World Academy of Science, Engineering and Technology
International Journal of Cognitive and Language Sciences
Vol:19, No:08, 2025

Testing the Limits of NPI Constraints: ERP and Oscillatory Evidence from 'zenme' (no matter what) in Mandarin Chinese

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Abstract : Most research has predominantly focused on the processing of NPIs in non-veridical contexts, much less is known about how the [+Negation] constraint of NPIs functions in veridical contexts where truth conditions are explicitly asserted. This study aimed to investigate whether and how discourse context modulates the [+Negation] constraint during the processing of the Mandarin Chinese NPI ‘zenme’ (no matter what) in veridical contexts. Using a 2 × 2 design (Polarity: affirmative vs. Negative; Contextual congruency: congruent vs. incongruent), EEG data were recorded from 37 native Chinese speakers as they read compound sentences containing ‘zenme’ (no matter what). The results revealed a distinct ERP pattern at different sentence positions: At the critical word “dounenggou” (can), affirmative conditions elicited reduced posterior positivity (480-584ms) compared to negative conditions, reflecting rapid detection of polarity features. At sentence-final positions, a significant interaction was observed between polarity and contextual congruency in the N400 time window (366-488ms), with polarity differences only evident in incongruent contexts. The N400 effect suggests that mismatches between expected polarity and contextual information require additional processing effort, which becomes evident in incongruent conditions. Additionally, a Late Negative Network effect (422-800ms) was observed in the right hemisphere, where incongruent contexts elicited greater negativity than congruent contexts, reflecting the brain’s increased effort to resolve contradictions. Time-frequency analyses revealed increased power in the theta band (4-7Hz, 600-800ms) and alpha band (8-12Hz, 850-1000ms) for incongruent versus congruent conditions. In the beta band (17-24Hz, 700-950ms), affirmative-incongruent conditions elicited greater power than affirmative-congruent conditions, further confirming the involvement of higher cognitive processes in resolving polarity mismatches. These findings suggest that the processing of ‘zenme’ (no matter what) involves dynamic interactions between structural constraints and discourse context. While initial processing stages are sensitive to polarity violations, later stages integrate contextual information, particularly in veridical environments. This temporal progression from structure-based to context-driven processing extends existing models of NPI processing by revealing how discourse context modulates formal licensing requirements under explicitly asserted truth conditions. These results offer new insights into the cognitive mechanisms underlying polarity-sensitive items in Mandarin Chinese and their interaction with discourse-level constraints.

Keywords : NPI processing, ERP, polarity sensitivity, discourse context
Conference Title : ICCN 2025 : International Conference on Cognitive Neuroscience
Conference Location : Paris, France
Conference Dates : August 28-29, 2025