

## Feedback loops in translating medical documents in light of Skopos theory and text types theory

### Les boucles de rétroaction dans la traduction des documents médicaux à la lumière de la théorie du skopos et de la théorie des types de textes

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**Abstract**---This article explores the role of feedback loops in the translation of medical documents, focusing on Skopos Theory and text types. It examines how translators utilize feedback to ensure accuracy and effectiveness in conveying medical terminology across languages. Key concepts include understanding text types and adapting translation strategies accordingly, enhancing communication in specialized domains. The study emphasizes the dynamic interaction between translators, document recipients, and feedback mechanisms, crucial for achieving precise medical document translations.

**Keywords**---Feedback loops, Medical documents, Skopos Theory, Text types, Translation accuracy.

**Résumé**---Cet article explore le rôle des boucles de rétroaction dans la traduction des documents médicaux, en mettant l'accent sur la théorie du Skopos et les types de textes. Il examine comment les traducteurs utilisent les rétroactions pour assurer l'exactitude et l'efficacité de la transmission des terminologies médicales entre les langues. Les concepts clés incluent la compréhension des types de textes et l'adaptation des stratégies de traduction en conséquence, renforçant ainsi la communication dans les domaines spécialisés. L'étude souligne l'interaction dynamique entre les traducteurs, les destinataires

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#### How to Cite:

Sadoun, N. (2026). Feedback loops in translating medical documents in light of Skopos theory and text types theory. *The International Tax Journal*, 53(3), 1558–1570. Retrieved from <https://internationaltaxjournal.online/index.php/itj/article/view/671>

The International tax journal ISSN: 0097-7314 E-ISSN: 3066-2370 © 2026

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Submitted: 12 January 2026 | Revised: 09 March 2026 | Accepted: 24 April 2026

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des documents et les mécanismes de rétroaction, cruciale pour atteindre des traductions précises de documents médicaux.

**Mots-clés**---Boucles de rétroaction, Documents médicaux, Théorie du Skopos, Théorie des types de textes, Exactitude de la traduction.

## Introduction

Translation has always been a complex intellectual, mental, and linguistic process that demands significant effort and multiplied creativity due to its paramount importance in conveying intellectual and scientific heritage across history. Scientific translation, in particular, has been instrumental in transferring knowledge for the exchange between peoples and has been a catalyst for the advancement of nations in various fields. The translation of scientific documents within professional contexts is even more intricate since these texts serve a highly essential communicative function. Given that their audience often lack specialization in the scientific fields, such as judges, lawyers, suppliers, customs officials, or administrators, and because their formulation differs from that of academic scientific documents, translators face obstacles that may hinder them from achieving the intended purpose of translation.

Based on this premise, this study examines the dilemmas of translating scientific documents within professional contexts, in light of Skopos theory and text types, along with their key methodologies. Furthermore, we will explore the translations to assess the extent to which they fulfill their function for the recipient through a mechanism we have coined in this research as the "feedback loop."

### 1. The Concept of Medical Documents

The term "document", وثيقة *"wathiqā"* in Arabic, is derived from the linguistic root from Arabic وثق *"wathaqa"*, which means to establish or confirm. Documents are, therefore, everything relied upon and referred to for the purpose of making decisions, providing verification, and ensuring certainty (Al Maliki, 2009: 17). A document in English is defined as "a written or printed paper that provides information or evidence, or that serves as an official record" (Oxford English Dictionary, 2024). Thus, a document is a written record with probative value, confirming a fact or a legal action that cannot be invalidated.

A scientific document is defined as "a written or digital record that reports original research findings, reviews existing knowledge, or presents scientific data and analysis, typically intended for publication in a peer-reviewed journal or conference proceedings" (National Library of Medicine, 2021). The concept of scientific documents in professional settings differs from that in academic contexts, where the latter are used as tools for scientific research. In professional environments, a scientific document refers to any written document related to the field of science, serving as evidence that can be presented before relevant authorities. These documents are characterized by their specialized scientific language and unique style, often containing pure scientific terminology.

### 2. Types of Scientific Documents

Scientific documents encompass a broad range of materials, each serving specific purposes within their respective fields. Among the most important types are:

- **Medical Documents:** These include prescriptions, medical certificates, reports, laboratory analyses, and patient medical records, among others. They are prepared by medical professionals such as doctors, nurses, and lab technicians. Medical documents are crucial for diagnosing, treating, and monitoring patient health, as well as for legal and insurance purposes (Smith & Jones, 2018).

