

Critical Essay

From Translation to Naturalization, from Translanguaging to *Lingua Universalis*

Franca Daniele, MD

Department of Medical, Oral and Biotechnological Sciences
“G. d’Annunzio” University, Chieti-Pescara, Italy

It is not anymore; it is not yet.

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Abstract

In many multilingual societies, English serves as a *Lingua Franca*, which refers to the use of English language as a way to communicate among speakers with diverse native languages, representing a bridge language. It is noteworthy that in these sociolinguistic multilingual settings language users are bilinguals, acting some language practices requiring specific cognitive strategies. The language practices that occur are languaging, translanguaging, and translation. Two previously reported cognitive strategies are discussed in the present paper as being used in multicultural, multilingual settings, code-switching and code-mixing, which are correlated with two language practices, languaging and translanguaging, respectively. Moreover, here, in the present paper, a novel cognitive strategy is identified and introduced for the first time, the ‘*two-way code-flowing*’, which is coupled with the ‘*naturalization process*’ during translation. Differently from code-switching and code-mixing, in *two-way code-flowing*, the languages flow back and forth reciprocally, and the activity always yields only one language.

Keywords: languaging, translanguaging, translation, naturalization, code-switching, code-mixing, *two-way code-flowing*

Introduction

Over the past five decades, an estimated 281 million migrants have been living outside their native countries. This number changes rapidly due to various factors, including immigration policies, global events, and economic conditions. All over the world, some 120 million people have been forced to

leave their native country and refuge in other countries as a result of violations of human rights, violence, persecution, or war¹.

The role of a language in a multilingual society can be multifaceted and complex, and a common language that people from diverse linguistic backgrounds use to communicate with each other is crucial and is called a Lingua Franca (Malette, 2014). This convention has become increasingly prevalent in a globalized world, where people born with different languages need to interact for various purposes, such as business, travel, education, and international diplomacy (House, 2018). A Lingua Franca is a language that is acquired as a usual language among speakers who have different native languages and it is typically used for communication in areas where multilingualism is common (Canagarajah, 2007).

Historically, languages like Latin, Greek, Arabic, and French have served as Lingua Francas in various regions and contexts. ‘Lingua Franca’ is a term derived from Italian, meaning ‘Frankish language’ (Samarin, 1987) and it originally referred to a pidgin language that emerged in the Mediterranean during the Middle Ages, combining elements of Italian, French, Greek, Arabic, and other languages spoken in the region (Cogo & Dewey, 2012). The term ‘Frankish language’ historically refers to the language or languages spoken by the Franks, which were a Germanic tribe that acted a vital position in the early Middle Ages and eventually gave rise to the Frankish Empire (Nelson, 2010). The Frankish language is considered to be an early Germanic language, belonging in the West Germanic limb of the group of Germanic languages. However, understanding of the Frankish language is limited because very few written records of it exist (Nielsen & Askedal, 2015). The Franks primarily employed Latin for written communication, particularly after their conversion to Christianity (Evans, 2021). As a result, most surviving texts from the Frankish period are in Latin, and there are relatively few examples of texts in the Frankish language itself (Keller, 1964). The term ‘Frankish language’ can also refer more broadly to the linguistic influences of the Franks on the development of languages in the regions where they settled, particularly in what is now France and parts of Germany. These influences contributed to the formation of Old French and Old High German, among other languages (Holmes & Schutz, 1938; Keller, 1964; Mattheier, 2003). While the Frankish language refers to the language spoken by the Franks, knowledge of it is limited, and it is primarily understood in the context of its influence on the development of other languages in the regions where the Franks lived (Nelson, 2010). Throughout history, various languages have functioned as Lingua Francas in different regions and periods; for instance,

¹ UNHR.org; <https://refugeemigrants.un.org/>

Mediterranean Lingua Franca is a pidgin language utilized for trade and communication among merchants and sailors in the Mediterranean during the Middle (Kahane & Kahane, 1976; Operstein, 2021). Languages like Latin and Greek worked as Lingua Francas in ancient times, particularly in scholarly and diplomatic circles (Samarin, 1968; Samarin, 1987). During the Islamic Golden Age, Arabic operated as a Lingua Franca across the Middle East, North Africa, and parts of Europe, facilitating trade, science, and scholarship (Thomason & Elgibali, 1986; Mallette, 2014). In the 17th to 19th centuries, French was the Lingua Franca of diplomacy and culture in Europe, particularly among the aristocracy and educated classes (Wright, 2006).

In the contemporary world, English has emerged as the predominant and most widespread Lingua Franca (Mendes de Oliveira, 2024; Modiano, 2024). In many multilingual societies, English is the Lingua Franca, which refers to the application of the English language as a way to communicate among speakers with different native languages, functioning as a bridge language, even though it is not the native language of any of the participants (Dewey, 2024). In these interactions, speakers use simplified grammar, vocabulary, and pronunciation to set mutual understanding, complex idiomatic expressions or regional accents are often avoided, and the language is highly variable, with no one 'correct' form of it. Thus, the primary goal of English as a Lingua Franca is functional, in which effective communication rather than native-like fluency is sought (Seidlhofer, 2005), and clarity and mutual understanding are prioritized over linguistic perfection. Speakers often adapt their linguistic forms to accommodate the comprehension level and preferences of their conversation partners, which might include slowing down speech or simpler vocabulary (Seidlhofer, 2005). The way English is adopted as a Lingua Franca can vary depending on the context, participants, and goals of the interaction (Cappuzzo, 2024), and no standardized or monolithic form of it exists. Instead, it is a dynamic and adaptable mode of communication that reflects the diversity of speakers and their linguistic backgrounds (Baker, 2017). Indeed, it does not replace native varieties of English; rather, it complements them, functioning as a practical tool for global communication, allowing people from multilingual societies to participate in global conversations, share their ideas, and access information from around the world (English, 2024).

