

# TRANSLATION MODALITIES – A DESCRIPTIVE MODEL FOR QUANTITATIVE STUDIES IN TRANSLATOLOGY

Francis Henrik Aubert  
University of São Paulo

## INTRODUCTION

Translation, as indeed any speech act, of any nature or description, is something which occurs between and among individuals and social groups. Translation is also something which takes place between different cultures, ideologies and world images. Furthermore, translation is something which goes on the whole time on the marketplace, involving, in economic terms, an added-value of several US\$ billion a year. Translation is, evidently, something which is done to texts and discourses. And last but, probably, not least, translation is something which expresses itself in sentences, phrases, words. It is my purpose in this paper to provide empirical evidence which demonstrates that, despite the relevance and, indeed, the compelling urgency of adequate investigations into all textual and extra-textual matters related to language in general and to translation specifically, there is still sufficient scope for a closer look into the actual phrase and sub-phrase linguistic mechanisms that manifest themselves in each and every translational act. Indeed, it would be reasonable to expect that the macrostructures revealed on the planes of discourse, text grammar, pragmatics and cultural insertion of texts and their translations in one way or another would be mirrored by the microstructure of sentences, phrases and words. But, if de Saussure's concept of the *signifiant/signifié* relationship being of an arbitrary nature holds good, the challenge remains to determine the manner and the extent of such mirroring.

Beyond the theoretical interest of the approach suggested in the preceding, a number of praxiological circumstances seem to back up the relevance of a descriptive analysis of sub-phrase trends in translation. Thus, the advances in machine-assisted translation over these last 10 or 15 years, and which to a large extent derive from the assembly of workable interlanguage algorithms based on internal linguistic structure. The current 'boom' in bilingual and multilingual terminological studies points in the same direction. And, as pointed out elsewhere,

*in the everyday work of professional translators, translation is (or is felt to be) very much a word-centred operation, resorting to dictionaries, thesauri, and the like as the primary external tool in their daily work. Indisputably, this is not the entire truth; far from it. But one might perhaps dare to suggest that it is a significant part of the perceived truth ... (Aubert, 1995)*

a perception which, again, underlines the relevance of a technical approach, not in contradistinction to, but certainly in a complementary relationship with the more textual approaches favoured by our times.

## TRANSLATION MODALITIES – THE VINAY & DARBELNET MODEL REVISITED

In this paper, one such technical approach will be presented which, it is hoped, will prove of interest not only to translation theory and practice, but to comparative linguistics in general. This approach takes the form of a descriptive model whereby the degree of linguistic differentiation between the original text and the translated text can be measured and quantified, thus affording the possibility of organising and preparing data for statistical treatment.

The origin of such model harks back to Vinay and Darbelnet (1958), who proposed a set of what they termed *procédés techniques de la traduction*. Such procedures, set up on a scale ranging from a kind of ‘zero degree’ of translation (*loan*) and up to the most source-distant procedure (*adaptation*), were originally intended as a didactic reference for the training of future translators.

This model, whatever its shortcomings, has become very popular among scholars in Brazil. In the 70’s, Queirós (1978) submitted as an MA thesis a commented version of the model. Later, Fregonezi (1984) wrote a doctoral dissertation, investigating, with a wealth of detail, the several forms of *transposition*, as illustrated by a French translation of a Brazilian literary text. Barbosa (1990), taking into account recent developments in textual linguistics, proposed a systematic refurbishing of the model. Here, we shall concentrate on the specific line of research which has been termed *translation modalities* and in which the Vinay & Darbelnet model, as amended, is employed for descriptive purposes in such a form as to produce quantifiable data, which, in turn, can be processed statistically, one of the underlying purposes being to introduce a modicum of ‘hard’ data into a field of scientific endeavour (*translation*

*studies*) commonly understood (and sometimes disclaimed) as (too) ‘soft’.

In 1979-80, within the framework of the diploma course in translation offered at the University of São Paulo, this model was adapted to the aims of a specific project, the purpose of which was to attempt a description of the “degree of differentiation” between the original text and the translated text, using the French, German and English translations of Jorge Amado’s *Gabriela, Cravo e Canela*.<sup>1</sup> In this focus, the model no longer purported to describe *procedures*, but, rather, *products*, and, for this reason, the term ‘technical procedures’ was abandoned, in favour of ‘modalities’.

An investigation into the degree of differentiation – or, in other words, the degree of proximity/distance between original and translated text – implies designing and conducting the research in a fashion which will generate quantifiable data, appropriate for statistical treatment. Here, of course, a certain number of practical and methodological issues became manifest, and had to be conveniently dealt with, of which three were of special importance: (i) to formulate the adequate question; (ii) to define the textual unit which was to serve as basis for quantification; and (iii) to set up an operationally straightforward re-definition of each modality, so as to avert all but minor fluctuations in the classification process.

Within the framework of the project, the question was formulated approximately as “how much (in %) of the original text reappears in the translated text as a given modality?”

As for the textual unit to be considered, from a strictly translational point of view the most appropriate unit would certainly be of a syntactical nature (phrase or sentence). But if such a choice were to be made, the project would expose itself to a number of risks. Firstly, no fixed level of syntax corresponds, at all times or under any circumstances, to **the** translation unit actually considered by the translator, or, indeed, by any two or more translators, but tend to fluctuate, according to several variables: stylistic complexity, argumentative/descriptive strategies, greater or lesser ability/ experience of the translator, etc. (see Catford, 1965). Often, specially – but certainly not only – in technical texts heavily loaded with specific terminology, the translation unit may well coincide with the lexical unit rather than with the syntactical one. And, if a matter of transliteration is to be faced, the particular translation units for such

---

<sup>1</sup> In its US translation, *Gabriela, Clove and Cinnamon*.

textual segment will, of necessity, correspond to each grapheme/phoneme of the pertinent sequence.

From a descriptive point-of-view, particularly if, as in the present instance, one desires to resort to a modicum of quantification and statistical analysis of specific corpora, the graphically defined word proves to be an adequate choice. Indeed, in all its simplicity, the choice of the word-unit will, with the exception of fringe cases involving proper nouns and the use of apostrophes, hyphens, and the like, provide a counting unit with little or no ambiguity of interpretation and, consequently, with little or no fluctuation from researcher to researcher, thus opening up for the possibility of systematic and wide-ranging corpus-based research, of a more ambitious scope.

