Can two Human Intelligences (HIs or *noes*) and two Artificial Intelligences (AIs) get involved in interlinguistic communication?
A Transdisciplinary quest

Ekaterini NIKOLAREA
School of Social Sciences, University of the Aegean
Mytilene, 81100 Lesvos, Greece

ABSTRACT

The author of this paper will first define what interlinguistic communication involves. Second, she will categorize: (a) the interface between two AIs in the language they have been programmed; and (b) the interface between HIs and AIs in two distinct cases in relation to communication, by providing specific examples. Third, she will try to explain why AI is **unable** to get involved in interlinguistic communication, whereas healthy HIs are **able** to attain this task. The writer of this study will base her analysis on *neuroscience* (Broca and Wernicke), linguistics, translation studies and socio-cultural studies. Finally, the objective of this study is twofold: (1) to wish for a collection of articles written about how language functions in bilingual and multilingual environments as well as in international conferences and (2) to motivate scientists from different fields to learn/know how *nous* (human brain and mind) operates in interlinguistic situations in general and scientific interlinguistic situations in particular (e.g. IIIs Conferences). Such a kind of knowledge can lead to an better understanding of humanity.

Keywords: Human language, *nous*, HI, AI, interface, interlinguistic communication.

1. INTRODUCTION: DEFINITIONS

Nous or Human Intelligence (HI)

Within the present context, *nous* or Human Intelligence (HI) is considered as the **synergy** of a healthy human <u>brain</u> and a healthy human <u>mind</u>, as discussed thoroughly in Section t of this paper. *Noes*[1] [FT *Noes* is the plural of *nous* in ancient Greek] or Human Intelligences (HIs) can use <u>one</u> or <u>more than one human languages</u> to communicate among them, which can be <u>either</u> their mother tongue <u>or</u> a *lingua franca* (e.g. English, Spanish, Arabic, Russian) <u>or</u> can use their mother tongues, which, however, may not coincide; an example for the last case is given in the sub-subheading "Interlinguistic communication with the use of different languages" in Section 5.

Human Language – Human Communication

If human language is of a complex architecture in Linguistics - as shown in Figure 1 - and construes one's meaning-making of the experience of the world at the micro linguistic level, then human communication is far more complex when it involves communication of two or more HIs, as shown in Figure 2, especially, when the mediator and the medium of communication or the channel of communication can be either another HI (i.e. an interpreter and/or a translator) in any form of Artificial Intelligence (AI), that is, email correspondence or the Google translate app.
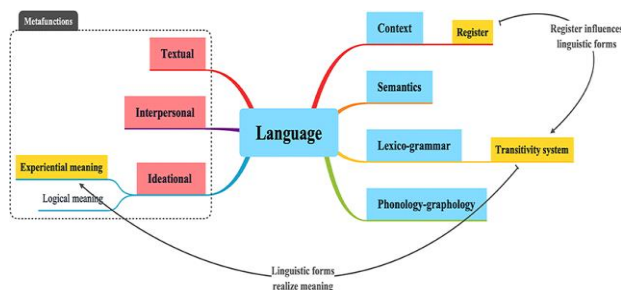

Figure 1. Language architecture according to SFL[2] [1]

When speakers or writers communicate in a <u>single</u> language, human communication requires:

1. A **sender** (*nous* or HI), who usually encodes the **message**;
2. A **receiver** (*nous* or HI), who usually decodes the **message**;
3. A **message**; and
4. A **medium/channer** of **communication**, which may be <u>not only</u> human language <u>but also</u> part of Artificial Intelligence (AI) (e.g. email).

---

[1] *Noes* is the plural of *nous* in ancient Greek.

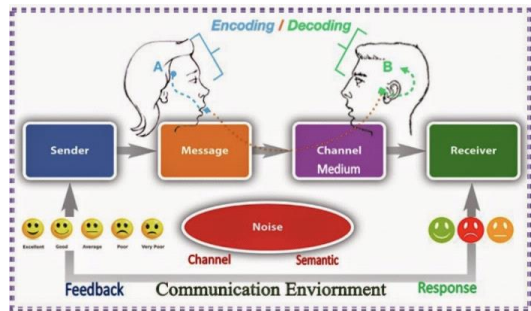[2] SFL comes from Haliday's Systemic Functional Linguistics [1]

Figure 2: A diagram of Human Communication [2]

Interlinguistic communication
However, when speakers or writers of different languages try to be or are involved in an international communication (such as: in IIIs Conferences), then a much more complex human communication emerges: interlinguistic communication. This kind of communication describes the relations that speakers of different languages have established through ages and their ways of communicating across language barriers. It is a challenging situation where *noes*/HIs (such students, researchers, academics) try to communicate and transfer their knowledge acquired from their **local** knowledge-based environment (that uses the local language – e.g. Spanish, Greek) to a wider **global** knowledge-based environment (that uses English) or the other way around.

