The Mysteries of Bilingualism: Unresolved Issues. François Grosjean. Wiley-Blackwell, 2022, 176 pp.

Reviewed by Norbert Francis

In the science of language, as in all of its sister disciplines, a mystery is an empirical question yet to be resolved. The research problems surveyed in this book offer students of bilingualism and second language learning a guide for designing their own research program, one that keeps an eye on the pending questions. Practitioners will be well served by the review of recent work that updates ongoing projects from years past.

The first two chapters introduce the book with an overview of how definitions and categories have evolved that allow us today to estimate the scale, demographically, of dual language ability world-wide. The two concluding chapters complete the frame by returning to the society-level questions, in this case the cultural correlates of bilingualism. The intervening chapters can be grouped into two sets of themes that intertwine and complement each other, good for writing a review and even better for the reader who will find how the main ideas are all interrelated.

- The first set revolves around the research on the different aspects of language separation, evidence for how the two language subsystems of the bilingual are represented cognitively/neuro-physiologically—Chapters 3, 5, 6 and 9.
- The second set takes up the implications of this hypothesis for better understanding bilingual ability, evidence from language contact and mixing, other kinds of cross-language interaction, development in learners of the bilingual competencies and how they are put to use —Chapters 4, 7 and 8.

ISSN 1050-4273
Vol. 23, No. 1, pp 22 - 29

Beginning with the long-standing discussion on how the knowledge of two or more languages is materially instantiated and accessed in the brain, the proposed differentiation/separation is described in terms of subsystems of the larger language system (Bosch & Sebastián-Gallés, 2001; Paradis, 2004). The former (the subsystems) correspond to the competence that, say, a Polish-French bilingual acquires in each of the languages, the mental grammar and lexicon of each language. The latter (the larger system) refers to the capacity for, or faculty of, language in general. The first clue that suggested that the subsystems hypothesis may be correct perhaps presented itself to researchers of early childhood development: that long before preschool children are able to consciously reflect upon knowledge of two languages, experimental evidence pointed to a bilingual processing capability that differentiates between the two subsystems. The ability to differentiate between the languages appears even among bilingual infants. [i]

The discussion of this theme goes on to summarize the corroborating evidence from research on differential effects of trauma and selective loss and recovery of language ability by bilingual aphasia patients. While the majority of brain injury effects shows non-selective effects (both language subsystems undergo parallel and non-selective loss and recovery – approximately 70-80%), the case studies of selective effect (20-30%) require an explanation. What model of bilingual competence explains, for example, the selective loss of speaking ability in only one language, or patterns of selective recovery in only one language of the bilingual?

Regarding the widespread outcome of first language (L1) attrition (not sufficiently understood and recognized), especially in child second language (L2) learners, Grosjean appears to provoke the reader: “...that language loss is simply the flip side of language acquisition” (p.

59). But the concept, here in Chapter 5, of replacing language development, should be unsurprising, and uncontroversial, if we apply the language subsystems model from Chapters 3 and 6. The faculty of language isn't lost or even diminished in the slightest (trauma aside) in the attrition-acquisition transition. Only one of the language subsystems undergoes attrition and shift (again trauma to the brain aside), never both. In this case, it appears that the research evidence from language replacement/loss (of L1 or L2) is consistent with the subsystems hypothesis from studies of brain damage and early bilingual differentiation in child development.

The selective/non-selective controversy in regard to language processing (Chapter 9) follows in some ways from the question of bilingual separation versus integration; and is related to the research on "language mode," line of work that our author is closely associated with. In listening, reading, speaking and writing, are both languages "active" during processing (non-selectivity) or does activation depend on the task features, varying up to including a strong selective mode? While all sides appear to agree that there is no hard on-off switch that imposes total deactivation, the weight of the evidence presented in this chapter seems to suggest that the conditions of and constraints on usage raise or lower the activation threshold widely for the language subsystem "in the background."

The alternative hypothesis to the autonomous subsystems view, not summarized in the book, presents a counter proposal for a single undifferentiated and thoroughly homogeneous network (a unitary system—no separation of the languages, corresponding to knowledge of Spanish and English, Chinese and Korean, etc.). Again, as the title of the book reminds us: we have only advanced *toward* the final resolution of this debate.

Returning to the discussion in Chapter 5 on language loss, studies present us with a truly intriguing research problem (in reality, the terms "attrition" and "loss" should be taken as

misnomers, strictly speaking, even when we, including this reviewer, use them out of convenience to mean “replacement”). High on the list of the research questions to take up is the finding that there is no “direct relationship between the degree of attrition and frequency of use” and the intervention of other input factors (p. 62). De Houwer (2020), among others, has documented the commonly observed phenomenon of balanced early bilingual exposure for children where only one of the two language subsystems attains developmentally on-schedule native-level proficiency. One language often becomes the “true” L1 (cognitively speaking) while the other language begins to stabilize prematurely and even undergo attrition/replacement. Importantly, this uneven development is attested under language input conditions that are functionally equivalent. That is, if the “weaker” “attriting” (to be) language had received the same input during the childhood period of acquisition—in the absence of input from a “competing” “stronger” (to be) language—it would have advanced in development to meet all the expected L1-typical milestones of the mother tongue. Similar dominant language shift occurs in later childhood in which a fully established L1 might begin to gradually cede linguistic/cognitive domains to a L2—language of schooling, of a new speech community associated with the breakdown of isolation and segregation and related effects of language and cultural contact (Baker, 2011).

