

THE TRANSLATION OF MODIFYING PARTICIPLES IN SCIENTIFIC DISCOURSE FROM THE PERSPECTIVE OF RELEVANCE THEORY

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Resumen

Este artículo presenta un ejemplo de la aplicación de la teoría de la Relevancia a la traducción, y muestra que el modelo de comunicación ostensivo-inferencial proporciona una respuesta a la cuestión de equivalencia en traducción. Hemos usado la teoría de la relevancia para determinar si las diferentes formas lingüísticas usadas en español para traducir los participios con función de modificadores que aparecen en textos científicos ingleses son apropiadas. La diferencia en los sistemas del participio en ambas lenguas y el hecho de que los participios tienen funciones retóricas especiales en el discurso científico hacen que no exista una forma correspondiente disponible para traducir los participios ingleses a español. Desde la perspectiva de la teoría de la Relevancia una traducción será apropiada cuando produzca las mismas modificaciones en el contexto del lector que la forma original produce en el contexto del lector del texto original, sin requerir un mayor esfuerzo de procesamiento.

Palabras clave: participios, traducción, relevancia, discurso científico, inglés.

Abstract

This paper provides an illustration of the application of Relevance theory to translation, and shows that the ostensive-inferential model of communication postulated by this theory gives an answer to the question of equivalence in translation. Relevance theory has been used here to assess the adequacy of the different Spanish linguistic forms used to translate modifying participles occurring in English scientific texts. The differences between the participle systems in both languages and the fact that participles have special rhetorical functions in scientific discourse imply that there is not a ready corresponding form for translating the English participles into Spanish. Considered from Relevance theory a translation will be adequate when it brings about the same modifications in the context of the reader of the target text as those effected in the context of the reader of the source text without requiring any gratuitous processing effort.

Key words: participles, translation, relevance, scientific discourse, English.

Résumé

Cet article présente un exemple de l'application de la théorie de la Relevance à la traduction, et montre que le modèle de communication postulé par cette théorie donne une réponse à la question de l'équivalence en traduction. Nous avons utilisé la théorie de la Relevance pour déterminer si les différentes formes linguistiques espagnoles employées pour traduire les participes avec la fonction de modificateurs in textes scientifiques anglaises sont adéquates. Les différences entre les systèmes du participe dans les deux langues et le fait que les participes ont des fonctions rhétoriques spéciales dans le discours scientifique impliquent qu'il n'y a pas toujours une forme correspondante pour traduire les participes anglaises au espagnol. Suivant la théorie de la Relevance, une traduction est adéquate quand il produit les mêmes modifications dans le contexte du lecteur de la traduction que ces produites dans le contexte du lecteur du texte original, sans requérir un plus grande effort.

Mots-clés: participes, traduction, relevance, discours scientifique, anglais.

Sumario

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1. Participle translation from relevance theory

The translation into Spanish of the modifying participles that occur in English scientific texts poses problems deriving from two sources. Firstly, there is not a one-to-one relationship between participles in both languages: the system of both languages does not coincide and therefore there is not a total correspondence between the functions and uses of participles in English and Spanish. Participles are used to convey different meaning and to modify a term in a different way in Spanish and English.

Added to this problem is the fact that participles, like other linguistic forms, can have specific rhetorical functions when used in scientific discourse, which are different from those in general Language and also differ from the function of the same form in scientific discourse in other languages. Research on ESP has shown that certain linguistic elements of English take on restricted values when they are considered within the rhetoric of scientific discourse (Lackstrom, Selinker and Trimble, 1970, 1972). Trimble (1985: 121), for instance, refers to the "specialized use of the definite article" in all types of EST. Other linguists have focused on the way tenses are used for rhetorical purposes in scientific discourse, disregarding standard usage (Hanania and Akhtar, 1985; Malcolm, 1987). A clear illustration of the fact that linguistic elements have specific function in scientific discourse is found in Swales (1974). Examining the rhetorical value of the premodifying participle "given", he suggests that this participle is used to realize the function of exemplification and to express definiteness without implying specificity.

