Algebraic Semiotics of User Interface Design

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Description:

Good user interfaces and data visualization respect structure making it easier for humans to understand and manipulate data and processes. This is formally captured by the algebraic notion of 'semiotic morphism'. Techniques of category theory and computer algebra will be applied to automatically suggest, improve, assess, and adapt interface designs and data representations. Conceptual blending and metaphor will also be treated by related algebraic methods to support their application for interactive systems design in this research.