The choice of the ‘word’ as a unit of count does not necessarily lead to conducting the observation and analysis as such on a word-for-word basis. Indeed, in order to reply to the question formulated above, each word of the original text has first to be situated within the framework of the phrase, sentence and larger context in which it appears, and only thereafter be traced in the translated text, in which it may explicitly reappear as a single word, as a noun or verb phrase, as a morpheme, a paraphrase or, implicitly, as condensed, hinted at or suggested in any single or multiple solutions given in the rendering offered by the translator. Such choice, therefore, does not imply in adopting any ‘naïve’ theory of language, but merely represents a convenient solution for the quantification of textual data.<sup>2</sup>

The *procédés techniques* model, as proposed by Vinay & Darbelnet, had to be adapted to the specific needs of corpus analysis. It would be excessively painstaking to dwell on the many trials and errors faced in the course of redesigning the translation modalities. It shall suffice to state, then, that, after a number of experiments, involving several very specific text types, by 1990 a more definite model began to take form and, with a few minor alterations along the line, has thence served as a basis for several specific research projects (and to which we will return shortly). As currently applied, the translation modalities differentiation scale is established as covering the following 13 points:

---

<sup>2</sup> Indeed, even if indirectly, the ‘microcosmos’ of the lexical unit can easily be seen as reflecting linguistic, cultural and ideological choices and constraints just as much as the higher levels (sentence, paragraph, text and discourse) do so, in a more explicit and direct manner.

1. *Omission*. Omission occurs whenever a given text segment of the Source Text **and** the information it contained cannot be traced in the Target Text. This qualification is required because, in a number of instances, although the one-to-one correspondence is lost, the information as such is nevertheless recoverable within the Target Text, as in *transpositions* and *implicitations* (see below). Omissions can occur for a several reasons, from censorship to physical limitations of space (in the case of multilingual texts, or in subtitle translation of films), irrelevance of the text segment for the purposes of the translational act – which, it should be stressed, are not always 100% identical to the purposes of the original speech act which generated the Source Text –, etc. Thus, e.g., a translation into English of the Report from the Board of a major Brazilian bank, including a chapter on the so-called *Fundo 157*<sup>3</sup>, the translation to serve the purpose of assisting the US Internal Revenue in auditing the accounts of a New York branch of the said bank, could very well delete the entire chapter of the *Fundo 157*, which, besides its complexity, could not possibly concern the US Internal Revenue, since no such funds were created in, located at or managed from the New York branch office.<sup>4</sup>

2. *Transcription*. This is the real ‘zero degree’ of translation, and includes text segments which are the common heritage of the two languages involved (e.g. numbers, algebraic formulae, and the like) or, contrariwise, which pertain to neither the source language or the target language but to a third language and which, in most cases, would be deemed as loan words or expressions already in the original text (e.g. Latin phrases and aphorisms – *alea jacta est*).<sup>5</sup> Transcription is also likely to

---

<sup>3</sup> A mutual stock fund, under the administration of the several bank institutions involved, in which local taxpayers (natural persons, only) could invest a certain percentage of their tax payable in any given fiscal year, and deduct such investment from the net value to be paid to the Brazilian Internal Revenue. This system, created for the purpose of stimulating the domestic stock market, was discontinued in the early 80’s, but the amounts invested were not immediately set free (indeed, to this day there are over one million *Fundo 157* accounts in the Brazilian banking system).

<sup>4</sup> I owe this example to Danilo Ameixeiro Nogueira, professional translator, São Paulo, Brazil.





<sup>5</sup> DEvidently, not all Latin expressions retained in texts will be treated as transcriptions. Different European languages draw differently from the Latin heritage, even in the field of Law, which is traditionally closely related to Roman culture. Thus, the Latin legal expression *in rem judicatam*, employed in English legal texts, will normally correspond to the Brazilian Portuguese *transitado em julgado*. And

occur whenever the Source Text contains a word borrowed from the Target Language.

3. *Loan*. A loan is a text segment of the original text in the language of the original text and which is reproduced in the translated text, with or without specific loan-word markers (inverted commas, italic, bold, etc.). Proper nouns (including place names) are favourite loans, as well as terms and expressions directly related to specific anthropological and/or ethnological realities. It should be noted, however, that Source Language orthography is, in itself, insufficient evidence to classify a text segment as a loan. Thus, in Brazilian Portuguese, *office-by* and *outdoor* have become an integrated part of the lexicon; indeed, have acquired distinct Brazilian Portuguese meanings<sup>6</sup>, and should therefore not be reckoned as loans.

4. *Calque*. A word or expression borrowed from the source language but which (i) has undergone certain graphical and/or morphological adaptations to the conventions of the target language and (ii) is not found recorded in recent major dictionaries of the target language.<sup>7</sup>

5. *Literal translation*. Within the descriptive model presented herein, *literal translation* is synonymous of *word-for-word translation*, in which, upon comparing the Source Text segment and the Target Text segment, one finds (i) the same number of words, in (ii) the same syntactical order, employing (iii) the ‘same’ word classes and (iv) the lexical choices can be contextually described as interlinguistic synonyms, e.g.:

<b>Her</b>	<b>name</b>	<b>is</b>	<b>Mary</b>
			
<i>Seu</i>	<i>nome</i>	<i>é</i>	<i>Maria</i>

---

only a certain familiarity with the works of the Norwegian author Alexander Kielland will provide the key for the adequate reading of *mensa rotunda* inserted in a Norwegian text, and which implies in no allusion either to academic symposia or to the Arthurian legends.

<sup>6</sup> *Messenger* and *billboard advertisement*, respectively.

