

“Dansa” from Mali:
Tempo-Metrical Types in
Swing-based Meters.

Or:

Cool things that happen when
you speed up a swingin' rhythm

Or:

A plea for taking tempo into
account in metric theory and
analysis

“Dansa” from Mali:
Tempo-Metrical Types in
Swing-based Meters.

Justin London, Carleton College, USA
Rainer Polak, Hochschule für Musik
und Tanz, Köln



Outline of Talk

- An Introduction to Mande Drum Ensembles
 - What are they and where are they from?
 - Characteristic Ensemble & Textural Roles
- What is a Tempo-Metrical Type?
- What is a Swing-based Meter?
- Tempo-Metrical Types in “Dansa”
 - TMTs in Swing-based Meters
 - Broader Implications for Metric Theory

Mali



Social Celebration, Music and Dance

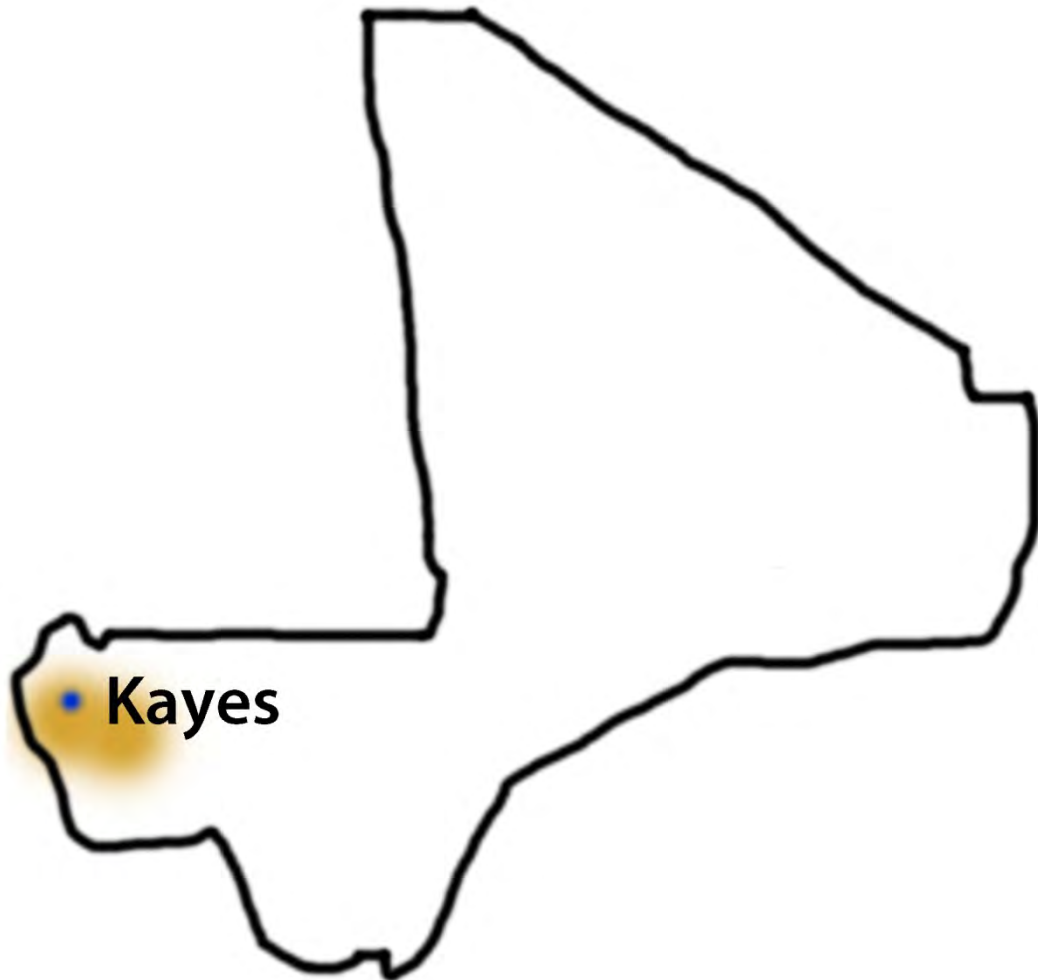


Social Celebration, Music and Dance



Ethnic Group: Khasonka

Main Drum: Dundunba



Textural Elements in Dansa

- Stock accompaniment pattern, which establishes/maintains the metric framework
- The “Hook” pattern
 - Defines the particular piece
 - Affords figural orientation (cf. “timeline”, “clave”)
- The lead drum
 - Performs variations and “hot” flourishes
 - Controls the overall rhythmic flow
 - Coordinates performance interaction w/dancers

