

Chapter 1 : The Cognitive Benefits of Being Bilingual

A unique feature of this book is that chapters favor that line of cognitive linguistics which makes a clear distinction between real world and projected world.

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Chapter 2 : Multilingualism - Wikipedia

The influence of bilingualism on cognitive aspects such as creativity, analytical orientation, cognitive style, sensitivity in communication, selective attention and metalinguistic abilities was.

Psychology[edit] A study in has shown that using a foreign language reduces decision-making biases. It was surmised that the framing effect disappeared when choices are presented in a foreign tongue. As human reasoning is shaped by two distinct modes of thought: Therefore, those who speak two languages have better critical thinking and decision making skills. The utilitarian option was chosen more often in the fat man case when presented in a foreign language. However, there was no difference in the switch track case. List of multilingual countries and regions A bilingual sign in Brussels , the capital of Belgium. In Brussels, both Dutch and French are official languages. Almost all railway stations in India have signs like these in three or more languages English, Hindi and the local language. Multilingual sign at Vancouver International Airport , international arrivals area. Text in English, French, and Chinese is a permanent feature of this sign, while the right panel of the sign is a video screen that rotates through additional languages. Three or four languages are shown: While Filipinos themselves are anglophone , such signs cater to the growing number of Koreans and other foreigners in the country. A Train name found in South India written in four languages: Kannada, Hindi, Tamil and English. Boards like this are common on trains which pass through two or more states where the languages spoken are different. Multilingualism was common in the past: Some states can have multilingual policies and recognize several official languages, such as Canada English and French. In some states, particular languages may be associated with particular regions in the state e. When all speakers are multilingual, linguists classify the community according to the functional distribution of the languages involved: Typical diglossic areas are those areas in Europe where a regional language is used in informal, usually oral, contexts, while the state language is used in more formal situations. Some writers limit diglossia to situations where the languages are closely related, and could be considered dialects of each other. This can also be observed in Scotland where, in formal situations, English is used. However, in informal situations in many areas, Scots is the preferred language of choice. A similar phenomenon is also observed in Arabic-speaking regions. The effects of diglossia could be seen in the difference between written Arabic Modern Standard Arabic and colloquial Arabic. However, as time goes, the Arabic language somewhere between the two have been created what some have deemed "Middle Arabic" or "Common Arabic". Because of this diversification of the language, the concept of spectroglossia [41] has been suggested. In a typical ambilingual area it is nearly impossible to predict which language will be used in a given setting. True ambilingualism is rare. Ambilingualism also can manifest in specific regions of larger states that have both a clearly dominant state language be it de jure or de facto and a protected minority language that is limited in terms of distribution of speakers within the country. This tendency is especially pronounced when, even though the local language is widely spoken, there is a reasonable assumption that all citizens speak the predominant state tongue e. Canada; Spanish in Catalonia vs. This phenomenon can also occur in border regions with many cross-border contacts. An example of this is the Balkans. In cases of an unspecified number of languages, the terms polyglossia, omnilingualism, and multipart-lingualism are more appropriate. Multilingualism between different language speakers[edit] Whenever two people meet, negotiations take place. If they want to express solidarity and sympathy, they tend to seek common features in their behavior. If speakers wish to express distance towards or even dislike of the person they are speaking to, the reverse is true, and differences are sought. This mechanism also extends to language, as described in the Communication Accommodation Theory. In many cases, code-switching is motivated by the wish to express loyalty to more than one cultural group,[citation needed] as holds for many immigrant communities in the New World. Code-switching may also function as a strategy where proficiency is lacking. Such strategies are common if the vocabulary of one of the languages is not very elaborated for certain fields, or if the speakers have not developed proficiency in certain lexical domains, as in the case of immigrant languages. This code-switching appears in many forms. If a speaker has a positive attitude towards both languages and towards

code-switching, many switches can be found, even within the same sentence. This results in speakers using words like *courrier noir* literally mail that is black in French, instead of the proper word for blackmail, *chantage*. Sometimes a pidgin language may develop. A pidgin language is a fusion of two languages that is mutually understandable for both speakers. For example, many linguists believe that the Occitan language and the Catalan language were formed because a population speaking a single Occitano-Romance language was divided into political spheres of influence of France and Spain, respectively. Bilingual interaction can even take place without the speakers switching. In certain areas, it is not uncommon for speakers each to use a different language within the same conversation. This phenomenon is found, amongst other places, in Scandinavia. Most speakers of Swedish, Norwegian and Danish can communicate with each other speaking their respective languages, while few can speak both. People used to these situations often adjust their language, avoiding words that are not found in the other language or that can be misunderstood. Using different languages is usually called non-convergent discourse, a term introduced by the Dutch linguist Reitze Jonkman. Another example is the former state of Czechoslovakia, where two closely related and mutually intelligible languages, Czech and Slovak, were in common use. Most Czechs and Slovaks understand both languages, although they would use only one of them, their respective mother tongue, when speaking. For example, in Czechoslovakia it was common to hear two people talking on television, each speaking a different language without any difficulty understanding each other. This bilinguality still exists nowadays, although it has started to deteriorate after Czechoslovakia split up. English, Chinese, Tamil and Malay, Urdu, Hindi and English on a road sign in India.

