



a journal of the Society for Music Theory

MTO 20.2 Examples: Nicole Biamonte, Formal Functions of Metric Dissonance in Rock Music

(Note: audio, video, and other interactive examples are only available online)

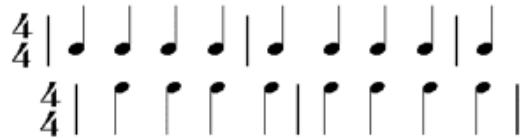
<http://www.mtosmt.org/issues/mto.14.20.2/mto.14.20.2.biamonte.php>

Example 1. Temporal organization of pop-rock music

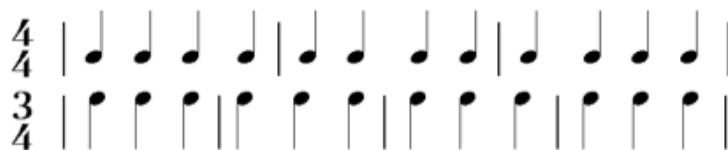
LEVEL	UNIT	NORMAL GROUPINGS
section level	section (groupings of phrases)	variable
hypermetric level	hyperbar (often aligned with phrases)	double and quadruple
metric level	bar (groupings of beats)	usually quadruple
tactus level	tactus or beat	often quadruple
subtactus level	subdivisions of beat	double, in-between, triple, quadruple

Example 2a. Krebs's types of dissonance

displacement dissonance (syncopation-type):
nonaligned layers with the same grouping structure

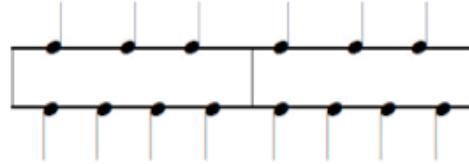


grouping dissonance (hemiola-type):
layers with different grouping structures that periodically realign

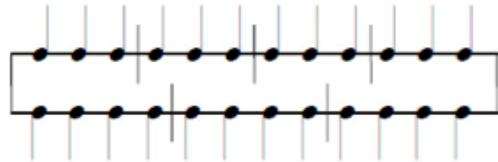


Example 2b. Waters's types of grouping dissonance

measure-preserving:



tactus-preserving (= hypermeasure-preserving):



Example 3a. Kansas, "Carry On Wayward Son" (1976), rhythmic displacement dissonance in first phrase of chorus melody

Example 3b. Black Sabbath, "Paranoid" (1970), rhythmic displacement dissonance in first phrase of verse melody

Example 3c. AC/DC, "For Those About to Rock" (1981), rhythmic grouping dissonance in guitar introduction

Example 3d. Van Halen, “Jump” (1983), rhythmic displacement and grouping dissonances in synthesizer introduction

Example 4a. Rufus featuring Chaka Khan, “Tell Me Something Good” (1974), perceptual strong beats in bass and vocals at end of verse (audio begins four bars before this transcription and extends two bars after, leading into the chorus)

Example 4b. Steve Winwood, “Slowdown Sundown” (1981), end of chorus

Example 4c. Rush, “Free Will” (1980), metric grouping dissonance in verse melody

8 There are those who think that life has no - thing left to chance, a
8 host of ho - ly hor - rors to di - rect our aim - less dance.

Example 5a. The Beatles, “I Want to Hold Your Hand” (1963), hypermetric displacement dissonance at end of bridge

| Dm7 | G7 | C | Am |
And when I touch you, I feel happy inside

| Dm7 | G7 | C |
It's such a feeling that, my love, I can't

| D | C | D | C | D | D |
hide, I can't hide, I can't hide. Yeah,

Example 5b. The Beatles, “I Am the Walrus” (1967), hypermetric grouping dissonance in verse

| A | : A/G | C | : D | D/E | A | : A/G |
I am he as you are he as you are me and we are all to - gether,

| C | : D | A |
See how they run like pigs from a gun see how they fly, I'm crying.

| A | : A/G | D⁹/F[#] | : F | G | A | : A/G |
Sitting on a cornflake, waiting for the van to come.

| F | : B | B |
Corporation T-shirt, stupid bloody Tuesday, man you been a naughty boy you let your face grow long, I am the

| C | : D | E |
egg man, they are the egg men, I am the walrus. Goo goo g'joob.

