An overview of interference in scientific and technical translation
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ABSTRACT
In this article, I will explore the nature of interference in translation, especially in technical and scientific texts, using a descriptivist approach. My aim is to explain this phenomenon and its causes with all its paradoxes, instead of simply condemning it as an example of supposedly bad translation. Thus, I will focus on its status in the bibliography of translation, on the motives for and consequences of interference in specialised translation, as well as on the nature of the arguments given for and against this phenomenon.

KEYWORDS
Interference, normalisation, technical and scientific translation, descriptivism, prescriptivism, globalisation, English as a lingua franca.

1. Interference in Translation Studies

In an attempt to provide a wide definition for interference in translation, we could say that it is the importation into the target text of lexical, syntactic, cultural or structural items typical of a different semiotic system and unusual or non-existent in the target context, at least as original instances of communication in the target language. This definition includes the importation, whether intentional or not, of literal or modified foreign words and phrases (lexical interference), forms (syntactic interference), specific cultural items (cultural interference, proper nouns included), or genre conventions (structural or pragmatic interference).

Interference has always been a topic of great interest in the theory of translation, although considered from different perspectives and under different labels, some of them even more value-laden than “interference” itself, such as contamination, code-switching, heterolinguism, linguistic influence, hybridity, borrowings, interlanguage, translationese, pidginisation, anglicisation (or whatever the source language), Spanglish, Polglish (or whatever the language pair), interpenetration or infiltration, just to mention a few. Lexical and syntactic interference in particular have traditionally been regarded as classic howlers, something to be systematically avoided because it worked against a fluent and transparent reading.

To start with the paradoxes involved in the notion of interference, its mere presence shows that the text is a translation, refuting the illusion of sameness through an excess of similarity (cf. Humboldt 1816). From this perspective, a translation using words or syntactic structures clearly derived from the original language can not stand as a complete
replacement of the source text; that is, a translation should be the same as the source text but should not sound as if it was the source text. Classic statements such as Cicero’s (46 b. C) or Jerome’s (405) defence of sense for sense as opposed to word for word translation may thus easily be read as a rejection of interference because it hampers fluency, transparency, and the full development of the target languages (TLs) as vehicles of culture in their own right.

In August 2008, there were over 650 references in BITRA (Bibliography of Interpreting and Translation\(^2\)) to publications dealing specifically with interference in translation, and this figure does not take into account all the handbooks and publications where this issue is always present although it is not the central topic of the text.

A great majority of these texts have been published after 1950, when linguistics began to address contrastive issues of usage in modern languages in a systematic way. As was only to be expected, most of them were and still are mainly concerned with providing recipes to avoid interference in translation, especially when the language pair involved is historically close and there are numerous cognates (e.g. romance languages).

Simultaneously, there have always been advocates of different levels of interference, usually when the sacred or canonical nature of the source text seemed to make it advisable to demand a special effort from the reader in exchange for a more conservative rendering, i.e. for a rendering of the source text on its own terms. Bible translation is a clear example of this and the reason why a defender of sense for sense translation such as Jerome (405) says that in the Bible even the order of the words is sacred and should be respected. Schleiermacher (1813), another theologian, is probably the first scholar to defend in a systematic way what could be termed ‘controlled interference’ in the translation of canonical and sacred texts for the same reasons. He was also probably the first to explicitly exclude technical texts from this kind of strategy, since their wording supposedly did not convey any special national spirit and their translation was a mainly mechanical task.

In modern times, scholars such as Benjamin (1923), Berman (e.g. 1984) and Venuti (e.g. 1998) have retaken Schleiermacher’s stance from different starting points and ideological agendas to favour overt translations enabling the reader to perceive the source text as portraying a different culture. These authors denounce normalisation (i.e. the replacement of foreign or idiosyncratic marks included in the source text by the most usual variants according to target text conventions) as a strategy that eliminates “otherness” from a foreign text which should also convey a different world view for TL addressees. Normalisation, then, would result in target texts all written in a uniform way, giving the impression that all literatures and views of life are essentially the same.
Once again, all of these authors explicitly or implicitly eliminate technical translation from this equation, since these kinds of texts are somehow seen as international or culturally neutral.