Multilingualism at the linguistic level[edit] Models for native language literacy programs[edit] Sociopolitical as well as socio-cultural identity arguments may influence native language literacy. While these two camps may occupy much of the debate about which languages children will learn to read, a greater emphasis on the linguistic aspects of the argument is appropriate. In spite of the political turmoil precipitated by this debate, researchers continue to espouse a linguistic basis for it. This rationale is based upon the work of Jim Cummins.

Sequential bilingualism In this model, learners receive literacy instruction in their native language until they acquire a "threshold" literacy proficiency. Some researchers use age 3 as the age when a child has basic communicative competence in their first language. Kessler, The phases children go through during sequential acquisition are less linear than for simultaneous acquisition and can vary greatly among children. Sequential acquisition is a more complex and lengthier process, although there is no indication that non-language-delayed children end up less proficient than simultaneous bilinguals, so long as they receive adequate input in both languages.

Simultaneous bilingualism In this model, the native language and the community language are simultaneously taught. The advantage is literacy in two languages as the outcome. However, the teacher must be well-versed in both languages and also in techniques for teaching a second language.

Coordinate model[edit] This model posits that equal time should be spent in separate instruction of the native language and of the community language. The native language class, however, focuses on basic literacy while the community language class focuses on listening and speaking skills. Being a bilingual does not necessarily mean that one can speak, for example, English and French.

Outcomes[edit] This section has an unclear citation style. The references used may be made clearer with a different or consistent style of citation and footnoting. His work sought to overcome the perception propagated in the 1970s that learning two languages made for two competing aims. The belief was that the two languages were mutually exclusive and that learning a second required unlearning elements and dynamics of the first in order to accommodate the second. Hakuta, The evidence for this perspective relied on the fact that some errors in acquiring the second language were related to the rules of the first language. Hakuta, How this hypothesis holds under different types of languages such as Romance versus non-Western languages has yet to undergo research. Another new development that has influenced the linguistic argument for bilingual literacy is the length of time necessary to acquire the second language. While previously children were believed to have the ability to learn a language within a year, today researchers believe that within and across academic settings, the time span is nearer to five years. Collier, ; Ramirez, An interesting outcome of studies during the early 1980s however confirmed that students who do successfully complete bilingual instruction perform better academically. Collier, ; Ramirez, These students exhibit more cognitive elasticity including a better ability to

analyse abstract visual patterns. Students who receive bidirectional bilingual instruction where equal proficiency in both languages is required perform at an even higher level. Examples of such programs include international and multi-national education schools. Multilingualism in computing[edit] Dual language Hebrew and English keyboard With emerging markets and expanding international cooperation, business users expect to be able to use software and applications in their own language. Multilingualised software supports multiple languages for display and input simultaneously, but generally has a single user interface language. Support for other locale features like time, date, number and currency formats may vary as the system tends towards full internationalisation. Generally a multilingualised system is intended for use in a specific locale, whilst allowing for multilingual content. An internationalised system is equipped for use in a range of locales, allowing for the co-existence of several languages and character sets in user interfaces and displays. In particular, a system may not be considered internationalised in the fullest sense unless the interface language is selectable by the user at runtime. Translating the user interface is usually part of the software localization process, which also includes adaptations such as units and date conversion. Many software applications are available in several languages, ranging from a handful the most spoken languages to dozens for the most popular applications such as office suites , web browsers , etc. Due to the status of English in computing , software development nearly always uses it but see also Non-English-based programming languages , so almost all commercial software is initially available in an English version, and multilingual versions, if any, may be produced as alternative options based on the English original. Nelson and Cameron Lerum have continued to drive development of the tools, working with third parties and standards bodies to assure broad availability of multilingual app development is provided. Languages used on the Internet Multilingualism in the workplace[edit] Globalization has led the world to be more deeply interconnected. English has become an important working knowledge mainly in multinational companies, but also in smaller companies. NGO workers are also faced with multilingualism when intervening on the field and use both linguistic and non-verbal strategies to communicate [48]. Multilingualism in English speaking countries[edit] According to Hewitt entrepreneurs in London from Poland, China or Turkey use English mainly for communication with customers, suppliers and banks, but their own native languages for work tasks and social purposes. Even in English speaking countries immigrants are still able to use their own mother tongue in the workplace thanks to other immigrants from the same place.