Then, when interlinguistic communication takes place, Figure 2 can be transformed into Figure 3, with the author's interventions so that an international readership can understand better what is involved in interlinguistic communication.

HUMAN & ARTIFICIAL LANGUAGE
1. *Lingua franca*
2. The sender's language is different from that of the receiver's, but both understand each other
3. An interface in the form of machine translation (e.g. the Google translate app etc.)

HERE is **Figure** 2, as above

MEDIUM/CHANNEL OF COMMUNICATION
1. Human and artificial language
2. A Mediator: (a) a *Nous*/HI: an interpreter and/or a translator [**mediated interlinguistic communication**]; (b) an interface between HI and AI in the form of machine translation (e.g. the Google translate app etc.) [**mediated interlinguistic communication**]

FIGURE 3: A diagram of interlinguistic communication

More analytically Figure 3 tries to describe the existing levels of **interlinguistic communication**:

1. A **sender** (*nous*/HI) usually <u>encodes</u> the **message**. If the sender and the receiver use a *lingua franca* (e.g. English), then <u>they do not need</u> a mediator. But if the sender and the receiver <u>do not</u> use a *lingua franca*, then they need a **mediator**: (a) an interpreter or a translator [another *nous* or HI who becomes a receiver himself/herself] who should <u>decode</u> the initial message in order to <u>encode</u> (communicate) it [thus, becoming a sender himself/herself] to the receiver; or (b) an interface between HI and any kind AI [e.g. the Google translate app]) to <u>decode</u> the **message** and communicate it.

2. A **receiver** (*nous* or HI), who usually <u>decodes</u> the **message**. If the receiver communicates with the sender through a *lingua franca*, s/he <u>decodes</u> the message **<u>directly</u>**. If the receiver does <u>not</u> communicate with the sender through a *lingua franca*, s/he needs a **mediator**: (a) an interpreter or a translator [another nous/HI who becomes a receiver himself/herself] who should <u>decode</u> the initial message in order to <u>encode</u> (communicate) it [thus, becoming a sender himself/herself] to the receiver; or (b) an interface between HI and any kind AI [e.g. the Google translate app] to <u>decode</u> the **message**.

3. A **message**, which can be conveyed through human or "artificial" language, that is, the Google translate app; and

4. A **medium/channel of communication**, which may be <u>either</u> human language (as *lingua franca* or mediated or unmediated language (Section 3) <u>or</u> part of Artificial Intelligence (AI) (e.g. the Google translate app etc.).

Artificial Intelligence (AI)
Artificial intelligence (AI) refers to computer systems capable of performing complex tasks that historically only a human could do, such as reasoning, making decisions, or solving problems. Nowadays, AI describes a wide range of technologies that power many of the services and goods that are used every day and provide customer support in real time.

In the following Sections the author of this study will try to describe and analyze what is involved: (1) in the interface between AIs; (2) in the interface between AIs and HIs; and (3) she will show why AIs fail in practicing interlinguistic communication, whereas HIs succeed in performing this task. To attain that the writer will use different methodologies coming from fields, such as: neuroscience, translation studies as well as from personal experiences lived within international and local (i.e. classroom) environments; Section 5.

2. INTERFACE BETWEEN AIs – DIFFERENT SORTS

Within the present context, the writer of this paper uses the term "interface" as an interchangeable term with

"Artificial Communication" (AC) because she wants to indicate the different sorts of communication between different systems of AIs. Although these AIs can communicate between them, they are <u>not</u> involved in interlinguistic communication, as described and analyzed in Figure 3 in Section 1, because they use "artificial language", which is programmed by an HI or HIs in a <u>single language</u> (i.e. English, Spanish etc.). If the programs that two different AIs use are incompatible, they <u>cannot</u> communicate between them, and, an HI (a **mediator**) is called for helping them, that is, to find a way to make the "artificial language" and programs compatible.

3. INTERFACE BETWEEN HIs AND AIs – DIFFERENT SORTS

Within this context, the author recognizes that there are different sorts of interface (a kind of communication) between AIs and HIs, as discussed below.