To solve these two problems we need to consider translation from a pragmatic theory which makes a distinction between the aspects of meaning encoded by means of linguistic rules and those that are inferred using the context, on the assumption that any utterance is intended to be consistent with a general principle of communication. Blakemore states that Sperber and Wilson's relevance theory is based on this distinction, which she explores further: "the linguistically encoded meaning of an utterance underspecifies the truth-conditional content. It provides the 'blueprint' for a proposition, or as Sperber and Wilson call it a logical form. A complete proposition can be obtained only on the basis of contextual information and the assumption that the speaker has aimed at optimal relevance" (Blakemore, 1987: 712). The pragmatic interpretation of a linguistic form can only be made taking into account the context where this form occurs. A basic assumption for translation is that a linguistic form must be interpreted by considering its relevance in a context or to

a reader, that is, the interpretation is context-dependent. Therefore, an adequate translation is not that which expresses only the semantic content of the messages of the original in the receptor language. The fact that communication is inferential and highly dependent on context makes it necessary for a translation theory to consider the context of the receptor audience. This is possible by resorting to the principle of relevance.

Relevance¹ theory offers an answer to the problems above mentioned, providing the translator with a criterion to solve them and achieve an adequate translation. Relevance theory is an ostensive-inferential model of communication, that is, the receiver infers the meaning from the evidence she has of the sender's intention. The principle of optimal relevance implies that every ostensive stimulus communicates a presumption of its own optimal relevance. An ostensive stimulus is optimally relevant to an addressee when it produces contextual effects and the addressee need not expend unjustified processing effort in order to access them. These two concepts (contextual effects and processing effort), which constitute the basis of the principle of optimal relevance, help to explain the process of translation. The context is part of our assumptions about the world: in interpreting an utterance we use a set of premises which constitute its context. The cognitive environment consists of all the information that can be perceived, retrieved from memory or inferred. From among all these assumptions the reader of an utterance has to select those intended by the writer, which can serve as the context of the utterance.

In order to be relevant the new information has to produce the greatest benefit in communication at the lowest cost. Relevance theory states that the participants in communication aim at optimizing the resources. One aspect of optimization is the obtention of benefits, which are represented by the contextual effects brought about in an act of communication. These contextual effects consist in the modification of previously held assumptions about the world, which implies the improvement of the audience's understanding of the world and, therefore, a benefit. The context modifications (i.e. contextual effects) that a relevant assumption produces can be of three different types: "derivation of contextual implications", "strengthening or confirmation of assumptions

¹ Sperber and Wilson explain the two ways in which their notion of relevance is novel, and therefore totally different from Grice's concept: "It concerns relevance in a context or to an individual rather than, to say, a topic; and it takes into account not only the cognitive effects of the relevant information but also the effort required to achieve these effects" (Sperber and Wilson, 1987: 742)

already held", "elimination of assumptions due to contradictions" (Gutt, 1991: 29). If none of these modification is effected there is no benefit in interpreting an utterance, since the understanding of the world has not improved. The second aspect of optimization is the reduction to the minimum of the effort needed to process an assumption in a specific context. Since the processing of information yields contextual effects at a cost, Sperber and Wilson define relevance as a function of the benefits involved in the interpretation of an utterance and the effort spent on doing it. Consequently, the less effort required to derive contextual effects the more relevant the information will be.

1.1. Translation

Applying relevance theory to translation we can state that an adequate translation is that which is as relevant to the reader of the target text (henceforth TT) as the original to the reader of the source text (henceforth ST). That is, it must achieve similar contextual effects minimizing the effort: in an adequate translation the balance between benefit/effort should be the same as in the original. When deciding which linguistic elements to use the translator should try to keep this balance.

The sender provides a stimulus that produces a modification in the receiver's context (i.e. a subset of her assumptions about the world, or cognitive environment). A translation is only relevant if the context of the reader of the TT is modified in the same way as that of the reader of the ST. The translator interprets the writer's meaning and the effects on the reader's context and tries to transmit the same meaning achieving similar effects by means of the appropriate linguistic devices in the source language. In addition, the effort expended by the reader of the TT in the processing of the new meaning should not be bigger than that expended by the reader of the ST.