This phenomenon has become increasingly prevalent in a globalized world, where people from various linguistic backgrounds need to interact for a number of purposes, such as business, travel, education, and international diplomacy. English language global dominance has spread to many parts of the world, establishing as an administrative and educational language (Rao, 2019), becoming the language of international business, finance, and trade, and the dominant language of international diplomacy in science, technology,

academia, and popular culture. The Internet, international media, and entertainment industries prevalently use English, further reinforcing its status as a Lingua Franca (House, 2002), many multinational companies employ English as their primary language for communication, and proficiency in English can be an asset in the job market (Gerritsen & Nickerson, 2009). In multilingual societies, English is often the medium of instruction in schools and universities, providing students with access to a wealth of educational resources, including textbooks, research papers, and online courses (Cenoz, 2019).

In countries with a significant immigrant population, English often plays a crucial role in facilitating the integration of newcomers into society, and can help immigrants access services, find employment, and participate in their new communities (Guido, 2008). In some multilingual societies, bilingualism or multilingualism is encouraged and celebrated, in which people use English alongside their native language(s) in many aspects of their lives, fostering a rich linguistic and cultural tapestry. English is frequently utilized in government and administration, especially in countries where multiple languages are spoken, acting as the language of official documents, laws, and public communication. Proficiency in English is associated with social mobility, as it provides individuals with access to better educational and job opportunities, which has a significant impact on upward mobility in multilingual societies (Lie, 2017).

The role of English in a multilingual society varies widely depending on factors such as the sociopolitical landscape, historical context, and the prevalence of other languages. While English offers many advantages, its dominance also raises concerns about linguistic diversity and the potential extinction of native languages, and attempting to keep an equilibrium between the spreading of English and the conservation of indigenous languages is a complex activity in many multilingual societies (Kirkpatrick, 2010). In sociolinguistics, English as a Lingua Franca must be distinguished from English as a Foreign Language. This latter refers to the study and application of English language in regions and contexts where the native or official language is not English (Verspoor *et al.*, 2011), and is distinct from English as a Second Language, which typically refers to the study and use of English by non-English native speakers in contexts where it is the official language (Mauranen, 2018). English is not the native language of most of the individuals in English as a Foreign Language contexts, in which the language is typically learned as a foreign language, often in school settings, and learners are exposed to various varieties of English, including British English, American English, Australian English, and others. The choice of which variety to teach and learn is different, depending on the educational system and regional preferences, and these contexts are influenced by globalization, as

English is often seen as a key tool for international communication, business, and education (Verspoor *et al.*, 2011).

It is noteworthy that in these sociolinguistic settings (1) language users are usually bilinguals (i.e. individuals who employ two languages) with different degrees of fluency in the two languages; and (2) some main language cognitive strategies occur, such as code-switching and code-mixing, as well as language practices like languaging, translanguaging, and translation. Languaging in bilinguals could be defined as the solicitation of one of the two languages aimed at making meaning (García & Wei, 2014); while, translanguaging is the practice of the two languages simultaneously (Garcia & Lin, 2017). Two cognitive strategies, code-switching and code-mixing have been correlated with these two language practices, respectively, in which bilinguals operate according to different language settings. Indeed, languaging requires code-switching to exchange one language with another in a sequential pattern (Gardner-Chloros, 2009), while, translanguaging demands code-mixing to apply the two languages together in the same sentence simultaneously (Kamwangamalu, 1989). Code-switching has been viewed as a subtraction activity, since it concerns the sequential application of one language excluding the other (Myers-Scotton, 2017). Instead, code-mixing has been discussed as an addition operation, since the two languages are acted together simultaneously (Jiang *et al.*, 2014). The present paper discusses these strategies and practices in relation to the *Naturalization Process* in translation I presented in 2021 (Daniele, 2021). Moreover, this paper identifies and presents here for the first time, a novel cognitive strategy called the '*two-way code-flowing*', which is coupled with the '*naturalization process*' during translation (Daniele, 2021).

The Bilingual Brain

Neuroplasticity, also known as neural plasticity refers to the astonishing trait of the brain to adapt, reorganize, and modify throughout life in response to experiences, learning, and environmental influences, representing a fundamental property of the brain that enables it to form new neural connections, strengthen existing ones, and even rewire neural circuits in response to diversified factors (von Bernhardt *et al.*, 2017). Structural plasticity, also involving synaptic plasticity, allows the brain to form new connections among neurons, known as synapses and it underlies learning and memory formation. Thus, when neurons fire together repeatedly, their synaptic connections strengthen, facilitating more efficient communication among them, also involving the elimination of unnecessary or unused connections through a process called synaptic pruning, which helps streamline neural circuits, enhancing efficiency and adaptability of the brain (de Oliveira, 2020). Brain functional plasticity enables the brain to reorganize its functions

in response to injury, disease, or changes in sensory input and motor output, allowing individuals to recover lost abilities or adapt to new circumstances; for example, if one area of the brain is damaged, neighboring regions take over its functions through a process known as cortical remapping. In cases of injury or sensory deprivation, plasticity enables the brain to compensate for deficits by reallocating resources and adapting existing networks; for instance, blind individuals often exhibit enhanced auditory and tactile processing abilities due to compensatory changes in the sensory and motor regions of the brain (von Bernardi *et al.*, 2017).

Experience-dependent plasticity plays a crucial role in learning and skill acquisition by shaping the responses of the brain to experiences and environmental stimuli. When individuals engage in activities or tasks repeatedly, their brain undergoes structural and functional changes that support the acquisition and refinement of skills. Exposure to enriched environments, characterized by novelty, complexity, and sensory and motor stimulation promotes neuroplasticity by fostering the growth of new neurons, enhancing synaptic connections, and promoting cognitive function. Activities such as learning new languages and living in multicultural environments, playing musical instruments, or engaging in physical exercise can stimulate neuroplastic changes in the brain (Daniele, 2005). Developmental plasticity is particularly pronounced during critical periods of brain development, such as infancy, childhood, and early adolescence, in which the brain is highly adaptable and sensitive to environmental influences, allowing for rapid learning, skill acquisition, and neural maturation (Daniele, 2005). Certain developmental milestones, such as language acquisition and visual system development are associated with certain periods during which the brain is particularly receptive to specific types of input, and optimal stimulation is essential for healthy brain development and the establishment of functional neural circuits (Ismail *et al.*, 2017). Neuroplasticity represents a dynamic and adaptive process that underlies the ability of the brain to learn, adapt, and reorganize throughout life, enabling individuals to acquire new skills, recover from damage, and adapt to changes in their environment, highlighting the remarkable flexibility and resilience of the human brain.