All these attempts to promote significant degrees of interference in at least certain types of translation clashed and still clash with the rejection of overt versions by publishers and readers, who are not generally prepared to accept translations whose structure and wording do not attempt to belie the asymmetrical nature of languages and cultures. Generally speaking, receivers do not like having to make an additional reading effort to understand and cope with texts bearing many lexical and stylistic instances that run contrariwise to what is considered to be optimum according to the conventions for that text type in the TL. From a theoretical point of view, relevance theory, represented in translation studies by Gutt (1991) describes this mode as direct translation. Direct translation would provide the highest possible degree of resemblance to the original, but would require the reader to process the target text using the context of the original, which is seen as fairly unrealistic, since we all use our own context in order to understand.

As a consequence, publishers are not usually prepared to accept the financial costs involved in promoting this kind of overt translation. Thus, translation that is communicative, transparent or covert to varying degrees is the usual and expected mode nowadays, even in Bible translation. There is a majority of advocates of reducing formal interference to a minimum in order to guarantee transparency and the achievement of the purposes of the translated text, such as Nida with his notion of dynamic equivalence, especially designed for Bible translation (cf. for instance Nida 1964). Other significant instances or illustrations of this same position can be found, for instance, in Delisle (1988), Pergnier (1989), Newmark (1990), Mejri (1995), Alvarez Lugris (1997), Ballard (1999), Gottlieb (2001), Hansen (2002), Munday (2005) or Hopkinson (2007).

In the specific case of interference in technical and scientific translation, this is also clearly the case. With the possible exception of sworn translation, where an important degree of literalness is usually expected in order to legally consider that the text is really ‘the same’, to my knowledge, there is virtually no publication asking for any kind of controlled interference in order to maintain the world view portrayed in the source texts. Indeed, even in the case of sworn translation, apart from a great majority of practical texts on pedagogical and professional issues which do not address this topic, what we usually find regarding interference is calls to minimise it in order to obtain more functional or acceptable translations (cf. Mayoral Asensio 2000, Prieto Ramos 2002, Aubert 2005).

To my knowledge, most if not all of the literature on interference in
technical and scientific translation focuses on two main issues - how to deal with neologisms, avoiding *translationese*, and the denunciation of the unstoppable process of Anglicisation in technical and scientific prose, very frequently through comparisons of 'wrong' English-related terms with 'right' TL-related alternatives. Telltale words such as 'problem', 'abuse', 'cognates', 'adaptation', 'avoid', or 'anglicisms' are absolutely trite in the bibliography (see BITRA). The current mainstream, then, is clearly contrary to the aforementioned authors who defend interference, although they always refer to literary and religious texts. In technical prose, almost everybody seems to agree to a lesser or greater extent that normalisation is a very good thing and interference is essentially evil. Of course, this insistence on the need to avoid interference can only be explained acknowledging that interference is constantly present in technical and scientific translation. The closing sentence from the abstract of an article published in one of the most prestigious Spanish journals of translation may give a good idea of the general feeling, which automatically equates interference with incompetence:

In this paper we analyse the presence of English in Spanish target texts after the translation process and how subtle syntactic structures and pragmatic conventions are being transferred to Spanish through *badly translated* technical texts. (Rodríguez Medina 2002, my emphasis)

This centuries-old debate between advocates and opponents of interference, characterised by the defence of ways of translating according to the scholar’s agenda, only began to change when translation studies became an autonomous discipline in the 1980s. The new attempt to replace impressionism by scientific methodology in the study of translation involved studying translation phenomena with a non-prescriptive approach. Thus, as early as 1978, Toury was already claiming that interference (“interlanguage”) was very likely a universal in translation, that confining its study to “error analysis” involved a serious case of simplification because in many instances interference was “preferred to ‘pure’ TL forms”, and that it “should form an integral part of any systematic descriptive study of translation as an empirical phenomenon” (Toury 1978, 1979: 224-225).

