as much as possible, to reproduce the Greek redundancy νεκύων κατατεθνηώτων. Finally, he strictly imitates the Greek syntax, maintaining the paratactic syntax and the adjectives describing the dead.

- Charles François Lebrun, 1819

Après avoir, par mes vœux, par mes prières, imploré la tourbe des morts, j'égorge les victimes et le sang coule dans la fosse. Les ombres accourent du fond de l'Érèbe; les jeunes époux et les jeunes épouses, et les vierges qui ont senti les premiers feux de l'amour, et les vieillards courbés sous le poids des travaux et des ans, et les guerriers qui ont péri dans les combats, encore chargés de leurs armes sanglantes et mutilées. Ils se pressent en poussant des cris foibles et mourants et se précipitent vers la fosse. Je pâlis, je frissonne.

Le Prince Lebrun is, above all, an *homo publicus*. He escapes many of the massacres from the French Revolution, avoids death during Napoleon’s end of reign, and always gets to obtain many public offices. His *Iliad*, translated when he was young, was an exercise to make himself famous among the erudite society. His *Odyssey*, however, is the work of a man that has already achieved social fame. He is one of the many men of power to demonstrate, by publishing poorly translated works, his ability to be both an important man and a scholar. His works, as a result, though very well known at the time and republished many times, is completely forgotten thirty years after his death. In our text we can see that he tends to strictly imitate the Greek, often in a clumsy way, and sometimes with great inaccuracy. This entire translation has no footnotes, no preface, no post-face. He has none of Dacier’s or Bitaubé’s ethnographic care. But this translation is the direct result of the educative principles initiated with Dacier and Bitaubé. During Lebrun’s youth, a new kind of translations appear: abridged translations for students, asserting the profits of accuracy, and lowering the merits of stylistic freedom. Lebrun inherits from this new approach.

- Jean-Baptiste Dugas-Montbel, 1818 and 1830

⁴ “It is not easy to write harmonious prose in rhythm, close to poetry (it can be); and I say that being careful of following the text, when done as often as possible, is quite near from translating in rime.”, in Bitaubé, Paul-Jérémie, *Oeuvres*, volume 2, Haener, 1834

1818: *Après avoir adressé mes prières et mes vœux à la foule des morts, je prends les victimes, les égorge dans la fosse, et leur sang noir coule à longs flots. Soudain les âmes des mânes s'échappent de l'Érèbe; je vois rassemblés autour de moi des épouses, des jeunes gens, des vieillards accablés de misères, de tendres vierges déplorant leur mort prématurée, et des guerriers qui, revêtus de leur armure ensanglantée, furent percés par des lances d'airain; de toutes parts, sur les bords du fossé, ces mânes voltigent en foule en poussant de lamentables cris; A cette vue, la crainte glace nos sens.*

1830: *Après avoir adressé mes prières et mes vœux à la foule des morts, je prends les victimes, les égorge dans la fosse, où coule un sang noir. Soudain les âmes des mânes s'échappent de l'Érèbe; je vois rassemblés autour de moi des épouses, des jeunes gens, des vieillards accablés de misères, de tendres vierges déplorant leur mort prématurée; plusieurs paraissent blessés par de longues lances, et portent leur armure ensanglantée; de toutes parts, sur les bords du fossé, ces mânes voltigent en foule en poussant de lamentables cris; à cette vue, la pâle crainte s'empare de moi.*

