Abstract
It is generally assumed that structure building processes during spoken and written comprehension are subserved by modality-independent lexical, morphological, grammatical, and conceptual processes. We present a large-scale neuroimaging study (fMRI, N=204) on whether the unification of sentence structure is supramodal in this sense, testing if observations replicate across written and spoken sentence materials. The activity in the unification network should increase when it is presented with a challenging sentence structure, irrespective of the input modality. In order to make a computationally specific suggestion of challenges during sentence comprehension, we build on well-established findings, inspired by experiments using the artificial grammar learning paradigm. These suggested challenges during sentence comprehension relate to the need for keeping some words online when building a sentence structure and they possibly generalize across languages. We show that the added load of a challenging sentence leads to an increased neural response (a “BOLD response”) in a language network in the left hemisphere. The results are relevant for the discussion of whether there are neural constraints that might shape language processing and change. All in all, these findings emphasize the importance of considering the incremental nature of sentence processing.