Chapter 3 : Cognitive Aspects of Bilingualism - PDF Free Download

*Cognitive Aspects of Bilingualism [Istvan Kecskes, Liliana Albertazzi] on calendrierdelascience.com *FREE* shipping on qualifying offers. This work has a uniquely cognitive-functional perspective on bi-lingualism. This means that it makes a clear distinction between real world and projected world.*

History[edit] Over the course of the past few years, the prevalence of bilinguals in the United States has increased dramatically. Before the s, research on bilingual individuals was varied. The general opinion was that bilinguals would have smaller vocabularies, stunted cognitive abilities and that children learning two languages from a young age would be spending too much of their energy differentiating and building the two languages to become competent in either one. They employed unstandardized and subjective definitions of bilingualism and of a bilingual individual e. They also did not control for socioeconomic status SES and many of them administered verbal-intelligence tests to non-proficient speakers of a second language in that second language. In their study they carefully matched bilingual to monolingual participants, and they found that the bilinguals showed significant advantages over the monolinguals in both verbal and non-verbal tests, especially in non-verbal tests that required more mental flexibility. Executive functions[edit] Executive function is the domain of high-level cognitive processes that assists in goal-oriented tasks, such as problem solving, mental flexibility, attentional control, inhibitory control, and task switching. Much of the current research on cognitive effects of bilingualism investigate a correlation between bilingualism and alterations in the brain. A study titled "Bilingualism, aging, and cognitive control" amongst various similarly conducted studies released data suggesting that monolinguals and bilinguals were found having varying ability in the executive function part of the brain. From these tests, bilinguals showed a higher executive control than their monolingual peers. When matched in age and other background factors e. Best, an author of Relations between executive function and academic achievement from ages 5 to 17 in a large, representative national sample suggests that executive function is crucial to academic success across age groups. Inhibitory processes of adults who learned a second language at a young age show better controlled processing than monolingual adults. In many studies bilingual groups outperformed monolingual control groups in executive function tasks. These findings suggest bilingualism is correlated with better control of attention and facilitates processing and functioning in several cognitive tasks. There are two types of processing that aid children in language development: In one study, [21] researchers administered a non-linguistic card-sorting task to participants that required flexibility in problem solving, inhibiting irrelevant information, as well as recognizing the constancy of certain variables in the face of changes in the rules. Bilingual children significantly outperformed their monolingual peers in this task, suggesting early development of inhibitory function that aids solving problems which require the ability to selectively focus attention. In a following study, researchers [22] aimed to determine what gave bilinguals an advantage in solving the card-sorting task and generally an advantage in problem solving situations. Bilinguals performed better on the task to measure conceptual inhibition; the ability to inhibit previous associations and create new mental representations of the stimulus according to task changes. Another study used three language groups: When the two groups were adjusted for age, parent income and education, and verbal scores, the bilingual children outperformed monolinguals on conflict tasks that required resolving multiple attention demands. The lapsed bilinguals tested better than monolinguals but worse than their fluent counterparts. Others find these effects across various sociolinguistic settings such as comparison groups with bilingual children speaking a second regional and second migrant language [27] or bilingual children of low-income immigrant families and monolingual children of low-income non-immigrant families. Because this task requires suppressing a source of distraction, this kind of control is then applied to other tasks. This assertion was bolstered by a study of unimodal bilinguals bilinguals who communicated with two spoken languages and bimodal bilinguals bilinguals who used one spoken language and sign language. Because bimodal bilinguals can express themselves in both languages at the same time, they may require less inhibition. This idea was supported by the results of the study; only unimodal bilinguals were found to have an advantage, as measured by the flanker task a cognitive task that measures attentional focus and inhibition.