Example 6. Standard rock beat

Musical notation showing a standard rock beat. The tempo is indicated as 80-160 BPM. The time signature is 4/4. The notation includes three staves: 'hi-hat' (x marks), 'snare drum' (solid black notes), and 'bass or kick drum' (solid black note). Below the notation is a blue waveform visualization of the audio signal.

Example 7a. Queen, "We Will Rock You" (1977), body percussion backbeat

Musical notation for Example 7a. It shows two staves: 'hand claps' (indicated by a hand icon) and 'foot stomps' (indicated by a foot icon). The rhythm consists of eighth-note pairs followed by rests.

Example 7b. Jimi Hendrix, "Foxy Lady" (1970), guitar mimicking backbeat



Example 8. Common clave-based rhythms in rock music

Musical notation for Example 8, showing common clave-based rhythms in rock music. The rhythms are labeled above the notation:

- clave**: 3 3 4 | 2 4
- tresillo**: 3 3 2
- Charleston**: 3 5
- double tresillo**: 3 3 3 | 3 2 2 | 3 3 3 | 3 4

The notation consists of four measures of 4/4 time, each containing a different combination of these rhythmic patterns.

Example 9. Formal functions of metric dissonance

SCALE OF METRIC DISSONANCE	FORMAL FUNCTION
small-scale	initiating dissonance cadential hemiola partial-bar link
large-scale	loose verse / tight chorus dissonant bridge dissonant frame

Example 10a. The Beatles, “Martha My Dear” (1968), opening of introduction and verse
(audio is instrumental verse beginning at 1:22)

The musical score consists of four staves. The top two staves are grouped by a brace and labeled '(vocals)' above the treble clef and 'piano' below the bass clef. The bottom two staves are also grouped by a brace and labeled 'snare, handclaps' above the treble clef and 'bass drum' below the bass clef. The score is in common time (indicated by '4') throughout. The vocal and piano parts begin with a 2/4 measure, followed by a 3/4 measure, and then a 4/4 measure. The snare and handclaps parts begin with a 2/4 measure, followed by a 3/4 measure, and then a 4/4 measure. The bass drum part begins with a 2/4 measure, followed by a 3/4 measure, and then a 4/4 measure. The vocal and piano parts have eighth-note patterns, while the snare and handclaps parts have sixteenth-note patterns. The bass drum part has eighth-note patterns.

Example 10b. The Cars, “Just What I Needed” (1978), opening

“fake-out” hearing

retrospective hearing

Example 10c. Other initiating dissonances

Initial irregular grouping (London’s Garden-Pathing #2)

Chuck Berry, “Johnny B. Goode” (1958), introduction: groups of three 8th notes shift to straight 4/4
 Beatles, “Martha My Dear” (1968), refrain: begins with bars of 3/4 and 2/4
 Beatles, “Savoy Truffle” (1968), verse: begins with bars of 7/8 and 6/8
 Beatles, “Don’t Let Me Down” (1969), verse: 5/4 bar at the beginning of both verse phrases
 Chicago, “Make Me Smile” (1970), introduction: initial 3/4 gives way to 4/4

Initial displacement (suggests wrong downbeat; London’s Garden-Pathing #1)

Beach Boys, “Caroline No” (1966)
 Jimi Hendrix, “Are You Experienced” (1967) and “All Along the Watchtower” (1969)
 Black Sabbath, “Iron Man” (1971)
 The Eagles, “Take it Easy” (1972)
 Rolling Stones, “Start Me Up” (1981)
 Ozzy Osbourne, “No More Tears” (1991)
 Radiohead, “Packt Like Sardines in a Crushed Tin Box” (2001)

Initial meter unclear (London’s category V: rhythmic/metric vagueness)

Led Zeppelin: “Rock and Roll” (1971), “Houses of the Holy” (1973),
 “Over the Hills and Far Away” (1973), and “Custard Pie” (1975)
 Alan Parsons Project: “I, Robot” (1977)

Example 11a. David Bowie, “Changes” (1971), end of chorus melody

The musical score consists of two staves. The top staff is in 4/4 time and features chords G7, F, C, C/B, C/A, C/G, F, F/E, and D. The lyrics "Ch-ch-ch-ch-changes" are repeated over these chords. The bottom staff is also in 4/4 time and shows chords Am, G, Bb⁹, F, Am, G, F/G, and C. The lyrics "Time may change me, but I can't trace time." are唱ed. The notation includes various rhythmic patterns and rests.

