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Growth point and gestures: looking inside mathematical meanings.

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Summary: The literature on gestures describes how they often comprise iconic, deictic and metaphoric dimensions, but the interplay between these dimensions can be very subtle and nuanced. Due to the abstract nature of the subject, the use of gestures in the learning of mathematics means that the metaphoric dimension is often prominent. However, iconic and deictic gestures also play their part, and it has not been clear how the transition from gestures that have primarily iconic and deictic dimensions to those that are primarily metaphoric arises. In this paper, we consider three cases in an attempt to identify the emergence of the metaphoric dimension of gesture. The vignettes are analysed from semiotic and cognitive perspectives as we attempt to explain elements of the evolution by describing it in terms of McNeill's concept of a growth point. In each example, the results highlight the evolution from a grounded to a more abstract blending following the particular point at which a switch from an emphasis on the iconic/deictic to the metaphoric dimension occurs.

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