Translation is a variety of what Sperber and Wilson (1986) call the *interpretive use of language*. Any representation with propositional form can represent things in two ways. When it represents a state of affairs of which the propositional form is true, it is used descriptively. When the propositional forms of two representations share logical properties one of them can represent the other, having an interpretive use.

Considering translation as a communicative² process and approaching it within relevance theory, Gutt makes an interesting claims about the role of the translator:

The translator produces a receptor language text, the translation, with the intention of communicating to the receptor the same assumptions that the original communicator intended to convey to the original audience (...) (A translation) should convey to the receptor all and only those explicatures and implicatures that the original was intended to convey (Gutt, 1991: 94).

Thus, there is a double communication model. A sender sends a message encoded in a certain code. There are two types of receivers: the reader who is able to interpret the message (first reader) because she shares the appropriate knowledge with the writer, including the code, and the translator, who is in turn a sender. The assumptions communicated to the reader of the translation (second reader) should be the same as those communicated to the reader of the source text. In order to achieve this the translator must be able to interpret the writer's intention in the same way as the first reader, which implies that there is a clear relationship between the first reader and the translator.³

Relevance theory replaces the old concept of equivalence with that of "optimal resemblance" in interpretive use: the translator intends to convey a meaning that interpretively resembles the original. This resemblance must be highly relevant, that is, it should produce "adequate contextual effects without gratuitous processing effort" (Gutt, 1991: 101). Thus the translation must resemble the original in those aspects that make it relevant to the audience. The application of relevance theory to translation leads to Gutt's (1991) notion of *direct translation* and *communicative clues*. Direct translation must

² In his book *Translation and Translating*, Bell (1991: 17) states: "The translator is by definition a communicator who is involved in written communication"

³ In fact the translator is simply a special reader, because, as Bell (1991: 17) remarks, he is more aware of language and its resources than other communicators. A translator knows how to operate the system (procedural knowledge of language), like the other people, but he also knows that the system has such and such characteristics (factual knowledge).

resemble not only what is said in the original but also the stylistic properties. The importance of these stylistic properties lies in the fact that they provide the communicative clues that help the audience to achieve the interpretation intended by the communicator. If the translation preserves the communicative clues of the original and the receptors use the contextual assumptions the original author anticipated, these receptors can arrive at the interpretation intended in the original. These clues can arise from several sources: semantic representation, syntactic properties, phonetic properties, semantic constraints on relevance, formulaic expressions, stylistic value of words, sound-based poetic properties.

According to relevance theory the concepts in our mind have three sets of information or entries: a logical entry, an encyclopaedic entry and a lexical entry. The logical entry consists of the deductive rules that provide the semantic meaning of a word. It contains the essential information of the concept, which applies regardless of the context. In the encyclopaedic entry the information incidental to the concept (i.e. the information about the denotation of the concept) is found. The lexical entry stores the natural-language counterpart of the concept. The logic and encyclopaedic entries are related to the distinction between the content and context of an utterance: "The content of an assumption is determined by the logical entries of the concepts it contains, while the context in which it is processed is at least in part determined by their encyclopaedic entries" (Sperber and Wilson, 1986: 89). The translator who looks for resemblance in semantic representation must pay attention to the logical entries of the concepts contained in them, since these entries determine the properties of semantic representation.

In this paper we are concerned with the preservation of the communicative clues arising from syntactic properties, such as word order, syntactic categories, sentence structure (Gutt, 1991: 137). In some cases the communicative clues can be preserved simply by preserving the syntactic properties of the translated element. However, this is not the case with the modifying participles, owing to the difference between the participle system in both languages. For this reason, in this work it is also necessary to consider communicative clues arising from the rhetorical function of these linguistic elements.

1.2. Participle use

The evaluation of the translation of modifying participles calls for a contrastive discussion of the functions of these participles in the scientific discourse of English and Spanish. We start from the observation that modifying participles are much more frequent in English scientific texts than the corresponding linguistic forms (modifying participle or gerund) in Spanish scientific texts, where quite a lot of the original participles are translated by means of other linguistic devices. In this paper we explore the reasons for this lack of correspondence and use relevance theory to account for the different linguistic devices used in the translation of English modifying participles.

