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**The semiotic structure of geometry diagrams: how textbook diagrams convey meaning.**

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Summary: Geometry diagrams use the visual features of specific drawn objects to convey meaning about generic mathematical entities. We examine the semiotic structure of these visual features in two parts. One, we conduct a semiotic inquiry to conceptualize geometry diagrams as mathematical texts that comprise choices from different semiotic systems. Two, we use the semiotic catalog that results from this inquiry to analyze 2,300 diagrams from 22 high school geometry textbooks in which the dates of publication span the 20th century. In the first part of the article, we identify axes along which the features of geometry diagrams can vary, and in the second part of the article, we show the viability of using the semiotic framework to conduct empirical studies of diagrams in geometry textbooks.

*Classification:* U20 G40 E40

*Keywords:* geometric concepts; geometry diagrams; textbooks; semiotics; systemic functional linguistics  
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