Tonality in *Raag* Music

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Objectives

• Introduce a simple theoretical model of tonality for raag music

• Describe series of visualizations of raag space based on pitch-class distributions (PCD)

• Experimental directions
Motivation

• Why study tonality cross culturally?

• Is their a common mechanism for the processing of hierarchical pitch structures?
What is *raag*?

Scale abstraction

Ascending: C D G E F A G C
Descending: C B A G F G D C

Expression

Set of motives

- D G
- E F D C
- E F A G
- G E
A simple model of tonality

Short-term memory window

Pitch-detection

Local PCD

Compare with stored schemas

D(X,Y)
Visualizing *Raag*

- Project PCD-based representation of *raag* onto low-dimensional space using SOM
- How many tonal schemas are there?
- Perceptual distance between *raags*
Empirical Prototype Raag Map

Hameer, Bihag, Khamaj, Yaman
Empirical Segment-based
Sub-raag structure (Malkauns)

Three distinct clusters
Discussion

• Visualizations suggest:
  – number of schemas less than number of nominal raags
  – sub-raag and super-raag (\textit{thaat}) levels may be encoded (Castellano et al.)?

• Are representations of raag-schemas instance based or model based? Does this change with exposure?

• Experimental work using reaction-time paradigm