Bimodal bilinguals also switch languages less frequently, because they are more likely to use both languages at once than to completely switch from one to the other. For this reason, the researchers of this study hypothesized that it may be the switching between languages that gives unimodal bilinguals the advantage. Prior and Gollan conducted a study investigating this idea, and found that bilinguals who switched languages often had an advantage in task shifting over bilinguals who did not frequently switch languages. When Verreyt, Woumans, Vandelandotte, Szmalec, and Duyck ran a similar study but with all participants having the same languages, they replicated the results of Prior and Gallan. Additionally, because their study looked at tasks measuring inhibition even though language switching should directly affect switching tasks, they argued that the effects of language-switching carry over multiple facets of executive control. Bilinguals have different representations in each language for similar concepts and therefore need to constantly be aware of which language they are using and what the appropriate word is to be used in that context. This culminates in an advantage of cognitive control, since the ability to switch between languages and select the appropriate word for use is directly linked to the ability to better attend to relevant, or inhibit irrelevant, information. From these tests, the results showed a higher correlation with the degree of bilingualism how proficient the individuals were in each of their languages of their sample and scores on the test, as well as bilingualism did in fact predict performance and therefore cognitive ability. Against a connection[edit] There are findings that do not support cause and effect relationship between bilingualism and enhanced executive function and those who suggest publication bias from those that do. The methodology has been disputed. Virginia Valian finds correlations between bilingualism and executive function to be inconsistent. Executive function is not uniformly defined and different tasks contribute to executive function. Because some of these tasks are available to monolinguals and bilinguals may similarly participate in these tasks to varying degrees, she argues bilinguals cannot be assumed superior to monolinguals in executive function. She also notes bilinguals are not consistently better at all executive function tasks. She argues things like exercising and video game playing can affect executive function, and since they are unrelated to language, they must be controlled for. Kaushanskaya and Prior respond to Valian that it is not only the lack of uniformity in defining executive function, but also the difficulty in defining bilingualism which make it problematic to draw strong conclusions about the effects of bilingualism on executive function. Some researchers have found results with no connection. A meta-analysis of more than studies comparing the performance of monolinguals and bilinguals on different cognitive tasks found no evidence of a bilingual advantage. Researchers used two Stroop tasks in which the participants had to ignore distracting information to complete the task. They found no differences or bilingual effects between groups. They assess their sample as similar in confounding variables and found that not only was there not evidence supporting an advantage for bilinguals, but that the evidence would argue against this. For example, a study examining abstracts of research on bilingualism and executive control between and found the research results in support of an advantage were published more often and results that did not support the theory were published least often. This happens once the individual is adequately proficient in the L2. These languages share the Roman alphabet, and there are many cognates words which have the same linguistic derivation e. Cross-language activation therefore seems less surprising. However, cross-language activation has also been reported in bilinguals whose two languages have different scripts writing systems and lexical forms e. Although the words were spelt and presented differently for Japanese-English bilinguals, this did not affect the simultaneous activation of both their languages. In , Wu and Thierry [47] conducted a study where Chinese-English bilinguals were shown picture pairs. Participants were asked to name the second picture in the pair when it was shown and then were asked to judge whether the word pairs corresponding to the pictured objects rhymed or not. Word pairs were designed so that they either rhymed in both L1 and L2 or only in one of the two languages. Electrophysiological measures see Event-related potential of the effect priming of the sound repetition induced by the rhyming of the word pairs showed that even though the participants were performing the task in their L2, they showed a priming effect albeit delayed when those L2 words rhymed with words in the L1. This suggests that in regards to language use, both L1 and L2 are accessed and compete for selection during L2 production. In , Hoshino and Thierry [48] conducted a study where Spanish-English bilingual participants were shown word pairs in English, their

L2, and asked to judge whether the word pairs were related. Sometimes, things presented would be "interlingual homographs," or words that sound the same in both languages but have a different meaning in each. These pairs would be primed by things relating to one of the meanings or to neither, and the effects of this priming were measured electrophysiologically. Participants judged whether the words in the pairs were related, and electrophysiological results revealed that semantic priming facilitation of processing of the words occurred when the words in the pairs were related to each other whether the meaning was interpreted in English or Spanish. The two immediately preceding studies conclude that both languages of an individual are constantly unconsciously active and interfering with one another. The results, in regard to word processing, can help demonstrate how bilinguals have advantages over their monolingual peers when it comes to this area of study. The fact that both languages are constantly activated means that they potentially compete for cognitive resources; bilinguals need to acquire a way to control or regulate the competition, so as to not use the wrong language at the wrong time. Inhibition refers to being able to ignore irrelevant information and therefore not be distracted by non-target stimuli. For example, a test that is widely used to assess this executive function is the Stroop task, where the word for a colour is printed in a different colour than the name. This causes interference and distraction; reaction times are measured to see how distracted the individual is by the incongruent word and colour. Bilinguals compared to monolinguals have shown an advantage at this task, suggesting that bilinguals have a more developed inhibition process, potentially due to the constant inhibition of their non-target language. Global inhibition refers to suppression of an entire language system, e. Local inhibition mostly affects linguistic performance whereas global inhibition affects both linguistic and cognitive performance. Despite the apparent advantages for bilinguals in terms of non-linguistic cognitive processing, there seem to be some drawbacks for bilinguals in terms of linguistic cognitive processing: This additional advantage seems closely tied to executive function. The ability to suppress distracting information, such as semantics, is an act of inhibition, meaning that it falls into executive function. This ability could also be exercised by being bilingual, given that a bilingual individual has to suppress their knowledge of another language system when operating in one of their languages. Bilinguals outperformed monolinguals in judging that a nonsensical sentence was correct. See language section below.