<sup>7</sup> This might be felt as a rather makeshift definition, but it is the only operationally sound criterion. Under any other option – including the original definition proposed in *Stylistique comparée du français et de l’anglais*, the distinction between calques and integrated words and expressions becomes hazy, and subject the survey to excessive fluctuation and uncertainty.

or

<b>Den</b>	<b>første</b>	<b>dagen</b>	<b>i</b>	<b>mai</b>
↕	↕	↕	↕	↕
The	first	day	of	May
O	primeiro	dia	de	maio

6. *Transposition*. This modality occurs whenever at least one of the three first criteria for literal translation is not met, i.e., whenever morphosyntactic rearrangements take place. Thus, for instance, if two or more words are collapsed into a single word (as in **I visited** Ø *Visitei*) or, on the contrary, expanded into several lexical units (e.g. **Kindergarten** Ø *Jardim de Infância*), or if the word order is altered in any manner (as in **remedial action** Ø *ação saneadora*), or if there is a change in word class (e.g. **should he arrive late** Ø *se ele chegar atrasado*) or any combination of these is found, however ‘literal’ the respective meanings may be said to be, they are not structurally literal, and are classified as *transpositions*.<sup>8</sup>

7. *Explicitation/Implicitation*. Two sides of the same coin, whereby implicit information contained in the Source Text is made explicit in the Target Text (e.g. by paraphrase, footnotes, and the like) or, conversely, explicit information contained in the Source Text, identifiable with a given text segment, is converted into an implicit reference. Thus, for instance, in a translation into Brazilian Portuguese, the qualification of *Brasília* as the *Federal Capital of the country* is a self-evident and redundant piece of information, which it will most often be to the translation’s advantage if tucked away into the implicit information of the Target Text. In the opposite translational direction, however, it might be found convenient, for the purposes of the translation, to render such information explicit for the foreign reader.

8. *Modulation*.<sup>9</sup> Modulation is said to occur whenever a given text segment is translated in such a manner as to impose an evident shift in the semantic surface structure, albeit retaining the same overall meaning

---

<sup>8</sup> *Transpositions* can be obligatory – imposed by morphosyntactic structure of the target language – or optional, at the discretion of the translator.

<sup>9</sup> *Modulations*, much like *transpositions*, can also be obligatory or optional. An hypothesis yet to be investigated suggests that optional *transpositions* and *modulations* represent a significant portion of the actual linguistic evidence of the exercise of the translator’s freedom.

effect in the specific context and co-text. Or, to resort to Saussure, the *signifiées* are partially or wholly different but the same *sens* is, generally speaking, retained. Modulation can take a number of different forms, ranging from discrete variations, e.g.:

**It's very difficult**                      Ø *Det er ingen lett sak*

up to differences in which nothing in the respective surface structures would remind the observer of their translational equivalence, which can only be recovered by observing the context-bound *sense*, as in

**Articles of Association**                      Ø *Selskapsvedtekter*; contrato social;

**There's something fishy here**                      Ø *Det er ugler i mosen*; tem carne neste angu

**Corporal imbecility**                      Ø *Impotens*; impotência

9. *Adaptation*. This modality is typically a cultural assimilative procedure; i.e., the translational solution adopted for the given text segment establishes a partial equivalence of *sense*, deemed sufficient for the purposes of the translational act, but abandons any illusion of 'perfect' equivalence, including cultural false cognates, e.g.:

<b>English</b>	×	<b>Norwegian</b>	×	<b>Brazilian Portuguese</b>
<b>Hobgoblin</b>	×	<i>Nisse</i>	×	Saci-Pererê
<b>Squire</b>	×	<i>Lensmann</i>	×	Juiz da Paz
<b>Sheriff</b>	×	<i>Politimester</i>	×	Delegado
<b>MA in Linguistics</b>	×			<i>Mag. art. i Lingvistikk</i> ×
		Mestrado em		
		Lingüística		

10. *Intersemiotic translation*. In certain instances, specially in the so-called 'sworn translation' mode, figures, illustrations, logos, trademarks, seals, coats of arms and the like, found in the Source Text, are rendered in the Target Text as textual material, e.g.

[Upper left corner: printed Great Seal of the Federative Republic of Brazil.]



11. *Error*. Only obvious muddles are classified as errors, as in

<p>... <b>only twenty per cent from the schools make the grade.</b></p>	<p>Ø</p>	<p>... <i>20% seulement des écoles conduisent leurs élèves au succès.</i><sup>10</sup></p>
---	----------	--

This category does not include translational solutions perceived as ‘inadequate’, as stylistically inconsistent, etc., since, in such cases, a subjective bias is inevitable and could bring about major distortions in the final results.

12. *Correction*. Not infrequently, the Source Text contains factual and/or linguistic errors, inadequacies and blunders. If the translator chooses to ‘upgrade’ the Target Text in comparison with the Source Text, a *correction* shall be deemed to have taken place, e.g.

<p><b>The US deficit a × mounts to several hundred <i>million</i> dollars</b></p>	<p><i>USAs underskudd be løper seg på flere milliarder dollar</i></p>	<p style="text-align: center;">×</p> <p><i>O déficit atual dos EUA monta a cen- tenas de <b>bilhões</b> de dólares</i></p>
---	---	--

13. *Addition*. Any textual segment included in the Target Text by the translator on his/her own account, not motivated by any explicit or implicit content of the original text. Addition must therefore not be mistaken for one of the forms of transposition (one word translation as a sequence of words – phrase), nor for explicitation. Additions can occur in a number of different circumstances, e.g. in the form of comments (‘veiled’ or explicit) by the translator, when facts which occurred after the production of the Source Text justify the elucidation. Thus, a Source Text referring to the Iron Curtain as a contemporary political fact may, in the Translated Text, receive a translator’s note, an explanatory paraphrase or even a mere “ex-” prefix, contributed by the translator in view of the geopolitical changes which have taken place in Eastern Europe in recent times.

These translation modalities can occur either in a ‘pure’ state or in ‘mixed’ modes. Very frequently, a *loan* will be accompanied by an ex-

---

<sup>10</sup> Example extracted from Rosenthal (1976).

*plicitation* (e.g. in a footnote); a whole text segment (e.g. an adverbial phrase) can be *transposed* to another location within the sentence structure, but internally retain the essential features of a *literal translation*; not uncommonly, *transposition* and *modulation* will also combine in one and same text segment. Such cases can be accounted for separately, under the general heading of *mixed categories* and, depending on the specific purpose of each project, this might be a great advantage. But, if the number of different mixed categories is high, the number of occurrences in each is often found to be rather low, a situation which, among other problems, will make it difficult to recover sufficient data for adequate statistical treatment. In such instances, it will therefore be found to be more convenient to group them with the single categories, the criterion here being to include such occurrences in the category furthest removed from 'point zero'. Thus, if a given text segment is found to be translated as a *loan + explicitation*, it will be accounted for under *explicitation/implicitation* and not under *loan*; in the case of a *transposition + modulation* hybrid, the corresponding number of words classified under this heading will be included in the number of *modulations*; etc.