- **Technical Documents:** This category comprises technical certificates, expert reports, technical analyses, and specification sheets. They are generated by specialists in various technical fields, including architectural experts, technical analysts, mechanical engineers, and professionals in industries such as

mining and manufacturing. These documents are essential for ensuring the safety, efficiency, and compliance of technical processes and structures (Brown & Wilson, 2016).

Each type of scientific document is tailored to meet the specific needs of its intended recipients, ensuring that the information they contain is both accurate and valid. They play a vital role in professional communication, providing verifiable evidence and facilitating informed decision-making.

### **3. Recipient of Scientific Documents**

In Algeria, the recipients of translations of scientific documents into Arabic primarily include individuals connected to the legal field, such as lawyers and judges (Baker, 2011). These translations are crucial for legal proceedings where scientific evidence or expert opinions are required. When translated into other languages, like English, the recipients often vary based on the document's nature. For technical documents, the recipients are typically specialists in various industries, such as engineers, architects, and technical consultants (Byrne, 2006). In contrast, medical documents are usually intended for medical professionals, including doctors, nurses, and healthcare administrators (Montalt & Davies, 2007).

It is evident that the document's author is typically an expert in the scientific field, whereas the recipient may not necessarily possess specialized knowledge in that area. Consequently, the recipient may encounter difficulties in comprehending the true meaning and content of the scientific document. This underscores the importance of accurate and effective translation, ensuring that the document serves its intended purpose and effectively communicates the required information to recipients who may lack expertise in the subject matter (Newmark, 1988).

### **4. The Purpose of Translating Scientific Documents**

The primary purpose of translating these documents is often to establish a particular fact or to make claims regarding incidents or losses. When translated into English, the aim is typically to reach an agreement with foreign parties concerning trade, industry, or any related business. It can also serve the purpose of requesting medical intervention and seeking medical care abroad.

In essence, the translation of scientific documents serves as a means of communication and legal verification, enabling individuals or entities to assert their rights, facilitate international agreements, and access medical services in foreign jurisdictions. Accurate translation is essential in ensuring that these objectives are met effectively and that the intended message is conveyed clearly and comprehensibly to all relevant parties involved.

### **5. Scientific Translation**

Scientific translation involves the specialized task of rendering texts related to various scientific domains. Its principal aim is to furnish scientific information in a manner that is easily comprehensible, accurate, and effective (Byrne, 2006). According to Byrne (2006), scientific translation functions as a communicative service that disseminates new information to a new audience. This service is crucial for the dissemination of scientific research, enabling societies to keep abreast of contemporary advancements and discoveries.

The hallmark of scientific translation lies in its dedication to conveying meanings with precise attention to linguistic structures, utilizing clear expressions and exact terminology. This type of translation is marked by its brevity, clarity, and accuracy, while maintaining a straightforward yet nuanced approach. It aligns with factual accuracy and reality, transcending geographical limitations to serve as a universal language that continually evolves (O'Connell, 2010).

### **6. Conditions for Scientific Translation**

The prerequisites for scientific translation extend beyond those of general translation due to its specialized nature. Comprehensive knowledge of both the source and target languages is imperative,

covering all aspects: phonetic, morphological, linguistic, syntactic, semantic, stylistic, semiotic, and the emotive and behavioral connotations of vocabulary (Newmark, 1988). Integrity, cultural literacy, and extensive exposure to both languages are essential components.

A critical condition is that translators must adhere strictly to the sequence of elements as they appear in the original text, avoiding any alteration of the order. In contrast to literary translation, scientific translation eschews the use of imagination or metaphor. Furthermore, translators are required to maintain precision, fidelity, objectivity, and neutrality, ensuring that no information is omitted or supplemented (Gile, 2009).

The most pivotal requirement for scientific translators is possessing an in-depth and comprehensive understanding of the scientific subject matter being translated. This expertise is crucial for accurately grasping and conveying all details (Montalt & Davies, 2007).