1. The various medical examinations where AIs are used, but there is always the need for a **mediator** - a specialist doctor (a *nous/*HI) - to interpret the findings and make them understood by the patient (another *nous/*HI). In this case, the **mediator** interprets the results and communicates them to the patient in a language that the latter can understand them. If the patient <u>cannot</u> understand the language the specialist doctor (HI/the **mediator A**), then, there is the need for an interpreter and/or translator - of **another mediator** (the **mediator B**) to communicate the specialist's findings. This last situation, as described, is an overt case of interlinguistic communication.
2. The use of Robotics in medical operations, where a specialist doctor is <u>not only</u> a specialist <u>but also</u> a trained specialist (a **mediator**) who knows how to use robotics to perform a successful (medical) operation.
3. The use of various forms of AIs in businesses and military services, where the human users (*noes/*HIs) have to be trained to perform their tasks successfully. In this case, there is simply an interface between AI and HI/user.
4. There have been two other well-known cases of the interface between AI and *noes/*HIs:
   Eliza [3] was an autonomous program that could communicate through a computer with people (*noes/*HIs). This program was invented by Weizenbaum, an MIT computer scientist in the US in the end of 1960s.
   A teacher-robot [4] taught in the German in Willms High School in Germany.

   In the above cases (a) and (b), the communication between AI and HIs <u>cannot</u> be considered as interlinguistic communication, because the communication between AI and HIs was carried out in American English in Eliza's case and in German in the case of the teacher-robot. What does this mean in linguistic and translation studies terms? It means that the communication was carried out in a <u>single language</u>. In order for the author to make her claim clearer, she proposes her readers to think in the following terms: "Let us imagine that one of the AI had been programmed in a different language from English (in Eliza's case) or from German (in the teacher-robot's case) - for example, in Spanish, Greek, Arabic or Russian - ***would have been possible or these two AIs programmed in different human languages to communicate with their public?*** The answer is **NO**!
5. Another sort of interface between AIs and *noes/*HIs which involves a kind of interlinguistic communication is a **machine-aided translation**, as shown in Photo 1.

Photo 1

Although the levels of this sort of communication will be discussed thoroughly in Section 5, at this point suffice to say that there are two different cases of use: (a) the interface of AI and an HI, when a *nous/*HI uses an engine of machine translation (AI) to communicate his/her need (e.g. which bus s/he can get on) to another *nous/*HI who does not know his/her language; and (b) The interface of a *nous/*HI and AI, when a *nous/*HI uses an engine of machine translation (AI) to translate a text for professional purposes.

Now, let us get to the first part of initial question of the present paper: "Can two AIs get involved in interlinguistic communication?"

4. CAN TWO AIs GET INVOLVED IN INTERLINGUISTIC COMMUNICATION?

To my question: "Can AIs get involved in interlinguistic communication?" I got the following two answers:
(1) Two artificial intelligences talk to each other [5]
(2) WHAT ARE BOB AND ALICE SAYING? [MIS]COMMUNICATION AND INTERMEDIATION BETWEEN LANGUAGE AND CODE / HANNAH LAMMIN [6]

Should one read these articles, one will find out that the AI answer (i.e. coming from the Internet) has disregarded or missed or misunderstood the term "interlinguistic."

The answer to the first part of the initial question is **NO**, because AIs are usually programmed only in a single language (except for *machine translation engines* and *corpora*, which are part of the Interface). According to the author of this paper [7, pp. 62-63], an AI **CANNOT**:
1. understand when another AI is programmed in another language (e.g. AI is programmed in English, the other one is programmed in Spanish, Greek);
2. draw conclusions, it needs a user (*nous* - HI);
3. make decisions like *nous* (HI) can;
4. make decisions that require a general understanding of the world; and
5. it cannot establish and sustain a conversation as *nous* (HI) can in a different language, because, for the time being, it is programmed to respond to a given language.

5. CAN *Noes/*HIs GET INVOLVED IN INTERLINGUISTIC COMMUNICATION?

The answer to the above question is **YES**, in contrast with Section 4, where the answer is **NO**. But how can *noes*/HIs achieve that? First, the author is going to discuss how many kinds of interlinguistic communication there are and where their difference lies from a linguistic and translation studies point of view. Second, how different fields, such as: neuroscience, philosophy, translation and socio-cultural studies, examine how a *nous*/HI of a **bilingual** and/or **multilingual** person achieves different kinds of interlinguistic communication through the **synergy** (i.e. cooperation) of the brain (one's physical entity) and the mind (one's philosophical, psychological, socio-cultural entity).