Benefits in older age[edit] There has been a surge in interest in the benefits of bilingualism against age-related cognitive decline. Elderly bilinguals have also been shown to be better at switching between tasks, ignoring irrelevant information and resolving conflicting cognitive alternatives. After controlling for various cognitive and other factors, the researchers found that bilinguals experienced the onset of symptoms and were diagnosed approximately 3–4 years later on average than monolinguals. This was replicated with patients all diagnosed with AD. The finding that bilingualism contributes to cognitive reserve has also been replicated by several other studies [62] For example, Abutalebi et al. It is important to remember that this is a relatively small sample size; however, the results did confirm previous studies. Participants were controlled for age, verbal ability, and socioeconomic status indicated by parent education level. However, there are various methodological factors which may call into question the validity of these results. Firstly, a small sample size was used, with only 12 children in the bilingual group, 21 in the late bilingual group, and 17 in the monolingual group. In combination with the lack of power due to small sample size, strong conclusions cannot be drawn from this data. Another study, Kapa and Columbo investigated the attentional control of monolingual children, Spanish-English bilingual children who had learned both languages before the age of 3, and Spanish-English children who had learned English after age 3. Children were tested using an Attention Network Test. Although all groups obtained the same accuracy rates, the researchers found that early L2 learners those who learned both languages before the age of 3 had the fastest reaction time. Language Use[edit] As one of the pioneers to the study of child language and bilingualism, Werner F. Leopold often used his daughter, Hildegard, to record his observations on this subject. This was noted in her everyday speech and well-rehearsed songs or rhymes. He noted that she had a greater flexibility in the use of language that was unobserved in monolingual children of her age. Leopold considered that perhaps this loose connection between the meaning and form of a word could result in more abstract thinking or greater mental flexibility for bilingual children. She tested two groups of monolingual and bilingual children at ages 4–6 and 6–9.

These participants were given tasks to assess whether they showed a semantic or phonetic preference when categorizing words.

Chapter 4 : Cognitive Aspects of Bilingualism - Ebook pdf and epub

Get this from a library! Cognitive aspects of bilingualism. [Istvjn Kecsks; Liliana Albertazzi;] -- A unique feature of this book is that chapters favor that line of cognitive linguistics which makes a clear distinction between real world and projected world.

Language B Figure 1. Redundancy of Representation in each Subsystem From the perspective of a neurolinguistic theory of bilingualism, even an interlanguage, or transitory grammar, to the extent that it is internalized as implicit competence, is stored in the L2 subsystem in the same way as a bona fide L2, and continues to change and develop within that subsystem in the same way that any language develops. The nature of what is represented in the L2 implicit linguistic competence subsystem is identical to that of any native language, namely parameters of linguistic principles of the relevant sort phonological, syntactic, morphological, lexical semantic – whether appropriate for the particular language or not. There is no reason for the brain to treat an illicit parameter differently from a correct one. Two languages may legitimately contain the same parametric instantiation of certain grammatical principles, while other parameters differ. Let us consider a concrete example. If the main clause of a sentence is in the future, then clauses starting with when, in some languages, must use either 1 the present tense as in English or 2 the future tense as in French ; in other languages, one may 3 optionally use one or the other as in Greek. The brain will develop a subsystem for L2 in which any one of these options is implemented. In some cases, it will actually correspond to the correct form in that particular language, in others it will not. That parameter will be inappropriately represented the same way in both the French and English subsystems, just as it would be legitimately represented in English and Italian. There is thus no reason to suspect that a subsystem that contains an instance of static interference from L1 should differ in its representation or processing from a system that legitimately contains the same feature in both subsystems. Cross-linguistic cognates are also quasi-redundantly represented in each subsystem, for at least three reasons: At the conceptual level, the amount of overlapping features in the conceptual representation, for cognate and noncognate translation equivalents alike, will correspond to the actual degree of similarity in meaning between a word and its translation equivalent. Bilingual memory does not differ in kind or in organizational principles from unilingual memory. The common conceptual base of bilinguals is identical in nature, organization, development and use, to the unilingual conceptual base. It is simply bigger – at least in most cases a unilingual literature professor may have more language-based concepts than a bilingual shepherd. Therefore, the cognitive functioning of bilinguals is identical to that of unilingual speakers. What they think may differ but the principles that underlie the thinking and feeling processes are the same. As Kecsks and Papp Under the influence of the frequent use of the other language, concepts are modified in bilinguals to include or exclude a feature or features i. Similarity in Nature The nature of what is represented is the same whether concepts originate in one language or a blend of two or more. The fact that a concept has been derived from L2 semantic constraints does not alter its characteristics: The fact that L1- and L2-derived concepts are part of a CUCB does not mean that translation equivalents have identical conceptual representations, in that the meanings of a word and of its translation equivalent correspond to one and the same concept. Concepts in one language and their closest equivalents in another are rarely, if ever, identical; they overlap but do not share exactly the same contents see Paradis Note that we should distinguish between the linguistic concept i. Not all features of a concept are activated whenever a word is used. What is activated by any given use of the word is modulated by the various pragmatic circumstances, the mental set, etc. Thus, in some cases, when the differences are not relevant in the context, the very same features may be activated when either an L1 word or its translation equivalent is used. In a sarcastic remark, a word will be interpreted to mean the opposite of its usual meaning. This could be true only in a theory of radical language determinism, in which no concept existed without a corresponding word as its source. Yet, children clearly have many concepts long before they acquire their first word. Similarity in Organization As proposed earlier, bilinguals have two independent language subsystems, but both of them have access to the same underlying conceptual base where conceptual meanings group together certain