## 7. Approaches of Translators in Rendering Scientific Documents

There are numerous methods and strategies employed to translate scientific documents. These can be categorized into three primary approaches:

### 7.1. Target-Oriented Approach

Faber, Pederstuen, and Kling (1996/1997) distinguish between two different approaches, the first of which is the target-oriented approach. This approach aims to produce a translation specifically directed at the target audience by reusing and borrowing linguistic materials. Consequently, the target text shares no commonalities with the source text. This method involves finding linguistic and semantic equivalents that already exist in the target language, such as:

Table 01: Target-Oriented Approach in Translating Medical Documents

<i>French</i>	<i>Arabic</i>	<i>English</i>
Anatomic pathologique	تشرح مرضي	Pathological Anatomy
Mort naturelle	وفاة طبيعية	Natural Death

Juliane House divides translation into "overt" and "covert," taking into account the relationship between the target text and both the translator and the target audience. Covert translation does not reflect the source culture's particularities or uniqueness. Instead, the target reader perceives the translated text as conforming to the target language's norms and nuances, unaware that it is a mere translation from another language. The translation strategy here conceals the original source, highlighting the characteristics of the target language (House, 2015).

### 7.2. Source-Oriented Approach

The source-oriented approach focuses on directing the translation towards the source language community by reproducing and utilizing the semantic and linguistic features of the original text. This approach aims to increase the similarity with the source text. In House's concept of "overt" translation, the target reader recognizes that the target text is a translation and that it is associated with the source culture. Here, "overt" indicates that the translation is explicit about the identity of the original text, and the target text reader can openly perceive that the translation is imbued with the culture and characteristics of the source language (House, 2015).

This strategy is particularly popular in scientific translation, especially for texts related to pharmaceuticals, chemical compounds, biology, and technology. In cases where the target language lacks equivalent terms, one of the translation strategies that ensures accuracy and correctness involves using the technique of "borrowing." Haugen defines borrowing as the attempt to replicate specific

patterns present in one language and applying them in another language (Haugen, 1950). Examples of this technique include:

**Table 02: Source-Oriented Approach in Translating Medical Documents**

<i>French</i>	<i>Arabic</i>	<i>English</i>
Orthophonie	أرطوفونيا	Orthophony
Trisomie	تريزوميا	Trisomy
Physiologie	فسيولوجيا	Physiology
Echographie	ايكوغرافيا	Echography

#### - Combining Approaches

It is frequently observed that combining approaches is prevalent in the translation of scientific documents. This combination often involves both equivalence and borrowing within the same phrase. Examples of this include:

**Table 03: Combining Approaches in Translating Medical Documents**

<i>French</i>	<i>Arabic</i>
Facteur <b>physiologique</b>	عامل فيسيولوجي
	<b>borrowing</b> - equivalence
Anomalie <b>chromosomique</b>	تشوه كروموزومي
	<b>borrowing</b> - equivalence

### 7.3. Skopos Theory

Another highly effective strategy for translating scientific documents is Vermeer's Skopos Theory. The term "Skopos," derived from Greek, means "purpose" or "aim." The foundation of this theory is that "the method of translation is determined by the purpose of the translated text" (Vermeer, 1989).

Functionalist translation under Skopos Theory follows several key principles, which can be summarized as follows (Nord, 2006):

1. The purpose of the translation determines the strategy/method used.
2. The client must specify the intended purpose of the translation.
3. The translation must fulfill its purpose; in the case of scientific translation, the purpose is to inform.
4. The function can only be confirmed by the reader if it meets their needs at that particular moment in time.
5. The function achieved by the target text will not necessarily be identical to the function achieved by the source text. For example, a medical certificate issued by a doctor primarily serves to justify an absence from work and to claim social security benefits for sick leave. However, if the employer contests this leave and subjects the worker to potential suspension or dismissal, the function of translating this document shifts to being used as evidence in court.

### 8. Theory of Text Types

The theory of text types was first championed by the German theorist Katharina Reiss, who introduced the concept of equivalent text. She views translation as a bilingual communicative act aimed at reformulating a text in the target language to be functionally equivalent to the source text. Reiss advocates for establishing textual patterns because languages employ similar text patterns. Each text type is associated with a specific translation approach that allows achieving functional equivalence of the translated text.

According to Gonzalez Matthews (2003), Reiss's theory emphasizes the importance of equivalence in translation, where each textual pattern in different languages should aim to achieve functional equivalence through specific translation approaches.