Machine-aided translation. As discussed in Section 3, there are two different sorts of this interlinguistic communication, which is considered an interface between AI and a *nous or noes*/HI or HIs.

An AI app of a machine-translation. The primary objective of this kind of machine-aided translation is to achieve interlinguistic communication between two foreigners who cannot communicate with a *lingua franca* (e.g. English, Spanish, Russian, Arabic etc.), and one or both use AI (e.g. the Google translate app). The writer of this paper had recent experience of this sort of communication. She was in the bus station where she saw an Afghan woman asking in "broken" English which bus was going to the airport. The writer spoke to her in English and showed her the bus which she had to get on. When both - the writer and the Afghan woman - got on the same bus, the Afghan woman - wishing to confirm what she was on the right bus - started typing a sentence in Dari in her cell phone and, by clicking on the Google translate app, had her question translated into English. Then, she showed the English question ("Am I on the right bus?") to the writer. Having read the translated into English question, the writer nodded her

head positively. The Afghan woman relaxed and smiled at the writer. In that case, although there was an interface between AI (as the Google translate app) and a *nous*/HI (the Afghan woman), interlinguistic communication between two different *noes*/HIs was achieved!

This kind of interlinguistic communication shows how an AI app - as a **mediator** - can help two foreigners (who neither speak the same language nor use a *lingua franca*) to communicate for simple things of everyday life. Unfortunately, this case of communication has not been researched thoroughly in translation studies, although it is used not only by refugees and/or migrants in a foreign country but also by travelers who are in a country where they can communicate neither in their local language nor in a *lingua franca*; see Photo 2.

A *nous*/HI using an AI app. This occurs when there is the interface of a *nous*/HI and AI, and the *nous*/HI uses an AI app to translate a text for professional purposes. In this case, the AI is not only a **mediator** but also a **helper** for the professional [a **would-be mediator**, a case of/for translation studies); see also Photo 2.

Photo 2

Human-aided translation
This short of interlinguistic communication involves: (1) a human (*nous*/HI) **mediator** - i.e. an interpreter (oral discourse or *Logos*; see Section 6) and/or a translator (written discourse or *Logos*; see Section 6); and (2) two different levels of communication, which can be interchangeable when the situation requires it. This case of interlinguistic communication is **highly complex**, as shown in Section 1 and Figure 3, because another human (*nous*/HI) enters in the frame of human communication (Figure 2) and, by being a **mediator**, s/he becomes the first **receiver** of the **sender's message** (i.e. s/he has to decode the sender's message) and, then, s/he becomes not only a mediator but also (1) a sender of a message in a different language and (2) a medium/channel of communication (together with the language s/he interprets/translates into) so that interlinguistic communication can be attained; see Photo 3.

Photo 3

During this process of interlinguistic communication, the (*nous*/HI) - as the **mediator -** has to move between two, at least, linguistic systems and (scientific) discourses and s/he has to use both his/her <u>brain</u> and <u>mind</u> in a *synergetic* way so that interlinguistic communication is successful. There is a vast number of bibliographical references to Interpreting and Translation. What, however, has <u>not</u> been thoroughly researched into is the existing **synergy** between (human) **brain** (one's physical entity) and (human) <u>mind</u> (one's philosophical, psychological and socio-cultural entity). In other words, how one's *nous/*HI operates between two, at least, different linguistic systems and (scientific) discourses. The author of the present study will try to approach this **synergy** from the views of different fields, such as: neuroscience, translation and socio-cultural studies in Section 6.

Interlinguistic communication achieved with the use of different languages. This situation is very well known but the least researched in translation studies, although *noes*/HIs have been communicating in this way for ages. It may be the least researched <u>either</u> because scientists from different fields are not aware of it <u>or</u> it is <u>too difficult</u> to be approached scientifically because this kind of communication occurs in unpredicted life situations and/or in school/university classrooms when the *noes*/HIs <u>cannot</u> be the regular "subjects" of a controlled scientific environment.

What follows is the author's description of three different situations that she experienced in three different parts of the globe.

1. **Strasbourg (Alsace, France) and Frankfurt (Germany) - 1983-1984**. As an undergraduate student of the English Department of the University of Athens and the University of Strasbourg, the writer used to employ English to write essays for the English Department and spoke and write in French to obtain Superieur III from the University of Strasbourg. However, whenever she travelled to Frankfurt (Germany), although she knew German, but she had lost her speaking skills, she used to use English or French to ask for city directions. The German people, although they understood her

questions, responded in German. Nevertheless, interlinguistic communication was achieved, although the participants were speaking different languages.