For many years, it has been thought that the bilingual brain was endowed with two distinct language systems for the two languages. Actually, many studies with functional neuroimaging techniques on brains of bilinguals show that the areas of the brain that are activated seem to be the same with both languages (Hernandez *et al.*, 2000). So, the brain apparently has only one system that contains all languages and all its cognitive strategies are operated within the same system (Hernandez, 2013). However, in conditions of damage to the language brain areas, the brain compensates engaging other areas that are not normally in charge of language activities (Quiñones *et al.*, 2021). This

phenomenon further supports the notion that, strikingly, for the brain, no languages and no language complexes seem to exist. For the brain, all its activities appear to be really only nerve impulses that result from electric modifications, deriving from chemical processes that occur in the neurons (Ursino *et al.*, 2010). Therefore, when a language is learned, also all the related motor activities are gained, involving the mouth, ears, hands and eyes, and all language acts are memorized (Fischer & Zwaan, 2008). Such language acts coupled with emotional and environmental settings produce the different language behaviors.

Bilingual brain refers to the brain of an individual who can speak and understand two languages. Over the years, research has revealed fascinating insights into how bilingualism shapes the structure and function of the brain, and learning and maintaining proficiency in two languages leads to structural changes in the brain (Goksan *et al.*, 2020). Indeed, increased grey matter density in regions related to language processing, such as the left inferior parietal cortex and the anterior cingulate cortex, and enhanced neuroplasticity have been evidenced, which contribute to flexibility and ability to adapt to new linguistic and cognitive challenges (Bialystok, 2010).

Broca's Area and Wernicke's Area of the brain are traditionally associated with language processing, and play crucial roles in bilingual language production and comprehension. The areas were first identified in the 19th century by French neurologist Paul Broca and German neurologist Carl Wernicke, respectively (Rutten, 2022). Broca's Area is located in the frontal lobe of the left hemisphere of the brain, specifically in the posterior part of the frontal gyrus, is primarily involved with the production of speech and language, and plays a crucial role in the planning, coordination, and execution of speech movements (Chang *et al.*, 2015). Damage to Broca's Area could lead to Broca's aphasia, which is a condition characterized by difficulty in producing speech, grammatical errors, and impaired language fluency, while comprehension remains relatively intact (Zhang *et al.*, 2006). Broca's Area is involved with syntactic processing, which refers to the analysis and production of grammatical structures in language, helping in assembling words into meaningful sentences and ensuring grammatical accuracy during speech production. Wernicke's Area is located in the posterior part of the left superior temporal gyrus, near the auditory cortex, in the left hemisphere of the brain, is primarily associated with language comprehension and understanding, and plays a crucial role in processing and interpreting auditory information, including spoken language (Chang *et al.*, 2015). Damage to Wernicke's Area can generate Wernicke's aphasia, which is a state characterized by fluent but nonsensical speech, poor language comprehension, and difficulty in understanding and producing meaningful language (Zhang *et al.*, 2006). Wernicke's Area is related to semantic processing, which includes

comprehension of meaning in language, so connecting words with their meanings, understanding sentences, and extracting semantic information from auditory input (Chang *et al.*, 2015). The harmonic work of both Broca's and Wernicke's Areas, together with the cooperation of other interconnected areas of the brain, such as the motor cortex, auditory cortex, and regions responsible for memory and attention, form the core components of the language network of the brain, generating language processing and facilitating the complex activities of speech production and comprehension. Therefore, damage to these areas can result in various language impairments, highlighting their essential roles in human communication and cognition (Ono *et al.*, 2022).

Bilingual individuals exhibit similar activation patterns in both Broca's and Wernicke's Areas when processing their two languages, frequently switching between the two languages, and this process recruits regions such as the prefrontal cortex, which is responsible for executive functions like cognitive control and attention (Lehtonen *et al.*, 2018). Language control or language inhibition enrol regions such as the dorsolateral prefrontal cortex and the anterior cingulate cortex, and are responsible for the constant management and control of the two languages by bilinguals, which require mechanisms for inhibiting interference from the non-target language (Ivanova *et al.*, 2023). Bilinguals have been shown to regularly engage in such inhibitory control, in order to move from one language to another and suppress interferences from the non-target language, so exhibiting enhanced cognitive control abilities compared to monolinguals (Yuan *et al.*, 2021). Code-switching indicates the capacity of the brain to alternate from one language to another within the same conversation or context, so seamlessly switching between the two languages based on situational and social factors. Code-switching relies on flexible language control mechanisms and involves coordination among all the language apparatuses in the brain. Research suggests that bilinguals may have more efficient executive control networks, allowing them to manage multiple linguistic representations effectively, which has been associated with various cognitive benefits, including enhanced executive functions, such as attention, cognitive control, and working memory (Lehtonen *et al.*, 2018). Bilingual individuals may also show advantages in tasks requiring mental flexibility, problem-solving, and conflict resolution, attributed to their experience in managing two linguistic systems and inhibiting interference between languages (Ivanova *et al.*, 2023). The bilingual brain represents a remarkable example of neuroplasticity and adaptability, and research continues to uncover the intricate ways in which language experience shapes the structure and function of the brain, offering insights into the complexities of human cognition and linguistic processing (Gross & Kaushanskaya, 2022).