### **9. Conditions for Translating Scientific Documents**

Effective translation of scientific texts involves several critical conditions:

Firstly, translators must possess a profound understanding of both the source and target languages. This includes not only linguistic fluency but also a deep comprehension of scientific terminologies specific to various disciplines such as medicine, engineering, and biology (Gonzalez Matthews, 2003).

Secondly, translators should be well-versed in the subject matter being translated. A comprehensive knowledge of scientific principles, methodologies, and advancements is crucial to ensure accurate and contextually appropriate translation (Nord, 2006).

Thirdly, translators must adhere to strict accuracy and precision in their translations. Scientific documents require meticulous attention to detail, especially concerning technical terms and terminologies that have precise meanings and implications (Gonzalez Matthews, 2003).

Furthermore, maintaining clarity and coherence in translated scientific documents is essential. This involves not only linguistic fluency but also the ability to convey complex scientific concepts in a manner that is understandable to the target audience (Nord, 2006).

One of the most complex types of translation is scientific translation, where adequate interpretation of a text into another language requires not only linguistic knowledge but also scientific expertise. The translator must possess skills in multiple scientific fields and a broad general knowledge. A specialized translator surpasses these prerequisites and strives to meet additional conditions, as discussed in the following points:

#### **9.1. Employment of Precise Terminology**

The use of specialized terminology in scientific document translation is an undeniably intricate process. Poor translation of these terms or incorrect linguistic structures can lead to numerous errors in translation. Therefore, the translator must pay close attention to the use and accurate translation of technical terms and terminological structures.

Translators often struggle to find precise equivalent expressions in the target language, requiring a variety of expressive means to translate a specific term. In some cases, the translator lacks any of these expressive means to reflect the true and accurate meaning of the source term. Therefore, the translator must first choose a creative option for the most appropriate equivalent expression and secondly, must create a new equivalent term or introduce a new linguistic borrowing.

#### **9.2. Knowledge of Document Subject Matter**

Insufficient and inaccurate translations often result from translators' inadequate familiarity with both source and target languages, and the rules governing their correct usage, including grammar, semantics, spelling, syntactic structure, lexicon, and style. Given that the task of translating scientific documents involves accurately conveying the original meaning while preserving stylistic features, knowledge of the subject matter and relevant terminologies is paramount. Improper and imprecise use of specialized terms can lead to significant errors stemming from misunderstandings of the texts. Common obstacles faced by translators often arise from synonyms and lexical ambiguities that create confusion and introduce multiple meanings to words (Gonzalez Matthews, 2003).

#### **9.3. Adequate Familiarity with Lexical and Syntactic Constructions**

A translator cannot produce a satisfactory translation unless they possess a complete understanding of the lexical and syntactic constructions of both the source and target languages. Upon acquiring this knowledge, they must be capable of conveying ideas presented in the original text, which may be unfamiliar to the target reader. Thus, translation is described as "a complex cognitive process involving

the simultaneous and integrated execution of linguistic, iconic, and symbolic representational tasks ... (alongside) the employment of both episodic and semantic memory" (Nord, 2006).

#### **9.4. Accuracy, Fidelity, and Clarity**

While translators are allowed to make certain choices based on their individual "self preferences" concerning translation, they are also obliged to make "objective choices" involving the application of mandatory formats and schemes in a specific type of translation. Scientific text translation necessitates accuracy, transparency, simplicity, and clarity, which are some fundamental requirements for reliable translation (Nord, 2006).

Additionally, the translation should be read naturally by the target reader and should clearly define its stylistic nature for a specific translation purpose. The scientific writing approach emphasizes identifying the priorities of the target text, its purpose, and the intended audience. It also underscores the primary importance of the quality of the target text, dictated by adequacy, precision, and equivalence between the source and target texts (Gonzalez Matthews, 2003).

In conclusion, translating scientific documents demands a combination of linguistic proficiency, scientific expertise, and meticulous attention to detail to ensure accurate and effective communication of scientific knowledge across languages.

In summary, the key characteristics of translating scientific documents entail the translator's mandatory knowledge of all conditions related to a specific scientific field. Therefore, the specialist working on the scientific text must not only understand the meaning of translated words but also consider all subtle differences in their application.

### **10. Methods Translators Use to Overcome Difficulties**

Scientific documents require precise translation using appropriate lexical equivalents in the target language. Among the major challenges faced by translators are lexical gaps.