2. **Singapore -2002.** As the writer was wandering in the street market in Singapore, she encountered two men who one was speaking English and the other Thai, and they did not have any problems to communicate with each other.

3. **Mytilene (Lesvos, Greece) - 2024-2025 [A classroom situation].** The writer, as a university teacher of ESP/EAP[3] in the Department of Social Anthropology and History at the University of the Aegean, has French-speaking students from Kongo whose level of Modern Greek is good but with almost zero knowledge of English.[4] To help them to overcome the language problem, the writer has been using different teaching approaches of Applied Linguistics; that is, she has allowed these students to use: (1) French in some of their writings; (2) use the Google translate app to show her some of their thoughts <u>either</u> in English <u>or</u> in Modern Greek and communicate with her orally <u>either</u> in Modern Greek <u>or</u> in French. The final aim of this cyclical classroom communications is to help the Kongo students to progress, at least, in writing in English. For the time being, this complex multilinguistic communication seems to work, since the students have been trying to write an essay in English.[5] What is very interesting and encouraging in this classroom situation is that the rest of the Greek students have also been trying to help the Kongo students by using <u>either</u> English <u>or</u> Modern Greek. What is stunning in this classroom situation is that multilinguistic communication between the teacher, the Kongo students and the Greek students has triggered an <u>unexpected</u> interlinguistic communication that has revealed human understanding, empathy and cooperation (or **synergy** in Greek) between different *noes/*HIs <u>not only</u> at a physiological level (<u>brains</u> - neuroscience) <u>but also</u> at a philosophical, linguistic and sociocultural level (<u>minds</u>).

Interlinguistic communication attained with *lingua franca.* When people from different linguistic systems and cultural backgrounds come in contact and want to communicate their (scientific) research or business issues (such as in IIIs Conferences) or they work in a cross-cultural environment (see Photo 4), they use a *lingua franca* - a language of communication that can be understood by all the participants.

---

[4] At this point, it should be emphasized that these students are not Erasmus students, but students who have been enrolled in this Department as regular students.

[5] This is one of the requirements of the EAP course.

Photo 4

As the author of the present study has claimed [8], [9] and [10], when a *lingua franca* is used as a means of communication among people [*noes/*HIs] from different linguistic and cultural backgrounds, it involves implicitly and/or explicitly interlinguistic communication, which fosters the issue how local people transfer their (scientific) knowledge of their local (scientific/business) environment to an international one that uses English or any other different *lingua franca*. This is a *par excellence* interlinguistic communication and requires an awareness on behalf of local people that, when speaking or writing, there may not be an 1:1 correspondence between words, terms and/or expressions between their local language and the *lingua franca.*

6. SYNERGY IN *NOUS*/HI: A HOLISTIC APPROACH

Within the context of the present study, the author approaches *nous*/HI holistically, claiming that *nous* is a **synergy** between brain (a physiological and neurological entity) and mind (a philosophical, linguistic and sociocultural entity). The writer uses the Greek term **synergy (συν+έργεια)** because the first compound **syn (συν)** indicates a cooperation of different elements or entities, whereas the second compound **-ergy (έργεια)** cognates from the Greek word *ergon* (ἔργον), whose one of the English equivalents is "task".

In the following subsections, the author will try to show, from a neurological point of view, how a healthy *nous* (i.e. a *nous* that does not suffer from aphasia, dementia etc.) operates when: (1) using a single language (being monolingual) in a monolingual environment; and/or (2) moving between two, at least, linguistic systems, (being, at least, bilingual) in a bilingual and/or international (scientific) environment when a *lingua franca* is used; in other words, when a *nous*/HI is involved in interlinguistic communication. Unfortunately, another kind of interlinguistic communication is totally unknown to neuroscientists and totally ignored by translation scholars is when two or more *noes/*HIs communicate in different languages and are still able to understand each other and, thus, interlinguistic communication is achieved; see sub-section "Interlinguistic communication achieved with the use of different languages" in Section 5. This last case of

interlinguistic communication usually occurs in multilinguistic environments.

Location of human language in the brain (the physical entity of *nous*/HI) in monolinguals
Up to recently there was a misconception there has been no one "language" region of the brain. Nevertheless, several (medical) examinations and experiments carried out by neuroscientists have shown that human language is a symphony of different brain regions all playing their part perfectly. They have found that there are three key building blocks, each with their important role to play in communicating ideas and conveying understanding.

