Grammaticality Judgments in Linguistic and Musical Structures

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ABSTRACT

Background

A common hierarchical organization in language and music has been speculated with accounts that posit shared syntactic rules (Katz & Pesetsky 2011) or gradient structural constraints (Optimality Theory, Katz 2006). There is evidence that processing of syntactic hierarchical organization is localized in the same cortical areas (BA 44, 45). A shared processing resources network has been suggested (SSIRH, Patel 2008).

Aims

It is not clear whether the same syntactic rules are shared or whether syntactic constraints are organized differently in language and music. It was hypothesized that participants would find stimuli containing syntactic linguistic and musical deviances less acceptable than stimuli containing a linguistic semantic deviance.

Method

An online, graded acceptability judgment task was administered to adults. Stimuli were either read or heard depending on their type. For linguistic syntax, deviant stimuli with adjective-noun mismatch were read; for musical syntax, deviant stimuli with cadence violation were heard (Jentschke et al. 2008). For linguistic semantics, deviant sentences containing reversed thematic roles of non-reversible verbs were read.

Results

Judgments were successful altogether; regular stimuli were given high scoring and irregular stimuli low scoring. Linguistic stimuli caused a binary judgment, with syntactic and semantic regular stimuli receiving the highest possible scoring, while syntactic and semantic irregular stimuli received the lowest possible scoring. Scoring for irregular music stimuli was more evenly distributed. The results were not predicted in the hypothesis.

Conclusions

Optimality Theory suggests that constraint rules are hierarchically organized for each language, resulting in hard and soft constraints. Similarly, Generative Theory of Tonal Music (Lerdahl & Jackendoff 1983) suggests constraint rules. There have been efforts to align these theories for some levels of analysis, although not for syntax. It is suggested that the constraints for linguistic stimuli are hard, whereas the constraint for music stimuli is soft but further research is needed.

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