Dugas-Montbel re-edited his own translations several times, changing them drastically from one to the other. Here we have got two different translations, one from 1818, and one from 1830. Within these years, the way of seeing translation has altered tangibly, and the tendencies translators will adopt at that time will be visible, with our program, for the rest of the XIX century texts. It is during the XIX century that most translations were made, and this plethoric production contributes to a shift in the perception of the Greek Pantheon. Throughout the century, we can see that modern language is influenced by its continual contact with the ancient languages. As a result, if we study word frequency not only throughout the whole corpus, but also for example in the 1818 version and the 1830 version of Dugas-Montbel's translation, we should see that translators tend to use less frequent words, even hapaxes, and, above all, less frequent syntagms (which can be seen thanks to the collation analysis we implemented). In our text, this is the most noticeable trend: the 1818 translation, not only in this precise text but in many other books, tends to be more consensual, whereas the 1830 translation shows a tangible interest for strangeness and unexpected expressions. For example, the κελαινέφες in the 1818 version is clarified, whereas in the 1830 translation Dugas-Montbel chooses to imitate Homer's laconism, leaving his reader with a sense of undefined impression. Even more striking is the first use of a future canonical expression "la pâle crainte", which was at first almost incorrect, even if nearer to the Greek text (hypallage and anteposition). Two different types of translations will therefore flourish. First, many translations will be made for students (with a didactic and literalist tendency). Secondly, many translators/authors will obey this literalist tendency, as an aesthetic principle.

- Edouard Sommer, 1854

Ἐπεὶ δὲ ἐλλισάμην τούς,
 ἔθνεα νεκρῶν,
 εὐχολῶμαι λιτῆσί τε,
 λαθὼν δὲ τὰ μῦθα,
 ἀπειροτόμισα ἐς βόθρον,
 αἷμα δὲ κελευνeph̄ς βέν·
 αἱ δὲ ψυχαὶ
 νεκρῶν κατατεθνηῶτων
 ἄγέροντο ὑπὲρ Ἑρέβου,
 νύμφαι τε ἡβῶσι τε
 γέροντες τε πολύτλητοι,
 ἀταλαί τε παρθενικαί,
 ἔχουσαι θυμὸν νεοπενθέα·
 πολλοὶ δὲ οὐτάμενοι
 ἐγγχεῖσι χαλκῆρεςιν,
 ἄνδρες ἄρηφρατοι,
 ἔχοντες τεύχεα βεβρωτωμένα·
 οἱ πολλοὶ
 ἐφοίτων περὶ βόθρον
 ἄλλος ἄλλοθεν
 ἰαχῇ θεοπέσῃ·
 χλωρὸν δὲ δέος ἦρει.

Et quand j'eus conjuré ceux-ci,
 les nations des morts,
 avec des vœux et des prières,
 ayant pris alors les brebis,
 je les égorgeai au-dessus de la fosse,
 et un sang noir coulait;
 et les âmes
 des morts trépassés
 se rassemblaient sortant de l'Érèbe,
 et jeunes-femmes et jeunes-garçons
 et vieillards ayant-beaucoup-enduré,
 et tendres vierges, [cent;
 ayant le cœur affligé-d'un-deuil-ré-
 et beaucoup d'hommes percés
 de lances à-pointe-d'airain,
 guerriers tués-dans-les-combats,
 ayant des armes ensanglantées;
 lesquels en-grand-nombre
 venaient-en-foule autour de la fosse
 l'un d'un côté, l'autre d'un-autre-côté
 avec une clameur immense;
 et la pâle crainte s'emparait de moi.

Τοὺς δ' ἐπεὶ εὐχολῶμαι λιτῆσί τε, ἔθνεα νεκρῶν,
 ἐλλισάμην, τὰ δὲ μῦθα λαθὼν ἀπειροτόμισα
 ἐς βόθρον, ῥέει δ' αἷμα κελευνeph̄ς· αἱ δ' ἀγέροντο
 ψυχαὶ ὑπὲρ Ἑρέβου νεκρῶν κατατεθνηῶτων,
 νύμφαι τε ἡβῶσι τε πολύτλητοί τε γέροντες,
 παρθενικαὶ τε ἀταλαί, νεοπενθέα θυμὸν ἔχουσαι·
 πολλοὶ δ' οὐτάμενοι χαλκῆρεςιν ἐγγχεῖσιν,
 ἄνδρες ἄρηφρατοι, βεβρωτωμένα τεύχε' ἔχοντες·
 οἱ πολλοὶ περὶ βόθρον ἐφοίτων ἄλλοθεν ἄλλος
 θεοπέσῃ ἰαχῇ· ἱμέ δὲ χλωρὸν δέος ἦρει.
 Δὴ τότε ἐπεὶ ἐτάροισιν ἐποτρύνων ἐκλείεσθαι