1. **Lexicon** (scattered around the cortex) that is the actual words *nous* uses, vocabulary, scientific and/or literary discourse.
2. **Semantics**, that is the meaning of the words *nous* uses. It is known as **Wernicke's area**; see Figure 4. This area is a region of the brain that contains motor neurons involved in comprehending speech (oral discourse). It is in the left temporal lobe of the left hemisphere of the brain and lies close to the auditory cortex. This area is crucial for comprehending speech sounds and is the center of language comprehension. It has taken its name from the German neurologist Carl Wernicke who first described it in 1874.
3. **Syntax:** the grammatical rules that hold the structure of language together into something understandable. Syntax is in **Broca's area**; see Figure 4. This area is a region of the brain that contains neurons involved in speech function (oral discourse). It is in the frontal lobe of the left hemisphere of the brain and its crucial role is speech production. This area took its name by Paul Broca – a French surgeon and physical anthropologist – whose brain lesions contributed to understanding of aphasia, the impairment of the ability to articulate words.

From the above discussion it is conspicuous that this research and discussion revolves around the production of single language, that is, **unmediated communication**, where **monolingual speakers** get involved in, as in Figure 2.
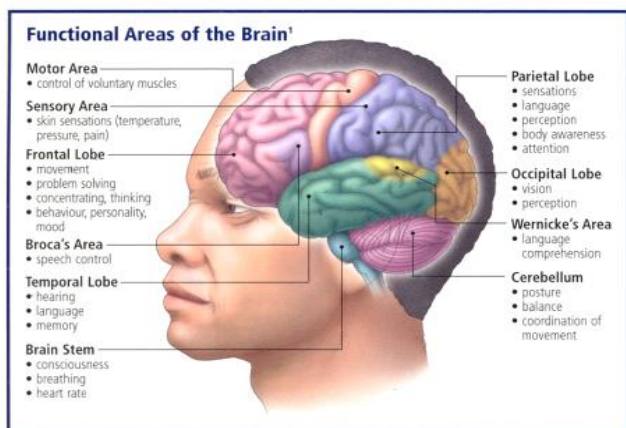
Figure 4. Functional areas of the brain [11]

Neuroplasticity of the <u>brain</u> (the physical entity of *nous*/HI) in bilinguals

Scientists, wishing to find out how the brain operates in bilinguals, carried out experiments during which it emerged how the neuroplasticity of *nous* is interlinked with bilinguals and interlinguistic communication; these experiments were carried out in the USA and in Argentina.

Experiments in the USA. Sarah Phillips, a New York University doctoral candidate, and Liina Pylkkänen, a professor in NYU's Department of Linguistics and Department of Psychology [12], while carrying out an experiment to measure the neutral activity of Korean/English bilinguals,[6] discovered that the brain of those bilinguals used a shared mechanism for combining words both from a single and from two different languages. Their findings have revealed that code-switching or language switching – that is, a very crucial process during interlinguistic communication – is a "natural process" for bilinguals because the brain has a combinator mechanism which is "blind" to code-switching. At this point, two aspects of this experiment should be emphasized: (1) The researchers have come to these findings with the help of AI, when using magnetoencephalography (MEG); and (2) a bilingual *nous* (brain and mind), trained to be bilingual, uses this kind of "blindness" as a physiological safety pin to perform such a demanding task [***ergon* (ἔργον)** as discussed above] to move between to different linguistic and sociocultural systems, that is, interlinguistic communication.

Experiments in Argentina. Adolfo M. García – a technical-scientific translator from Spanish into English, a Teacher of English as a Foreign Language and a researcher at the National Scientific Research Council of Argentina – with his colleagues have studied what

happens inside the brain during translation process, a neurocognitive aspect of bilingualism [13].

During their research, these scientists cooperated with **simultaneous interpreters** at conferences in a non-invasive way, that is, the simultaneous interpreters allowed them to record their interpreting sessions. García states that simultaneous interpreting is a very good model for understanding how a *nous* (brain and mind) adapts to highly demanding conditions, such as simultaneous interpreting – one of the sorts of interlinguistic communication. García points out that simultaneous interpreters carry out different "tasks" (***erga* / ἔργα)**[7] at the same time: (1) they listen to what is said in one language, then (2) they have to interpret it in a different language [thus, become mediators; see Figure 3]; (3) they must keep in their **memory** what the first person (the sender) says in order for them to convey his/her message to the receiver. In the last case, a simultaneous interpreter must have (a) hyper-developed certain lexical processing skills (see Temporal Lobe in Figure 4). Should one have García's findings in mind, then there is a **mediated interlinguistic communication**, a situation that the writer of this study has tried to (re)present in Figure 3.

