

The Physicality of Symbol-Use:
Projecting Horizons and Traversing Improvisational Paths Across Inscriptions and
Notations

Contributed Research Report

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The way people use symbols and drawings has an intrinsic physicality. Viewed as an extension of gesture-making, symbol-use can give us insight into how symbol-users experience the mathematics at hand. Using a theoretical framework of embodied cognition, we explore this matter by conducting a phenomenological analysis of a 2-minute selection from an interview with a topologist about one of his published papers. We propose an interpretation of the mathematician's symbol-use in terms of two related constructs: *realms of possibility* in what the mathematician perceives as available to him and *paths* within and between these realms. Both of these are projected onto the writing surface and embodied through gestures, speech, eye gaze, and many other means. We explore the origins and relevance of these in our presentation.

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