Metrical Types

Two varieties of common time:



- These are different meters
- (b) is metrically richer and affords more complex rhythmic patterning than (a)

Distinguishing Metrical Types

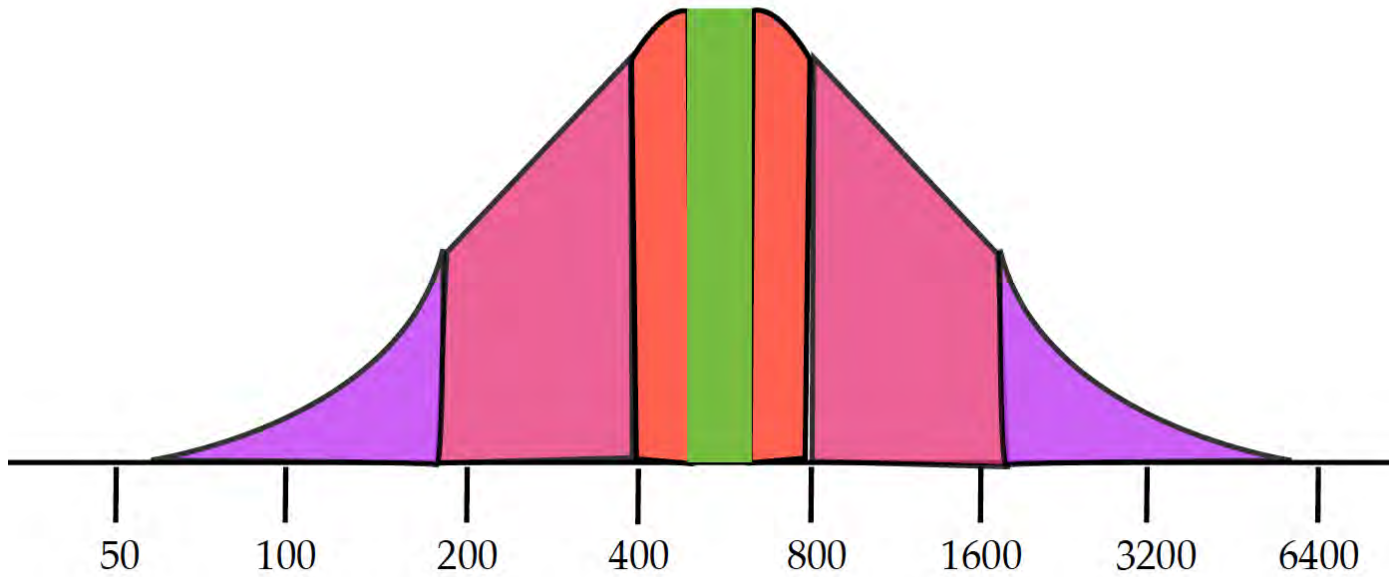
- Total number of elements they contain (i.e., cardinality of the fastest level)
- Number of metrical levels present
- Organization of each level
- Placement(s) of the tactus(es) within the meter
- Isochronous vs. non-isochronous organization of any level(s)

Tempo Considerations

Most meters are comprised of periodicities at a number of distinct rates/IOIs:

- 100ms (600 BPM): Fastest/shortest elements
- 100 -> \cong 300ms (300-200 BPM): Obligatory SDs
- 300-1000ms: Range of beat perception
 - 500-600ms preferred periodicity for tactus
- 1500-2000ms: Slowest/longest elements

Tempo Considerations



Metrical Type + Tempo

A Tempo Metrical Type indexes each metrical level according to its absolute temporal value:

SDs	Beats	2/4	4/4
100	200	400	800
125	250	500	1000
150	300	600	1200
175	350	700	1400
200	400	800	1600
225	450	900	1800
250	500	1000	2000
275	550	1100	2200
300	600	1200	2400
350	700	1400	2800
400	800	1600	3200
450	900	1800	3600
500	1000	2000	4000
550	1100	2200	4400
600	1200	2400	4800
650	1300	2600	5200

- Yellow: Very Short SDs
- Green: SD -> Beat Shift
- Brown: Maximal Beat Salience
- Blue: Very Slow Beats

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250	500	1000	2000
275	550	1100	2200
300	600	1200	2400
350	700	1400	2800
400	800	1600	3200
450	900	1800	3600
500	1000	2000	4000
550	1100	2200	4400
600	1200	2400	4800
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→ About three distinct TMTs here.

