

A FINE BALANCE: SHIFTS BETWEEN PASSIVE AND ACTIVE BILINGUALISM*

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1. Introduction

One challenge in raising a bilingual child is providing an environment with equal exposure to both languages. While a situation where completely balanced access to the two languages is rarely possible and perhaps not necessary for successful acquisition and maintenance of active bilingualism, deficiencies in the amount of input and degree of use in one of the languages may lead to passive bilingualism and potentially language loss (see Seliger 1991, Hansen, 1999, Köpke 2007 for a sample of perspectives). A considerable amount of research suggests that in various bilingual settings one of the languages may start undergoing attrition due changes or imbalances in input or use (for recent overviews see De Bot 2004, 2007; Tomiyama 2009; Halmari 2005; Köpke et al. 2007, a.o.). Fewer studies, however, focus on the reverse process where a language that has undergone previous attrition can be reactivated to restore balanced bilingualism or achieve dominance reversal (Dahl et al. 2010; Uribe de Kellett 2002; Slobin et al. 1993; Berman 1979).

This paper examines issues in language attrition and language reactivation through a case study of a young bilingual child who underwent shifts between active and passive bilingualism in English (ENG) and Bulgarian (BG). The findings bear on issues such as the type of input necessary to trigger successful language reactivation, the length of time needed to reactivate a latent language, and the role of code-switching. The general discussion comments on issues of generalizability and on differences between language attrition, incomplete acquisition, and language choice. General issues of heritage language acquisition and maintenance are also included.

2. Case history and methodology

The data for this case study comes from diary observations and audio recordings (see below for details). The participant was a Canadian-born girl called Sophie whose mother and father were a native speakers of English and Bulgarian, respectively.¹ The parents adopted the one parent one language strategy and each

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¹ The researcher is the father of the child; the name Sophie is a pseudonym.

spoke their native language to the child from her birth. Thus, in terms of child-directed input, English and Bulgarian were represented to an equal degree. Conversations between the parents, however, as well as interactions with visitors and in the community outside of home, were mainly in English. Thus, input that was not specifically directed to the child was mainly in English.

According to the father's diary, Sophie began word production in the two languages at age 0;10, as indicated in (1). The two-word stage began at 1;4 and also included both ENG and BG utterances, as in (2). Multi-word utterances, as in (3), were attested in ENG at 1;5 and in BG at 1;6.

(1)	a.	mama	ENG/BG
	b.	bau-bau 'woof-woof'	BG
(2)	a.	bye-bye water	ENG
	b.	tati hlâts 'daddy hiccup'	BG
(3)	a.	Change the dipo (diaper).	ENG
	b.	Daj go na mama. 'Give it to mummy.'	BG

At 1;6 Sophie underwent an explosion of two- and multi-word utterances in both languages, as indicated by the following diary entry.

She's going through a real explosion of combining words. The pauses between word boundaries are not as long as before, so it feels like her speech is really flowing. (father's diary: general remarks, age 1;6)

The diary also indicated that at that point Sophie began acquiring grammatical categories, such as possession and determiners, which are morphologically different in ENG and BG.² It is also worth noting that Sophie started showing evidence of bilingual metalinguistic awareness at 1;5. At that point she was able to distinguish between ENG and BG and produce equivalent utterances in the two languages upon request, as illustrated in (4). Around the same age, Sophie began engaging in self-play where she would spontaneously recite equivalent words and some phrases in both languages, as the examples in (5) indicate.

² In BG possession is typically expressed by a preposition and articles are bound morphemes (postpositions).