#### **10.1. Lexical Gaps**

Translators employ various techniques such as interpretation, explanation, and adding information to convey vocabulary, but these techniques may lengthen the text and stray from the conciseness that characterizes scientific language. Therefore, translators resort to borrowing, adaptation, and phonetic transfer from the source language.

Explicit translation is used only in emergency cases when the text is descriptive in nature. For instance, a translator dealing with rules or safety instructions in an institution bears significant responsibility, as there are strict safety constraints that, if disregarded, could lead to injuries or serious consequences in the professional environment.

In the following example, the translator opted for an explanation by stating "عدم نزول رأس الجنين" to convey the concept of the French term "engagement," which we did not find an equivalent for in Arabic in the field of obstetrics and gynecology when consulting specialized medical dictionaries. Instead, a lengthy explanation was found indicating that the term refers to "the set of stages the fetal head undergoes as it passes through the lower pelvis and vaginal outlet." (WHO). However, the translator condensed this explanation to express it in their own style, seemingly consulting a specialist or referring to the document editor for further clarification on this matter (Gonzalez Matthews, 2003).

Compte rendu opératoire  
 il s'agit de la portante no  
 homni, G5P4, 15EVBP, Ajust  
 subit une césarienne pour  
 défaut d'engagement (+) rupture  
 utérine suivie en port op

Compte-rendu opératoire:

Il s'agit de la patiente susnommée, **G5P4/5EVBP**, ayant subi une césarienne pour défaut **d'engagement** (+) rupture utérine suivie en port **op.** ...

Figure 1 : Medical Report (Source : Legal Office of Translation

Translation into Arabic :

الترجمة: تقرير جراحي: يتعلق الأمر بالمريضة المسماة أعلاه، حمل وولادته، أم لـ 5 أطفال على قيد الحياة وبصحة جيدة، خضعت لعملية قيصرية بسبب عدم نزول رأس الجنين + تمزق الرحم، تبعه بعد العملية ...

### 10.2. Abbreviations

One of the primary obstacles in translating scientific documents is the presence of abbreviations within the text, which are not always clear to the translator. These abbreviations can often pose an insurmountable barrier to qualitative translation. For example, in the previous instance, the translator resorted to translating abbreviations like "G5P4/5EVBP" by expanding them to clarify the patient's history, stating: "Gravida 5, Para 4, with 5 viable, healthy children." Such expressions are not readily acceptable in Arabic unlike in French.

Similarly, medical abbreviations that are widely recognized cannot be simply abbreviated in Arabic but must be fully translated:

Translators must navigate these challenges carefully to ensure accurate and contextually appropriate translations, especially when dealing with specialized terminologies in medical contexts (Gonzalez Matthews, 2003).

The following table illustrates abbreviations, their meanings, and their translations into Arabic:

Table 04: Abbreviations in Translating Medical Documents

Abbreviation	Meaning	Translation
IRM	Imagerie par Résonance Magnétique	التصوير بالرنين المغناطيسي
ECG	Electrocardiogramme	تخطيط القلب الكهربائي
EEG	Electroencéphalogramme	تخطيط كهربية الدماغ
TDM	Tomodensitométrie	التصوير الطبقي المحوسب
IDM	Infarctus du Myocarde	احتشاء عضلة القلب

### 10.3. Polysemy

Translating scientific documents presents significant challenges when words have multiple meanings. The choice must encompass not only words that convey the original meaning but also those that provide the correct interpretation for a specific technical context, thereby engaging the translator's skills. For instance, several terms with multiple meanings appeared in a medical context where the aim was to indicate a condition that renders someone incapable of managing their administrative and financial affairs.

The following table illustrates French terms, their multiple meanings, and their translations into Arabic and English:

**Table 05 : Polysemy in Translating Medical Documents**

Term	Multiple Meanings	In English
<b>Prodigalité</b>	السفه - التبذير	Prodigality - Profligacy
<b>Démence</b>	الوهن العقلي - الخرف - الجنون	Dementia - Senility - Insanity
<b>Débilité</b>	الوهن - الحماسة - البلاهة	Debility - Imbecility - Stupidity

One of the translator's strategies in addressing polysemy is to adhere to legal standards to establish French terms recognized by judicial bodies. Thus, the translation might clarify as follows: Prodigalité: السفه / Prodigality - Démence: الجنون / Insanity - Débilité: البلاهة / Stupidity. Another crucial consideration for translators is the specialization within the medical field, where lexical commonalities vary from one medical specialty to another:

**Table 06: Polysemy in Medical Specialties**

Term in (English)	Translation	Medical Specialty
<b>Traumatisme (Contusion)</b>	الرض	Orthopedic Surgery
<b>Traumatisme (Truma)</b>	الصدمة	Psychiatry

These examples highlight the complexity of selecting precise equivalents that convey both the literal and technical meanings in scientific translation.