As the discussion about the plasticity of *nous* of bilinguals and interpreters unfolds, it becomes evident how complex any situation of interlinguistic communication is. It does not matter whether a *nous* gets involved in simultaneous interpreting, translation or tries to communicate himself/herself in a *lingua franca* (provided that his/her mother tongue is different from the *lingua franca*). What really matters is that *nous* to be able to communicate his/her thoughts and/or (scientific) research to an international public in an <u>appropriate</u> (scientific) discourse and be understood.

Interlinguistic communication in scientific contexts from a psycholinguistic and a translation studies perspective

In Translation Studies there are three different kinds of interlinguistic communication.
1. A **mediated interlinguistic communication**, during which a human being (*nous*/HI) is a mediator of the communication as an interpreter and/or translator. Sometimes, the mediator can be AI but for a short period of time, as discussed in Section 5.
2. An **unmediated interlinguistic communication**, where a *lingua franca* is used for international communication of a public coming from different linguistic backgrounds.
3. An **unmediated interlinguistic communication**, where different human beings (*noes*/HIs), while speaking in different languages, manage to

---

[6] These scientists used MEG (Magnetoencephalography), a tool that maps neuroactivity generated by the electrical currents produced by the human brain.

[7] ***Erga* / ἔργα** is plural of ***ergon* / ἔργον**, as discussed earlier.

communicate with each other, as discussed in Section 5.

In all these kinds of (scientific) interlinguistic communication there are two, at least, elements involved:

1. **Lexical awareness and recognition** that in two, at least, linguistically different systems there may <u>not</u> be a 1: 1 correspondence of lexical items and/or terms and, if there is a 1:1 correspondence, there may be different layers of scientific meaning/semantics [9], [10]. This awareness and recognition is human ability *par excellence*, because only *nous* – as a **synergy** of the brain and mind – can spot the <u>proper equivalence of a term</u>, depending on the specific scientific context, which can also be bound to socio-cultural elements.

2. **Reflection.** The ability of the *nous* to reflect upon his/her previous mental activities (meta-cognitive processes), where s/he can recognize, control, inhibit (the use of inappropriate words and terms) and select a term appropriate from his/her terminology reservoir so to have the desired outputs. During these kinds of robust processes, the *nous*/HI can communicate successfully with other *noes*/HIs when all *noes* share a common scientific and/or socio-cultural background [14].

All these sorts of interlinguistic communication can be attained <u>only</u> by the *nous*/HI – the **synergy** of the brain and mind, a task (***ergon / ἔργον)*** that AI <u>cannot</u> perform. The reason is that AI is <u>not</u> an autonomous entity as the *nous*/HI is, meaning that AI depends on its creator/programmer to insert specific tasks (***erga / ἔργα)*** to have specific outputs, whereas the *nous*/HI, although s/he cannot perform some tasks as AI can [7, p. 60], s/he:

1. has the intellectual power (mind or intellect) of human that can perform complex cognitive tasks;
2. is gifted with intellectual apprehension (**understanding**) and intuitive thought (**intuition**);
3. has **memory**;
4. has cognitive abilities to learn, understand and form abstract ideas and concepts;
5. can reason (i.e. ***noein [νοεῖν]*** – a verb that cognates from ***nous*** and describes the process of ***noeisis [νόησις]***); that is of **reasoning**;
6. can also experience, perceive, think;
7. can become **aware** of a situation – the cognitive process of becoming aware of (***noeisis [νόησις] o***f a situation); and
8. can get involved in processes that are related to ***epistēmē (ἐπιστήμη)***, a term that in philosophy and classical rhetoric is the domain of **true knowledge**, and usually refers to a primary system of **understanding** or, otherwise, **scientific knowledge**

7. LIMITATIONS OF THIS STUDY

This study has three limitations:

(a) Neuroscientific and psycholinguistic experiments in bilinguals and interpreters/translators are scattered all over the world, so a reader/scientist cannot have a general idea of what is going on various fields about this issue (i.e. interlinguistic communication).

(b) Scientific experiments in bilinguals and interpreters/translators are not easy to be carried out because the "subjects" (i.e. *noes*/HIs) are involved, unless the experiments are non-invasive as those by García and his colleagues in Argentina, as presented in Section 6.