features that correspond, say, to the word glass, another set, with considerable overlap, that corresponds to the word goblet, and yet another, also with considerable but not total overlap, that corresponds to the word verre. This is what it means to have a common conceptual system, independent of language and languages. The conceptual system is in a constant state of flux as it incorporates new insights from experience and new meanings for words. The contents differ, not the nature of the representations or the kind of cognitive functioning. With different material, a bilingual speaker functions cognitively in the same manner as a unilingual speaker. Note that no two unilinguals possess identical concepts, either. The difference is one of degree; it concerns only the content of representations. In this respect, bilinguals differ from unilinguals no more than unilingual English speakers differ from unilingual Spanish speakers. L1 concepts are more easily modified by L2 concepts and the reverse, than grammatical elements are, because they are sustained by declarative memory. The lexical semantic constraints on the use of a word, and consequently its corresponding conceptual representation, are generally known explicitly. For instance, one can demonstrate that one knows the meaning of the word mug by identifying an actual object: The conceptual system is affected by a new language in the same way as it is affected by the encounter with new L1 words and new real-world experiences. L2 words activate a different set of conceptual features than their L1 translation equivalents in the same way that L1 synonyms do. In the bilingual conceptual system, the number of concepts changes; their organization does not. Similarity in Development The way the conceptual base of a second language develops does not differ qualitatively from the analogous process in the first language. Unilingual individuals continuously increase their conceptual base as they encounter new experiences and learn new words of their L1. The experience of learning new L2 words with their corresponding conceptual representations is not different in kind. It simply adds new featural groupings in the same way as learning new synonyms in the L1. With prolonged language contact, concept boundaries may change so that L1 words no longer activate their original conceptual meanings, but incorporate some or all conceptual features of their L2 equivalents. Semantic constraints on the use of L1 words become blurred. Faux-amis from L2 will creep into L1; For example, an English speaker living in a French environment will call a lecture a conference, or a less colloquial calque will be used "the speaker will tell a friend that his flight was annulled" rather than cancelled. This follows the same pattern as the change in unilingual concept boundaries consequent to new experiences. The common conceptual system is a single system that contains unchanged L1 concepts, L1 concepts modified by L2 contamination, native-like L2 concepts, and L2 concepts modified by L1 contamination. All these combinations of conceptual features are represented in the CUCB and behave in all respects in exactly the same way any concept does. At early stages of development, the concept that corresponds to the L2 word may coincide with that of its L1 equivalent: With time, the overlap ceases to be complete as some features are deleted and others added to a concept that eventually corresponds more closely to the actual native L2 conceptual representation of the L2 word. In a similar way, for the native English toddler, there comes a time when doggie takes on additional features and is no longer applicable to all four-legged animals, and the word cat is learned. In the proposed theory, the bilingual conceptual system has indeed a single conceptual system, but it is not unvarying. Like the unilingual conceptual system and perhaps even to a greater extent, it varies over time as new L2 concepts are incorporated. Again, the variation is in the contents, not in the nature or processing, of the representations. The process of development is the same. As Labov pointed out, there are no single-style speakers. Every speaker encountered by his research team showed a shift in some linguistic variables as the context changed. Unilinguals switch registers when addressing different people in different circumstances. Unilingual parents do not speak to their children at bedtime in the same register as they speak to a judge in a courtroom. A change of register involves a change in lexicon, morphosyntax and even pronunciation "as does switching between languages. Unilinguals can mix registers the way bilinguals mix languages for a number of purposes, including jocularly. For example, a French person may say to a friend: Unilinguals can suffer from interference between registers, inadvertently using a more frequently used familiar term in a formal conversation. For example, baby or pet talk uses different intonation, pitch frequencies, and even, on occasion, different phonemes from speech to adults. In other words, circumstances are such that unilingual speakers are not commonly placed in situations where they need to

