

1116-Q5-2673

Hortensia Soto-Johnson* (hortensia.soto@unco.edu), Ross 2240C, School of Mathematical Sciences, Greeley, CO 80639, and **Brent Hancock** and **Michael Oehrtman**. *Mathematicians' Conceptual and Ideational Mathematics about Continuity of Complex-Valued Functions*.

Adopting Schiralli and Sinclair's notions of conceptual mathematics (CM) and ideational mathematics (IM), we investigated mathematicians' reasoning about continuity of complex-valued functions. There were four IM notions that the mathematicians used to convey the idea of continuity for complex-valued functions: control, topological features, preservation of closeness, and paths. The mathematicians' IM tended to be grounded in their embodied experiences and espoused for pedagogical reasons, in preparation for other actions, or to assist their own reasoning. Some of the mathematicians' IM metaphors conveyed a domain-first quality, which accounted for the domain of the function before mentioning any objects from the codomain. Given such metaphors did not capture the full structure of the epsilon-delta definition of continuity, the mathematicians transitioned to CM language in an effort to make their IM statements more rigorous. Our research suggests that while IM metaphors stemming from embodied experiences can serve as helpful tools for reasoning about continuity of complex-valued functions, one must be cognizant of ways in which the informal IM must be altered or extended to fully capture the CM. (Received September 22, 2015)