

Diagrams and Explanation in Organic Chemistry

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Abstract

Organic chemists have been able to develop a robust, theoretical understanding of the phenomena they study; however, the primary theoretical devices employed in this field are not mathematical equations or laws, as is the case in most other physical sciences. Instead it is the diagram, and in particular the structural formula, that carries the explanatory weight in the discipline. To understand how this is so, it is necessary to investigate both the nature of the diagrams employed in organic chemistry and how these diagrams are used in the explanations of the discipline. I will begin this paper by describing and characterizing the roles of the most important sort of diagram used in organic chemistry. Next I will present a model of explanations in organic chemistry and describe how diagrams contribute to these explanations. This will be followed by two examples that will support my abstract account of the role of diagrams in the explanations of organic chemistry.

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