Chiat, S., & Roy, P. (2008). Early phonological and sociocognitive skills as predictors of later language and social communication outcomes. *Journal of Child Psychology and Psychiatry, 49*, 635–645.
Conti-Ramsden, G., & Jones, M. (1997). Verb use in specific language impairment. *Journal of Speech, Language, and Hearing Research*, *40*, 1298–1313.
Ebbels, S. H., Van Der Lely, H. K. J., & Dockrell, J. R. (2007). Intervention for verb argument structure in children with persistent SLI: A randomized control trial. *Journal of Speech, Language, and Hearing Research, 50*, 1330–1349.
Horton-Ikard, R., & Ellis Weismer, S. (2007). A preliminary examination of vocabulary and word learning in African American toddlers from middle and low socioeconomic status homes. *American Journal of Speech–Language Pathology, 16*, 381–392.
Ionin, T., & Wexler, K. (2002). Why is "is" easier than "s"? Acquisition of tense/agreement morphology by child L2-English learners. *Second Language Research, 18*, 95–136.
Leonard, L. B. (1998). *Children with specific language impairment*. Cambridge, MA: MIT Press.
Paradis, J. (2008). Tense as a clinical marker in English L2 acquisition with language delay/impairment. In E. Gavruseva & B. Haznedar (Eds.), *Current trends in child second language acquisition: A generative perspective* (pp. 337–356). Amsterdam: John Benjamins.
Rice, M. L., & Bode, J. V. (1993). GAPS in the verb lexicons of children with specific language impairment. *First Language, 113*, 1–31.
Roy, P., Chiat, S., & Dodd, B. (2009). *Is language as poor as it looks? Assessment of language potential in socially disadvantaged preschoolers.* Nuffield Foundation. Retrieved from http://www.nuffieldfoundation.org/go/grants/education/page_705.html
Rvachew, S., Gaines, B. R., Cloutier, G., & Blanchet, N. (2005). Productive morphology skills of children with speech delay. *Revue d'orthophonie et d'audiologie, 29*, 83–89.
Watkins, R. V., Rice, M. L., & Moltz, C. C. (1993). Verb use by language-impaired and normally developing children. *First Language*, *13*, 133–143.
Zobl, H., & Liceras, J. (1994). Functional categories and acquisition orders. *Language Learning, 44*, 159–180.

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## Summing up problems in bilingual specific language impairment: Why multiple influences may not be additive

The Keynote Article is a very welcomed, timely, and incisive review article that examines theoretical and clinical implications of research on bilingual development and specific language impairment (SLI). Paradis provides a considered examination of the available evidence and takes into account a number of potential influencing factors. In particular, I want to commend her discussion of potential compensatory mechanisms that may play a role in bilingual development in SLI. This is often a neglected area in discussions concerning SLI. I also want to highlight that I agree wholeheartedly with her conclusion that the evidence to date "leans toward a positive attitude toward dual language learning for children with SLI who are in a supportive context for bilingualism." This message is by no means universally accepted, nor is it put into action in therapeutic contexts across the United Kingdom and Europe. There is still much debate as to what type of advice should be given to parents and what the target language or languages of therapy

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should be (Harulow, 2008). This review article has therefore the potential not only to make a significant contribution to theory but also to practice.

Paradis takes two key theoretical positions put forward to explain SLI (linguistic maturation and limited processing capacity) and evaluates their ability to explain commonalities and distinctiveness in behaviors observed in monolingual versus bilingual children with and without SLI, in particular, grammatical morphology. This is an important endeavor, as there is still much debate and uncertainty as to which traits or elements of the SLI profile constitute the core of SLI. In this commentary I examine in more detail the assumptions and evidence presented with regard to the limited processing capacity perspective.

In the review article, the processing limitations explanation is conceptualized as a problem in the intake of incoming linguistic information that then has consequences for the representation of the linguistic material. Although Paradis takes the surface account as the exemplar of this type of explanation of SLI, her observations apply to other processing accounts such as those involving difficulties with different aspects of memory (Gathercole & Baddeley, 1990; Ullman & Pierpont, 2005). Bilingual children with SLI, Paradis argues, are a kind of natural experiment for testing processing based accounts of SLI. She proposes that limited processing capacity theories predict that bilingual children with SLI should exhibit "added" difficulties in their acquisition of grammatical morphology, a kind of "double delay" compared to their monolingual peers with SLI. This is because they not only have functionally less exposure because of their processing limitations, but they also have less exposure to each language because they are being raised in bilingual contexts. The proposal that there are cumulative effects in bilingual SLI is echoed by the Dutch research she reviews (Orgassa & Weerman, 2008). They propose that a hierarchy of performance should be evident with bilingual children with SLI performing worse than monolingual children with SLI who, in turn, perform worse than bilingual age peers with typical language learning abilities.

The work carried out in The Netherlands examined children's abilities to mark gender in the determiner phrase. Orgassa and Weerman (2008) included in their study bilingual typically developing peers from minority L1 backgrounds as well as bilingual and monolingual children with SLI. They found among all the measures taken, the bilingual children with SLI performed more poorly than the other groups supporting the view that there are cumulative effects observed in bilingual SLI. However, Paradis and colleagues did not replicate a similar hierarchy of performance in their studies involving French–English simultaneous bilingual children (reviewed in Paradis, 2007). In the same vein, Gutiérrez-Clellen, Simon-Cereijido, and Wagner (2008) found no differences between Spanish–English bilinguals and English monolinguals with SLI on their use of verb morphology. Paradis concludes that, taken together, these findings provide no clear support for the predictions of limited capacity theories.

