



# Zero Boundary and Semantic Seesaw: Exploring Linguistic Binary Oppositions

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## Abstract

Language and cognition are suspended at the "zero boundary", a metaphor for binary oppositions like "honest liar" or "poisonous remedy". This theoretical-analytical study introduces the "Semantic Seesaw", a metaphor for a semantic continuum, offering an interdisciplinary framework to explore linguistic oppositions (1, 2, 3). Qualitative analysis of paradoxical expressions (e.g., "living dead", "liberating jailer") in Persian and English was conducted. The Semantic Seesaw Method, integrating fuzzy logic (1) and cognitive neuroscience (2), transforms binary meanings into a continuum. Word therapy (quantifiers: "often", "somewhat") and exercises (tightrope walking, color gradient cards) were designed (4). The Semantic Seesaw converts binary meanings (e.g., good/evil) into a continuum (e.g., good/neutral/evil), reducing cognitive distortions. Prefrontal cortex activation (5) enhances cognitive flexibility, supporting analysis of linguistic oppositions. The zero boundary and Semantic Seesaw provide novel tools for linguistic and cognitive analysis, applicable to cognitive linguistics, neuroscience, and natural language processing. This aligns with SOLAB 2025's "Language and Thought" theme (6).

**Keywords:** Zero Boundary, Semantic Seesaw, Binary Opposition, Fuzzy Logic, Word therapy

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The Second International Biennial Conference on the Science of Language & the Brain  
(SOLAB 2025) 9-10 October