paraphrase what one person said so that another may understand. Nevertheless, parents often do translate adult speech that is addressed to their child by strangers into motherese. Some bilinguals, on the other hand, are seldom called upon to translate. They have little opportunity to do so, but they could if necessary. This is the point: The difference is only in the actual frequency of use. Such frequency varies not only among bilinguals but among unilinguals as well: There is no need to postulate a neurofunctional mechanism that would sprout only in bilingual brains to fulfill a new function. Another situation sometimes considered unique to bilinguals is that, when the expectation is that Language A will be spoken but, in fact, it turns out that Language B is being used, comprehension may be momentarily blocked. In the same way, unilinguals sometimes fail to understand what is said if they expect their interlocutor to speak about one thing but in fact that person starts speaking about another. Mindset affects comprehension in both unilinguals and bilinguals. There is therefore no reason to expect that anything in the bilingual brain should differ in kind from anything found in the unilingual brain. The mechanisms for comprehension and production in the bilingual brain do not need any additional component that is not already present.

KECSKES: The only difference is the extent to which unilinguals and some bilinguals make use of the various parts of the verbal communication system, but all such parts are available to bilinguals and unilinguals alike. The neurofunctional system need not be organized differently depending on whether an individual speaks one or more languages. The same is true of the **CUCB:** Similarity in Handling Cultural Values. Speakers may be aware of the different cultural values conveyed by each language and may, within this set, choose to adopt those specific to one or the other, or to compromise between the two, irrespective of the language they use. This is a question of contents rather than organization into one or two systems. Unilinguals may also choose implicitly or explicitly to accept or reject the values conveyed by their language community. For example, a French-English bilingual, even though a native speaker of French, may nevertheless consider that the Anglo-Saxon way of speaking in turns in a debate is preferable to the Latin way where all participants speak at the same time. Speakers may select from the values attached to each of their languages the ones they consider preferable, or modify them somewhat. They may also choose to behave one way in an L1 environment and another in an L2 environment, just as unilinguals adjust their behavior linguistic or otherwise to the company of close friends and relatives on the one hand, and to more formal company on the other. They may accept some of the traits of the other culture, choose a middle ground between L1 and L2 cultures, or stick to their L1 values as embedded in the connotations. There is no need to postulate a separate conceptual store for each of these situations; not to mention the fact that these behaviors are on a continuum, depending on a variety of circumstances. Nor does the conceptual system alter the way it acquires and handles values. To the extent that connotations are an integral part of the languagespecific meaning of a word, that is, are conventionalized and usually listed in standard dictionaries, they are stored as part of the language subsystem lexicon in the left hemisphere, and thus accessible to right-hemisphere-damaged patients who have difficulty with nonconventional connotations, figurative meanings and metaphors. Native speakers will naturally use the words of their language with their standard meanings, including their conventional connotations. To the extent that these connotations are absent from the conceptual system of L2 speakers of that language, there is interference in the same way as with the names of concrete objects e.