(4)	Father: Kakvo e t'va? 'What's that?'	BG
	Sophie: Shoe.	ENG
	Father: A na bālgarski? 'And in Bulgarian?'	BG
	Sophie: Obuvka. 'shoe'	BG
(5)	a. dinja, watermelon	BG, ENG
	b. bubbles, pjana	ENG, BG
	c. kajcija, apricot	BG, ENG
	d. chicken, pile	ENG, BG
	e. (koste)nurka, turtle	BG, ENG
	f. be careful! vnimavaj!	ENG, BG
	g. plače, crying	BG, ENG
	h. broken, sčupi	ENG, BG
	i. vana, bath	BG, ENG
	j. book, kniga	ENG, BG
	k. again, pak	ENG, BG

In terms of code-mixing, lexical insertions and intra-sentential switches were observed during both the two-word and the multi-word stages. No particular dominance patterns were detected based on the diary data. Some examples of code-mixing are provided in (6).

(6)	a.	daj book 'give book'	BG, ENG
	b.	padna chicken 'fell chicken'	BG, ENG
	c.	na mama's 'of mummie's'	BG, ENG
	d.	stolče, nice stolče 'chair, nice chair'	BG, ENG, BG
	e.	Are you okay, količka? 'Are you okay, stroller?' (after tripping over toy stroller)	ENG, BG

Until this point, Sophie seemed to be developing as a balanced productive bilingual in ENG and BG. However, at age 1;7 English-speaking daycare was introduced and other social interactions outside of the household (e.g. play dates, community visits, etc.) also increased around that time. Since the father was the only source of BG input, once socialization outside of the household increased, Sophie's language exposure became English-dominant. At 1;9 the father began observing a change in the bilingual acquisition patterns indicated by increased ENG sentence production and decreased BG production. BG utterances involved an increased number of ENG code-switches, and at the same time ENG productions rarely involved BG code-switches. Self-play at that point was mostly in ENG and spontaneous productions of equivalent ENG and BG lexical items, as in (5), were no longer attested. Gradually, Sophie started responding entirely in ENG to her BG speaking father. She also began showing resistance to requests to translate ENG utterances into BG and thus interactions as in (4) ceased. By age 2;3, Sophie's BG had become latent; that is, she still showed an appropriate level of comprehension in interactions with her father, but her responses in interactions with him were almost entirely in ENG.³

At 2;3 Sophie was scheduled to join her father on a 10-day trip to Bulgaria. The family saw that as an opportunity to reactivate Sophie's bilingual development, especially since the ENG speaking mother was not going on the trip and thus the language input over that 10-day period of travel would be exclusively BG. At the same time, while some recovery and renewed language development in BG was hypothesized, it was not clear whether this short input flood would be sufficient to restore a path to active bilingualism again.

To document the degree of language re-learning and potential new development of Sophie's BG, the father conducted a series of recordings over the upcoming trip. Recording 0 took place one day before departure for Bulgaria. The purpose of this initial recording was to establish the degree of BG

³ The diary indicates that at that point, the only BG words that were still attested with some productivity were the affirmative *da* 'yes' and the negative *ne* 'no'.

productive language loss that had occurred over the past several months and to establish a baseline for comparison with any BG recovery over the forthcoming trip. The rest of the recordings (1-10) followed daily over the 10-day visit to Bulgaria. All recordings involved unstructured spontaneous interactions between the father and Sophie, such as reading books together, playing, and talking about new daily experiences during the trip. The recordings lasted between 7 and 20 minutes per session (total recording time 143 minutes). The data was then transcribed in the CHAT format and analyzed using the CLAN software (MacWhinney 2012/2011/2000).

3. Results

Sophie's total productions in the 11 recordings amounted to 996 utterances and 4057 words, as indicated in table 1. The father's productions were also transcribed but are not analyzed in this paper.

