Review of: "Semblions of Words — The Language of Natural and Artificial Neural Networks"

Rahul Sharma[1]

1 University of Alabama at Birmingham

Potential competing interests: No potential competing interests to declare.

Given the comprehensive nature and ambitious goals of the article "Semblions of Words — The Language of Natural and Artificial Neural Networks," here are some potential drawbacks and areas for improvement, followed by a suggestion for a helpful diagram.

Potential Drawbacks

Complexity and Accessibility: The article is interdisciplinary, bridging cognitive science, neural biology, and artificial intelligence. This complexity might make it less accessible to readers who are not profoundly versed in all these fields. **Improvement**: Simplify explanations where possible and include a glossary or appendices that define key terms and concepts for non-specialist readers.

Empirical Evidence and Practical Applications: While the article theorizes about the formation of neural representations and the potential for artificial self-conscious systems, there might be a gap in linking these theories to concrete empirical evidence or practical applications. **Improvement**: Incorporate more case studies, examples of empirical research, or demonstrations of these concepts in practical AI systems to ground the theory in observable reality.

Technical Assumptions and Definitions: The article introduces "semblions" as a central concept but may assume a level of technical understanding or agreement about neural and cognitive representations that not all readers possess. **Improvement**: Offer a more detailed justification for introducing new terms and concepts, discussing how they align with or differ from existing theories and models.

Future Directions and Ethical Considerations: Any discussion on artificial self-conscious systems inevitably raises ethical questions and considerations about future societal impacts. **Improvement**: Expand the discussion to include ethical considerations, potential societal impacts, and future research directions to explore the proposed models' implications fully.

Suggested Diagram

A diagram illustrating the concept of semblions, their formation, and their role in bridging cognitive science, neural biology, and artificial intelligence could greatly aid in understanding. Here’s a concept for such a diagram:

- **Diagram Title**: "The Formation and Function of Semblions in Cognitive and Artificial Neural Networks"
- **Visual Elements**:
  - A brain or neural network diagram showing different layers, with sensory input at one end leading to higher-order cognitive processes at the other.
  - Arrows or lines indicating the flow of information from sensory perceptions to the formation of semblions, and then to language processing and consciousness.
  - Icons or small illustrations representing sensory input (e.g., an eye for visual input, an ear for auditory input), semblions (possibly as interconnected nodes or clusters), and outputs such as language use and decision-making.
- **Key Areas Highlighted**:
  - Sensory perception areas where initial data is received.
  - Intermediate neural structures where semblions are formed as representations of concepts, objects, and ideas.
  - Higher cognitive areas where language processing and consciousness emerge, influenced by the structure and interactions of semblions.

This diagram could summarize the article's central thesis, making the complex interactions and processes more accessible to readers.