Before we go on, it should be stressed that the preceding descriptive model bears no specific implication as to the actual nature of language and of each *langue*, but should be quite straightforwardly understood as a one among several possible practical models for conducting a comparative description of the surface structures of the Source Text and its corresponding Target Text.

## ANALYSIS OF CONTINUOUS TEXT SEGMENTS

Essentially, two different approaches have been adopted for surveys based on the model described in the preceding. Most frequently, the model has been applied in describing continuous text segment samples (currently, 500 and 800 words per text selected for corpus sampling). This is the case of Alves (1983), Darin (1986), Silva (1992), Zanotto (1993), Camargo (1993, 1996) and Aubert (1994), as well as of current research projects (Gehring). But the model can equally be used for the purpose of analysing specific textual material, e.g. culturally marked words and expressions, as in Aubert (1981) and Corrêa (in course).

Up to the present date, the main focus of this line of research has been turned on the translational relationship between the English and the

Portuguese languages. In Alves (1983), a corpus of published texts in Human Sciences (including Psychology, Communication, Sociology, Linguistics, Philosophy and Economy) was examined, in which the Source Texts were in English and the Target Texts in Brazilian Portuguese. Being the first systematic project conducted after the pilot of 1979-80 (see above), its goals included (a) to check the adequacy of the model in terms of descriptive power and operationality; (b) to verify whether one could speak of a ‘norm’, a ‘general trend’ in the statistical distribution of the modalities between a given language pair and within a given text typology. The results are presented in Table 1 below<sup>11</sup>.

*Table 1 – Distribution of the major translation modalities (English ⇄ Portuguese) in texts on Human Sciences*

Modalities	Total	
	no.	%
<i>Omission</i>	226	3,0
<i>Loan</i>	0	0
<i>Calque</i>	103	1.4
<i>Literal Translation</i>	4,346	57.2
<i>Transposition</i>	2,792	36.7
<i>Explicitation</i>	0	0
<i>Modulation</i>	36	0.5
<i>Adaptation</i>	0	0
<i>Error</i>	90	1.2
<b>TOTAL</b>	<b>7,593</b>	<b>100.0</b>

Apparently, at least, goal (a) was achieved (although later research came to question the correctness of the very low rates of *modulation* found in this investigation). Goal (b) was also carried through, except that one of the texts (a sample from the specific field of Economy) was found to be so deviating<sup>12</sup> from the others that its inclusion in the corpus disrupted

<sup>11</sup> Extracted from Alves (1983). Since Alves’ thesis, certain changes have been introduced in the model, and Tables 1 and 2 have been partially rearranged so as to reflect a more current version of the model and afford better comparability with the results of other research projects.

<sup>12</sup> The problem of deviating texts suggests that although a text typology/translation typology correlation has long been considered as self-evident, it is in fact not all that ‘automatic’, and bears closer investigation (see also Aubert, 1996).

the entire balance. By removing the text on Economy from the corpus, however, the *Khi Square* (Pearson's) test found that the remaining samples formed a fairly homogenous whole in terms of distribution of the modalities, with *literal translation* and *transposition* representing the essential *procédés techniques*, all other modalities playing a rather marginal role. If one considers that *transposition*, as defined herein, is very nearly what Catford (1965) defines as *literal translation* (whilst his *word-for-word translation* is essentially equivalent to what the modalities model terms *literal translation*), overall literality seems to hold a dominant position, despite the 'bad press' such procedure normally receives in the literature.<sup>13</sup> At the time, this was perhaps the most relevant and fascinating result, since it called for a careful revision of generally accepted 'truth'.

Leila Darin's study on the Brazilian translation of Castañeda's *The Teachings of D. Juan* can be seen as supplementary to Alves' first investigation, concentrating on a text which, despite its anthropological (and, thus, academic) overtures, lies closer in nature to the typology of literature. Conducted at approximately the same time (and thus basically applying the same version of the model, employing the same interpretative criteria), a comparison of the data obtained from both studies (see Table 2) not only confirmed the precedence of *literal translation* and *transposition* as the two major modalities in English-Portuguese translation, but indicated that *modulation* (6%, as compared to 0.8% in the Alves survey) is probably the modality which signals out literary translation.

Silva (1992) represents the first systematic attempt at a revision of the translation modalities. As such, her findings (as well as those of the subsequent surveys) as not entirely comparable with the first two systematic studies described in the preceding<sup>14</sup>, although, as will be seen, certain

---

<sup>13</sup> At this point, it should be admitted that the relatively high figures found for literal translation and even for transposition are, to a certain extent, the result of having chosen the **word** as the basic quantification unit. In a later study (Aubert, 1987), it has been shown that the larger the unit chosen for quantification purposes (phrase, sentence), the lower the incidence of direct translation procedures.

<sup>14</sup> This is specially true of explicitation/implicitation and modulation.

**Table 2 – Comparative distribution of the major translation modalities (English Ø Portuguese) in the surveys of Alves and Darin**

<b>Modalities</b>	<b>ALVES</b>		<b>DARIN</b>	
	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>
<i>Omission</i>	226	3.0	84	1.6
<i>Loan</i>	0	0	49	1.0
<i>Calque</i>	103	1.4	0	0
<i>Literal Translation</i>	4,346	57.2	2,684	50.5
<i>Transposition</i>	2,792	36.7	2,158	40.6
<i>Explicitation</i>	0	0	5	0.1
<i>Modulation</i>	36	0.5	312	6.0
<i>Adaptation</i>	0	0	0	0
<i>Error</i>	90	1.2	10	0.2
<b>TOTAL</b>	<b>7,593</b>	<b>100.0</b>	<b>5,302</b>	<b>100.0</b>

**Table 3 – Comparative distribution of the major translation modalities (Portuguese Ø Spanish and Portuguese Ø English) in a literary text.**