The main advantage of this approach is that it allows the researcher to explore reality instead of just judging it according to impressionistic standards. The aim is not to provide recipes for supposedly better translations whatever the context, but to explain them, to try to shed some light on facts. The underlying rationale is that a non-prescriptive understanding of the phenomenon will enable translators to act consciously, to decide for themselves which strategies to apply after obtaining a complete picture of all the possibilities, motives and consequences. This, too, will be my approach here, in an attempt to begin to explain interference as forming part of translation, its causes, and the nature of the arguments for and against it in the bibliography of our
2. Interference in technical and scientific translation: a range of possible motives

If, as I have tried to show, interference is at least as close as can be to a universal in translation and is still generally perceived as an error, especially in non-canonical technical and scientific texts, which are generally not thought to convey any sort of specific world view, either there must be some kind of rational, understandable range of motives for its use, or translators are simply incompetent. The latter seems a poor explanation: if this was so, publishers, proofreaders and editors would simply look for competent professionals and take care to avoid this behaviour because readers -especially technical readers at that - would complain about unreadable or unacceptable translations which hampered information flow.

In my experience there are four main motives for interference in translation, which can be defined separately but tend to overlap in practice: the double tension intrinsically associated with translation, the creation and preservation of a specific terminology or jargon, the non-existence of a given term or structure in TL, and the prestige of the source culture. All of these are present in all kinds of translation, but the last three are especially visible in scientific and technical translation.

Translation always operates between two forces, centripetal and centrifugal, which simultaneously and paradoxically push it towards the source-text proposals and towards the target-context notions of correction and optimal writing. The attraction exerted by the source text is a centripetal force which on its own would arise in translations full of interference, but it is compensated for by the centrifugal force derived from the conventions of the target context, which define “correction” according to the receiving context and, with very few exceptions, partly overlap those according to which the source text was written. This partial overlapping of norms and conventions also means that the border between interference and TL correction is often fuzzy. Since translators usually wish their texts both to represent the original and to be optimal texts in their own right according to the conventions accepted by their TL readers, inevitably, translations, whether technical or not, show a combination of both forces to different degrees, depending on how much the translators want or are able to make their texts to look like AN original or THE original. This first motive is present by definition in all translations having a minimum complexity, and is the reason why interference can be considered akin to a universal in translation. This is also the characteristic we first detect when pointing out that a given text looks like a translation, making it into an inherent feature of our mental image of cross-lingual mediation (Tirkkonen-Condit 2002).
The centripetal force exerted within this double tension or attraction to the source and target contexts is also supported by a very powerful stimulus - the economy of effort, which seems to make translators, who usually work under very tight deadlines and for a rather modest remuneration, tend to deviate from the source text only when they consider it really necessary, since conservative translation is the fastest and most economical way of working.

To finish with the double tension motive, it is necessary to stress that the centrifugal force involved in this double drive is also always present, encouraging the translators to deviate from the source text in order to meet the (supposed) expectations of their readerships. The translators, then, are forced to constantly negotiate and navigate between two opposing stimuli, resulting in various historical, text-type and idiosyncratic balances whose study forms a very important part of research in translation studies.

The creation and preservation of a specific terminology or jargon is simply a characteristic inherent to mankind. Any group of persons sharing a profession or a common interest tends to create its own terminology for two main reasons - necessity and exclusivity. Regarding necessity, any human activity aims to have its own terminology in order to gain in precision and clarity. You need the word 'starboard' because this is not relative, whereas 'right' is, and you simply need clarity and precision if you have to shout instructions in the middle of a storm on a boat. The quest for bi-univocity (one term per object/concept, and one object/concept per term) in technical terminology is a natural consequence of it (and the failure to achieve bi-univocity in most technical and scientific disciplines one of the worst headaches for technical translators, but that is another story). Regarding exclusivity, the creation of a specific terminology brings about an important degree of opacity for outsiders, something that is generally enhanced by insiders, since it strengthens their feeling of belonging and sets their trade, vocation or situation apart from all other mortal souls. This is quite easy to understand in the case of teenagers or criminals, but the same applies to any branch of knowledge, such as lawyers, doctors or translation-studies scholars.