The predominant use of participles in English can only be explained taking into account the characteristics of scientific discourse in English, which is different both from other types of English discourse and from scientific discourse in Spanish. Following Gutt's (1991: 132) statement that rather than being only dependent on the stimulus, meaning "results from the interaction between stimulus and cognitive environment", we can assume that the meaning of participles in scientific discourse is part of the conventions known by the scientific community.

The principle that rules the frequent use of participles in English is that of economy. The economy of expression that participles provide in comparison with other linguistic elements makes their use popular between scientists. On many occasions modifying participles are in fact reduced relative clauses. The following examples show the correspondence between participle clauses and relative clauses that have the relative pronoun as subject.

"The car (being) repaired by that mechanic..." ("The car that will be repaired/ is (being) repaired/ was (being) repaired by the mechanic...") (Quirk et al. 1985: 1264)

"The person writing reports is my colleague" ("The person who will write/writes/ is writing reports is my colleague...") (Quirk et al. 1985: 1263)

In Spanish this correspondence holds with past participles but not with the gerund. There are several constraints on the use of the gerund:

(i) The gerund only serves to express an action, process or change, but never a state or quality. The following sentence would be incorrect:

*"Te envio una caja conteniendo libros" (Real Academia Española, 1975: 491)

For this reason stative verbs are not used in gerund. By contrast in English these verbs can appear in participial form, which makes the following example correct:

I send you a box containing books

(ii) The gerund form is used to provide additional information about the noun which it modifies. It is never used to specify or define it, which happens sometimes in bad translations of English or French:

E.g. *"Iba delante un guía conociendo el país" (Real Academia Española, 1975: 491)

To cope with this lack of correspondence in the rhetorical uses of the participle in both languages, translators resort to other linguistic elements which produce the same contextual effects in the TT at the lowest cost. The elements used to translate modifying participles in the articles analysed are:

- whole relative clauses.
- adjectives and participles.
- nouns that are the realization of processes, that is, grammatical metaphors.

In this paper we will analyse some occurrences of these elements in order to assess whether they have the same degree of relevance as the participles occurring in the ST.

2. Corpus and method

The examples analysed in this study have been taken from eight articles in the *British Medical Journal*, all of them published in 1988, and their corresponding translation in the Spanish edition. The articles are listed in the index at the end of this paper.

We have selected all the occurrences of modifying present and past participles so as to find the different strategies used by the translator to render these forms into Spanish. The different forms used to translate participles have been analysed within the framework of relevance theory. We have not attempted to evaluate translations, but to find out whether a particular translation is relevant in a context. Our purpose has not been to state which form is the most appropriate one to translate participles, either: there is not a fixed form to render participles. The Spanish form used on a particular occasion depends on the context of the utterance.

In order to assess the relevance of a translation we have analysed whether it produces the same or similar effects as the original without putting the addressee to unjustified processing effort. The lack of contextual effects implies lack of relevance; on the other hand if the contextual effects of the TT are different from those of the ST the relevance is also different and the translation does not convey the original writer's intention. If the reader of the TT expends more effort than a reader of the ST to achieve the same effects, the relevance is smaller. The effort expended depends on several factors: the more frequent a form, the smaller the processing effort; the more information processed in the same context, the greater the effort.

3. Results

In this section we present examples of the different ways in which modifying present and past participles have been translated and comment on the adequacy of these translations using as a criterion the relevance principle. We will deal first with the translation of present participle and later with the translation of past participle.

3. 1. Present participle

In the articles examined the modifying -ing form is never translated by the Spanish gerund, because modifying gerund is not grammatical in Spanish, owing to the constraints we have mentioned above. Instead various solutions have been proposed.

The most frequent way to translate an English nonfinite clause into Spanish is by means of a relative clause.

Example 1

ST "All eligible patients attending a diabetes clinic were asked to collect a 24 hour urine sample..."(Parvin et al., 1988)

TT "Se pidió a todos los pacientes elegibles que acudían a una clínica de diabetes que recogieran una muestra de orina de 24 horas..."

If we tried to maintain the equivalent linguistic form in Spanish the resulting translation would be:

TT "Se pidió a todos los pacientes elegibles acudiendo a una clínica de diabetes que recogieran una muestra de orina de 24 horas..."