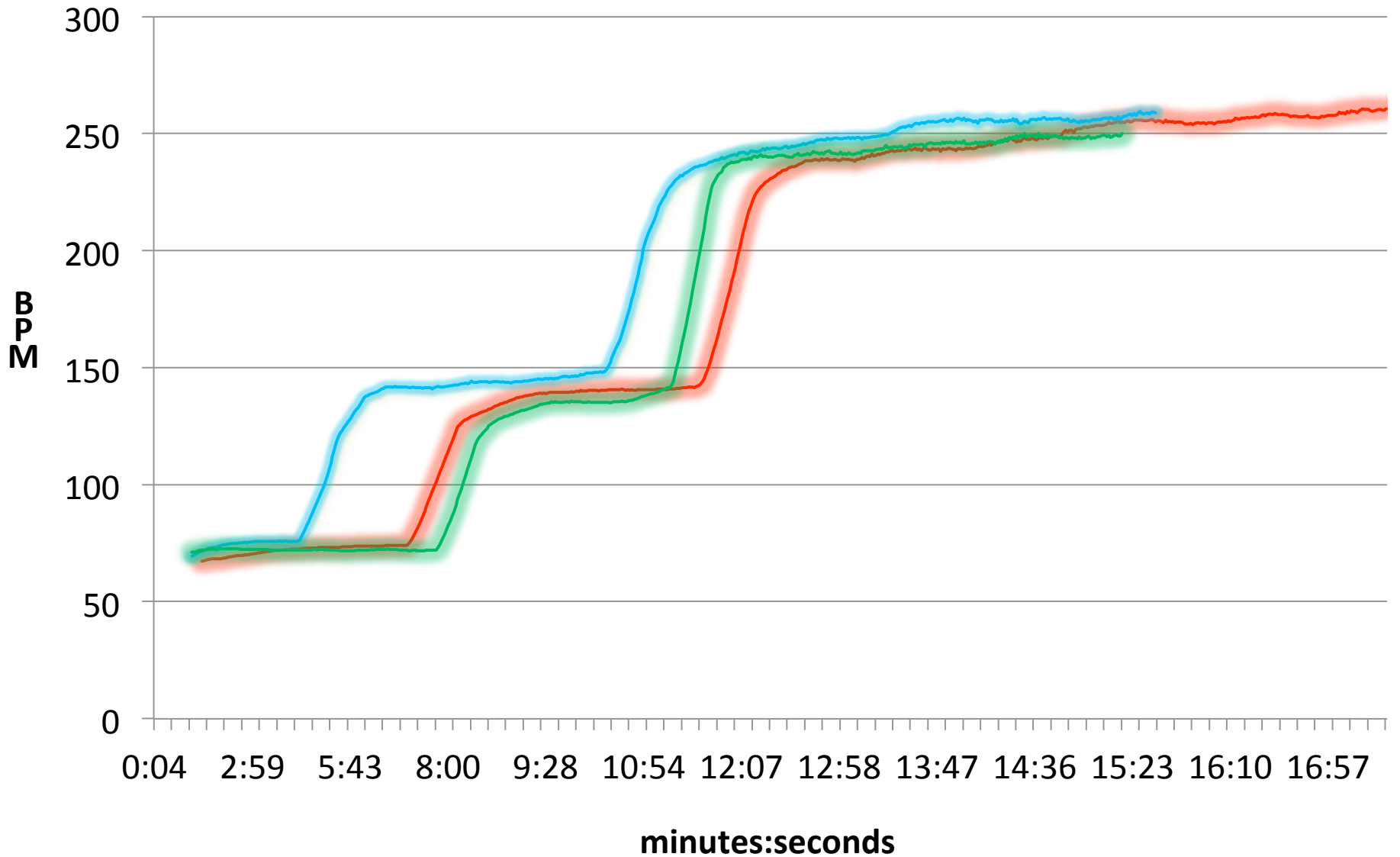
Swing Meters

- Occur in the context of an isochronous beat
- Involve a categorically uneven subdivision of that beat
- Can be manifest with 2, 3, or 4 elements
 - LS or SL; SLL or LSS, etc.
 - 2-element patterns, for example, are neither a duplet (1:1) nor a triplet (2:1)“
 - Tendency toward a 3:2 ratio for duplets