The creation motive, combined once again with economy of effort, is especially important when trying to explain the considerable degree of technical interference in languages other than English. Thus, if you want your discipline to be described in its own terms, it is generally easier to import ready-made words and structures than to create new ones, not forgetting the bonus of exclusivity due to the fact that imported terms tend to be more opaque than others derived from pre-existing TL words (one of the reasons why modern technical jargons tend to be more opaque for the general reader when not in English). This motive is also supported by the argument of promoting the internationalisation of your
terminology, and thus facilitating the flow of scientific and technical knowledge. This is an important and often quoted reason for the non-translation of abbreviations, which probably represent the maximum degree of interference in technical and scientific translation.

The non-existence of a given neologism is of course a very powerful justification for interference in technical and scientific translation. Indeed, when deciding whether or not to import a foreign item, the non-existence of a given term or structure in the TL is the usual reason accepted even by many prescriptivists, although they will insist on exploring first all possibilities of exploiting pre-existing terms or coining a new one in the TL. At the same time, the existence of a previous term in the TL is no guarantee against interference, although it does make it harder to justify the neologism and to implement it due to the opposition of prescriptivist agents. In biomedical terminology, for instance, there are many cases of terms which have been incorporated following fashions, such as *accidente cerebrovascular* ("cerebrovascular accident") or *randomizado* ("randomised") when other terms such as *ictus/apoplejía* or *aleatorio/aleatorizado* were already there. The importation of terms and structures, as well as the decision whether or not to take advantage of a pre-existing item or coining a new one in the TL depends to a significant extent on the relative prestige or centrality of both societies involved in the language transfer, which takes us to our fourth motive.

Whether we like it or not, in each historical moment there are more and less cutting-edge societies, at least in terms of the political power they wield and/or of their level of scientific research and capacity for innovation. This pre-eminence usually involves a special prestige awarded to the language in which those innovations are coined. Globalisation and the democratisation of knowledge brought about by the Internet has made this even more obvious, with specialists reading and trying to write directly in English, the lingua franca of science (see Montgomery in this issue), in order to keep up to date and make themselves known. In Spain and in many other non-English speaking countries, the academic and administrative authorities explicitly value essays written in English and published in 'international' (i.e. English-language) journals over almost anything written in the local language and published in local journals.

As with the double tension motive, this one is also accompanied by a counterforce, in this case represented by the defence of the TL (or the local variant of English at that). Purist agents, such as language academies in Romance countries, nomenclatures supported by Governments, journals or some dictionaries implicitly or explicitly denounce the importation of foreign words and structures as evil phenomena that impoverish the TL, hampering its ability to describe the world and turning it into a secondary means of communication, especially in technical and scientific domains.
Depending on the authority exerted by prescriptivist or purist agents in the receiving society, there will be more or less interference in a given language. Thus, French has far fewer English borrowings than Spanish due to the important nationalist conscience and powerful language-related institutions the French still preserve as compared with the Spanish. Likewise, the defence of their particular and possibly threatened mode of English as a scientific language seems to be encouraging some academic and scientific journals such as Jostrans and the British Medical Journal to ask for their contributions to be written in British English - in an explicit call against this particular form of interference -, whereas this restriction does not seem to apply in US technical and scientific journals, which have no apparent need to defend themselves against linguistic displacement. In postcolonial societies, the lack of terminology may extend to the absence of a whole genre in the society’s mother tongue(s), thus making it possible to have 100% interference in given text types, such as seems to happen with the legal codes and constitutional laws of some African countries, which are still completely written in the language of the ex-colonial power and not in the local languages.