Table 1. Number of utterances and words by participant

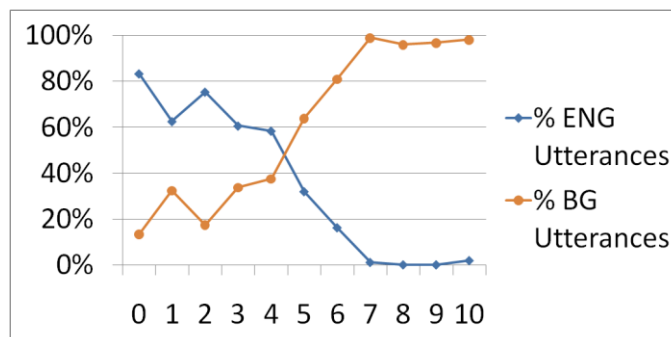
	<i>Utterances</i>	<i>Words</i>
Sophie	996	4057
Father	732	3031
Total	1728	9088

All of Sophie's utterances were categorized as ENG, BG or code-mixed. The code-mixed utterances were further coded as ENG-dominant, BG-dominant, or equal (in cases where both languages were represented to the same extent in a single utterance). Ten incomprehensible utterances were excluded from the analysis.

Over 96% of Sophie's utterances were in ENG or BG without code-mixing. Figure 1 illustrates the distribution of these utterances over the 11 recordings.⁴

⁴ Note that the pre-departure recording is referred to as day 0, and the ten recordings done in Bulgaria are referred to as days 1 through 10.

Figure 1. Percentage of ENG and BG utterances by day



As indicated, the pre-departure recording (day 0) contains ENG utterances 83% of the time and BG utterances 13% of the time.⁵ It should be noted that all the BG utterances in this recording were mono-morphemic and contained only the negative and the affirmative particles *ne* ‘no,’ and *da* ‘yes.’ The ENG utterances, on the other hand, were multi-word and contained complex sentences. In terms of lexical items in this recording, the amount of BG productions is less than 1%. This corroborates the father’s diary data indicating that before the trip to Bulgaria, BG production was close to non-existent, and the child had begun responding entirely in ENG to the BG speaking interlocutor in the household. As figure 1 indicates, this changed over the ten days spent in Bulgaria: BG utterances rapidly and steadily increased, outnumbering ENG utterances by day 5 and reaching close to 100% by day 7.

Turning to code-mixing, Sophie produced a relatively limited number of such utterances, as indicated in table 2. This finding is somewhat different from other studies that report a higher degree of code-mixing in contexts of shift between two language environments (Arias and Lakshmanan 2005; Wei and Hua 2006, a.o.).

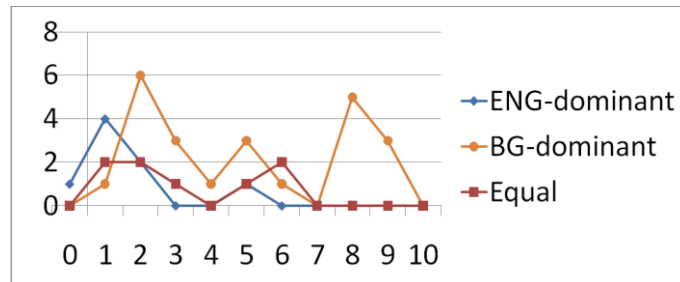
Table 2. Code-mixed utterances by type.

<i>ENG-dominant</i>	<i>BG-dominant</i>	<i>Equal</i>
8 (1%)	23 (2%)	8 (1%)

The distribution of the code-mixed utterances over the 11 recordings is shown in figure 2.

⁵ The percentages do not add up to 100 because the code-mixed utterances are not included in this figure.

Figure 2. Number of code-mixed utterances by day.



While it is difficult to make generalizations about specific code-mixing patterns due to the small overall number of tokens, it is worth noting that ENG-dominant code-mixing remains at 0% from day 6 onwards. At the same time, BG-dominant utterances are the most frequent type of code-mixing (see also table 2). This is consistent with the idea that BG reactivation was taking place during the 10-day immersion in a monolingual BG environment.

In addition to language of utterance, the data were analyzed by mean length of utterance in words (word MLU) over the 11 days of recordings. The results are shown in table 3.