<b>Modalities</b>	<b>Spanish</b>		<b>English</b>		<b>Total</b>	
	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>
<i>Omission</i>	9	0.5	4	0.2	13	0.4
<i>Transcription</i>	10	0.6	9	0.5	19	0.5
<i>Loan</i>	21	1.2	22	1.2	43	1.2
<i>Calque</i>	1	0.1	1	0.1	2	0.1
<i>Literal Translation</i>	1,061	59.2	756	42.2	1,817	50.7
<i>Transposition</i>	342	19.1	570	31.9	912	25.5
<i>Explicitation</i>	35	2.0	22	1.2	57	1.6
<i>Modulation</i>	299	16.6	400	22.4	699	19.5
<i>Adaptation</i>	3	0.2	4	0.2	7	0.2
<i>Error</i>	9	0.5	2	0.1	11	0.3
<b>TOTAL</b>	<b>1,790</b>	<b>100.0</b>	<b>1,790</b>	<b>100.0</b>	<b>3,580</b>	<b>100.0</b>

overall trends seem to be confirmed. Silva's study also includes a multi lingual approach. Typically a case study, Silva analysed the translations into English and into Spanish of a short story by the Brazilian author Rubem Fonseca (*O Cobrador*). The main purposes here were (a) to verify the initial data found in the 1980/81 pilot project, in the Brazilian

Portuguese-English translational direction, and (b) observe the correlation between language typology and the distribution of the translation modalities. From the onset, it was deemed evident that the translation into Spanish would show a higher incidence of literal translation and transposition than the translation into English, but that it would be relevant to determine the precise values for such greater/lesser proximity. The consolidated results of Silva's investigation are shown in Table 3.

In a certain sense, it is remarkable that, despite the evidently greater typologic proximity between Portuguese and Spanish than between Portuguese and English, in quantifiable terms this difference, although statistically pertinent, is not all that high. True, if one compares the figures for *literal translation* in both languages, the difference is very marked. But if one adds the figures of *literal translation* to those of *transposition* (which, as suggested above, jointly stand for what is commonly conceived of as *literality* in translation), one comes very close to an even balance (78.3% for Spanish vs. 74.1% for English). Furthermore, in both translations, the order of importance for the three major modalities is the same: (1) *literal translation*; (2) *transposition*; (3) *modulation*.

Zanotto (1993) is the first to focus specifically on the correlation between text typology and the distribution of modalities within one and same survey. A selection was made of two samples of literary, legal and corporate texts (English-Portuguese), and the distribution is presented in Table 4.

Here again, the standard hierarchy is observed, *literal translation* being the most frequent modality, followed by *transposition*, *modulation* and *explicitation/implication*, in this order.

The *Khi Square* test indicates that the fluctuation observed is significant ( $p < 0,05$ ) in the following respects:

- (1) *literal translation* is significantly less frequent in literary texts;
- (2) *modulation* is significantly less frequent in corporate texts and more frequent in legal texts;
- (3) *explicitation* is significantly less frequent in legal texts;

Table 4 – Comparative distribution of the major translation modalities (English  $\leftrightarrow$  Portuguese) in literary, journalistic, legal and technical texts

	Literary		Legal		Corporate		Total	
Modalities	no.	%	no.	%	no.	%	no.	%
<i>Omission</i>	32	1.1	74	2.6	9	0.3	115	1.27
<i>Transcription</i>	0	0	2	0.2	14	0.5	16	0.18

## Translation Modalities – Quantitative Studies in Translatology

<i>Loan</i>	81	2.7	33	1.2	115	3.7	229	2.54
<i>Calque</i>	1	0	0	0	1	0.00	2	0.02
<i>Literal Translation</i>	1,172	38.2	1,275	44.6	1,419	45.7	3,866	42.85
<i>Transposition</i>	726	23.7	624	21.8	705	22.8	2,055	22.78
<i>Ex/Implication</i>	444	14.5	255	8.8	373	12.0	1,072	11.88
<i>Modulation</i>	591	19.3	593	20.7	457	14.7	1,641	18.19
<i>Adaptation</i>	12	0.4	3	0.1	0	0.0	15	0.17
<i>Error</i>	3	0.1	0	0	9	0.3	12	0.13
<b>TOTAL</b>	3,062	100.0	2,859	100.0	3,102	100.0	9,023	100.0

- (4) *loans* are significantly less frequent in legal texts;
- (5) *omission* is significantly less frequent in corporate texts.

A specific noteworthy aspect is the similarity of legal and literary text in terms of *modulation*. Previously (see comments on Alves' and Darin's theses), increased frequency of *modulation* was observed as a possible marker of literary texts. Zanotto's data suggests that, in this respect, legal and literary text share a common distributional feature.<sup>15</sup>

Camargo (1993) set as its primary objective to verify whether the translation modalities are capable of mirroring translator idiolect. For this purpose, she selected three published translations of E. A. Poe's *The Cask of Amontillado* into Brazilian Portuguese, respectively by (1958), (1960) and (1970). The results, as presented in Table 5 (see below) were inconclusive, however. Despite apparently evident fluctuations, statistical treatment showed no significant deviation among the translators.

One major finding in this survey is the proximity of the frequency rates for *literal translation* and *transposition*. While in other surveys on English/Portuguese corpora, the difference (to the advantage of literal translation) roughly varies between 10% and 20%, here the maximum difference is less than 7% and, in one instance (TT3), is less than 3%. And, here again, the relevance of *modulation* as a marker of literary translation is manifest, corresponding almost exactly to 1/4 of the entire corpus.

---

<sup>15</sup> In qualitative terms, however, i.e., in terms of the textual, linguistic and cultural features which generate the increase in modulation, these two text types possibly do **not** share the very same characteristics. At this point, further investigation is required. (See also comments on the Norwegian/Portuguese corpus, below).

*Table 5 – Comparative distribution of the major translation modalities in three published Brazilian Portuguese versions of E. A. Poe’s The Cask of Amontillado*

Modalities	TT1		TT2		TT3		Total	
	no.	%	no.	%	no.	%	no.	%
<i>Omission</i>	46	4.5	69	6.7	46	4.5	161	5.2
<i>Transcription</i>	33	3.2	17	1.7	17	1.7	67	2.2
<i>Loan</i>	1	0.1	0	0	1	0.1	2	0.1
<i>Calque</i>	0	0	0	0	0	0	0	0
<i>Literal Translation</i>	369	35.8	362	35.1	358	34.8	1,089	35.2
<i>Transposition</i>	318	30.9	293	28.5	330	32.0	941	30.4
<i>Ex/Implication</i>	3	0.3	4	0.4	4	0.4	11	0.3
<i>Modulation</i>	244	23.7	275	26.7	256	24.8	775	25.1
<i>Adaptation</i>	11	1.1	6	0.6	8	0.8	25	0.8
<i>Error</i>	5	0.5	4	0.4	10	1.0	19	0.6
<b>TOTAL</b>	<b>1,030</b>	<b>100.1</b>	<b>1,030</b>	<b>100.1</b>	<b>1,030</b>	<b>100.1</b>	<b>3,090</b>	<b>99.9</b>

Although no statistically significant traces of translator idiolect were found manifest in the distribution of the modalities, this does not necessarily mean that the modalities are an inadequate tool for such purpose. In fact, the results might be also read as indicating that, under the period, an unwritten consensus as to how a literary text should be translated was sufficiently predominant to mitigate any noticeable effects on the distribution of the modalities (which, in any case, would be only one among several criteria for defining translator idiolect), and that the pressure of such consensus, together with the actual structural pressure of the source and target languages involved, has, in this case, operated in such a manner as to neutralise any major attempt at innovation. The matter requires, therefore, further investigation, very possibly involving a broader selection of variant translations, before any definite conclusion as to the pertinence of the model for the description of translator idiolect can be arrived at.