#### 10.4. Synonymy

The translator faces numerous terms in French that are synonymous and translated into a single Arabic term. However, the challenge extends further when translating these Arabic terms back into French. Examples include:

**Table 07: Synonymy in Translating Medical Documents**

Term	Translation
Incapacité	العجز
Invalidité	العجز
Impotence	العجز
Insuffisance	العجز
Infirmité	العجز

When translating "عجز" into French, the translator must consider the context in which it is used. Employing lexical collocations aids in pinpointing the precise French equivalent:

**Table 08 : Selecting Contextually Appropriate Equivalents**

Term عجز	Context	Translation	In English
Incapacité	Incapacité partielle permanente (IPP)	العجز الجزئي الدائم	Permanent partial disability
Invalidité	pension d'invalidité	منحة العجز	Disability pension
Impotence	impotence fonctionnelle	العجز الوظيفي	Functional impairment
Insuffisance	Insuffisance cardiaque	عجز القلب	Heart failure

These examples illustrate the intricate process of selecting contextually appropriate equivalents during translation, emphasizing the importance of linguistic collocations in achieving accurate French renditions.

### 10.5. Compound Terms

Medical terms, in particular, feature a unique composition where each prefix and suffix carries a specific meaning. Examples include:

**Table 09: Compound Terms in Translating Medical Documents**

Term	Meaning	Translation
Splénectomie	Splén- (spleen) + ectomie- (excision)	استئصال الطحال
Ostéosynthèse	Ostéo- (bone) + synthèse (synthesis)	تركيب طرفي العظم المكسور

In the first example, translating the prefix and suffix straightforwardly yields the Arabic term "استئصال الطحال" (spleen removal). However, in the second example, the translator must exercise discretion to convey the precise meaning, as seen in "تركيب طرفي العظم المكسور" (fixation of the fractured bone), clarifying that the term refers to a technique in orthopedic surgery rather than a general bone synthesis, which might not convey the intended specificity.

### 11. Document Tracking and Feedback

To ensure that the translation fulfills the same function as the original text, we track certain documents and gather feedback as illustrated in the following example:

In an autopsy report, the following was stated:

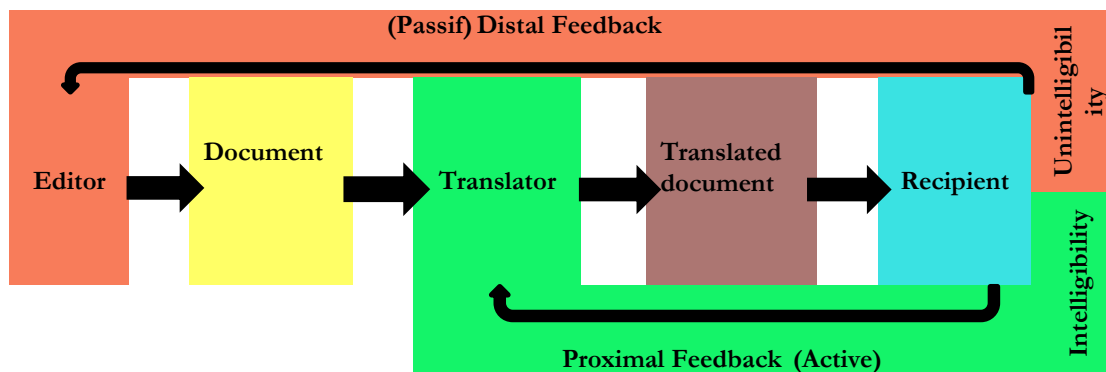
*- Ce traumatisme abdominal en lui-même n'a pas entraîné de lésions internes graves, ni d'hémorragie interne grave pouvant expliquer la mort ; mais le fait qu'il a siégé dans une zone réflexogène, pourrait être à l'origine d'une **inhibition reflexe** directement responsable de la mort.*