Table 3. Word MLU

	<i>Word MLU</i> <i>ENG</i>	<i>Word MLU</i> <i>BG</i>
Day 0	4.760	1.250
Day 1	5.518	2.364
Day 2	5.240	3.458
Day 3	5.023	4.000
Day 4	3.786	5.222
Day 5	2.947	3.066
Day 6	3.529	3.365
Day 7	2.000	3.872
Day 8	0	3.810
Day 9	0	4.333
Day 10	1.000	2.717
Average	4.808	3.544

Overall, the MLU data indicate a gradual decrease of length of ENG utterances and a gradual increase in length of BG utterances over the 11 days.

This pattern is consistent with the previous data indicating BG reactivation, and decrease of ENG use in the new linguistic environment.

In terms of lexical complexity, token-type ratio was calculated as indicated in table 4. For ENG, the token-type ratio is reported only for the first four recordings, as the subsequent data did not contain enough ENG productions for this type of measure. Conversely, token-type ratio for BG is reported only for the last four days of the trip, as the previous recordings did not contain enough productions for this measure.

Table 4. Type-token ratio

	<i>Type-token Ratio ENG</i>	<i>Type-token Ratio BG</i>
Day 0	0.516	n/a
Day 1	0.354	n/a
Day 2	0.372	n/a
Day 3	0.354	n/a
Day 4	n/a	n/a
Day 5	n/a	n/a
Day 6	n/a	0.412
Day 7	n/a	0.433
Day 8	n/a	0.402
Day 9	n/a	0.407
Day 10	n/a	0.487

To analyze the data in terms of syntactic complexity, the transcripts were reviewed manually and the following examples of complex grammatical structures were attested in ENG: embedded infinitival clauses, as in (7); *if* complementizer clauses, as in (8); and relative clauses, as in (9). Note that such structures had been documented previously in the father's diary (before the trip to Bulgaria).

- (7) *CHI: And I don't want banana to come <that make it> [?] to eat banana.
- (8) *CHI: I'll be angry if you do that and call her that name.
- (9) *CHI: <Jen and Mike such a good have> [///] They [///] Jen and Mike have a good cat whom I petting.

A comparable level of syntactic complexity was observed in BG. Multi-clausal utterances included clausal coordination and *da* (similar to ENG infinitival to)

clauses, as in (10); if complementizer clauses, as in (11); and relative clauses, as in (12)-(13). Contrary to the ENG data, these utterances all represented new syntactic developments that had not been observed previously as per the father's diary. As such, the data indicate that these utterances must have been acquired (or at least activated for production) during the visit to Bulgaria.

- (10) *CHI: Tja še dojde, še te grabna uh bebeto i še otide na učilište da spinkaa.
 "She will come, will grab your baby-doll and will go to school to sleep there."
- (11) *CHI: Ako dojde, še te grabna kuklata i še spre da plači +...
 "If she comes, she will grab your doll and will stop crying"
- (12) *CHI: I idva pri paparudkite, kojto zhevje vuv dârvoto.
 "And comes to the butterflies, who live in the tree."
- (13) *CHI: Kato Maja otide prez prozorčeto, še go vidi +...
 "When Maya goes through the window, she will see him."

4. Discussion

To summarize the findings, the diary-based evidence that at age 2;3 Sophie's BG had become latent and her productive ability in that language was less than 1% was confirmed by the pre-departure recording (day 0). The rest of the recordings (1-10) indicate that once Sophie was immersed in BG monolingual input during the trip to Bulgaria, a rapid recovery of the latent language was observed. BG utterances began appearing on the first day of the trip, exceeded 60% by day 5, and plateaued at close to 100% as of day 7. At the same time, ENG utterances steadily decreased and were virtually non-attested by the end of the trip. The increase in BG productions was also mirrored by an increase in utterance length, while the MLU and number of utterances in ENG steadily decreased over the 10-day period.