The Aubert (1994) study is a more modest investigation into the translational relationship between Norwegian and Portuguese, based on one text representative of legal language (a Police Certificate) and on one text of literary style (a tale from Norwegian folklore). Although the scope of the sample is insufficient for detecting a vast range of aspects, two



aspects are worth pointing out. Firstly, as already indicated in the pilot survey (the German translation of *Gabriela, Cravo e Canela*), in Germanic languages (and English is in many ways a Latin/Germanic hybrid), *transposition* is more frequent than *literal translation*. In fact, in both texts, and despite their mutual differences, *transposition* is twice more frequent than *literal translation*, a circumstance which clearly signals the greater typologic distance separating the Norwegian/Portuguese pair, as compared to the English/Portuguese pair. Secondly, *modulation* also ranks high on the scale (something which one might expect both of legal and of folklore texts, both normally very heavily marked with culture-specific items), leading, in the case of the literary text, to a tie between *modulation* and *transposition* (which is something one would not have outright expected to happen). Whether this is representative of a trend in the Norwegian/Brazilian Portuguese translational relationship or a mere idiosyncratic feature of this particular text and/or translation remains, of course, to be checked against a more varied sample of literary and non-literary texts.

*Table 6 – Distribution of translation modalities (Norwegian ∅ Portuguese) in samples of legal and of literary texts*

Modalities	Legal Text		Literary Text		Total	
	no.	%	no.	%	no.	%
<i>Transcription</i>	33	5.5	0	0	33	2.8
<i>Literal Translation</i>	141	23.5	102	17.0	243	20.2
<i>Transposition</i>	270	45.0	207	34.5	477	39.8
<i>Ex/Implication</i>	9	1.5	42	7.0	51	4.2
<i>Modulation</i>	129	21.5	210	35.0	339	28.2
<i>Adaptation</i>	18	3.0	39	6.5	57	4.8
<b>TOTAL</b>	<b>600</b>	<b>100.0</b>	<b>600</b>	<b>100.0</b>	<b>1,200</b>	<b>100.00</b>

Camargo (1997) is currently winding off a more ambitious project in the English × Portuguese translational relationship. As a post-doctorate research, she has collected a varied sample of five different text typologies (literary, journalistic, technical, legal, corporate), with six representative texts of each typology, in an attempt to establish a possible ‘norm’ in the distribution of translation modalities in English × Portuguese translation. Hopefully, the detailed data will become available shortly. As of even date (late 1997), it is clear that *transposition* presents no significant

variation from one text typology to another, and that literary and legal texts on one hand, technical, corporate and journalistic texts on the other, seem to organise themselves into two major groups.

Gehring (in course) is preparing a doctoral dissertation which discusses whether translational direction is or is not a pertinent factor for the distribution of translational modalities, and, by extension, whether the possibility of back-translation is tenable or not. With this purpose in mind, she has set up two corpora, both containing texts in the field of Human Sciences (Sociology, History, Economy), one in which the source texts are in English (British or American) and each corresponding target text is in Brazilian Portuguese, and the second one in which source texts are in Brazilian Portuguese and the target texts in English. Only published works (in the source and in the target languages) are being used. Preliminary data seem to indicate that there is indeed no mirrored distribution of the modalities (with the exception of *transposition*), and, thus, that the direction taken by the translational act (or the *from/to* relationship) is, indeed, a pertinent and possibly determining factor, and necessarily results in a shift, from which it will be difficult, not to say impossible, to return to the very same point of departure. Two possible explanations for this can be suggested: (a) that the shift is structurally determined, i.e., that it arises, irrespective of other extralinguistic factors (including translator idiolect), from the actual internal makeup of each language system;<sup>16</sup> (b) that the prevailing translational standards in the respective cultures are sufficiently different to determine different strategies and preferred options. The fact that the distribution of the

---

<sup>16</sup> This hypothesis is corroborated by the results of a MA thesis by França Pinto (1985), which investigated whether the Brazilian Portuguese and the English relative pronouns, as found in source and target languages texts, were similarly distributed. This investigation also called for setting up two corpora. In the first corpus, in which the source language was Brazilian Portuguese, a sample of occurrences of the relative pronoun *que* was isolated, and each occurrence was traced into the corresponding target language texts (answering the question ‘what has become of the *que*?’). In the second corpus, in which the source language was English, once again a sample of occurrences of the relative pronoun *que* was isolated, and each occurrence was traced back to its plausible origin in the respective source text (answering the question ‘whence has the *que* stemmed from?’). The findings were that the *que* had a significantly distinct frequency and distribution in the two corpora, thereby suggesting that the ‘mirror-image’ hypothesis in comparative linguistics – and as a form of verifying translation quality/fidelity – might be open to controversy.

*transposition* remains stable in both corpora weighs in favour of the second alternative.