Attrition/replacement is actually only one aspect of the more general process of language development, language contact and cross-language interaction, as in L1-L2 transfer (White, 2011), addressed in Chapters 4 and 7. Here it is important to distinguish between the two different kinds of age-of-acquisition (AoA) effect:

- critical-period (CP) effects in L1 acquisition, and
- age-related factors in L2 learning.

For the former, failure to receive adequate language input during the CP, as in trauma-like language-denial conditions, typically results in permanent disability. The latter, factors related to AoA for subsequent L2 learning should not be confounded with the CP for L1. As the research summarized in the chapters shows, AoA for L2 interacts in complex ways with other variables (L1 transfer, total years of exposure and learning opportunity, motivation, quality of instruction, other input factors such as the "relatedness" of L1 and L2, etc.).

The most robust finding of the difference between L1 and L2 is also the most evident and straightforward: L1 acquisition (excluding trauma and input conditions associated with extreme isolation) results in uniform mastery of the basic grammar by children, what linguists describe as "completeness" (there is no "accent" or systematic grammar error in the speech of 10-year-old native speakers in their L1). In contrast, even after a lifetime equivalence of L2 immersion, within the population of L2 learners who have preserved L1 competence, we attest a significant variation on the core grammar indices.

Under the broad category of cross-language interaction, the fascinating topic of language mixing is addressed in a way that incorporates it into the overall framework of the central chapters (3—9). "Mixing" is also a broad category that includes different types; consider just three examples:

- borrowing (not counting historically established loan words) often termed "nonce borrowing," consists of the insertion of words from the guest language.
- code-switching—an embedding of a phrase or other kind of constituent into a sentence of the matrix language, or outright alternation between the syntactic patterns of guest and matrix,
- at the word level, the combining of a matrix language root and a guest language affix.

The complexity and productivity of mixing might lead us to question the subsystems model; but Grosjean points out (pp. 92—96) that the strong tendency of bilinguals is to combine the interacting grammars systematically. The interaction between language A and language B is implemented as interface between linguistic networks. As in all the examples of bilingual language contact described in the book, mixing shows that the language subsystems are not completely self-contained and, much less, closed-off structures. Rather, they bring grammatical patterns into contact interactively. Bilingual insertion and alternation involving A and B are biased toward forming grammatically well-formed combined patterns that conform to the patterns of both languages around the point of contact. Future research will need to make more precise the idea of "conform" as it will not be exactly the same as the corresponding idea of constraint applied to unilingual sentences. In fact, an indication of trauma to the language regions/networks of the brain is random and ungrammatical mixing (pp. 75—76).

This section logically takes us to the related concept of language mode, mentioned above. Bilingual speakers "navigate along a ….continuum" (Figure 7.1) according to conditions of situation and other constraints, ranging from monolingual mode to bilingual mode. In the former, inhibitory control processes suppress activation of one of the language subsystems. Consider the example of simultaneous translation in which speech production in language A is highly controlled, strongly inhibiting language B being received in the audio input. Not as cognitively demanding, but just as effective, would be the suppression of nonce borrowing and codeswitching in a formal interview with a monolingual speaker. Conversely, activation of the language network B (relaxation of inhibitory processes) is favored in bilingual conversation among peers from the same A+B speech community and culture.

As readers will notice, a number of the pending research problems referenced in the chapters can be informed by the language mode concept. The key factors are the domain-general processing mechanisms of selective inhibition and level of activation. Bilingual speakers sometimes report surprise at how even when using their weaker L2, their L1 comes to be automatically inhibited during extended periods of conversation with native speakers of the L2, all the while as they commit grammatical error and notice mispronunciation.

Looking back, a merit of this survey of the field is the coherence of concept that unifies both the major themes and the various individual topics. An extended discussion, and much longer book, would reflect upon in more detail alternative points of view and competing explanations for the issues in contention. On the other hand, the updated citations of recent investigation show a strong continuity with work from previous decades, confirming the incremental advances, a very good sign.

References

Baker, C. (2011). *Foundations of bilingual education and bilingualism,* 5th edition. Bristol: Multilingual Matters.

Bosch, L., & Sebastián-Gallés, N. (2001). Early language differentiation in bilingual infants. In J. Cenoz and F. Genesee (Eds.), *Trends in bilingual acquisition* (pp. 71–93). Amsterdam: John Benjamins.

De Houwer, A. (2020). Why do so many children who hear two languages speak just a single language? *Zeitschrift für Interkulturellen Fremdsprachenunterricht,* 25: 1, 7–26.

Grosjean, F. (2010). Bilingualism, biculturalism, and deafness. *International Journal of Bilingual Education and Bilingualism*, 13, 133–145.

Paradis, M. (2004). *A neurolinguistic theory of bilingualism.* Amsterdam: John Benjamins.

White, L. (2011). Second language acquisition at the interfaces. *Lingua,* 121, 577–590.

Notes

[i] The research bearing on the subsystems hypothesis and related findings on the interaction between two spoken language representations has important implications for better understanding bilingualism involving a sign language and a spoken language (Grosjean, 2010), in particular regarding linguistic development and literacy learning for children who are deaf.

Norbert Francis, Facultad de Filosofía y Letras, Universidad Nacional Autónoma de México (1994), is currently professor emeritus at Northern Arizona University. He works on problems of language and literacy learning involving cross-cultural and bilingual/multilingual contact. Recent reports are available from fieldwork projects in Latin America and East Asia: norbert.francis@nau.edu.