Languaging

Languaging is a term that has been used in several fields, including linguistics, psychology, and education to describe the process of using language for communication and meaning-making, which encompasses not only the production and comprehension of linguistic utterances but also the interpretation and negotiation of meaning in communication in the broader socio-cultural and cognitive aspects of language. The dynamic and interactive nature of language utilization in social contexts is emphasized, enclosing the diverse ways in which individuals act language to communicate, express thoughts and emotions, negotiate meaning, and engage with others in social interactions (Love, 2017). Language is not plainly a static set of rules and structures but a dynamic tool for constructing and negotiating social realities, enveloping spoken language, written language, nonverbal communication, and other forms of semiotic expression, so highlighting the active role of both speakers and listeners in the co-construction of meaning during communication. In language relations, meaning arises from the interaction among language users and are shaped by and are deeply embedded in their socio-cultural context, shared experiences, and communicative intentions, which reflect the social norms, values, and practices of linguistic communities, acknowledging the influence of cultural and social factors on language use and communication (Becker, 1991). Language is not only a tool for conveying information but also a means of expressing identity, establishing social relationships, and negotiating power dynamics within social groups, and its utilization is an embodied and situated practice that occurs within specific contexts and environments, also recognizing the role of the body, gestures, facial expressions, and other nonverbal cues in communication. Languaging could be defined as language use that is shaped by the physical environment, social setting, and cultural context in which it occurs, highlighting the situated nature of communication and the importance of context in interpreting linguistic meaning.

All of the phenomena described above are also true for bilinguals, in which languaging activates more than one language. In these conditions, languaging is also called language switching or language alternation, referring to the practice of alternating between two or more languages within a single conversation or discourse (Jørgensen & Møller, 2014). Language switching is a common experience among bilingual and multilingual individuals and in social contexts where speakers are proficient in multiple languages, which occurs for various reasons, including social, situational, and psychological factors; for example, bilingual speakers switch languages when speaking to family members, friends, or colleagues who speak the same languages based on their preferences or the preferences of their conversation partners (Torres Cacoullos, 2020). They choose one language over another depending on

factors such as familiarity, comfort, or the topic of conversation, which could be influenced by cultural identity and affiliation, to align with specific cultural norms or practices associated with each language, or occurs based on the topic being discussed. Speakers choose one language for certain topics or domains and switch to another language for different topics; for example, applying one language for casual conversation and another language for discussing work-related matters. Language switching is affected by the speakers' proficiency level in each language, who switch to a language in which they feel more confident or proficient, especially when discussing complex or technical subjects requiring remarkable cognitive flexibility (Lehtonen *et al.*, 2018). Both languages of bilingual speakers are simultaneously active in the brain, and language switching works selecting and activating the appropriate language for a given context or situation, a process relying on mechanisms of language control and inhibition to suppress interference from the non-target language. Switching from one language to another is aimed at achieving clarity and expression in communication, and in this way, speakers access specific vocabulary or linguistic structures that are better suited for conveying their thoughts or emotions. Language switching is a modality to promote inclusivity and accommodate the linguistic diversity in a conversation, so allowing participation of individuals who are more comfortable or proficient in a particular language, thereby ensuring effective communication (Hernandez, 2009).

In the bilingual brain, language switching corresponds to a process called code-switching, which adopts various cognitive processes. Research using neuroimaging techniques, such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) has provided insights into the neural mechanisms underlying code-switching (Moreno & Holodny, 2021). When bilingual individuals code-switch, regions associated with language control and monitoring, such as the prefrontal cortex, anterior cingulate cortex, and dorsolateral prefrontal cortex become active, so managing competing linguistic mechanisms and selecting appropriate language elements. Code-switching requires accessing and retrieving words and structures from the mental lexicon in both languages and activation of lexical networks distributed across the language areas of the brain, including the temporal and frontal lobes, which often involve combining elements from different languages while adhering to the syntactic rules of each language. Regions associated with syntactic processing, such as Broca's area in the frontal lobe are active during code-switching, indicating the involvement of the brain in maintaining grammatical structure across languages and the processing of phonological elements, including the perception and production of sounds and phonemes from separate languages (Torres Cacoullous, 2020). Brain regions related to auditory mechanisms, such as the superior temporal gyrus, also play a role in

performing phonological information during code-switching. Bilinguals must integrate the meaning of words and phrases from different languages seamlessly during code-switching, and regions related to semantic operations, including the temporal and parietal lobes are occupied in integrating meaning across languages (Gross & Kaushanskaya, 2022). Code-switching requires cognitive control to manage language switching and maintain fluency in both languages, which also engages executive functions such as attention, inhibition, and working memory, with activation of the prefrontal cortex and other regions. Code-switching recruits a distributed network of brain regions in charge of language elaboration, cognitive control, and executive functions; thus, understanding the neural basis of code-switching provides insights into the complex interplay among all linguistic apparatuses in bilingual individuals, and highlights the flexibility of the brain in managing multiple languages (Hernandez, 2009).

Translanguaging

Translanguaging is a term that originated in the field of bilingual education and has since been adopted in many disciplines, including linguistics, education, and sociolinguistics. It describes the dynamic and fluid use of multiple languages by bilingual and multilingual individuals to communicate, comprehend, and make meaning across languages, challenging traditional notions of language boundaries and monolingual norms by emphasizing the integrated and fluid nature of bilingual language use. Instead of treating languages as separate and distinct systems, the process of translanguaging enrolls them as interconnected resources that bilingual individuals draw upon in communication, where individuals seamlessly alternate between two languages, mix linguistic elements, and employ diverse linguistic resources to express themselves and comprehend meaning (Conteh, 2018). During translanguaging, the centrality of meaning-making and communication through language is stressed, recognizing the fact that language is a dynamic tool for expressing thoughts, emotions, and identities, and that individuals apply whatever linguistic resources are available to them to convey their intended meaning, which is not confined to single languages but emerges from the interaction between the two languages. Bilingual individuals draw upon different linguistic assets to express nuanced meanings, convey cultural variations, and negotiate complex social interactions (García & Lin, 2017).

