Many phonological processes exhibit patterns of exceptionality in terms of which segments act as triggers and/or targets. In this talk I propose that several such patterns are the result of a language’s inventory containing distinct phonemes that differ in the strengths with which they command vocal tract articulators. This is implemented by adopting dynamically-defined gestures as the units of phonological representation, and by reevaluating the role that gestural strength plays within phonology. Under a gestural account, each segment is made up of one or more gestures, which are specified for some goal articulatory state. When two concurrently active gestures make opposing demands of the same articulator, they enter into competition with one another. The result of such competition is determined according to the gestures’ specified strengths, with the articulatory goal of a stronger gesture being favored over that of a weaker gesture. I claim that this gestural strength parameter plays an active role within phonology, even serving a contrastive function in some languages. I also show that accounts of apparent phonological exceptionality that rely on contrastive gestural strength avoid significant issues that arise in feature-based analyses that utilize purely abstract phonemes, derivationally opaque rule ordering, and lexical constraint indexation.