In recent years cognitive neurosciences have highlighted the involvement of the motor system in language understanding. Yet most research focus on lexical-semantic links, leaving unaddressed a core aspect of the linguistics system, namely its syntax. As is well established, Broca’s area is a cerebral area where language and motor systems converge and, in many ways, also a crucial region for syntactic processing. Here we ask the question of whether motor and language systems could share not only cortical territories, but also abstract processes of the linguistic capacity in the form of a motor syntax. We address this issue first by examining the kinematic behavior of patients suffering from specific language impairment in tasks requiring the capacity to produce nested motor acts. Second, we examined in healthy subjects the electrophysiological correlates of observing kinematic errors when the action unfolds, seeking for syntactic integration markers. Evidence will be presented that children suffering from language impairment present motor patterns that deviate from that exhibited by healthy children, and discuss the possibility that observing action’s errors trigger a positive potential akin to the P600 observed during detection of syntactic violations.