reux, enfin avec de l'eau, et je jetai par-dessus une blanche farine.
 J'implorai ensuite les ombres vaines des morts, promettant que de re-
 tour dans Ithaque j'immolerais dans mon palais une vache stérile, la
 plus belle de toutes, et que je remplissais un bûcher d'offrandes pré-
 cieuses; que je sacrifierais à Tirésias en particulier un bétail entière-
 ment noir, remarquable parmi nos troupeaux. Quand j'eus adressé mes
 vœux et mes prières aux peuplades des morts, je saisis les victimes et
 les égorgeai au-dessus de la fosse, dans laquelle coulait un sang noir;
 et du fond de l'Érèbe arrivaient en foule les âmes des morts: de jeu-
 nes femmes et de jeunes garçons, des vieillards accablés de misères,
 de tendres vierges au cœur rempli d'une récente douleur; puis une
 multitude de guerriers percés par des lances d'airain, immolés dans
 les combats et revêtus d'armes ensanglantées. Ils se pressaient de tous
 côtés autour de la fosse avec un bruit immense; et la pâle crainte
 s'emparait de moi. Alors je commandai à mes compagnons de dé-

Figure 10. Sommer's original edition

Quand j'eus adressé mes vœux et mes prières aux peuplades des morts, je saisis les victimes et les égorgeai au-dessus de la fosse, dans laquelle coulait un sang noir; et du fond de l'Erebe arrivaient en foule les âmes des morts: de jeunes femmes et de jeunes garçons, des vieillards accablés de misères, de tendres vierges au cœur rempli d'une récente douleur; puis une multitude de guerriers percés par des lances d'airain, immolés dans les combats et revêtus d'armes ensanglantées. Ils se pressaient de tous côtés autour de la fosse avec un bruit immense; et la pâle crainte s'emparait de moi.

From the second half of the XIX century, many juxta-linear translations will appear, such as in Sommer's example, abridged most of the time. These are typographically recognizable: the first page is a word-to-word translation, unreadable and not supposed to be fluent, and the second page is a linguistically acceptable translation. This practical use of translation reveals two essential points in the evolution of translation practices: 1, a translation, to be judged adequate, must show that the translator perfectly understood the syntactic problems of the Greek text; 2, Greek and Latin studies have never been more important in general education. Sommer's many translations do not aim at being original or stylistically distinguishable, but mainly tend to explain Greek syntactic problems. In our text, Sommer never omits any word, keeping each redundancy, without seeking poetic effects (e.g.: the ψυχαὶ νεκρῶν κατατεθνηῶτων is simply translated by "les âmes des morts", "the souls of the dead"). What is more, Sommer tends to maintain Greek temporality: he keeps aorists and imperfects, not considering French habits ("la pâle crainte s'emparait de moi", "the pale dread was getting to me").

- Charles Marie René Lecomte de Lisle, 1867

Puis, ayant prié les générations des morts, j'égorgeai les victimes sur la fosse, et le sang noir y coulait. Et les âmes des morts qui ne sont plus sortaient en foule de l'Erebus. Les nouvelles épouses, les jeunes hommes, les vieillards qui ont subi beaucoup de maux, les tendres vierges ayant un deuil dans l'âme, et les guerriers aux armes sanglantes, blessés par les lances d'airain, tous s'amassaient de toutes parts sur les bords de la fosse, avec un frémissement immense. Et la terreur verte me saisit.