In education settings, translanguaging is applied to promote students' full linguistic repertoire as a valuable resource for learning and instruction, and to encourage educators to create inclusive and culturally responsive learning environments that validate students' linguistic identities and support their language development. Translanguaging pedagogy studies have shown

that bilingual students benefit from opportunities to engage with academic content in their native languages, while also developing proficiency in the language of instruction, so to scaffold learning, promote comprehension, and foster academic success. From a sociolinguistic perspective, translanguaging research highlights the sociocultural dimensions of language use and the ways in which it is embedded within social practices, identities, and power relations, acknowledging the role of language in constructing social realities, negotiating social hierarchies, and shaping individual and collective identities. Translanguaging practice poses challenges to monolingual ideologies and promotes linguistic diversity and inclusivity, highlighting the linguistic expertise and cultural capital that bilingual and multilingual individuals bring to their interactions and the recognition and validation of diverse linguistic organizations in society. Translanguaging activities evidence the dynamic and fluid adoption of multiple languages by bilingual and multilingual individuals to communicate, comprehend, and make meaning across linguistic barriers, which challenges traditional notions of language boundaries, promotes linguistic diversity and inclusivity, and advocates for the admission of the full linguistic repertoire of language users (Cenoz & Gorter, 2021).

Translanguaging is a language practice that blurs the boundaries among languages, in which multiple languages are acted flexibly and simultaneously to communicate and understand, underlining their fluid and dynamic nature. Instead of strictly segregating languages, linguistic diversity is viewed as an asset, and translanguaging practice encourages individuals to draw on their entire language repertoire to convey meaning and comprehend communication as practices. This approach allows individuals to mix languages, use code-mixing, and merge different linguistic resources to effectively express themselves, which represents a holistic use of one's multilingual abilities to navigate numerous linguistic landscapes, acknowledging that language is interconnected and that multilingual individuals can effectively use their entire linguistic set to communicate. Translanguaging is a significant concept in linguistics and education, particularly in bilingual and multicultural settings, as it values and validates diverse language practices and supports inclusive communication in society (Vogel & García, 2017).

Bilingual individuals seamlessly mix the two languages during a conversation; they might start a sentence in one language and insert a phrase or expression in another, without any interruption or confusion in communication. An author might write a book or an article where they integrate various languages throughout the text, including phrases, quotes, or even entire paragraphs in different languages, assuming the audience is bilingual or multilingual. Teachers in a classroom with multilingual students encourage translanguaging as a way to facilitate learning, which permits

students to employ their native language alongside the primary language of instruction to aid understanding, explain concepts, or express themselves more comfortably. On social media platforms or online forums, individuals naturally mix languages in their posts, comments, or messages, using one language for a particular concept and another language for another idea, catering to the linguistic preferences of their audience or expressing ideas more effectively. Speakers adopt translanguaging by mixing the two languages during a speech or presentation, which lets them better connect with a diverse audience or to emphasize specific points more effectively. In cultural events or performances, translanguaging can be evident; for instance, a play might incorporate multiple languages within dialogue, songs, or storytelling, reflecting the diversity of the culture it represents (Kim, 2006).

Code-mixing is the particular activity that occurs in the bilingual brain during translanguaging, where speakers mix two or more languages or language varieties within a single sentence, phrase, or discourse. Unlike code-switching, code-mixing refers specifically to the insertion of elements (such as words, phrases, or morphemes) from one language into another, which results in a more holistic blending of languages, taking various forms (Cenoz & Gorter, 2021). Intra-sentential code-mixing occurs when different languages are mixed within a single sentence; for example: '*Voy a la tienda to buy some pane*' (Spanish and English mixed: 'I'm going to the store to buy some bread'). Inter-sentential code-mixing involves mixing the two languages at sentence boundaries; for example: 'I'm going to the store. *Necesito comprar algunos víveres*' (English and Spanish mixed: 'I need to buy some groceries'). Tag-mixing implies the inclusion of a word or phrase from one language at the end of a sentence in another language; for example: 'She's very intelligent, *non è vero?*' (English and Italian mixed: 'Isn't it true?'). Code-mixing is a natural and common phenomenon in many language communities and is an essential aspect of sociolinguistic behavior in different linguistic contexts (Thara & Poornachandran, 2018) where speakers are proficient in more than one language and act several communicative functions, such as expressing emotions, signaling group identity, or filling lexical gaps.

Code-mixing, being a complex linguistic phenomenon, requires various cognitive processes that are elaborated in the brain, but the exact neural mechanisms are still being researched. A number of studies using techniques like functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) have shed light on what happens in the brain during code-mixing in bilingual individuals, in which regions associated with languages are simultaneously activated, suggesting that the brain integrates and manages multiple linguistic functions during language mixing (Moreno & Holodny, 2021). Code-mixing necessitates cognitive control and monitoring to select appropriate words and structures from different languages, and

bilinguals employ language control mechanisms in order to maintain fluency in the intended language. The prefrontal cortex, responsible for executive functions like attention, inhibition, and decision-making is heavily recruited in managing competing linguistic systems and selecting the appropriate language elements, and regions such as the anterior cingulate cortex and the dorsolateral prefrontal cortex play a role in language control during code-mixing. When bilinguals code-mix, they access and retrieve words and structures from their mental lexicon in both languages, and activation of lexical networks distributed across the language areas of the brain are enrolled, including the temporal and frontal lobes. Code-mixing involves combining elements from different languages while adhering to and processing the syntactic rules of each language, which needs triggering of regions like Broca's area in the frontal lobe. Bilinguals continuously monitor the congruency of language elements within a sentence to guarantee coherence and grammaticality, comparing linguistic elements from different languages and detecting potential mismatches or errors. Code-mixing engages a network of brain regions responsible for language processing, cognitive control, and monitoring; thus, understanding the neural basis provides insights into the complex interplay among all the language apparatuses in bilingual individuals and highlights the remarkable capacity of the brain to manage and integrate multiple languages (Kim, 2006).

Translation

The previous sections highlighted some of the activities of the brain in relation to languages, and pointed out that the brain operates code-switching in languaging and code-mixing in translanguaging based on memory and emotional and environmental conditions (Ardila, 2003). What happens in translation? During translation, it is generally believed that translators switch from the source language to the target language-*translatio*; so, code-switching can be assumed to occur (Harjunpää & Mäkilähde, 2016; Ahmed, 2018). However, I have recently introduced the process of '**Naturalization**' in **translation**, where the source language flows and goes towards the target language-*transducere*, and simultaneously, the target language moves to meet the source language in a '*two-way manner*' (Daniele, 2021). Cognitively, this activity could be defined as '**Two-Way Code-Flowing**', in which translators dwell simultaneously in the two languages.