Example 11b. Led Zeppelin, “Rock and Roll” (1971), refrain melody

A single staff of music in 4/4 time with a key signature of two sharps. The melody is composed of eighth-note patterns. Above the staff, there are markings for "3 ♪", "2 ♪", and "A". The lyrics "It's been a long time, been a long time, been a long lone - ly, lone - ly, lone - ly, lone - ly, lone - ly time..." are written below the notes.

Example 11c. Beatles, “The End” (1969), ending

The musical score is divided into two staves. The top staff, labeled "vocal", contains the lyrics "And, in the end, the love you take is". The bottom staff, labeled "piano", provides harmonic support with sustained notes. The second half of the score shows a transition to a 12/8 time signature. It includes lyrics "e - qual to the love you make." and "add strings". The instrumentation is expanded to include "add gtr", "cello", "bass", and "8vb". The piano part continues with eighth-note patterns.

Example 11d. Other cadential hemiolas

Jimi Hendrix, “Axis: Bold as Love” (1967), end of verse
Jimi Hendrix, “House Burning Down” (1968), end of chorus
The Band, “The Weight” (1968), end of chorus
Kansas, “Carry On Wayward Son” (1976), end of introduction
Guns n Roses, “Sweet Child ‘o Mine” (1988), end of chorus

Example 12a. Prince, “Purple Rain” (1984), verse into chorus (audio begins one phrase before notated example)

Musical notation for Example 12a. The score is in 4/4 time with a key signature of one flat. It features a melodic line with eighth-note patterns. The first measure starts with a bass note followed by a series of eighth notes. The second measure begins with a bass note, followed by a measure in 2/4 time with eighth-note pairs. The third measure starts with a bass note, followed by a measure in 4/4 time with eighth-note pairs. The lyrics "I on - ly wanted to see you laughing in the pur-ple_ rain. Pur-ple_ rain, pur - ple rain." are written below the notes. Measure labels F7, Bb, and Eb are placed above the measures to indicate harmonic progressions.

Example 12b. Derek and the Dominos, “Layla” (1971), chorus into verse

Musical notation for Example 12b. The score is in 4/4 time with a key signature of one flat. It features a melodic line with eighth-note patterns. The lyrics "Lay - la_" and "Darling won't you ease my worried mind..." are written below the notes. Measure labels Dm, Bb5, C5, D5, Dm, Bb5, C5, and C#m are placed above the measures to indicate harmonic progressions.

Example 12c. Other partial-bar links

Bobby Fuller Four, “I Fought the Law” (1966), 2/4 bars at end of verse and bridge
Jimi Hendrix, “Castles Made of Sand” (1967) and “Little Wing” (1968), 2/4 bar at end of verse
Beatles, “Back in the U.S.S.R.” (1968), 2/4 bar leads into bridge
Beatles, “The Continuing Story of Bungalow Bill” (1968),
2/4 bar in middle of refrain marks modulation from C major to A major
Beatles, “The Ballad of John and Yoko” (1969), 2/4 bar leading out of bridge
Elton John, “Your Song” (1970), 2/4 bar at end of refrain
B-52s, “Rock Lobster” (1978), 2/4 bar at beginning of bridge

Example 13a. Alice in Chains, “Them Bones” (1992)
 (audio begins with second 4 bars of verse and continues through first refrain)

SECTION	intro	verse	refrain	solo (verse+refrain)	intro	verse	final refrain
# BARS	4	4 + 4	4	(4 + 4 + 4)	4	4 + 4	12
METER	: 7/4	: 7/4	: 4/4	: 7/4	: 4/4	: 7/4	: 7/4
KEY	D minor						