Translators will stop adapting the text to their own language and culture, but enrich their own style with the contact of strangeness. The climax of this tendency seems to be reached with Leconte de Lisle: not only does he use rare terms or even hapaxes, but he also creates neologisms, and imitates the Greek itself as a sound. Leconte de Lisle was one of the reasons we used the Greek text as pivot: quite literal in its phonetic imitations, it tends to be very different from traditional syntax. Indeed, the goal might have been first to disassociate the reader from his own *hic et nunc*, for lost and far away realities, but also to create a form of poetic hermetism. As a result, the program points out that there are, in Leconte de Lisle's translation there are many hapaxes and many word similarities with the Greek, which is to say archaisms⁵. The goal is clearly to recreate a complete work of art, poetic and independent from its source for a renewed modern language. In our text, what is most noticeable is that Leconte de Lisle maintains most of the Greek syntax and uses an enormous amount of hapaxes (the first in our whole corpus to use so many hapaxes). In the first sentence, he strictly imitates Greek temporality, and he is the first to explicitly keep the perfect participle κατατεθνηώτων (accomplished fact) with "les morts qui ne sont plus" ("the dead that are no more"). The Ἑρέβευς is phonetically imitated, translated as "Erebos". The following sentence exactly maintains the Greek syntax (nominative juxtapositions, demonstrative pronoun οἱ). But what is more, Lecomte de Lisle maintains, as much as possible, every assonance and alliteration present in the Greek text (θεσπεσίη ἰαχῇ, with three and two syllables: "frémissement immense", with three and two syllables). Even the books themselves are not books anymore but "rhapsodies". This tendency illustrated by Lecomte de Lisle is clearly seen at the time as an emancipation. Translating means working not only on a source language, but on French itself: the fact that a new kind of French is needed is visible in the way translators deliberately hurt common sense and use. Translation is not perceived only as a symbolic means of understanding ideas and culture, but also as a new way to express impression and sound. Translation itself is a new work of art.

We shall not, for the time being, go into further details about the analysis we could make thanks to such a tool. However, to give an overview up to the XX century, we may just mention two most renowned French translators, Victor Bérard and Philippe Jaccottet.

- Victor Bérard, 1924

Quand j'ai fait la prière et l'invocation au peuple des défunts, je saisis les victimes; je leur tranche la gorge sur la fosse, où le sang coule en sombres vapeurs, et, du fond de l'Érèbe, je vois se rassembler les ombres des défunts qui dorment dans la mort: femmes et jeunes gens, vieillards chargés d'épreuves, tendres vierges portant au cœur leur premier deuil, guerriers tombés en foule sous le bronze des lances. Ces victimes d'Ares avaient encor leurs armes couvertes de leur sang. En foule, ils accouraient à l'entour de la fosse, avec des cris horribles: je verdissais de crainte.

First with Bérard, the *Odyssey* is considered both as a literary masterpiece, but also as a considerable source of archeological information: it is both a poem and a document. As a result, Bérard's translation was paradoxically easy and uneasy to align. It was easy because Bérard

⁵ Henri Meschonnic, about Lecomte de Lisle's translations will say: "il ensauvage les noms en les originant" (expression impossible to translate, but meaning "he makes the nouns wild explicitly showing their origins"), in Meschonnic, Henri, *Jona et le signifiant errant*, Paris, Gallimard, 1981, p. 106-107