To sum up the findings of research on translation modalities as applied to continuous text samples, one may state that:

- (i) the most frequent modalities are *literal translation*, *transposition* and *modulation*;
- (ii) in the English × Portuguese relationship, *literal translation* is the most frequent modality, followed by *transposition* and by *modulation*, in this order (see Table 1);
- (iii) in the few studies involving Portuguese and other Germanic languages (basically German and Norwegian), *transposition* is more frequent than *literal translation*, whilst *modulation* normally retains its position as the third most frequently employed modality (see, however, the figures for a literary text translated from Norwegian into Portuguese – Table 7);
- (iv) within the translational relationship between the English/Portuguese language pair, in stylistically and culturally marked texts (e.g. literary prose and legal texts), *modulation* can easily correspond to something close to 20% of the total number of occurrences, but drops to less than 15% in other text types (technical, journalistic, etc.), thus suggesting a significant correlation between text typology and the distribution of the modalities;<sup>17</sup>
- (v) there is also a clear correlation between language typology and the distribution of the modalities, as evidenced by the figures for *literal translation* found in the several translations of *Gabriela, Cravo e Canela* into French (52%), English (35%) and German (19%), corroborated by the data found for the Norwegian/Portuguese language pair;<sup>18</sup>

---

<sup>17</sup> This is perhaps a self-evident finding. Note, however, that the analysis conducted under the proposed descriptive model enables one to achieve a factual precision and to pinpoint where and how the difference manifests itself on the linguistic plane in translation.

<sup>18</sup> The same remark as for item (iv) also applies here. One thing is to assert that French is typologically closer to Portuguese than English is, and that English is closer to Portuguese than German. It is quite a different matter, and provides a significant plus in terms of our knowledge of the subject, to be able to indicate in actual figures the effective degree of proximity and/or difference between each language pair.

- (vi) the modalities which represent direct solutions (i.e., which involve little or no semantic or cultural mutations – from *transcription* up to and including *transposition*) correspond, in the English/Portuguese translational relationship, to an average of more than 70% of the texts as a whole, a fact which evidences the feasibility of computer-assisted translation for this language pair.

#### THE ANALYSIS OF ISOLATED TERMS

The second approach – the analysis of specific textual material, notably culturally marked terms – has not been explored with the same thoroughness or intensity. One major investigation was completed in what was still the early stages of this line of research (Aubert, 1981), a follow-up (Corrêa) being currently under development, but for which the final results will not be available before early 1998. For this reason, only the Aubert (1981) research will be considered here.

The problem proposed was to investigate the solutions found by translators to cope with culture and/or environment-specific words and expressions and for which, theoretically speaking, there would be no possible equivalent in the Target Language. For, although theory might be sceptical, translators are certain to attempt at devising solutions, however hesitant, rather than merely cutting out the cultural ‘eccentricities’. Indeed, not infrequently (and very specially in the case of translations of texts generated in developing countries to one of the major developed country languages), it is precisely the exotic nature of the texts and of what they have to relate which appeals to the readers and becomes a major motivation for their translation.

With this aim, the Aubert (1981) study focused on a sampling from two Brazilian texts: Euclides da Cunha’s *Os Sertões* (translated into English by S. Putnam, under the title *Rebellion in the Backlands*) and Jorge Amado’s *Tereza Batista Cansada de Guerra* (translated into English by B. Shelby, under the title of *Tereza Batista Home from the Wars*). In the source language texts, the several culture-specific words and expressions (including all and any repetitions) were identified, and then retraced in the respective translations. For the purpose of analysis, such terms were subdivided into four major areas, based on Nida’s (1945) proposal for the consideration of the different realms of reality in translation (ecological, material culture, social culture and religious – or ideological

– culture). The overall results of this investigation are shown on Table 7 below.

**Table 7 – Frequency of Basic Translation Modalities for Culture-Specific Terms in *Rebellion in the Backlands* and *Tereza Batista Home From the Wars***

Modalities	RIB		TBHW		TOTAL	
	no.	%	no.	%	no.	%
<i>Omission</i>	12	1.9	6	1.8	18	1.9
<i>Loan</i>	285	45.2	107	32.2	392	40.7
<i>Calque</i>	5	0.8	0	0	5	0.5
<i>Literal Translation</i>	12	1.9	11	3.3	23	2.4
<i>Transposition</i>	13	2.1	1	0.3	14	1.5
<i>Explicitation</i>	30	4.7	24	7.2	54	5.6
<i>Modulation</i>	6	1.0	67	20.3	73	7.6
<i>Adaptation</i>	247	39.2	90	27.1	337	35.0
<i>Error</i>	20	3.2	26	7.8	46	4.8
<b>TOTAL</b>	<b>630</b>	<b>100.0</b>	<b>332</b>	<b>100.0</b>	<b>962</b>	<b>100.0</b>

A first noteworthy difference, as compared to the general trends observed in the analysis of text sequences, is that *literal translation* and *transposition* here play a very minor role (as one would, of course, have expected), the major solutions adopted being the *loan* and the *adaptation* modalities, jointly equivalent to over half (and, in the case of *Rebellion in the Backlands*, answering for over 4/5 of the sum total). It should also be observed that while the translated text of Euclides da Cunha presents an almost insignificant percentage of *modulation*, in Jorge Amado's text *modulation* stands for 1/5 of the modalities employed in the translation of culture-bound terms. This significant variation might, of course, result from different translational approaches adopted by the respective translators but could likewise be seen in the light of text typology. The sample of culture-bound terms from *Rebellion in the Backlands* was basically extracted from the first chapter (a geographical description of the *caatinga* region of upstate Bahia), being thus closer to scientific and technical discourse, despite the very distinctive style adopted by Euclides da Cunha. The corresponding sample from *Tereza Batista Cansada de Guerra* was gleaned from every tenth page of the novel. As already noted in the textual sequence approach, a high frequency of

*modulation* seems to be one of the markers of literary translation, and the results of Table 8 can profitably be interpreted with this trend in mind.

Another noteworthy finding in this investigation concerns the number of different subtypes for the *loan* modality. Out of 392 occurrences of *loans*, only 134 are straightforward loans, i.e., without any changes, additions, and the like. The remaining 258 show different variations, including: (i) addition of italics or quotation marks; (ii) removal of italics or quotation marks existing in the source text (as is often the case with words and expression of African or Indian origin); (iii) graphologic changes (e.g. “ç” being replaced by “ss”, or miscellaneous restorations of old-fashioned orthographic conventions); (iv) use of alternative Brazilian Portuguese words or expressions; (v) use of *indirect loans*, mostly through Spanish or French; (vi) addition of footnote or explanatory clauses; (vii) partial omissions; (viii) combination of *loans* with *literal translations*, *transpositions*, *modulations* and *adaptations*; (ix) miscellaneous combinations of the preceding variations; in all, 38 different subtypes, clearly indicating that the *loan* is a very special modality, and could well deserve a special study unto itself.