The translation "pacientes...acudiendo" would not be grammatically correct, because Spanish gerund always refers to a secondary action to the subject. It is never used to particularize and define it. Although this structure is grammatical in English it is not so in Spanish. The merging of the adjective and the participle status in English is greater than in Spanish, where the gerund is resistant to losing its verbal character and becoming an adjective. With this translation the assumptions deriving from the source text are different from those of the target text, and therefore no benefit is obtained, but all the opposite. While in the English original the agents of "attend" and "ask" are different, the Spanish version implies that the agent of "pedir" and "acudir" is the same. In this way the gerund only serves to explain how the action expressed by the main verb was carried out, it does not specify the element "patients".

The choice of the translator to render the English participle into a relative clause seems appropriate: since postmodifying participles are in fact reduced relative clauses, the assumptions derived from the reader of the ST and the TT will be the same. One of the characteristics of nonfinite clauses is the indeterminacy of their meaning: they lack tense markers. The nonfinite clause "attending a clinic" might be translated by different relative clauses (e.g. "que acuden a una clínica", "que acudían a una clínica", "que acudirán a una clínica") depending on the context. The translation by means of a finite clause makes it impossible to keep the indeterminacy, which forces the translator to interpret the nonfinite clause and explicitly express one of its meanings in the translation. The choice of the past tense in this case is the appropriate one because it correlates with the main verb.

Example 2.

ST "Mathiesen et al. advocated that patients with insulin dependent diabetes and urinary albumin excretion exceeding 70Mg/min should be classed as having incipient diabetic nephropathy." (Parvin et al., 1988)

TT "Mathiesen et cols. afirmaron que los pacientes con diabetes insulinodependientes y una excrecion urinaria de albumina que superara los 70 mg/min. deberian clasificarse como afectados por una nefropatía diabética incipiente."

In this case the inadequacy of a gerund to translate "exceeding" would stem both from the impossibility to use a gerund to specify a noun and from the fact that gerund forms must express action rather than quality, as is the case in this example. The processing effort of the reader trying to look for an explanation congruent with the grammar would be high and useless. It seems therefore that the most adequate way to translate a postmodifying -ing participle is by means of a relative clause.

Example 3

ST "The aim of our cross sectional study was to determine the prevalence of microalbuminuria in adults (...) attending a diabetes clinic in Copenhagen." (Parvin et al., 1988).

TT "El objetivo de nuestro estudio transversal fue determinar la prevalencia de microalbuminuria en adultos (...) que eran atendidos en una clínica de diabetes de Copenhagen."

This translation does not preserve the semantic properties or the syntactic properties of the source text. The logical entries of "attend" and "atender" are quite different. While "attend" has the components *go, regularly*, "atender" has the component *help*. Besides, the encyclopaedic entry of "atender" contains information that relates this word to commercial interaction, shopping, etc. rather than to the register of Medicine. The inadequate translation may be the result of the similarity in form of the English and Spanish words, which makes them function as "false friends". Another factor that makes the translation less relevant than the original is that the effort needed to process it is greater, since passive voice ("eran atendidos") in Spanish is less frequent than the modifying -ing form in English.

The -ing form has also been translated in the articles with a past participle or an adjective.

Example 4

ST "The patients who dropped out were unrepresentative of the group as a whole except those suffering from diabetic nephropathy." (Parvin et al., 1988)

TT "Los pacientes que abandonaron el estudio no fueron representativos del grupo como totalidad, excepto los afectados de nefropatía diabética."

Example 5

ST "Of the 79 patients undergoing total colonoscopy only six required subsequent radiology." (Lindsay et al. 1988)

TT "De los 79 pacientes sometidos a colonoscopia total, únicamente seis requirieron radiología posterior."

In both these cases the translation of the -ing participle by a past participle or adjective seems to be quite adequate. Unlike gerund, adjectives and past participles in

Spanish can be used after a noun to specify and define it, function that they share with the English participle. In example 4 "afectados de" is a reduced form of "que estaban afectados de", where "afectados" has an adjectival status. Both in the source text and the target text the relative sentences have been reduced. The choice of "afectados" instead of "que sufrian" to translate "suffering" is an appropriate one. In the first place "afectado" is the technical term used in Medicine; secondly, it is shorter than the whole relative clause, which implies that less processing effort is required to achieve the same contextual effects.