tends, writing in hexameters, to reproduce the syntactic movement of the Greek verse, and to keep the polysemous aspects of each particular word, keeping in mind the principle of *brevitas*: as a result, if we compare the syntax of each aligned chunk with its Greek correspondent, mainly we will find out an extraordinary proximity of length and syntax. However, it was also, in some parts, difficult to align, because, being an archeologist, Bérard tends to force the original text into his own present reality: for example, he tends to change toponyms so that they match real places in modern Greece. As our alignment algorithm is based on proper nouns, and especially hapaxes (which may often be toponyms), this ambiguity was most peculiar. However, it is symbolic of what Bérard thinks about the art of translation: it is as much a poetic activity as an archeological research. In our text, Bérard mainly imitates the natural movement of the Greek line, using the hexameter. For the first time, every Greek word is translated, this time in the iconic *brevitas* style, which makes this translation a true masterpiece, being both poetic and precise. For example, κελαινέφες is translated by “les sombres vapeurs” which is the shortest and yet the most literal translation we have. The same thing can be noticed about the word θύμος, erased from so many translations before, literally maintained without awkwardness, by “portant au coeur” (“bearing in their heart”). Let us also notice that the dread, just like in Lecomte de Lisle, does not have a clarity, but a color. What is more, Bérard is the first, since Certon, to fully express Odysseus’ fear with the hypotyposis present throughout the description of the dead, and keeping the paratactic asyndeton.

- Philippe Jaccottet, 1955

*Puis, le peuple des morts par vœux et prière imploré,
je saisis les deux bêtes, leur tranchai la gorge
sur le trou ; le sang noir coula; et du fond de l’Erèbe
les âmes des défunts trépassés affluèrent:
jeunes femmes, jeunes gens, vieillards usés par la vie,
guerriers nombreux, blessés par des lances de bronze
et victimes d’Arès, qui portaient leurs armes sanglantes.
En foule autour du trou ils accouraient de tous côtés
avec d’étranges cris, et la peur verte me gagnait.*

We cannot make a detailed analysis of every translator from the XX century, but we chose to analyze, ultimately, Jaccottet’s translation, as Jaccottet declares himself as an heir to Bérard (although not entirely). We should just stress that with the program we could spot two schemes: first Jaccottet’s lines, just like Bérard’s, tend to reproduce Greek syntax; but also, and that sets him quite apart from Bérard, Jaccottet uses very frequent words, even daily words. This tends to illustrate what Jaccottet may say himself about his own style: expression should be “loyale” (both “accurate” and “faithful”). On a translator’s point of view, this first means that there is a promise of truth between the word and the object it represents, but also between a foreign word and a familiar word. As Jaccottet states himself:

“Y entendre ne fût-ce qu’un écho très affaibli de l’admirable musique originale, il faut alors traduire, dans la mesure du possible et sans tomber dans l’absurde, selon la lettre même du

texte. *De même, il faut écouter plutôt que lire, ainsi [...] le texte retrouve sa lenteur nécessaire, son mouvement, quelque chose de sa résonance*⁶.”

Both Bérard and Jaccottet, though to different extents, materialize this increasing attention to the poetics of their source in itself and the need to reproduce an echo of what has been lost. In our text, we can first notice a symmetric inversion of the syntactic order, emphasizing the liturgical aspect of the scene and the Homeric tendency to maintain the hesitation between the narrative and the incantation. The expression “les deux bêtes” (“the two beasts”), most unusual, may be due less to the context than to the phonic imitation of ὀῆ. The word “trou” is almost shocking, but then again reflects the phonic imitation of βόθρον, and its extreme simplicity (an essential notion in Jaccottet’s poetry). The problematic expression ψυχὰι νεκύων κατατεθνηώτων is translated with apparent ease, both keeping the pleonasm and the language naturalness, with “les âmes des défunts trépassés” (“the souls of the departed dead”). The adjective “étrange” (“strange”) maintains Odysseus’ uneasy feeling (implied by θεσπεσίη), and while Jaccottet maintains the final imperfect (also visible in the Greek text), he gives it an inchoative connotation, which is most original. Finally, let us point out that there are no capitals in Jaccottet’s poetry, corresponding both to his own principle of “effacement” (“disappearance”) and to a vision of poetic rhythm (conceived as a blow, a wind, which should not be stopped). Both Bérard and Jaccottet, following the path Lecomte de Lisle had initiated, have contributed to a new perception of translation, as a masterpiece both in debt and independent from its source. Jaccottet states it most elegantly in his preface:

*“Et tel aura été le rêve, utopique, de cette traduction, défectueuse comme toute traduction : que le texte vienne à son lecteur ou, mieux peut-être, à son auditeur un peu comme viennent à la rencontre du voyageur ces statues ou ces colonnes lumineuses dans l’air cristallin de la Grèce, surtout quand elles le surprennent sans qu’il y soit préparé; mais même quand il s’y attend, elles le surprennent, tant elles viennent de loin, parlent de loin, encore qu’on les touche du doigt. Elles demeurent distantes, mais la distance d’elles à nous est aussi un lien radieux.”*⁷

The program we made was therefore extremely useful to analyze and identify different trends and patterns between French translations from the XVI to the XX century. Thanks to our efforts in alignment and improvement of NLP tools within a single interface, we tried to give the common user an access to potential enriched literary analysis. This has only been a sample, but we hope to develop both our corpus (in different languages) and our tools in future months.

Conclusion and future work

⁶ “one should be able to hear at least the feeble echo of the admirable original music, and we should translate, as far as it is possible, and without absurdity, according to the letter itself (...) the text should find its necessary slowness, something of a resonance”, in Jaccottet, Philippe, *Odyssée*, “Préface”, Paris, La Découverte, 2004

⁷ “And such has been the utopic dream of this translation, faulty like any translation: to make the text come to the reader, or better perhaps, to his listener just like come to the traveler these statues or these light columns in the crystalline air of Greece, especially when they surprise him completely unexpected; but even when expected, they surprise him, as they come from far away to speak, although just perceived. They remain apart, but the distance from them to us is also a radiant link.” in Jaccottet, Philippe, *Odyssée*, “Préface”, Paris, La Découverte, 2004.

The analyses we conducted in this work are just an example of what can be done with an aligned and processable diachronic set of Homeric translations. The potentiality of similar resources are vast and can change depending on the interests of the researcher. From the perspective of individual author style many issues can be addressed, as the ability of the style of a translator of overlap with the style of the original author - such as the presence of stylistic features of the poetry of Monti in his translation of the *Iliad*. The analyses we conducted were contained to the texts we analyzed: characteristics and peculiarities were searched only inside those texts. The question a longer work could address to processable and aligned translations of Homer is how much could those translations resent from their contemporary literary fashions, styles and dominant conceptions.

Naturally, if similar results can appear interesting in one language, it would be even better to conduct a research on diachronic translation corpora in different languages. Since the alignment program works for many European idioms, a similar research would be possible without modifying or adapting the system. Using multilingual translations we could both compare the features of contemporary translators of different languages aligned to the original and align different translators between themselves (for example, we could align Madame Dacier's *Iliad* with Casanova's *Iliad*) which is a very direct way to confront styles and approaches. We would like to compare, for example, a set of book XI French translations and a small group of Italian translations of the same text, to identify where possible different trends in different languages or, possibly, unique trends in different languages.

References

[Dekker 2014] Dekker, R. H., van Hulle, D., Middell, G., Neyt, V. and van Zundert, J. "Computer-supported collation of modern manuscripts: CollateX and the Beckett digital manuscript project". *Literary and Linguistic Computing*, 3 (2014): 12-25.

[Boschetti 2013] Boschetti, F. "Acquisizione e Creazione di Risorse Plurilingui per gli Studi di Filologia Classica in Ambienti Collaborativi". *Collaborative Research Practices and Shared Infrastructures for Humanities Computing*, 2 (2013): 55-67.

[Gao 2011] Gao, Q., Lewis, W., Quirk, C. and Hwang, M. "Incremental Training and Intentional Over-fitting of Word Alignment". *Proceedings of MT Summit XIII, Asia-Pacific Association for Machine Translation*. 13 (2011): 20-28. *Conference Paper*.

[Allauzen 2009] Allauzen A., Wisniewski G. "Modèles discriminants pour l'alignement mot à mot", *Traitement Automatique des Langues*. 50 (2009): 173-203.