Code-mixing in the 11 recordings was relatively limited, accounting for only 4% of the total productions. Nonetheless, BG-dominant utterances occurred almost three times as often as ENG-dominant utterances, which is consistent with the rest of the data indicating BG re-activation. In terms of lexical diversity, the token-type ratio reached a steady level comparable to the one attested for ENG. Finally, the grammatical complexity of BG productions increased dramatically, and Sophie showed evidence of first time use of multi-clausal conjunction, embedding and relativization.

The overall picture that emerges from the diary data and the spontaneous speech recordings is one in which Sophie's language development underwent

two shifts: one from active to passive bilingualism between ages 1;9 and 2;3; and one from passive to active bilingualism at age 2;3.⁶

An important question to ask is whether Sophie's BG was on the path of attrition, which was subsequently reversed, or whether the passive bilingualism phase between ages 1;9 and 2;3 was the result of factors such as socialization and language choice. The latter is a plausible explanation, as the diary data indicate that the first signs of a deteriorating productive ability in BG were detected about 2 months after Sophie was enrolled in ENG daycare, and additional social interactions in ENG outside of the household had increased. Under this scenario, the initial decline and subsequent lack of BG productions in Sophie's interactions with her father, who consistently spoke BG to her, would be interpreted as resistance to use what she had already acquired and unwillingness to continue acquiring the heritage language. Alternatively, it could be that increased socialization outside of the household and decreased opportunities for sufficient interaction with the BG-speaking father lead a gradual decline in Sophie's ability to use BG productively. Although the two scenarios are not mutually exclusive, and it could well be that both are valid to some extent, the recordings over the trip to Bulgaria offer some evidence in favour of the second one. If Sophie's lack of productive use could be reduced to mere unwillingness to use BG with interlocutors who understood ENG (i.e. the father), then the switch to BG over the 10-day trip should have been even faster and more sudden. Even though the recovery of the heritage language was very rapid and overall successful, it was still a gradual and arduous process over a 10-day period, as indicated by figure 1 and the rest of the data presented earlier. Diary observations from the trip to Bulgaria also point against language choice as a single explanation.

Sophie immediately realized that her grandparents, aunts and cousin are monolingual Bulgarian speakers and that she cannot get by speaking to them in English and letting them speak back to her in BG like she does with me [father]. It is evident that she is struggling trying to make the switch to Bulgarian, though. Her delivery is slow and choppy (compared to her English delivery), she is clearly struggling to find words, and today her grandmother was sitting next to her trying to guess what she was saying and was supplying words to her as they tried to converse. (father's diary: general remarks, age 2;3, trip to Bulgaria, day 1)

This diary entry indicates that at the beginning of the visit to Bulgaria Sophie's productive abilities were clearly very limited and that she was not merely resisting to speak BG. On the contrary, she made an effort to communicate with her relatives and by the end of the visit showed evidence of both successful reactivation of previous knowledge and acquisition of new linguistic structure, as mentioned above.

⁶ Note that Sophie's ENG did not become passive over the 10 day trip to Bulgaria. Diary entries indicate that she was able to use ENG productively when she returned from the trip and her mother and other ENG interlocutors became available again.

Another question that needs to be addressed is whether language attrition can apply at this young age when acquisition is still in its early stages. Under this view, it could be argued that Sophie's BG was not really undergoing attrition but rather a delay in acquisition, which was subsequently overcome by the brief full immersion into BG monolingual input. This view depends to some extent on how one defines language attrition. For the purposes of this paper, the slowdown in the acquisition of BG documented in Sophie's bilingual development between ages 1;9 and 2;3 is one aspect of language attrition. Additionally, Sophie's loss of productive ability in BG that was documented at 2;3 is viewed as evidence of language attrition because production is a major part of one's linguistic capacity. Loss of productive abilities can subsequently lead to complete language loss. Such views are not uncommon in the literature on language attrition (see Uribe de Kelleff 2002 for an overview). Looking at the data of this study from such a perspective allows for the proposal that language attrition can take place even when acquisition is still incomplete. At the same time, Sophie's case demonstrates that attrition can be reversed at a steady and rapid pace.