In technical and scientific domains, where neologisms are numerous and almost systematically in English, the attraction is very strong. This is especially true for non-linguistically conscious specialists, who are quite happy to import English terms galore, since they bring about prestige and exclusivity. Furthermore, these specialists and their colleagues are already familiar with such terms through their own readings and they are easier to import (just copying or slightly adapting) than having to coin new terms whose potential acceptance would be at least questionable.

This motive is also especially strong in the case of syntactic interference. Since globalisation means that more and more specialists wish to publish their research in international English-language journals, and more and more read their bibliography directly in English, there is a growing use of English technical macro- and micro-conventions even in publications written originally in the TL, much to the annoyance of purist agents.

From the point of view of the technical and scientific translator, there are many text types in which, as Toury writes in the aforementioned quotation, interference is indeed preferred to 'pure' TL instances. It is not strange, either, to witness translation students complaining about teachers who instilled in them maximum respect for TL purity, when their translations are professionally rejected for being so pure that they are hard to accept by their specialist readerships. Neubert already testified to this in 1990:

How often are novice translators surprised, perhaps even shocked at the reaction of subject specialists who re-translate certain passages of a nicely TL-worded text because they insist on terms and phrases that the TL-conscious translator had expressly eliminated. But the experts' notion of what satisfies a particular technical
text class is a far cry from the translator's concept of a good TL instance. In other words, the impact of translation, specialist translations at that, is no longer felt as un-TL. The opposite is the case. That the SL-patterns look through is regarded as a perhaps novel, but certainly an in-feature of many modern normal TL texts, especially of a scientific or a technical nature, e.g. medicine, physics, electronics, etc.

[...] the impact of translation, in our epoch, is to a growing extent multidirectional. It is true that individual TLs each cope with this verbal influx in their own specific ways. But the actual outcome, however varied it may be from TL to TL, is also invariably marked by many internationalisms. (Neubert 1990: 98, 100)

3. Prescriptivism and descriptivism in the choice of terminology in technical and scientific translation

Now it seems appropriate to try to summarise the reasons usually given for and against interference in technical and scientific translation against the background of motives discussed above, which is characterised by a systematic and paradoxical double force.

As mentioned earlier, we can say there are two main approaches or methodological poles when addressing the study of interference in technical writing, which could be termed descriptivist and prescriptivist respectively. These two approaches are also applicable to the act of translating. To define them in as few words as possible and in their most extreme instances, descriptivists think that translators should adapt to their readers’ usage, even if this is not very logical or may be questionable for any other reason. Prescriptivists, on the other hand, think that the most correct term from the point of view of absolute respect to TL traditional patterns should always be promoted, even if this means swimming against the tide.

Of course, the criteria for correction are the crucial issue here. They are all derived from the second pole of the double-tension dichotomy pointed out earlier, favouring the idea of the target text being like an original. Usually these criteria can be summarised as one of the three following or a combination thereof: 1) respect for the morphogenetic or syntactic structures of the target language, which means that the derivations or the structures used in translation must be adjusted to the traditional patterns in TL; 2) respect for the pre-existing vocabulary in the TL, which means rejecting the creation of 'unnecessary' terms, and the need to coin neologisms derived from pre-existing TL terms; 3) respect for the semantic logic of the resulting term as compared with similar terms already existing in TL.

Normally, learned prescriptivists possess the ability to furnish reasons that do not seem arbitrary, purely aestheticist or disproportionately nationalist. On the contrary, their arguments are full of common sense and based on a sound knowledge of TL dynamics, so that it is difficult not to admit at
least that things would be much more orderly and logical if they were the way they should be according to the prescriptivists’ view. The example of 'randomizado/aleatorizado' for the English 'randomised' mentioned above should illustrate this clearly. In Spanish the scientific sense of 'random' is usually translated as 'aleatorio', a quite common term in statistics. Thus, it makes no sense to coin the (very opaque for outsiders) neologism 'randomizado' when it would be very easy to extend the pre-existing word to 'aleatorizado'.