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Viorica Marian, Ph.D. Marian directs the Bilingualism and Psycholinguistics Laboratory and uses cognitive, behavioral, and neurological measures to study human language capacity and the consequences of bilingualism for linguistic, cognitive, and neural function. Anthony Shook is a doctoral candidate in the department of communication sciences and disorders at Northwestern University. His research investigates bilingualism and what it can reveal about language, with a focus on how two or more languages interact at multiple levels of processing and the effect of this interaction on the language system. Shook uses behavioral and neurological methods, as well as computational modeling, to explore the form and architecture of the bilingual language comprehension system. In addition to facilitating cross-cultural communication, this trend also positively affects cognitive abilities. Researchers have shown that the bilingual brain can have better attention and task-switching capacities than the monolingual brain, thanks to its developed ability to inhibit one language while using another. In addition, bilingualism has positive effects at both ends of the age spectrum: Bilingual children as young as seven months can better adjust to environmental changes, while bilingual seniors can experience less cognitive decline. We are surrounded by language during nearly every waking moment of our lives. We use language to communicate our thoughts and feelings, to connect with others and identify with our culture, and to understand the world around us. And for many people, this rich linguistic environment involves not just one language but two or more. In a survey conducted by the European Commission in 2003, 56 percent of respondents reported being able to speak in a language other than their mother tongue. In many countries that percentage is even higher—for instance, 99 percent of Luxembourgers and 95 percent of Latvians speak more than one language. Europe and the United States are not alone, either. Open in a separate window Cognitive Consequences of Bilingualism Research has overwhelmingly shown that when a bilingual person uses one language, the other is active at the same time. For bilingual people, this activation is not limited to a single language; auditory input activates corresponding words regardless of the language to which they belong. We tend to look at things that we are thinking, talking, or hearing about. Furthermore, language co-activation is so automatic that people consider words in both languages even without overt similarity. For example, when Chinese-English bilingual people judge how alike two English words are in meaning, their brain responses are affected by whether or not the Chinese translations of those words are written similarly. Having to deal with this persistent linguistic competition can result in language difficulties. From a communicative standpoint, this is an important skill—understanding a message in one language can be difficult if your other language always interferes. To maintain the relative balance between two languages, the bilingual brain relies on executive functions, a regulatory system of general cognitive abilities that includes processes such as attention and inhibition. This constant practice strengthens the control mechanisms and changes the associated brain regions. When the color and the word match. The cognitive system must employ additional resources to ignore the irrelevant word and focus on the relevant color. The ability to ignore competing perceptual information and focus on the relevant aspects of the input is called inhibitory control. Bilingual people often perform better than monolingual people at tasks that tap into inhibitory control ability. Bilingual people are also better than monolingual people at switching between two tasks; for example, when bilinguals have to switch from categorizing objects by color red or green to categorizing them by shape circle or triangle, they do so more rapidly than monolingual people, 13 reflecting better cognitive control when changing strategies on the fly. For instance, when bilingual people have to switch between naming pictures in Spanish and naming them in English, they show increased activation in the dorsolateral prefrontal cortex (DLPFC), a brain region associated with cognitive skills like attention and inhibition. When monolingual and bilingual adolescents listen to simple speech sounds. To put it another way, in bilingual people, blood flow—a marker for neuronal activity—is greater in the brain stem in

response to the sound. Intriguingly, this boost in sound encoding appears to be related to advantages in auditory attention. The cognitive control required to manage multiple languages appears to have broad effects on neurological function, fine-tuning both cognitive control mechanisms and sensory processes. Higher proficiency in a second language, as well as earlier acquisition of that language, correlates with higher gray matter volume in the left inferior parietal cortex. Likewise, researchers have found white matter volume changes in bilingual children 20 and older adults. Improvements in Learning Being bilingual can have tangible practical benefits. The improvements in cognitive and sensory processing driven by bilingual experience may help a bilingual person to better process information in the environment, leading to a clearer signal for learning. This kind of improved attention to detail may help explain why bilingual adults learn a third language better than monolingual adults learn a second language. Furthermore, the benefits associated with bilingual experience seem to start quite early—researchers have shown bilingualism to positively influence attention and conflict management in infants as young as seven months. In one study, researchers taught babies growing up in monolingual or bilingual homes that when they heard a tinkling sound, a puppet appeared on one side of a screen. Halfway through the study, the puppet began appearing on the opposite side of the screen.

Protecting Against Age-Related Decline The cognitive and neurological benefits of bilingualism also extend into older adulthood. Bilingual experience may contribute to this reserve by keeping the cognitive mechanisms sharp and helping to recruit alternate brain networks to compensate for those that become damaged during aging. Older bilingual people enjoy improved memory 26 and executive control 9 relative to older monolingual people, which can lead to real-world health benefits. Likewise, bilingual patients were diagnosed 4. If the brain is an engine, bilingualism may help to improve its mileage, allowing it to go farther on the same amount of fuel.

Conclusion The cognitive and neurological benefits of bilingualism extend from early childhood to old age as the brain more efficiently processes information and staves off cognitive decline. Despite certain linguistic limitations that have been observed in bilinguals e. The cognitive, neural, and social advantages observed in bilingual people highlight the need to consider how bilingualism shapes the activity and the architecture of the brain, and ultimately how language is represented in the human mind, especially since the majority of speakers in the world experience life through more than one language.

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