One of the fundamental assumptions of the above argument is that the phenomenon in question (i.e., grammatical morphology) functions in a continuous manner, and that each step in the scale is equal to the other. Although this is a reasonable assumption, recent evidence suggests that certain aspects of language learning may not function continuously. In the specific case of grammatical morphology, it appears that for English past tense a *binary model* may be applicable at least under certain circumstances. Falcaro et al. (2008), for example,

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examined deficits in phonological short-term memory and past tense marking in 300 first-degree relatives of children with SLI to evaluate the familial aggregation of these difficulties. These investigators found significant associations between the relatives' and the children's performance on phonological short-term memory. However, they found no association among the performance of relatives and children with SLI on tense marking when it was examined as a continuous measure. Nonetheless, significant familial aggregation was found when tense marking was treated as a binary measure with a cutoff point of 1.5 standard deviations below the mean. These authors argue that tense marking may not be a behavior that is measurable as a continuous dimension across development. Instead, tense marking may be a skill in which competence is more binary; that is, it is either acquired or not acquired by early school age.

Within this framework, a limited processing capacity explanation does not *necessarily* require for there to be observable cumulative effects in bilingual SLI compared to monolingual SLI. The functional reduction in linguistic intake because of processing limitations can result in poor performance that is not necessarily distinguishable from poor performance because of reduction in linguistic intake plus reduction in exposure because of the bilingual context. Both performance outcomes can simply be below a certain threshold, rendering them both problematic but not differentially so. Furthermore, the threshold that signals difficulties may not be fixed, but it is likely to change across development. In the case of the past tense, the presence of a couple errors in adolescence is likely to indicate difficulties. whereas a similar proportion of errors in early childhood may indicate near mastery. Thus, bilingualism and processing limitations may not function additively in the development of grammatical morphology. In the same vein, one would not necessarily expect larger effect sizes for bilinguals than monolinguals with SLI across development. The basic cognitive mechanisms that are involved in processing may be sensitive to reduced input, but this sensitivity may not be continuous in nature. Therefore, the presence of what looks like cumulative effects in bilingual SLI is not necessarily key evidence in favor of limited processing capacity theories. More importantly, the absence of cumulative effects in the acquisition of grammatical morphology in bilingual SLI does not provide evidence against limited processing capacity theories of the disorder.

It is well known that SLI is a heterogeneous condition with a range of profiles of impairment evident (Conti-Ramsden, 2008). As alluded by Paradis, understanding the causes of SLI is likely to require a complex, multifactorial model that includes the combined effect of many genetic and environmental influences. It is likely that deficits in a number of areas at the same time might be necessary before the robust phenomenon of language learning is compromised (see also Bishop, 2006). Within this context, Paradis has provided an insightful evaluation of the potential role of bilingual environments on our understanding of language development and SLI.

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## REFERENCES

Bishop, D. V. M. (2006). What causes specific language impairment in children. *Current Directions in Psychological Science, 15*, 217–221.

Conti-Ramsden, G. (2008). Heterogeneity of specific language impairment in adolescent outcomes. In C. F. Norbury, J. B. Tomblin, & D. V. M. Bishop (Eds.), *Understanding developmental language disorders: From theory to practice* (pp. 117–130). Hove: Psychology Press.

Falcaro, M., Pickles, A., Newbury, D. F., Addis, L., Banfield, E., Fisher, S. E., et al. (2008). Genetic and phenotypic effects of phonological short-term memory and grammatical morphology in specific language impairment. *Genes, Brain and Behavior, 7*, 393–402.

Gathercole, S. E., & Baddeley, A. D. (1990). Phonological memory deficits in language disordered children: Is there a causal connection? *Journal of Memory and Language, 29*, 336–360.

Gutiérrez-Clellen, V., Simon-Cereijido, G., & Wagner, C. (2008). Bilingual children with language impairment: A comparison with monolingual and second language learners. *Applied Psycholinguistics, 29*, 3–20.

Harulow, S. (2008). Exploring myths and legends in speech and language therapy. *Bulletin of Royal College of Speech and Language Therapists, 680*, 12–13.

Orgassa, A., & Weerman, F. (2008). Dutch gender in specific language impairment and second language acquisition. *Second Language Research, 24*, 333–364.

Paradis, J. (2007). Bilingual children with specific language impairment: Theoretical and applied issues. *Applied Psycholinguistics, 28*, 551–564.

Ullman, M. T., & Pierpont, E. I. (2005). Specific language impairment is not specific to language: The procedural deficit hypothesis. *Cortex, 41*, 399–433.

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## Notes on the nature of bilingual specific language impairment

Johanne Paradis' Keynote Article can be read as a concise critical review of the research that focuses on the sometimes strained relationship between bilingualism and specific language impairment (SLI). In my comments I will add some thoughts based on our own research on the learning of Dutch as a second language (L2) by children with SLI.[1]

Our research focuses on successive bilingualism, and our group of bilingual subjects consists of children who have Turkish as their first language (L1) and Dutch as their L2. Turkish is a minority language in the full sense of Paradis' description: although the number of speakers of Turkish as an L1 is large in The Netherlands, there is no teaching of Turkish in primary schools. This situation could be said to lead to "subtractive bilingualism," and the possibility of a "cumulative effect" of bilingualism and SLI that Paradis discusses is well worth considering for this particular group of subjects. In our study we were not able to include monolingual children with SLI whose native language is Turkish; the issue was therefore addressed with respect to the children's output in Dutch.

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