

Review of: "Is Time Theory Necessary to Answer Resolved and Unresolved Harmonics Problems in Pitch Perception?"

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Potential competing interests: No potential competing interests to declare.

The proposed Power Series Template (PoST) model offers an innovative approach to the long-standing debate on pitch perception by bridging elements of place theory with reinforcement learning principles. The idea of using second- and third-order nonlinearities as default teacher signals for auditory scene analysis is intriguing, and the concept of coincidence generation provides a fresh perspective on how the brain processes complex auditory signals.

However, while the model successfully addresses pitch perception up to the 10th harmonic order, the limitations for $N > 10$ raise important questions about its generalizability to more complex auditory scenarios. This suggests that further refinement of the model may be necessary to account for higher-order harmonics and their perceptual consequences.

The authors' explanations for phenomena such as the missing fundamental, octave equivalence, and pitch shift are compelling, but the model's reliance on the harmonic template approach may benefit from additional experimental validation, particularly in scenarios where time theory has traditionally been influential.