Research on neuroplasticity in recovery from aphasia depends on the ability to identify language areas of the brain in individuals with aphasia. However, tasks commonly used to engage language processing in people with aphasia, such as narrative comprehension and picture naming, are limited in terms of reliability (test-retest reproducibility) and validity (identification of language regions, and not other regions). On the other hand, paradigms such as semantic decision that are effective in identifying language regions in people without aphasia can be prohibitively challenging for people with aphasia. This talk describes a new semantic matching paradigm that uses an adaptive staircase procedure to present individuals with stimuli that are challenging yet within their competence, so that language processing can be fully engaged in people with and without language impairments. The feasibility, reliability and validity of the adaptive semantic matching paradigm were investigated in sixteen individuals with chronic post-stroke aphasia and fourteen neurologically normal participants, in comparison to narrative comprehension and picture naming paradigms. All participants succeeded in learning and performing the semantic paradigm. Test-retest reproducibility of the semantic paradigm in people with aphasia was excellent, and was superior to the other two paradigms. The semantic paradigm revealed known features of typical language organization (lateralization; frontal and temporal regions) more consistently in neurologically normal individuals than the other two paradigms, constituting evidence for validity. In sum, the adaptive semantic matching paradigm is a feasible, reliable and valid method for mapping language regions in people with aphasia.