When it was impossible to communicate with the forensic doctor for further clarification, the translation rendered as follows:

*"-لم يسبب الرض في البطن في حد ذاته أية إصابات داخلية خطيرة، ولا نزيف داخلي خطير من شأنه أن يفسر الوفاة؛ لكن كونه تموضع في المنطقة المولدة للمنعكس، فقد يكون تسبب في تثبيط المنعكس المسؤول مباشرة على الوفاة."*

In this translation, the cause of death remains unclear to a non-specialist judge, prompting the need to consult the doctor to clarify the cause of death using simplified language and explanatory gestures. This scenario exemplifies what we call "**distal feedback**," as it did not involve the translator in explaining the meaning but rather the document editor. This is a form of "**passive feedback**," implying that the translation failed to convey the concept accurately due to the French and Arabic expressions lacking details clarifying the cause of death.

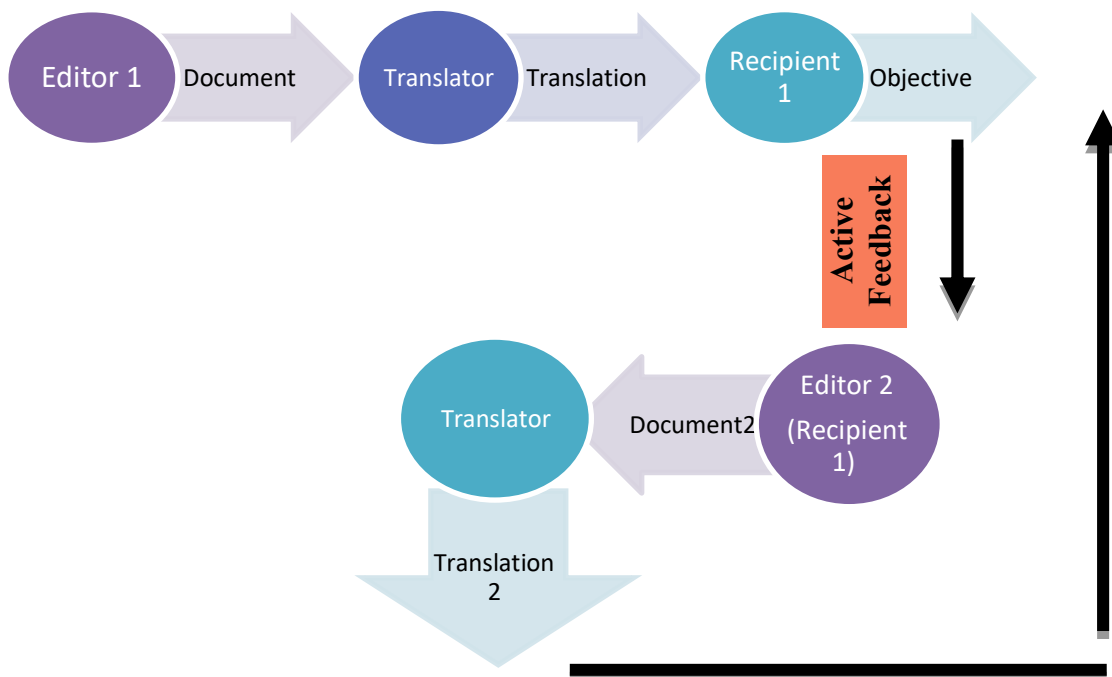
Feedback can be "**proximal**" if the recipient directly consults the translator to clarify meanings when some terms appear somewhat unfamiliar. The diagram below illustrates proximal and distal feedback:



**Diagram 1: Proximal Feedback and Distal Feedback (Unintelligibility in Both Languages) (Prepared by the researcher)**

**12. Contributions of Translators to Enriching Lexical Resources for Recipients (Specialist and Non-Specialist, in Both Languages)**

Translators often encounter terms in documents sent for translation that they have previously translated in earlier documents. This implies that the document editor, often a judge in this context, relied on scientific terms in Arabic that the translator had previously translated in documents sent to this editor. The following diagram illustrates feedback, emphasizing the enrichment of the recipient's linguistic inventory:



**Diagram 2: Proximal Feedback (Active) (Prepared by the researcher)**

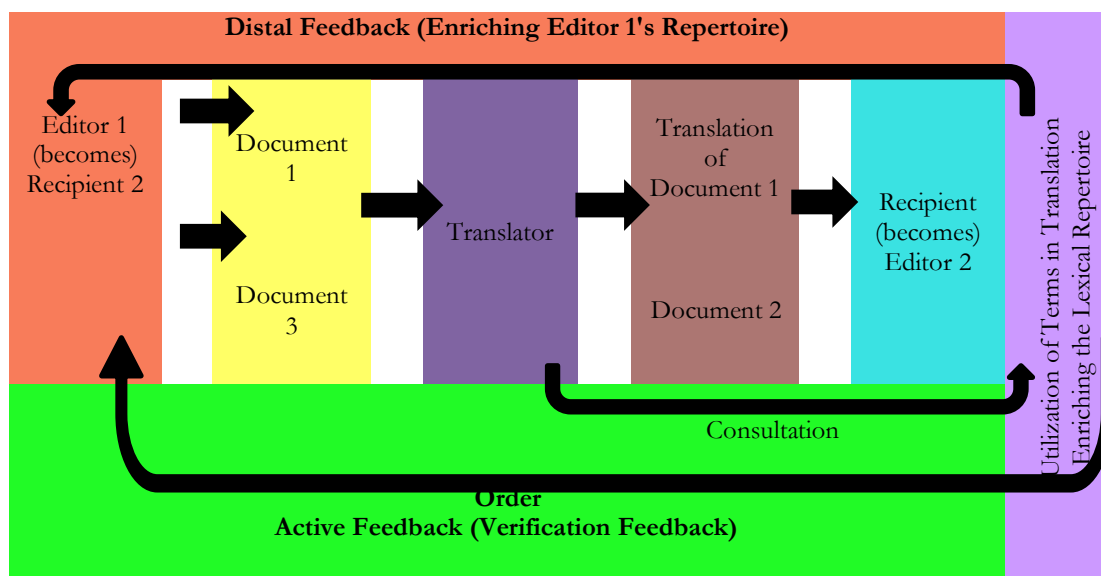
These diagrams highlight how translators contribute to the linguistic and conceptual clarity in specialized documents by ensuring consistency and accuracy in terminology across translations.

### Discussion

We understand that the previous translation process has contributed to enriching the scientific linguistic repertoire of the recipient (who became an editor after receiving the translation). This phenomenon is termed as **active feedback** or **verification feedback**, whereby the translator ensures the complete, accurate, and clear delivery of meaning to the recipient. On one hand, it confirms that the document translation has achieved its intended purpose.

At times, the document editor (judge) forwards it to a second editor (specialist in sciences: medical doctor, technical expert, architect, etc.), employing terms derived from previous translations. Consequently, the specialized second editor also enriches their Arabic lexical repertoire, as their training was in French and their professional practice in their specialized field.

When precise Arabic terms are received in complex matters by the judge and prove difficult for accurate comprehension, they too resort to consulting the translator to precisely determine the concepts behind these terms. In this manner, they contribute to their scientific Arabic lexical repertoire. This process is termed as **distal feedback** because the translator recognizes here the delivery of meanings through consecutive processes: after receiving Arabic terms from recipient 1, editor 1 consults the translator, as illustrated in the following diagram:



**Diagram 3: Enriching the Recipient's Lexical Repertoire through Distal Feedback  
(Prepared by the researcher)**

### Conclusion

This comprehensive exploration into the translation of scientific documents highlights the nuanced challenges and strategic approaches inherent in professional environments. Scientific translations serve specific functions dictated by their professional contexts, with their purpose varying depending on the recipient. Despite the formidable obstacles faced by translators in conveying these documents accurately within professional settings, they employ diverse methodologies to overcome them. These

include leveraging various resources, conducting meticulous research, and consulting experts in the field.

The verification of translated scientific documents to ensure they fulfill their intended functions is crucial for translators, affirming the accuracy and efficacy of their work. This verification process is facilitated through feedback loops, categorized into proximal and distal feedback. Proximal feedback occurs when recipients seek clarification from translators to elucidate meanings perceived as ambiguous in the translation. Distal feedback involves recipients consulting document editors. This feedback can be non-interactive when translation fails to convey concepts accurately and interactive when verifying enrichment of the recipient's lexical inventory. In essence, this study underscores the dynamic interplay between translators, recipients, and document editors in enhancing the scientific lexical repertoire in professional contexts.

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