Classically, the concept of naturalization encompasses various domains. Indeed legally, it refers to the process by which a non-citizen gains citizenship in a country; biologically, it denotes introducing a non-native species to an area; linguistically, it involves modifying a foreign word to fit

the phonology or orthography of the adopting language². In each case, a dynamic interaction exists between an element being integrated and the system receiving it. Whether it is a person becoming a citizen, a plant settling in a new environment, or a word assimilating into a language, there is an inherent process of adaptation as the element integrates into the adopting system.

The issue of natural translations has been a fundamental aspect of translation practice for centuries, although it may not have always been referred to explicitly using this terminology (Rogers, 1998). The importance of adapting texts from one language and culture to another in a way that makes them sound natural and idiomatic to speakers of the target language has been identified throughout history (Putranti, 2018). The formalization and discussion of the process in translation theory and practice have evolved over time, with various scholars and practitioners contributing to its development. While it is challenging to pinpoint an exact moment or timeframe when the process was introduced, several key milestones and influences can be identified. Ancient translators, such as those in the Greek and Roman empires, were already grappling with issues of linguistic and cultural adaptation, acknowledging the need to convey the meaning and style of original texts in translations while making them accessible to readers in their own language and culture (Montgomery, 2000). Translators during the Middle Ages and the Renaissance continued to refine translation techniques and strategies, often drawing on classical theories of rhetoric and poetics, emphasizing the importance of clarity, elegance, and naturalness in translations (Charron, 2003). The Enlightenment era saw a surge of interest in translation theory and practice, with scholars contributing influential ideas about the nature of translation and the importance of conveying the spirit rather than the letter of the original text (Oz-Salzberger, 2014). In the 20th century, the field of translation studies emerged as an academic discipline, leading to a deeper understanding of the translation process and its complexities, where many scholars have explored the role of natural language in translation, underlining the dynamic and context-dependent nature of translation. Today, the process remains a central concern in translation practice, with translators employing a range of strategies to adapt texts to the linguistic and cultural context of the target audience. Translation technologies and methodologies continue to evolve, providing translators with new tools and approaches for achieving naturalness in translation (Daniele, 2019). While the terminology and theoretical frameworks surrounding the process have evolved over time, the underlying principles of adapting texts to suit the target language and culture have been integral to translation practice throughout history.

² Merriam-Webster.com

I have recently (2021) defined '*naturalization*' in a translation process as '*the degree of embeddedness in the target language achieved by the source language*', during which the source language and the target language must both undergo many mutations before becoming completely naturalized. The '*naturalization process*' consists of three phases: (1) the Accuracy Phase, (2) the Adequacy Phase, and (3) the Naturalization Phase. During the first phase, the source language is the main actor that is brought towards the target language, using all the necessary proper lexical, grammatical/syntactic characteristics. In this way, a newborn hybrid '*source-targeted language*' is created, with all its accuracy and adequacy belongings. In the last phase, the target language becomes the protagonist and undergoes one last re-writing that leads to complete interpenetration and '*naturalization*' of the two languages into each other. The '*naturalization process*' engages first the source language that changes to adapt to the target language; then, this latter, in turn, modifies its own structures to become eligible to receive, accept and adopt the morphological and semantic adjustments that have just taken place. For the first time, translation is conceived and analyzed as a '*two-way process*', in which both the source language and the target language stand on equal terms and work as major players to win the highest degree of *naturalization* (Daniele, 2021).

The '*naturalization process*' in translation takes place in three phases and a series of steps and strategies are needed to warrant that the translated text reads smoothly and effectively in the target language. During the first phase-Accuracy Phase, attention to factors such as grammar, vocabulary, and overall readability must be paid, adjusting sentence structure, word order, and stylistic elements of the translation to match the conventions of the target language. Consistency is crucial in translation to ensure coherence and clarity throughout the translation (Daniele, 2021).

The second phase-Adequacy Phase involves thorough understanding of the source text, including its content, style, tone, and cultural references, which are essential for accurately conveying the meaning and intent of the original text in the translation. Cultural references and expressions in the source text may not have direct equivalents in the target language; so equivalent expressions, idioms, and phrases are selected, which convey in the target language the same meaning as those in the source text. These cultural elements are identified and adapted to make sense in the target language and culture, in which different expressions or cultural references that are more familiar to the target audience are adopted (Daniele, 2021).

During the third phase-Naturalization Phase, the characteristics of the target audience, including their language proficiency, cultural background, and expectations are considered, so that the translation resonates with the them. After completing the initial translation, a careful review of the translated

text is necessary to make certain that it reads naturally and fluently in the target language, revising and editing of the text occurs to refine the *naturalization process* further and making adjustments and fine-tuning the translation for accuracy, adequacy, and naturalization. By following these steps and employing several linguistic and cultural adaptation strategies, the translation can be effectively naturalized, making it sound as if it were originally written in the target language, while faithfully conveying the meaning and intent of the source text (Daniele, 2021).