“Dansa”

- Most popular piece of Khasonka Drumming, emblematic of the ethnic style
- Performances involve drumming, dancing, and singing (not “concert music”)
- Live performances of Dansa:
 - Last 10 to 30 min
 - Involve a tempo acceleration of 200-300%

Tempo in Dansa (= 3 TMTs)

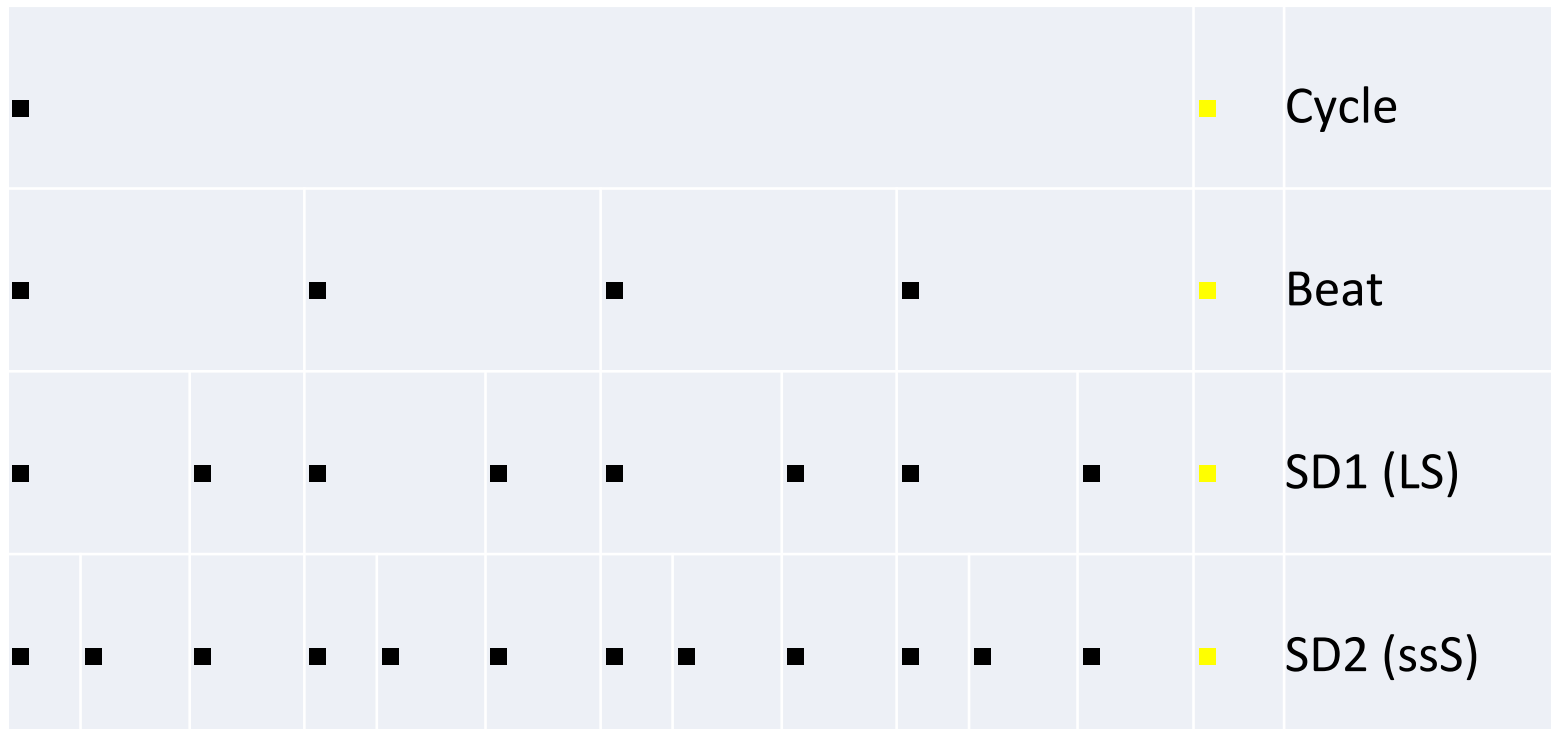


Accompaniment in Dansa

- Core swing meter is a Long-Short pattern, articulated by the bell
- Divisibility of L-S elements changes over course of performance:
 - At slow tempo both L and S divisible
 - At middle tempo only L is divisible
 - At fastest tempo neither is divisible