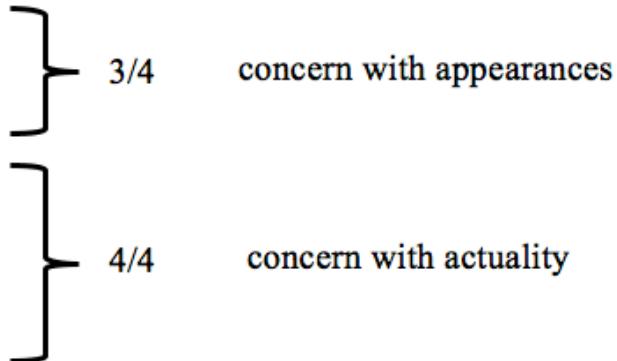
Example 13b. Rush, “Limelight” (1981)

VERSE: [mixed 3/4, 4/4, and 2/4]

CHORUS:

Living in the limelight,
 the universal dream
 for those who wish to seem.

Those who wish to be
 must put aside the alienation,
 get on with the fascination,
 the real relation,
 the underlying theme.



Example 13c. Other metric LVTC structures

- Beatles, “Lucy in the Sky with Diamonds” (1967), verse in 3/4, chorus in 4/4
- Beatles, “All You Need is Love” (1967), verse in 7/4, chorus in 4/4
- Rush, “Freewill” (1980), verse in 6/4, 7/4, and 8/4; chorus in 4/4
- Rush, “Subdivisions” (1982), verse in 7/4, chorus 4/4
- Radiohead, “Ripcord” (1993), recurring 2/4 bars in verse; chorus in 4/4

Example 14a. Yes, “Roundabout” (1971)

SECTION	intro	verse	[intro]	verse	chorus	[intro]	[verse, trans.]	bridge	intro	chorus	solos	[verse, coda]		
# BARS	(12+8)	14	4	10	16	(6+2)	chorus]	(2)	48	14	8	40	chorus]	(16 + 2)

METER	4	4	(6)	4	4	(6)	4	(4)	4	(4)	(4)	(4)	(4)	(4)
	4	4	(4)	4	4	(4)	4	(4)	4	4	4	4	4	4

KEY E minor E dorian G major E dorian E dorian E min G maj E minor

2 ♫ rhythmic displacement dissonance

Play 3 times

A - long the drift-ing cloud, the ea-gle search-ing down on the land.
 Catch-ing the swirl-ing wind, the sail-or sees the rim of the land.
 The ea-gle's danc-ing wings, cre-a-te as weath-er spins out of hand.

GUITARS: 4 ♫ (= 3+3)
 DRUMS: 4 ♫ (= 2+2) metric (or rhythmic) grouping dissonance

Example 14b. Radiohead, “Paranoid Android” (1997)

SECTION	intro	A section		B section	C section	B'
# BARS	6	verse	refrain	verse/bridge trans.	passacaglia	coda
METER	4	:	4	: : 4 7 4 : : 4 8 4 : : 4	24	(4 3+1) 2x
	4	:	4	: : 4 7 4 : : 4 8 4 : : 4	4	4 7 4 4 8 4

KEY G dorian Gm→Am A min/C maj Cm→Dm A min/C maj

Example 14c. Other metrically dissonant middle sections

Beatles, "Being for the Benefit of Mr. Kite" (1967), returns as coda
 Led Zeppelin, "Dazed and Confused" (1969) and "Down by the Seaside" (1975)
 Jimi Hendrix, "Rainy Day, Dream Away" (1968) and "1983 (A Merman I Should Turn to Be)" (1968)
 Jimi Hendrix, "Purple Haze" (1967) and "Voodoo Child (Slight Return)" (1968), returns as coda
 Doors, "Light My Fire" (1967)
 Radiohead, "Subterranean Homesick Alien" (1997)
 Tool, "The Pot" (2006)

Example 15a. Rush, "YYZ" (1981)

SECTION	intro	trans	A	B	solo	C	A	coda
# BARS	(2+20)	5	(16+16)	(16+8)	17	16	(16+17)	6
METER	$\frac{10}{8}$	$\frac{12}{8}$	4	4	4	4	4	varied
KEY	C locrian	A → C	B phrygian major	A dorian	A → C	→ Bm		

