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Do written and spoken languages differ in their phonological density?

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Languages evolve to be easy to use. Over the last couple of decades, however, language has shifted from being used predominantly in the spoken modality to being used predominantly in the written modality. Differences between the way spoken and written language are processed suggest that language might no longer be optimised for use and undergo changes. This paper uses an iterated learning paradigm (Experiment 1) and a pair communication game (Experiment 2) to test whether languages that develop in the written modality differ from those which develop in the spoken modality. Both experiments show that languages that develop in the written modality have sparser phonological neighborhoods. Results also indicate that neighborhood density is more detrimental for comprehension in the written modality than the spoken one, motivating the effect found. These results show that modality can influence phonological density and that languages might be currently undergoing changes to become sparser.