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Asymmetric interference in the mono-, bi- and multi-lingual brain:

Evidence from concurrent verbal-motor task performance

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The functional distance hypothesis (FDH) predicts that tasks regulated by cerebral networks in closer anatomical proximity will cause more interference than tasks regulated by distant regions. Support for the FDH has been found in studies of left/right brain asymmetries in the interactions of concurrent communication and manual tasks. A mixed design was used to investigate the effects of dual-task interference. Fifty right-handed monolinguals, bilinguals and multilinguals underwent a test of phonemic verbal fluency (VF) with right- and left-handed motor activity, in isolation and concurrently. Monolingual participants were impaired when completing the VF task concurrently with right-hand motor activity; whilst bilingual and multilingual participants were impaired when completing the task concurrently with left-hand motor activity. Monolingual participants showed superior performance when performing the motor task concurrently with the VF task when using their left- as opposed to right-hand; whilst multilingual participants showed superior performance when using their

right- as opposed to left-hand. The overall pattern of findings indicated the presence of some hemisphere-specific interference between groups. Findings and implications are discussed in line with the FDH and other neurophysiological evidence.