In example 5 the present participle "undergoing" and the participle "sometidos" communicate the same assumption: *the patients are passive elements who receive a particular treatment*. "Sometidos a" is the reduced form of "que fueron sometidos a". If the translator had included the whole relative clause the processing of the target text would be costly because the message is longer. Furthermore, it would not comply with the search for preciseness and economy in scientific discourse.

We have seen that the -ing form can be translated either by a relative clause, in which case the tense is determined by that of the finite verb occurring in the sentence where it appears, or by an adjective or past participle. The choice depends on the similarity of the logical entries of the verbs in the source text and those in the target text. If they have similar logical entries the translation is a relative clause. For instance in example 3 above both "attend" and "acudir" have a feature of *place*. Both of them have the same case frame and require an argument expressing location. Therefore, the translation must take the form of an equivalent syntactic structure to that used in the ST.

If the logical entries differ the translation takes the form of an adjective or past participle. In example 5 while "undergo" has the feature *experiment*, "someter" has the feature *cause or make experiment*. Therefore, in order to convey the same assumption as in the ST the verb in the TT cannot occur in an equivalent syntactic form: one of them occurs in the active voice, the other in the passive voice.

The -ing form also occurs translated as a grammatical metaphor in the following fragment.

Example 6

ST "The data were subjected to both a "per protocol analysis"- that is, including only patients who completed an assessment period according to the protocol- and "an intention to treat analysis" - that is, including all patients who entered the study." (Havelund et al., 1988)

TT "Los datos se sometieron a un "análisis según protocolo"- es decir, inclusión sólo de los pacientes que completaron un periodo de valoración de acuerdo con el protocolo- y a un "análisis de intención de tratamiento", es decir, inclusión de todos los pacientes que entraron en el estudio."

This is not an adequate translation because the gerund and the noun have different functions. The participle in the source text is part of a paraphrase or definition that explains the concept "per protocol analysis". This participle is the modifier of a noun that has been elided (it should be: "Per protocol analysis"- that is, an analysis including only..."). The communicated assumption is : *The analysis was carried out on patients who completed an assessment period according to the protocol.* In the target text there is no elision of any noun, which renders "inclusion" into a paraphrase of "analysis". The assumption derived is: *The analysis is an inclusion of patients who completed an assessment period according to the protocol.* Consequently the contextual effects of the TT are different from those of the ST. Additionally, the reader of the translation will expend processing effort trying to discover the relevance of this utterance.

3.2. Past participle

When the past participle appears as a postmodification of the noun standing for a whole relative clause the most frequent way to translate it is by means of the Spanish participle, which has the same function.

Example 7

ST "In serum collected after the 10th day after the onset of neurological

symptoms..." (Lebon et al., 1988)

TT "En el suero recogido después del décimo día del inicio de los síntomas..."

In both cases the participle after a noun is used to specify it, providing a categorization criterion. The adequacy of the translation by means of the past participle arises from two facts: in the first place it is the most economic way; in the second place it is the same syntactic structure used in the target text with the same function. The implication is that the relevance of the translation would be the same as that of the original since it produces the same contextual effects with the same processing effort. Although postmodifying past participles have a ready equivalent in Spanish, there is a difference in the frequency with which they are used in English and Spanish. Consequently, rendering every postmodifying -ed form in the ST with an equivalent Spanish participle would result unnatural, and therefore costly. That is why this participle also occurs translated by means of a passive with "se".

Example 8

ST "The case notes and pH data were available for 61 of the 64 patients originally included in our ranitidine trials." (Stannard et al., 1988)

TT "Se dispuso de las notas clínicas y de datos del pH de 61 de los 64 pacientes que en un principio se incluyeron en nuestros ensayos con ranitidina."

The past participle is the reduced form of a relative clause with a passive verb. The Spanish translation by means of a relative clause with a passive form with "se" seems to be better than the use of a relative clause with a passive with "ser", because it is more frequent in Spanish and therefore easier to process.