Bifurcated Metric Hierarchies

- Long is divisible, Short is not
- Both binary and ternary SDs can be co-present



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Hook Part in Dansa

- Hook is aligned to L-S subdivision:

Beat	1		2		3		4	
Subdivision	L	S	L	S	L	S	L	S
Hook TMT1	O		O	o		O	O	o
Hook TMT2	O	O		o		O	O	
Hook TMT3	O			o		O	O	

- O = open stroke; o = closed stroke
- Green = core Hook pattern
- At fastest tempo, Hook reduced to core pattern



TMT1 Dance & Drumming



TMT1 Bell and Hook

♦				♦				♦				♦			
tan		tan		tan		tan		tan		tan		tan		tan	
59		42		58		42		57		42		58		42	
x	x	x		x	x	x		x	x	x		x	x	x	
26	35	41		26	35	37		26	36	40		26	35	38	
O				O		◦				O		O		◦	
99				59		101				40		59		42	
x	x	x	x	x	x	x		x	x	x	x	x	x	x	
27	35	39		29	31	19	19	30	33	39		31	30	20	17
O	O				◦	O		◦	◦				◦	◦	O
26	103				31	39		28	104				28	24	16

TMT2 Dance & Drumming



TMT2 Bell & Hook

- Binary L-S / ternary bifurcation (s-s)-S still present
- No division of the Short element

◆			◆			◆			◆		
tan	tan	tan	tan	tan	tan	tan		tan	tan	tan	
25	35	38	29	33	38	29	32	39	29	33	40
x		x	x		x	x		x	x		
56		40	62		40	59		41	56		46
O		O			°			O	O		
57		101			99			42	101		
x	x	x	x		x	x		x	x	x	
22	32	45	58		40	60		41	26	35	42
O	°		O					O	O	O	
19	79		159					43	20	36	44

TMT3 Dance & Drumming



TMT3 Tantan & Hook

- Only binary subdivision left; L-S flattened out
- Beat paring: higher-level S-L organization

♦				♦			
tan	tan	tan	tan	tan	tan	tan	tan
18	22	34	26	20	23	27	30
x		x	x	x	x	x	
47		29	24	26	24	50	
O			◦		O	O	
76			47		26	51	
x	x		x			x	x
24	54		70			24	28
O	O					O	O
23	124					24	29

TMT Analysis in Swing Meters

Short	Long	Beat ms	Beat BPM
80	120	200	300
88	132	220	273
96	144	240	250
104	156	260	231
112	168	280	214
120	180	300	200
128	192	320	188
136	204	340	176
144	216	360	167
152	228	380	158
160	240	400	150
168	252	420	143
176	264	440	136
184	276	460	130
192	288	480	125
200	300	500	120
208	312	520	115
208	312	520	115
224	336	560	107
232	348	580	103
240	360	600	100
256	384	640	94
272	408	680	88
288	432	720	83
304	456	760	79
320	480	800	75