On the other hand, descriptivists declare that when dealing with communication the key issue is not being philologically right or the way things should be. They acknowledge that the selection of a neologism is often due (no doubt unfortunately) to reasons far removed from linguistic logic and more related to power balances, either internal (for instance the convenience of creating a strong group identity derived from the creation motive I pointed out earlier) or external (the prestige motive, represented here by English as the language of science and innovation par excellence). They believe that the role of technical writers, translators included, is not mainly pedagogical but communicative, that when forced to choose between intrinsic target language correction and communicative efficacy, the latter should dominate. In this connection, the central idea is that optimal technical or scientific communication does not consist of choosing the best decontextualised terms but of ensuring the clarity and precision of the information received by the addressee. In this sense, clarity and precision mean adapting to the specialised readers’ expectations and usage, instead of forcing them to guess what the 'correct' choice means, or having to cope with a syntax that may easily seem inappropriate as compared with current usage in the genre, no matter how much the non-usual options might be sanctioned by tradition and TL-respect. If one accepts this view, it will often be necessary to reject the 'correct' version in favour of the one that is actually used. To illustrate this with an example of a phrase that even prescriptivists have come to accept in spite of its lack of linguistic logic according to the target language, in Spanish it has to be ciencia ficción ('science fiction') instead of ficción científica ('scientific fiction'), which undoubtedly should be the way to construct this phrase in Spanish, where the grammar does not envisage the possibility of using nouns as adjectives. But the fact that the term came from English, possibly through French (double prestige), and that there was no pre-existing term in Spanish brought about the decision.

In practice, nowadays 'hard' prescriptivism is not frequent, at least in Spain. The most usual purist stance now is to accept the inevitable (such as ciencia ficción as seen above) and fight only those battles which can be won, that is, those cases in which several real terminological options make it possible to choose without jeopardising clarity, precision and, last and least, acceptability. In Spanish medical prose, this would be, for instance, the case of droga/fármaco ('drug/medicine'), where droga has traditionally only been used for illegal, narcotic and/or addictive substances, or the
already explained case of *randomización/aleatorización* (‘randomisation’).

If 'purist' is the usual derogative term for prescriptivist translators, 'frequentist' is the one applied to descriptivists. The main potential problem of acceptability in the case of frequentism is not taking into account that usage is not unidimensional but multilayered, a source of constant headaches for translators, especially when novice - a term may be very frequent on a popular level but rejected by specialised readers as not precise or in-house enough. To choose a popular variant when translating for a specialised text basing oneself on an indiscriminate Google search, i.e. restricting oneself to the sheer amount of hits as the definitive criterion, is usually a source of problems regarding readership acceptance in technical and scientific translation because the translators will very likely find themselves terminologically off-bounds.

Professional technical and scientific translators tend to be essentially descriptivist and, at the same time, attempt to achieve balance between what could be termed intrinsic correction from the point of view of the structure, patterns and semantic logic of the TL, and real use from a communicative perspective. This means combining quantitative and qualitative filters when searching for terminology on the Internet or in the pertinent bibliography.

As always in translating, eclecticism ultimately rules. In practice, professional scientific and technical translators are usually aware that there tends not to be a unique terminological solution, and that there are at least two very different perspectives on the issue of interference. Normally, a professional knows that if you make sure that your term is really used or, even better, preferred in the text-type domain you are translating for (thus guaranteeing clarity and acceptability) and that it really means what you want it to convey (ensuring precision), things should work fine. If, on top of that, you are able to choose the most logical and TL-respectful alternative because it is in fact used and accepted by your readership, so much the better. Of course, on many occasions this is much easier said than done. It should be possible combining quality and quantity filters in documentation, but one must be prepared to receive criticism from both poles, since there will almost always be an alternative preferred by the other side.

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**Biography**

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BITRA is an open and free annotated bibliography, and available in English at: http://www.ua.es/en/dpto/trad.int/base/index.html