Finally, considering the distribution by domain, and, for the sake of simplicity, grouping *loan*, *calque* and *literal translation* into a general *direct translation* category, and *transposition*, *explicitation*, *modulation* and *adaptation* into a general *indirect translation* category, the following percentages are found:

Clearly, with tangible referents, *indirect translation* seems to be preferred, whilst with more intangible referents (social relationships and beliefs), *direct translation* is the favoured procedure. The reasons for

*Table 8 – Summary distribution of translation modalities by domain*

DOMAIN	ECOLOGY	MATERIAL	SOCIAL	IDEOLOGY	AVERAGE
	%	%	%	%	%
<i>Direct translation</i>	38,5	34,6	50,4	79,5	43,6
<i>Indirect translation</i>	54,7	54,9	45,8	12,8	49,7
<i>Others</i>	6,8	10,5	3,8	7,7	6,7

this are not clear, however, and require further scrutiny, also of a qualitative nature.

Some of these findings are still rather tentative, due, *inter alia*, to the fact that the descriptive model was not entirely consolidated at the time

the survey was conducted. Hopefully, Corrêa's project, which is concentrating on the translation of culturally bound words and terms into English as found in three novels by Jorge Amado (*Dona Flor e Seus Dois Maridos*, *Tereza Batista Cansada de Guerra* and *Tenda dos Milagres*), will be able to clarify, confirm or review the data presented in the preceding.

### BY WAY OF A CONCLUSION

Despite its power to bring to the forth significant data from the sub-sentence level of translation, there are certain issues which, despite first-glance appearances, would most probably be better served by adopting different approaches and analyses. Among these, the following should be pointed out:

- a. The *translation modalities* model does not adequately detect stylistic and translational markers above sentence level;
- b. Translation quality will only be indirectly suggested by the greater or lesser incidence of *omission* and *error*, without, however, determining the greater or lesser relevance to the translation of each word, phrase or sentence omitted or containing referential errors or mistakes;
- c. It would be a false inference to assume that texts in which direct translation modalities tend to be applied are, for this reason, easier to translate and should therefore be the first to be employed for beginners in translator training courses. Such an inference derives from a simplistic concept of 'translational difficulties' and, probably, on an equally simplistic concept of how translator training should be structured.

On the other hand, the *translation modalities* line of research seems potentially relevant for the study of the following linguistic and translational aspects:

1. A means for measuring interlinguistic typologic proximity/distance;
2. An analysis of correlations between textual typology and translational typology, by verifying whether different text types affect, in a statistically significant (and, thus, predictable) manner, the greater or lesser incidence of the several modalities;
3. As possible consequence of (2.), the method might point towards a definition of text typology from a translational point of view, which does not necessarily coincide with that of discourse ana-

lysis or text grammar; in such respect, it may represent a contribution to the teaching of translation;

4. Other possible correlations: dialect fluctuations (e.g., comparisons involving two translations, one generated in Portugal, the other in Brazil); diachronic variations (e.g. comparing several translations of a given original at different time periods);
5. Provide support to research and development of computer-assisted translation, checking, for the several textual typologies, those which present a sufficient frequency of modalities requiring more simple algorithms (from *transcription* up to and including *transposition*) and which would therefore be more likely to result in acceptable draft translations;
6. Detect the preferred strategies for dealing with specific translation problems (as in the case of the culture-specific terms of *Rebellion in the Backlands* and *Tereza Batista Home from the Wars*);
7. The practice of this methodology might very well assist translation students in acquiring a closer perception of the linguistic similarities and dissimilarities between given language/culture pairs, thus stimulating the growth of *awareness*, which may be claimed to be the core function of translation theory within the framework of translator training courses (Aubert, 1995).

## REFERENCES

- Alves, I. (1983) *Modalidades de tradução: uma avaliação do modelo proposto por Vinay e Darbelnet*. Unpublished MA thesis. São Paulo, PUCSP.
- Aubert, F.H. (1981). *A tradução do intraduzível*. São Paulo, FFLCH/ USP. (manuscript)
- Aubert, F. H. (1984) “Descrição e quantificação de dados em tradutologia”. In *Tradução e Comunicação* 4. São Paulo, Álamo.
- Aubert, F.H. (1987) “A tradução literal: impossibilidade, inadequação ou meta?” In *Ilha do Desterro*. Florianópolis, UFSC.
- Aubert, F.H. (1994) *As modalidades tradutórias na relação norueguês/português*. Unpublished manuscript. São Paulo, USP.
- Aubert, F.H. (1995) “Translation theory, teaching and the profession”. In *Perspectives: Studies in Translatology*. Copenhagen, Museum Tusculanum Press.



- Barbosa, H. G. (1990) *Procedimentos técnicos da tradução*. Campinas, Pontes.
- Camargo, D. de C. (1993) *Contribuição para uma tipologia da tradução: as modalidades de tradução no texto literário*. Unpublished PhD Dissertation. São Paulo, USP.
- Camargo, D. de C. (1997) *A distribuição global das modalidades na relação tradutória inglês/português*. (project in course)
- Catford, J. C. (1965). *A linguistic theory of translation*. London, Oxford University Press.
- Darin, L. (1986) *Translation modalities in the comparison of English and Portuguese – Analysis of excerpts taken from C. Castañeda's novel "The Teachings of D. Juan" or "A Erva-do-Diabo"*. MA thesis. Exeter.
- França Pinto, A. M. (1985) *O pronome relativo: a busca de equivalências tradutórias em português e inglês*. Unpublished MA thesis. São Paulo, PUCSP.
- Fregonezi, D. E. (1984) *A tradução: uma abordagem lingüística*. Unpublished PhD dissertation. Araraquara, UNESP.
- Nida, E. (1945) "Linguistics and ethnology in translation problems". In *Word II*.
- Queirós, M. G. de (1978) *A significação da tradução*. MA thesis. Rio de Janeiro, ECO/UFRJ.
- Rosenthal, E. T. (1976) *Tradução: ofício e arte*. São Paulo, Cultrix/ EDUSP.
- Silva, M. G. G. V. (1992) *As modalidades de tradução aplicadas ao conto "O Cobrador"*. Unpublished MA thesis. São Paulo, USP.
- Vinay, J.P. & DARBELNET, J. (1958) *Stylistique comparée du français et de l'anglais*. Paris, Didier.
- Zanotto, P. (1993) *Tipos de texto e modalidades de tradução*. Unpublished PhD dissertation. São Paulo, USP.