With regards to recovery from language attrition in the sense defined above, it should be noted that Sophie's latent stage in BG was relatively short before her exposure to high intensity BG input through the trip to Bulgaria occurred. It is unclear whether a successful shift back to active bilingualism would have been possible over such a short period of time, had the latent stage preceding the trip to Bulgaria been of a longer duration. It is also unclear what Sophie's chances of resuming active bilingualism in ENG and BG would have been if she had not gone on the trip to Bulgaria and a more prolonged attrition period had set in.

Finally, even though Sophie was able to re-activate her latent BG over the short span of a 10-day trip, qualitative data indicate that her overall competence in ENG was still superior to her competence in BG. As the father noted in the diary, her BG productions at the end of the 10-day period were still characterized by various hesitations, disfluencies, and multiple morphological errors in gender, agreement, tense, aspect, article use, etc.⁷ Upon return to ENG-speaking environment, it was clear that her overall facility in ENG was still superior. This qualitative observation is important, as the data presented in the results section earlier may paint a picture of absolute dominance reversal, which would be a misguided view. It is beyond the scope of this paper to investigate this issue any further and draw a more reliable comparison of the relative level of acquisition and facility in the two languages. Importantly, however, from age 2;3 onwards, Sophie was able to maintain active bilingualism and her BG did not undergo any further shifts to latency.

⁷ One further possibility is that since BG is morphologically more complex than ENG, it is normal for a bilingual child to experience a slight delay in the development of that language. This issue is left for further research.

5. Conclusion

Sophie is currently a 6-year-old active bilingual in ENG and BG with a slight dominance in the former. Since age 2;3 she has had yearly trips to BG, which have helped in the development and maintenance of the heritage language. Various increases and declines in BG use, accuracy and fluency have been observed over the years. Increases often occurred during and immediately after trips to Bulgaria while declines typically followed prolonged periods of non-exposure to this type of immersion. Such observations are consistent with a view of bilingualism, and of language acquisition in general, as a dynamic system susceptible to multiple changes based on various linguistic, communicative, psychological, and social variables (see de Bot 2004, 2007, 2008; de Bot et al. 2007).

It is also important to emphasize the observation that since 2;3 Sophie has never undergone a shift to passive bilingualism again. This raises the question whether there is a vulnerable period during the early stages of acquisition such that young children are especially susceptible to language attrition in the absence of substantial amounts of inputs from multiple sources (see Tomiyama 2009 for a similar claim). While this study suggests that this might be the case, further research in this direction is necessary in order to establish specific boundaries of such a period, should it exist (see Pallier 2007 for some relevant discussion).

In terms of amount and type of input necessary for bilingual language acquisition and maintenance, this study suggests that the one parent one language model may be insufficient in some cases, especially in the absence of sources of heritage language input in addition to one of the parents. This finding is somewhat surprising, considering that typically the one parent one language model ensures significant amounts of consistent, daily input. Interestingly, in Sophie's case a short 10-day exposure constituted an input flood that was enough to trigger reversal of an attrition trend; the prolonged less intensive but regular input that Sophie's father was providing alone was not sufficient to achieve that goal. If such findings can be generalized over a larger population of young bilingual speakers, they could potentially have far-reaching practical implications in terms of heritage maintenance strategies. For example, periods of short-term immersion providing massive input floods could be viewed an effective alternative or at least a supplement to typical heritage language maintenance programs that provide steady but less frequent input (e.g. once a week, typically on Saturdays).

Finally, even though this study suggests that heritage language input from just one parent may not always be enough, it is important to underscore that parents should not discontinue heritage language input if at some point during bilingual development their child's production in one of the languages stops completely. It is safe to assume that the continuous input provided by the father in Sophie's case was sufficient to keep the latent language from attriting completely and was an important contributing factor in her rapid and successful recovery of active bilingualism.

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