Using the term '*naturalization*' to describe the translation process draws an intriguing parallel between linguistic adaptation and the cultural assimilation experienced by individuals moving among countries, so highlighting the idea of integration and transformation (Daniele, 2021). This conceptual framework can be transported into practical strategies that can be applied during the *three-phase process* like a structured approach that guides through the complexities of *naturalization* in translation (Daniele, 2021). Each phase facilitates the transformation of the source text into a more natural form in the target language. The Accuracy Phase lays the foundation for the *naturalization process* by ensuring that the target language adheres to all grammatical rules, syntax conventions, vocabulary usage, spelling, and punctuation norms. This step aims to produce a translation that is linguistically correct and coherent in the target language, and by focusing on accuracy first, a solid framework upon which to build the subsequent phases of *naturalization* is established (Daniele, 2021). The Adequacy Phase shifts the focus from linguistic correctness to semantic fidelity, and the primary objective is to precisely convey the meaning and intention of the source text into the target language, and the translated content must capture the nuances, tone, context, and cultural references of the original text, allowing the message to resonate with the target audience effectively. This phase requires careful consideration of language variations and cultural sensitivities to achieve a translation that is not only accurate but also meaningful and contextually appropriate. In the Naturalization Phase, the focus shifts towards the target language, refining the translation to make sure that it reads fluently and sounds natural (Daniele, 2021), scrutinizing the text to eliminate any remaining awkward phrasings, stilted expressions, or linguistic artifacts that detract from the overall flow and coherence of the translation. This phase involves fine-tuning the language to mimic the natural cadence, rhythm, and style of native users, thereby enhancing readability and engagement for the target audience. By prioritizing linguistic naturalness, a polished and seamless final product can be delivered, which effectively communicates the essence of the original text, while resonating authentically with the target language (Daniele, 2021).

The '*naturalization process*' allows the source language to flow and go towards the target language-*transducere*, and simultaneously, the target

language moves to meet the source language in a *'two-way manner'* (Daniele, 2021). Cognitively, this activity could be defined as ***'Two-Way Code-Flowing'***, in which translators dwell simultaneously and reciprocally in the two languages. As outlined in the previous sections, the language activities of the brain are carried out using different parts of the brain itself, and all these parts, areas and regions, together with all the neural interconnections among these structures constitute the language system of the brain. Like for the monolingual brain, also the bilingual brain is endowed with all of these brain structures, ascribed in one single system, supporting the language activities and processes of the two languages (Hernandez *et al.*, 2000; Hernandez, 2009). Two main language activities have been reported in multilingual settings, i.e. languaging and translanguaging. Cognitively, languaging is supported by code-switching, in which the bilingual brain switches from one language to another. While translanguaging is the linguistic expression of code-mixing, in which the two languages are present in the same sentence simultaneously.

During the *'naturalization process'* in translation, the two languages are shifted back and forth simultaneously, delineating a novel cognitive process introduced here for the first time – *the 'two-way code-flowing'*. The *two-way code-flowing* could be viewed as a cognitive process in which the language system of the brain draws deeply into its entire set of activities and mechanisms in order to successfully complete the task of translation. Indeed, the harmonic work of both Broca's and Wernicke's Areas, together with the cooperation of other interconnected areas of the brain, such as the motor cortex, auditory cortex, and regions responsible for memory and attention, which form the core components of the language network of the brain, are all operative while performing a translation. During a translation process, the cognitive activities undertaken by the brain are not carried out using the two languages separately and in different moments. Indeed, the *two-way code-flowing* is triggered, in which the the two language sets are simultaneously, continuously and reciprocally present and operative. In other words, the cognitive activities of the brain consist in a continual, unified, oscillatory flow of linguistic elaborations, which result in a constant fluctuation of words, phrases and sentences altogether and from both languages simultaneously. It could be hypothesized that during *two-way code-flowing*, the language control and inhibitory mechanisms operated by the bilingual brain are functioning at paramount degree. During code-switching the user moves from language A → language B, recruiting first one language and then the other, in a sequential manner. During code-mixing, the user employs the two languages together A+B simultaneously. Also during translation, the translator has access to the two languages simultaneously, but in an oscillatory manner. Therefore, the fast and continuous bilateral flow of the two languages gives birth to a

cognitive asset in which the velocity of the execution of the translation task is strikingly high. Such elevated velocity paradoxically produces a stillness of the two languages. The result of this phenomenon is the simultaneous presence of the two languages in the same cognitive activity at the same moment, language A \leftrightarrow language B.

The difference between code-switching and code-mixing is quite clear, since in the former the two languages are used in a sequential manner, consecutively; while in the latter, a mix occurs for the two languages, which are utilized simultaneously in the same sentence. So, what is the difference between code-switching/code-mixing and *two-way code-flowing*? During code-switching the two languages are employed separately, in a consecutive manner, and the resulting product includes always both languages, in which the words, sentences and phrases are always different in the two languages employed, e.g. *'This morning, I saw Nick. Sono rimasta scioccata nel vedere quanto è invecchiato'* (English and Italian switched: 'This morning, I saw Nick. I was shocked seeing how old he got'), language A \rightarrow language B. On the other hand, during code-mixing, the two languages are acted together simultaneously, and the resulting product is a mixed language made up of both languages together in the same sentence, e.g. *'Voy a la tienda to buy some pane'* (Spanish and English mixed: 'I'm going to the store to buy some bread'), languages A+B together. Also in this case, the words, sentences and phrases are always different in the two languages used, and the similarity in these two cognitive processes is represented by the fact that both yield a text containing the two languages together.

In *two-way code-flowing*, the languages flow back and forth reciprocally. Thus, like in code-switching, the languages are switched, but in an alternating, bidirectional manner with such a velocity that results in a mixing of the code, because the two languages are always available simultaneously, like in code-mixing. Therefore, in *two-way code-flowing*, the languages are employed simultaneously in an alternating reciprocal modality. The result of *two-way code-flowing* is always one language, and the difference with the other two cognitive strategies is represented by the fact that code-switching and code-mixing both yield a blended language resulting from the combination of the two original languages; while, *two-way code-flowing* yields a text containing only one language. Indeed, the words, sentences and phrases are always the same, but expressed in two different languages, e.g. *'Il cielo è blu'*. 'The sky is blue', language A \leftrightarrow language B. At first glance, this process might seem like a switch, but the mechanism is actually fluctuating and bidirectional, because the translator has to dwell deep into both source and target languages simultaneously, in order to find the best correspondent in the target language. Needless to say, many tryouts must be

performed, moving back and forth in the two languages, before being successful in producing the best translation in the target language.

Conclusion

In multilingual societies, English is used as a *Lingua Franca*, representing a common language that people with different native languages adopt to communicate with each other. In these types of interactions, English serves as a bridge language, even though it is not the first language of any of the participants and, consequently, these employ simplified grammar, vocabulary, and pronunciation to establish mutual understanding (Canagarajah, 2007).

