

Musicological perspective

Martin Clayton

Agenda

- Introductory presentations (Xavier, Martin, Baris) [30 min.]
- **Musicological perspective (Martin) [30 min.]**
- Corpus-based research (Xavier, Baris) [30 min.]

----- *break* -----

- Rhythm analysis (Martin, Baris) [30 min.]
- Tuning analysis (Baris) [30 min.]
- Closing remarks (Xavier) [10 min.]
- Open discussion [20 min.]

What kind of musicology?

- Based in practical and ethnographic knowledge
- Empirical and analytical
- In my case, focused on Indian music, especially rhythm

TIME IN INDIAN MUSIC

RHYTHM, METRE, AND FORM IN
NORTH INDIAN RĀG PERFORMANCE



Martin Clayton

OXFORD MONOGRAPHS ON MUSIC

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Outline

1. Rhythm, metre (and more) in Hindustani (North Indian) music
2. Computational applications

1. Rhythm, metre (and more) in Indian music

- Music moves from
 - Free > structured
 - Unmetered > metred (without tala > with tala)
 - Slow > fast
- Highly developed theory and practice of tala (metre)
- Wide variety of metrical structures, tempi, rhythmic principles
- (Only sections with tala covered here)

Tala: Principles of metre

- Basic principles of metre
 - It is based on more than 1 stream of pulsation
 - It is **hierarchical**: pulses at more than one level are felt as stronger
 - It is **perceptual**: emerges in the mind of the perceiver – can be implicit in the actual sounds
 - It requires **competence**: we learn to recognise patterns

Tala

- Tala is the Indian concept closest to metre
- Key features:
 - It is **explicit** and **externalised**
 - It can be indicated through **drumming patterns** and/or **clapping patterns**
 - It has **at least 3 levels of pulse**: time unit (matra); group (vibhag) and cycle (avartan)
 - Importance of sam (beat 1)

Tala

- Externalisation of metre allows musicians to separate rhythm from tala conceptually
- ‘Syllabic’ principle – rhythm generated by dividing time units and combining basic rhythmic figures
 - Example: 4 beats are each divided into three subdivisions; the 12 resulting pulses are grouped as 5 + 7

1			2			3			4		
1	2	3	1	2	3	1	2	3	1	2	3
1	2	3	4	5	1	2	3	4	5	6	7

- Contrasts with a ‘Melismatic’ principle – rhythm should appear free and flowing, but is anchored to the tala structure

Tala theory and practice (Rupak tal, 7 units)

- Rupak tal is a metrical structure comprising 7 time units (matras)
- The 7 matras are collected into groups: 3+2+2
- Its clapping pattern is wave-clap-clap

Rupak Tal

- First matra (sam) has a distinctive ‘light’ feel:
 - Marked by ‘wave’ gesture (khali)
 - Marked by drum stroke without resonating bass sound
 - Example: Ram Deshpande (khyal vocal), Rag Rageshree-Bahar, Rupak Tal (Vishwanath Shirodkar, tabla)

0			1		2	
tin	tin	na	dhin	na	dhin	na



Example

Manjiri Asanare Kelkar
(khyal vocal),
Raga Jhinjhoti,
Rupak Tala



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Melisma and slow tempo (Ektaal, 12 units)

- Ektaal is common in slow-tempo vocal music (khyal style)

X		0		2		0		3		4	
dhin	dhin	dhage	tirakita	tu	na	kat	ta	dhage	tirakita	dhin	na

- Melismatic music: Slow tempo, long cycles – Too slow to clap!
- Drum cues essential – ‘tirakita’
- Emphasis on approach to sam (amad)

Melisma and slow tempo



Example: Vijay Koparkar (khyal vocal), Raga Multani, Slow Ektal (12)

X		0		2		0		3		4	
dhin	dhin	dhage	tirakita	tu	na	kat	ta	dhage	tirakita	dhin	na

Syllabic rhythm (Cautal, 12 units)



- Cautal is common in vocal music (dhrupad style)
- Structure same as ektal, but:
 - Different drum pattern
 - Clapping pattern is used
- Composition structure: 3 matras x 4
 - Example: Gundecha Brothers, Rag Bhoopali, Cautal (Akhilesh Gundecha, pakhavaj)

X		0		2		0		3		4	
dha	dha	din	ta	kita	dha	din	ta	tita	kata	gadi	gana
tu	—	hi	su	—	rya	tu	—	hi	can	—	dra

X		0		2		0		3		4	
dha	dha	din	ta	kita	dha	din	ta	tita	kata	gadi	gana

- Musicians work 'against' the tal to create cross-rhythms

Gundecha Brothers
(dhrupad vocal), Rag
Bhoopali, Cautal (12)



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Tihai

- A tihai is a pattern played 3 times and used as a cadential figure
- Tihais usually end on sam or before the starting point of a composition
- Jhaptal: 10 units

X		2			0		3		
dhin	na	dhin	dhin	na	tin	na	dhin	dhin	na

X		2			0		3		
dhin	na	dhin	dhin	na	tin	na	dhin	dhin	na

Deepak Choudhury
(sitar),
Rag Anandi Kalyan,
Jhaptal (10)



2. Computational applications

- Detection of tala and structural boundaries
(Srinivasamurthy 2016, Srinivasamurthy et al 2017)
- Onset detection: analysis of timing, tempo, synchronisation etc
(Clayton et al, in press)
- Raga detection (Koduri et al 2012, Chorida and Sentürk 2013)
- Motif matching and comparison (Rao et al 2014)
- Analysis of melodic features (scale, intonation, transitions)
- Analysis of melodic development

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