[Boschetti 2009] Boschetti, F., Romanello, M., Babeu, A., Bamman, D. and Crane, G. "Improving OCR Accuracy for Classical Critical Editions". *ECDL 2009* (2009): 156-167.

[Henning 2009] Henning, M. "Api design matters". *Commun. ACM*, 52, 5 (2009): 46-56. [Online]. Available: <http://doi.acm.org/10.1145/1506409.1506424>

[Gao 2008] Gao, Q., Vogel, S. "Parallel Implementations of Word Alignment Tool". Software Engineering, Testing, and Quality Assurance for Natural Language Processing, 12 (2008): 49-57.

[Tulach 2008] Tulach, J. "Practical API Design: Confessions of a Java Framework Architect", 1st ed. Berkely, CA, USA: Apress. (2008)

[Déchelotte 2007] Déchelotte, D., Schwenk, H., Bonneau-Maynard, H., Allauzen, A., Adda, G. "A state-of-the-art Statistical Machine Translation System based on Moses". MT Summit. (2007): 127-133.

[Feng 2006] Feng, S. and Manmatha, R. "A Hierarchical, HMM-based Automatic Evaluation of OCR Accuracy for a Digital Library of Books". Digital Libraries. Proceedings of the 6th ACM/IEEE-CS Joint Conference, 6 (2006): 109-118.

[Fraser 2006] Fraser, S., Gamma, E., Helm, R. and Johnson, R. "Design patterns: Beginnings and futures". Companion to the 21st ACM SIGPLAN Symposium on Object-oriented Programming Systems, Languages, and Applications, 21 (2006): 934-934.
[Online]. Available: <http://doi.acm.org/10.1145/1176617.1176748>

[Ma 2006] Ma, X. "Champollion: a Robust Parallel Text Sentence Aligner". LREC 2006: Fifth International Conference in Language Resources and Evaluation, 5 (2006): 489-492.

[Brown 2003] Brown, P. F., Pietra S. A. D., Pietra V. J. D., Mercer R. L. "The mathematics of statistical machine translation: parameter estimation". Computational Linguistics. 19, 2 (1993): 263-311.

[Och 2003] Och, F. and Ney, H. "A Systematic Comparison of Various Statistical Alignment Models". Association for Computational Linguistics. 29, 1 (2003): 19-51.

[Robert 2000] Robert, M. C. "Design principles and design patterns". Object Mentor, 1, 18 (2000): 1-34.

[Och 1999] Och, F., Tillmann, C. and Ney, H. "Improved alignment models for statistical machine translation". Proc. of the Joint Conference of Empirical Methods in Natural Language Processing and Very Large Corpora, 10 (1999): 20-28.

[Gamma 1995] Gamma, E., Helm, R., Johnson, R. and Vlissides, J. "Design Patterns: Elements of Reusable Object-oriented Software". Boston, MA, USA: Addison- Wesley Longman Publishing Co., Inc. (1995)

[Gale 1991] Gale, W and Church, K. "A program for aligning sentences in bilingual corpora". ACL '91, Berkeley CA, 19 (1991): 177-184.

[Needleman 1970] Needleman, S. and Wunsch, C. "A general method applicable to the search for similarities in the amino acid sequence of two proteins". *Molecular Biology*, 48 (1970): 443-453.

[Viterbi 1967] Viterbi, A. J. "Error bounds for convolutional codes and an asymptotically optimum decoding algorithm". *Information Theory*, 13 (1967): 260-269.

Tools

Apache OpenNLP Project resources available at the following link:

<https://opennlp.apache.org/team.html>

Apache CoreNLP Project resources available at the following link:

<https://uima.apache.org/external-resources.html>

Stanford CoreNLP Project resources available at the following link:

<http://nlp.stanford.edu/software/corenlp.shtml>

CollateX Project resources available at the following link:

<http://collatex.net>