(c) The final and the most critical issue is <u>the matter of terminology</u>. Although scientists of various fields have been carrying out very interesting experiments in this issue, they label it simply <u>either </u>as "bilingualism" or "translation process"; they do not refer it as **interlinguistic communication** which is the **most appropriate term** from a translation studies standpoint.

8. CONCLUSIONS: FOOD FOR THOUGHT

Since studies on interlinguistic communication are scattered throughout the world, it would be nice if an editor of a publishing company would search and collect the most interesting articles in this issue, naming the edition **Interlinguistic Communication.**

It would also be a nice effort if scientists (*noes*/HIs) from different fields, such as: neuroscientists, (psycho)linguists, computer scientists, translation scholars and lexicographers could cooperate (perform **synergy**) not to create a <u>dystopia</u> in the future but rather a would-be-<u>utopia</u>, where their expertise would help *noes*/HIs around the globe to get a better understanding of themselves, world politics and conflicts so that humanity lives in peace and balance with the natural environment, thus avoiding a nuclear holocaust.

9. REFERENCES

[1] Qiannou Liu, Xiaolong Li, **"**Reproducing experiential meaning in translation: A systemic functional linguistics analysis on translating ancient Chinese poetry and prose in political texts." **Frontiers in Psychology Volume 13 – 2022**; available at https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2022.1029187/full

[2] R. Merizalde, "I didn't hear you – Communication"; available at: https://www.govloop.com/community/blog/i-didnt-hear-you/ (assessed on December 11, 2024).

[3] **Eliza**; available at: https://en.wikipedia.org/wiki/ELIZA (accessed on January 3, 2025).

[4] **A teacher-robot**; available at: https://edition.cnn.com/2024/12/20/business/video/ai-robot-captcha-germany-ldn-digvid (accessed on January 3, 2025).

[5] Two artificial intelligences talk to each other https://www.sciencedaily.com/releases/2024/03/240318142438.htm (accessed on September 2, 2024).

[6] Lamnin, H. "What are Bob and Alice saying? [Mis]Communication and intermediation between language and code." posted by Hannah Lammin on March 4, 2022; available at: https://www.leoalmanac.org/what-are-bob-and-alice-saying-miscommunication-and-intermediation-between-language-and-code-hannah-lammin/ (accessed on September 2, 2024).

[7] E. Nikolarea, "The Interface of *Nous* and Computer in Inter-disciplinary Research, Communication and Education." Co-Editors: **Jeremy HORNE and Nagib CALLAOS.** SPECIAL ISSUE **Inter-Disciplinary Research, Vo.** 19 No.7, 2021, pp. 57-81; available at: https://www.iiisci.org/Journal/SCI/FullText.asp?var=&id=ZA630OW21

[8] E. Nikolarea, "Challenges in ESP/EAP Teaching at a Greek University: 'Inter-scientificity' in interdisciplinary fields." **Research Papers in Language Teaching and Learning**, Vol. 10, No 1, 2019, pp. 427-440; available at: https://rpltl.eap.gr/current-issue/volume-10-february-2019

[9] E. Nikolarea, "Cognitive Problem Solving tools in a *glocalized* academic environment – Two Case Studies in a non-English academic context." **13th International Multi-Conference on Society, Cybernetics and Informatics (IMSCI 2019).** Vol. 1. IMSCI, Florida, USA, 2019, pp. 26-32.

[10] E. Nikolarea, "Cognitive Problem-Solving Tools in a Glocalised Special and Bilingual Education Environment." Eds. V. Chiou, L. Geunis, O. Holz, N.O. Ertürk, F. **Voices from the Classroom: A Celebration of Learning**. Shelton Münster, New York: Waxmann, 2021, pp. 216-227.

[11] **Neuroplasticity**; available at: https://kaiserscience.wordpress.com/2018/10/12/neuroplasticity/

[12] **Bilingualism comes naturally to our brains. Processing multiple languages taps same mechanisms as listening to only one**; available at: https://www.sciencedaily.com/releases/2021/11/211103140118.htm (assessed on December 11, 2024).

[13] **What is the neuroscience of language?** Available at: https://www.conicet.gov.ar/what-is-the-neuroscience-of-language/(assessed on December 11, 2024).

[14] E. Nikolarea, "The Translator's Black Box: Cognitive Challenges in Inter-Linguistic and Inter-Disciplinary Communication," **Proceedings of the 26th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2022**; available at https://www.iiis.org/CDs2022/CD2022Summer/papers/CK852VC.pdf (https://doi.org/10.54808/WMSCI2022.03.70)