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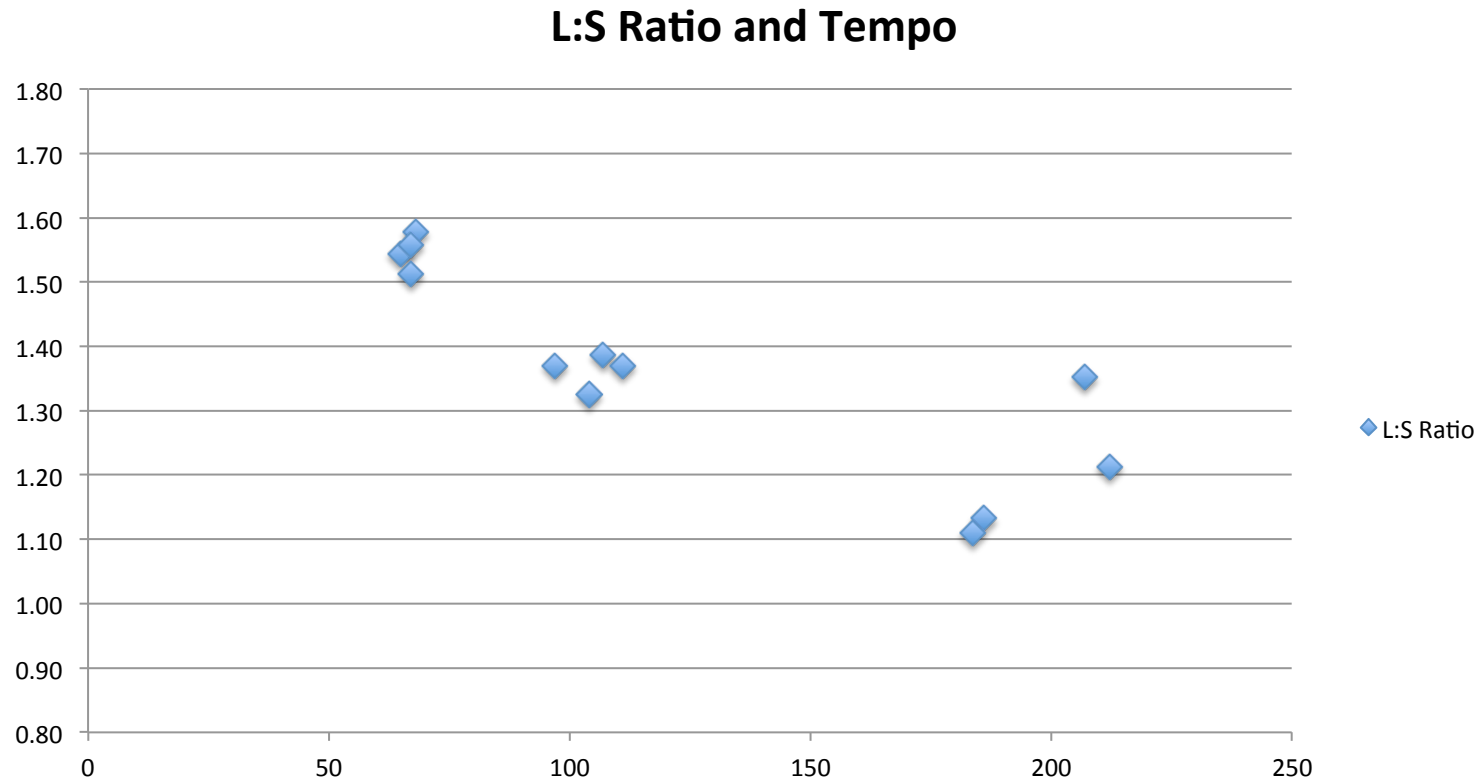
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TMT Analysis in Dansa

A complication: non-linearity in the swing ratio



TMT Analysis in Dansa 2.0

Long IOI	Short IOI	Beat IOI	Beat BPM
609	391	1000	60
562	361	923	65
522	335	857	70
487	313	800	75
457	293	750	80
277	203	480	125
267	195	462	130
257	188	444	135
248	181	429	140
239	175	414	145
231	169	400	150
224	163	387	155
164	137	300	200
156	130	286	210
149	124	273	220
142	119	261	230
136	114	250	240
131	109	240	250
126	105	231	260

TMT1 L:S Ratio
60.9:39.1

TMT2 L:S Ratio
57.8:42.2

TMT3 L:S Ratio
54.5:45.5

Conclusion

- Dansa, with its dramatic and distinct tempo changes, demonstrates the musical affordances of different TMTs.
- Dansa, with its swing-based meter, shows the interaction between swung subdivision, tempo, and metric hierarchy.
 - TMTs are more complex in swing meters than in simple isochronous meters.
- Dansa shows that the swing ratio itself is tempo-dependent.

Conclusion

- The dynamic nature of the swing ratio in Dansa has implications for study of other swing-based musics, especially in jazz
- Why do we like swing?
 - It marks the beat (onbeat/offbeat positions unambiguous)
 - Gives propulsive energy to the beat (Butterfield 2011)
 - It makes tempo changes, even small ones, more subtle and interesting.

Thank you for your kind
attention

Swing Meters

- Characteristic of particular pieces and styles
- Occur across a wide range of tempos
 - Though affected by some constraints/limits
- Shape the rhythmic surface and coordinate different levels of the metrical hierarchy
 - Evident in the timings of parts that are rhythmically sparse
 - Interact with other aspects of timing such as phrasing, group boundaries, etc.

Swing Meter TMTs in Dansa

- Divisibility of L-S elements changes over course of performance:
 - At slow tempo both L and S divisible
 - At middle tempo only L is divisible
 - At fastest tempo neither is divisible
- Loss of hierarchic depth
- Reduction of metric density
- Shift of beat/tactus level, most strongly heard in the relation of the tactus to the “hook”