It is noteworthy that in these sociolinguistic settings (1) language users are usually bilinguals (i.e. individuals who act two languages) with different degrees of fluency in the two languages; and (2) some main language cognitive strategies occur, such as code-switching and code-mixing. Languageing in bilinguals could be defined as the solicitation of one of the two languages aimed at making meaning (García & Wei, 2014); while, translanguaging is the practice of the two languages simultaneously (Garcia & Lin, 2017). Two cognitive strategies, code-switching and code-mixing have been correlated with these two language practices, respectively, in which bilinguals operate according to different language settings (Kim, 2006). Languageing refers to the dynamic, interactive, and socio-culturally situated process of utilizing language for communication, meaning-making, and social interaction. In this frame, the active role of language users in co-constructing meaning through language is underlined, in which the influence of social, cultural, and contextual factors on language use and communication is known. Language switching is a dynamic and natural aspect of bilingual and multilingual communication, reflecting the complex interplay of social, situational, and psychological factors, and contributing to the richness and flexibility of language application in diverse linguistic communities (Hernandez, 2009).

Translanguaging is a language mixing process that occurs when a speaker mixes two or more languages or language varieties within a single sentence, representing a natural phenomenon that often happens in bilingual or multilingual communities and can be due to various reasons (Vogel & García, 2017). Bilinguals mix languages to express a particular idea or emotion more effectively, because certain concepts or expressions are probably more readily available or culturally appropriate in one language over another, which represents also a way for individuals to express their cultural or social identity, so mixing languages based on the context or the people they are interacting with to signal membership in a particular linguistic community. Bilinguals mix languages also for pragmatic reasons, such as clarifying a point, underlining something, or addressing someone who speaks a different language, and code-mixing is a common practice that takes place as a

consequence of differences in language proficiency, which results in using elements from one language to fill gaps in the vocabulary or grammar in another language (Bialystok, 2010). Language mixing is a dynamic and complex phenomenon that reflects the fluidity and richness of bilingual and multilingual communication, representing an integral part of many linguistic communities worldwide, and is often used creatively and strategically by speakers to navigate several linguistic landscapes (García & Wei, 2014).

The term "*naturalization process*" in translation refers to the adaptation of a text from its source language into the target language in a way that makes it sound natural and idiomatic to users of the target language (Daniele, 2021). This process involves more than just literal translation; it requires the translator to consider the linguistic, cultural, and contextual differences between the source and target languages, and to produce a translation that reads smoothly and effectively in the target language. The *naturalization process* involves several strategies: adhering to the linguistic norms, conventions, and standards of the target language, including grammar, vocabulary, and punctuation; adjusting sentence structure, word order, and stylistic elements to match the conventions of the target language; ensuring that the tone, register, and style of the translation are suitable for the intended audience and context, whether formal or informal, professional or colloquial; translating idiomatic expressions and adapting cultural references, customs, and practices from the source culture to those of the target culture, so they resonate with the target audience; taking into account pragmatic factors such as politeness, humor, and social norms in the target language community. The goal of the *naturalization process* is to produce a translation that reads as if it were originally written in the target language, rather than sounding awkward, stilted, or overly literal. A naturalized translation should convey the meaning, intent, and style of the original text, while being culturally and linguistically appropriate for the target audience (Daniele, 2021).

The real novelty in this *naturalization process* is that for the first time translation is viewed as a *two-way process*, in which both languages concur into the translation process. The source language adapts to the target language and the target language adopts the source language, which is a groundbreaking perspective (Daniele, 2021). Viewing translation as a reciprocal, *two-way process* where both the source and target languages influence each other represents a significant departure from traditional approaches. By acknowledging the dynamic interplay between the source and target languages, not only the *naturalization process* facilitates linguistic adaptation but also fosters a deeper understanding of the cultural and linguistic nuances embedded within each language. Not only this holistic approach to translation establishes linguistic accuracy and fidelity but also promotes cultural exchange and mutual enrichment among languages. The *naturalization*

process is innovative and provides a systematic framework for addressing the challenges of translation. By highlighting the reciprocal influence between the source and target languages, a dynamic perspective that enhances both linguistic accuracy and cultural authenticity in translation is introduced, which represents a fascinating approach that could have significant implications for the field of translation studies. Overall, the *naturalization process* is a valuable contribution that offers fresh insights into the complexities of translation and it could revolutionize translation practices and enhance the quality of translated works in the future.

Two previously reported cognitive strategies were discussed in the present paper as being used in multicultural, multilingual settings, code-switching and code-mixing, which were correlated with two language practices, languaging and translanguaging, respectively (Garcia, & Lin 2017). Moreover, in the present paper, a novel cognitive strategy called the '*two-way code-flowing*' is identified and introduced for the first time, which is acted during the '*naturalization process*' in translation (Daniele, 2021). While code-switching is seen as a subtraction activity (Myers-Scotton, 2017), code-mixing is an addition process (Jiang *et al.*, 2014), and '*two-way code-flowing*', identified and described here for the first time, is as an equality operation. Both code-switching and '*two-way code-flowing*' are cognitive strategies where a conscious employment of the two languages is handled by users with elevated fluency levels in both languages. Code-mixing is extensively operated in translanguaging, which is a language practice involving the unconscious application of multiple languages flexibly and simultaneously. Indeed, this activity is more common in users with lower fluencies who dig into all their resources from both languages and has been increasingly related to language learning; while code-switching has been associated with language teaching, which instead requires very high fluency levels (Vogel & Garcia, 2017). Thus, while languaging implicates code-switching that switches from language A to language B in sequence, '*naturalization*' entails *two-way code-flowing* in which the two languages embed into each other simultaneously.

The result of code-switching in languaging is a language. The product of '*two-way code-flowing*' in '*naturalization*' is a naturalized translated target language (Daniele, 2021). What is the language yielded by code-mixing in translanguaging? We surely know what it is not! It is not a Lingua Franca, since the receiver does not necessarily know the same languages as the sender (House, 2013). Could it be that translanguaging is tracing the path towards a *Lingua Universalis*?

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