The translation of premodifying past participles is rather more problematic. In order to assess the adequacy of the translations the function of the premodifying participles in English should be analysed. Quirk et al. (1985: 1327) point out that the -ed participle can be active or passive but the active is very rarely used in premodification.

When the past participle is passive it is usually rendered as the corresponding past participle in Spanish, which acts as an adjective:

Example 9

ST "The added serum reduced the specific binding of the monoclonal antibody..."
(Lebon et al., 1988)

TT "El suero añadido redujó la unión específica del anticuerpo monoclonal..."

Both in the ST and the TT the participle has the same function: modifying the noun "serum", expressing the result of an action. The different position of the participle is due to grammar constraints in Spanish. The adequacy of this translation can be explained in the same way as the adequacy of example 7.

There are examples in the articles where premodifying passive past participles have been translated in another way.

Example 10

ST "Many patients with suspected colonic disease undergo rigid sigmoidoscopy."
(Lindsay et al. 1988)

TT "Muchos pacientes en quienes se sospecha una enfermedad del colon son sometidos a sigmoidoscopia rígida."

TT "Muchos pacientes con sospecha de una enfermedad del colon son sometidos a sigmoidoscopia rígida."

In this case the same sentence occurring in two different parts of the source text is translated in two different ways in the TT. The choice to translate the past participle with a corresponding participle has been dismissed. The past participles of verbs expressing cognitive processes can be used in English as noun modifiers, but they do not have the same use in Spanish. One assumption of "Many patients with suspected colonic disease undergo rigid sigmoidoscopy" is: *There are some patients who are suspected (or believed) to suffer from colonic disease*. Since Spanish past participle has an adjectival function and expresses the result of an action, if the translation were "muchos pacientes con enfermedad del colon sospechada", one of the assumptions would be: *There is a specific type of colonic*

disease which is defined or referred to as suspected.

The first translation of "suspected" proposed by the writer of the article ("en quienes se sospecha") is quite appropriate. We can derive the same assumption as from the ST (*There are some patients who are suspected (or believed) to suffer from colonic disease*). In the second translation the phrase "con sospecha de una enfermedad del colon" modifies the noun "patients". The assumption derived from this translation is : *Many patients suspect a colonic disease*, which is not an assumption of the ST.

Although the past participle with active sense is not very common, this use is frequent in some types of technical language, such as Medicine or Economics, e.g. "reduced/ fallen/ increased prices..." (Quirk et al. 1985)

All the past participles with active sense in the articles analysed have the semantic feature *change of quantity*. These participles have a specific rhetorical value in discourse: they are used to focus on the process they express. In relevance terms, the logical entry of the modifier (the past participle) in the nominal group is more prominent than that of the head (the noun). We can say that the modifier is in fact the psychological head of the nominal group. Its main function is not to restrict, specify or qualify the noun it modifies, but to indicate that the sentence is concerned with the process it expresses. Consequently, in example 11:

Example 11

ST "...and it has been suggested that decreased gastric mucosal blood flow may be important in the pathogenesis of stress ulceration." (Stannard et al., 1988)

TT "...y se ha sugerido que la disminución del flujo sanguíneo a la mucosa gástrica puede ser importante en la patogenia de la úlcera del estrés."

it is not the "flow" that is important but the fact that it has "decreased", the process indicated by the participle.

In *Spoken and Written English* Halliday (1985b: 81) points to the tendency to concentrate lexical information in the nominal group in written English, as well as to the tendency to "represent phenomena as products". When defining transitivity Halliday (1985a) pays attention to the concept of process, which consists potentially of the process itself, the

participants in the process, and the circumstances associated with the process. As Francis (1986: 30) claims, in language there is an unmarked relation between meaning and form. In English the unmarked or congruent way of coding actions and processes is by means of a verb; the incongruity between meaning and form constitutes a grammatical metaphor. In example 1 we can see that the process is coded by means of the adjectival form of the verb in the English original ("decreased") and by a noun in the Spanish translation ("disminución"). The potential of grammatical metaphor, one type of which is nominalisation, is clearly stated by Eggins et al. (1987: 30): "turning doings into things allows us to utilize the full grammatical resources available to things in English." It allows the writer to qualify, classify, evaluate, etc. these actions or processes. The rhetorical effect of the participle in English and the noun in Spanish is the same: they allow the writer to refer to the process and talk about it. Both are economic ways to refer to the process, which require little processing effort on the part of the addressee. The assumption transmitted in both cases is: *The fact that that gastric mucosal blood flow has decreased is important*. And both in the ST and the TT the processing effort is less than it would have been if the process had been expressed by means of a verb.