Example 15b. Led Zeppelin, "Kashmir" (1975)

SECTION	intro	verse	trans.	[intro]	tr.	bridge 1	tr.	bridge 2	[intro]	verse	tr.	[intro]	tr.	bridge 2
# BARS	6	12	4	2	(1+1)	20	4	20	6	12	4	2	4	42 (fade)
METER	$\frac{4}{4} + \frac{6}{8}$	$\frac{4}{4} + \frac{6}{8}$	$\frac{4}{4} (3332)$	$\frac{4}{4} + \frac{6}{8}$	$\frac{4}{4} (48)$	$\frac{4}{4} (322333)$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4} + \frac{6}{8}$	$\frac{4}{4} + \frac{6}{8}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4} + \frac{6}{8}$	$\frac{4}{4}$
KEY	D	[seq.]	[seq.]	[V]	[iv-V]	[seq.]	[seq.]	[iv-V]						

Mellotron 6 ♩ (=3+3)

gtr

TAB

drums

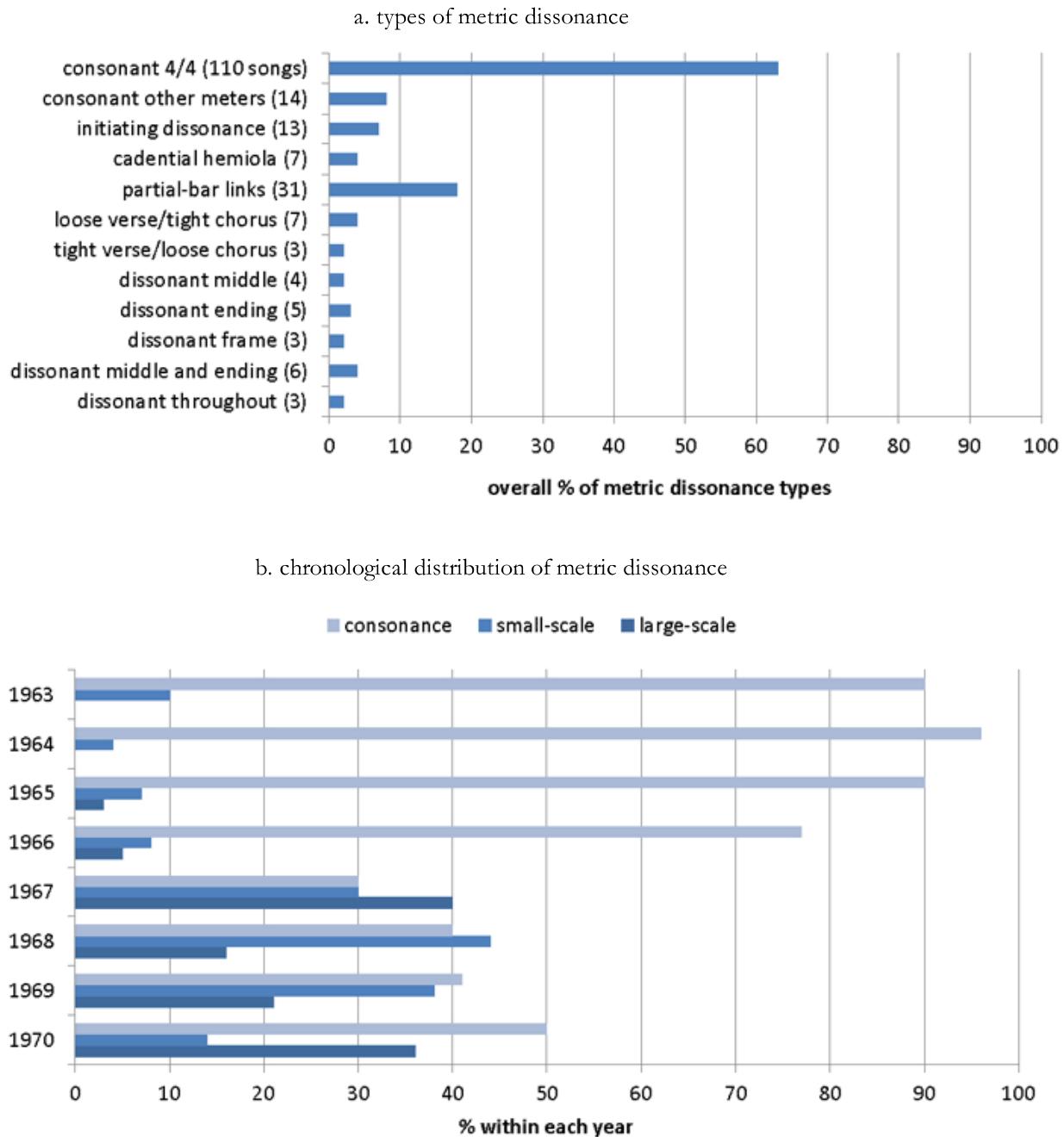
continue pattern

triple hemiola

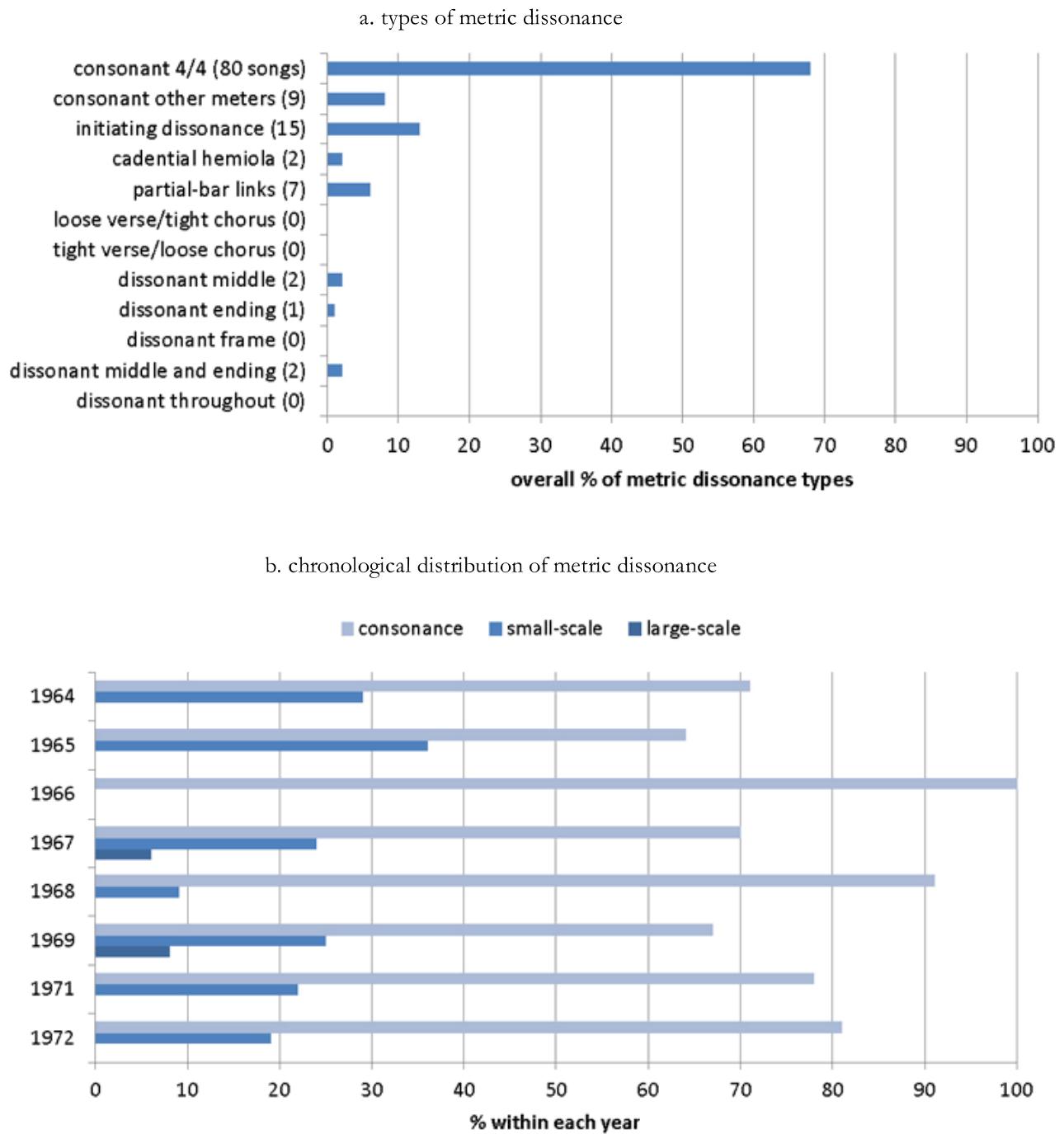
simile

4 ♩ (= 2+2)

Example 16. Beatles corpus: 176 songs (all songs excluding covers)

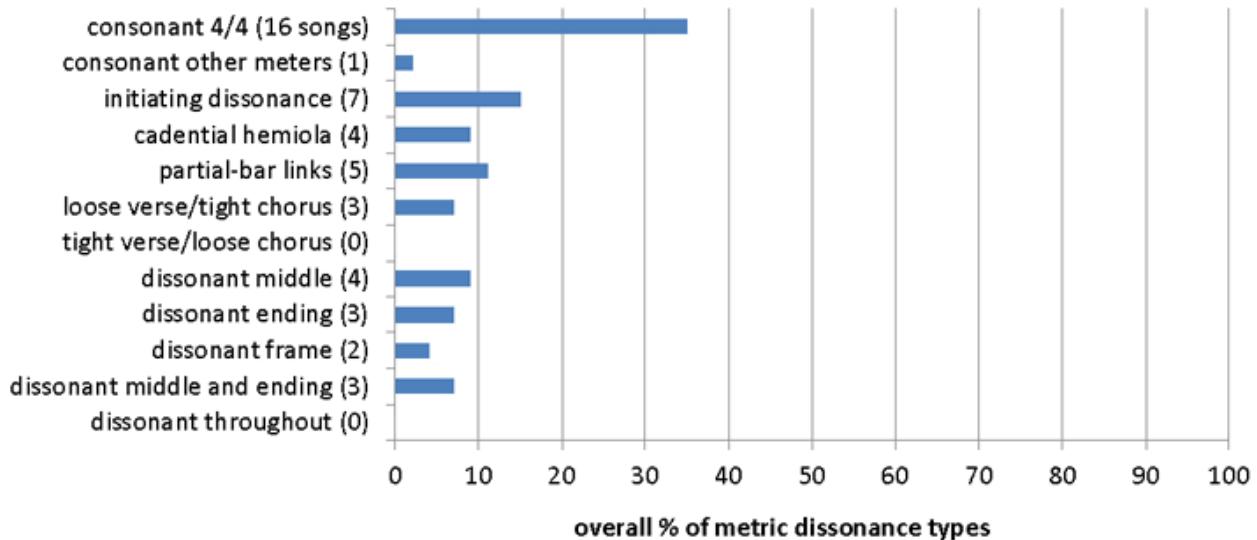


Example 17. Rolling Stones corpus: 118 songs (all songs through 1972 excluding covers)

