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Peer Review

Review of: "Conceptual Entity-Relationship Model: Beneath the Simplicity and Staticity"

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This paper proposes using "Thinging Machines" (TMs) to enhance ER modeling, aiming to capture dynamics and offer adjustable detail. However, the paper needs significant revisions before publication. The explanation of TMs is dense, and the link to ER modeling is unclear. Key questions remain: Do TMs *truly* capture new semantics or simply re-represent ER? Is adjustable complexity an advantage or an added complication? Does the dynamism offered significantly differ from existing ER extensions? Is the cost of TM conversion justifiable? Is the theory and cognitive overhead really needed?

Is TM theory itself new? Is this a novel *application*? The paper needs a thorough literature review to justify its unique contribution. Rigorous validation is missing: deeper case studies, comparisons to other approaches, and user evaluations are required.

The process of translating ER models into TMs appears complex and potentially time-consuming. The paper neglects to address the practical implications of this conversion, including the learning curve for practitioners and the potential development of automated tools to facilitate the process. This cost-benefit analysis is crucial for evaluating the feasibility of the proposed approach. Is the added complexity of TM theory justified by the practical benefits it provides?

Specific Areas for Improvement:

- Include real-world case studies where TMs offer a clear advantage over standard ER modeling.
- Directly compare TMs to existing ER extensions, highlighting their strengths and weaknesses.
- Explain how TM models can be translated into actual database schemas and implemented in real-world systems.
- Consider conducting user studies to assess the ease of use and effectiveness of TM models.

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- State explicitly the novel aspects of the paper and its contributions to the field of database design.

The paper presents an interesting and potentially valuable idea, but it is currently underdeveloped and lacks the necessary evidence and analysis to support its claims.

Declarations

Potential competing interests: No potential competing interests to declare.

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