There are also occurrences of translation of these active participles by other means:

Example 12

ST "Patients with macroalbuminuria must be regarded as a high risk group not only because of the increased risk of progression to nephropathy but also because of the raised prevalence of proliferative retinopathy." (Parvin et al., 1988)

TT "Los pacientes con microalbuminuria deben ser considerados como un grupo de alto riesgo, no sólo por el riesgo aumentado de progresión a nefropatía, sino también por la elevada prevalencia de retinopatía proliferativa."

The two participles with active sense in the TT have been respectively translated as a participle and as an adjective. The first translation is inadequate: the English active participle in -ed cannot be rendered into Spanish with a participle because the latter never has an active sense. They therefore communicate different assumptions:

TT: *The risk has increased.*

ST: *The risk has been increased.*

Besides, the English active past participle has a specific rhetorical function (to focus on the process expressed by it) not performed by the Spanish participle, which always specifies or attributes a quality to the noun which it modifies. Thus, while in the ST it is implied that the increase of risk is the cause of patients being regarded as a high risk group, the target text implies that the cause is the risk itself.

The translation of the second participle does not seem to be adequate either. "Elevada" could be regarded as a participle or as an adjective. The attempt to translate the past participle "raised" with the participle of "elevar" would pose the same problems as those commented on above. Taking into account that "elevada" premodifies the noun, it should be considered an adjective, since in Spanish the past participle that modifies a noun always occurs after the noun, playing the same role as an adjective. The fact that "elevada" was aimed to be an adjective does not make the translation adequate, either. "Raised" can also be an adjective, but in this case it is used to express the bigger size of something in comparison with the surrounding surface. Therefore, "raised" in the source text is a past participle, whereas "elevada" in the target text is an adjective.

There is a lack of equivalence between the logical entries of the past participle "raised" and that of the adjective "elevada". The logical entry of "raised" has the component *process*, while "elevada" has in its lexical entry the components of *measure*, *great degree* and *quality*, and would in fact correspond to the English "high". Thus, this translation is not adequate, either.

4. Conclusions

In this paper we have shown that relevance theory, an ostensive-inferential model of communication, casts light on how a translation should be done, and helps to solve some problems posed by the concept of "equivalence", which is very wide and requires a specification: the TT should be equivalent to the ST, but in which aspect?. The principle of relevance states that every ostensive stimulus makes the addressee presume its own optimal relevance, this relevance being a function of the obtention of contextual effects,

which make it worth paying attention to this stimulus, and of the effort required to achieve these effects. This theory offers an answer to the problem of equivalence: the TT should be as relevant to its reader as the ST is to the original reader, that is, the translation should produce the same contextual effects without any gratuitous processing effort on the part of the reader. The translator's task is to produce a translation that resembles the original "closely enough in relevant aspects" (Wilson and Sperber, 1988: 137).

The act of translating requires taking into account differences not only between the lexical systems of two languages but also between their grammatical systems. One of the problems the translator must face is that the same meaning may be transmitted by different forms in two languages. In every language the writer selects the most appropriate forms to communicate his intentions. Therefore, the translation of English modifying participles, and more specifically of the participles occurring in scientific discourse, should not be approached from the consideration of their syntactic status, but in terms of utterance processing. The translation of these forms is not a question that can be handled merely by applying the rules of a code, that is, by considering that the translator must decode the original writer's message and encode it in the target language. This question must be rather treated in inferential terms. In the case of modifying participles the adequate linguistic form to translate them is not always the same. In every context there will be a translation relevant to the reader, which conveys the same explicatures and implicatures as the original.

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