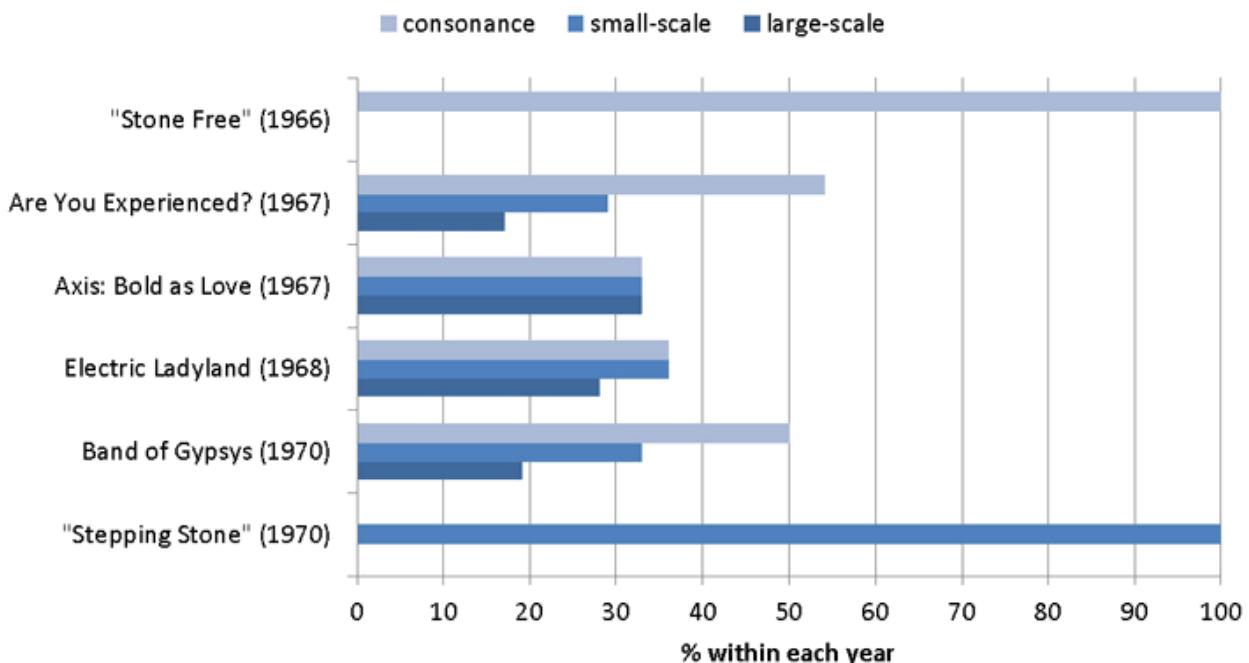


Example 18. Hendrix corpus: 45 songs (studio albums and singles released during lifetime)

a. types of metric dissonance

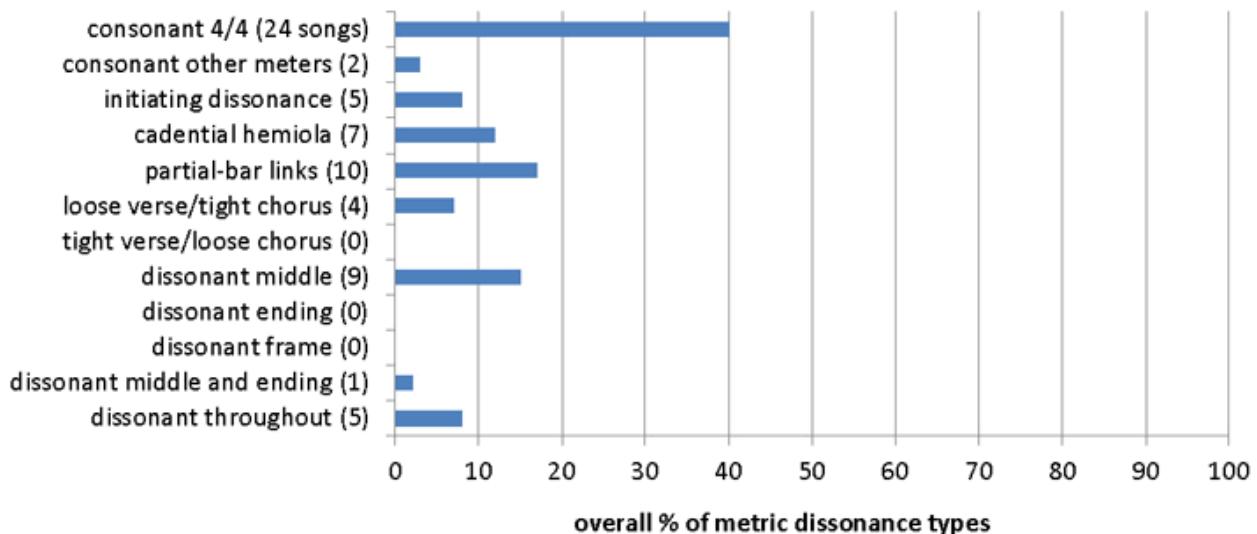


b. chronological distribution of metric dissonance

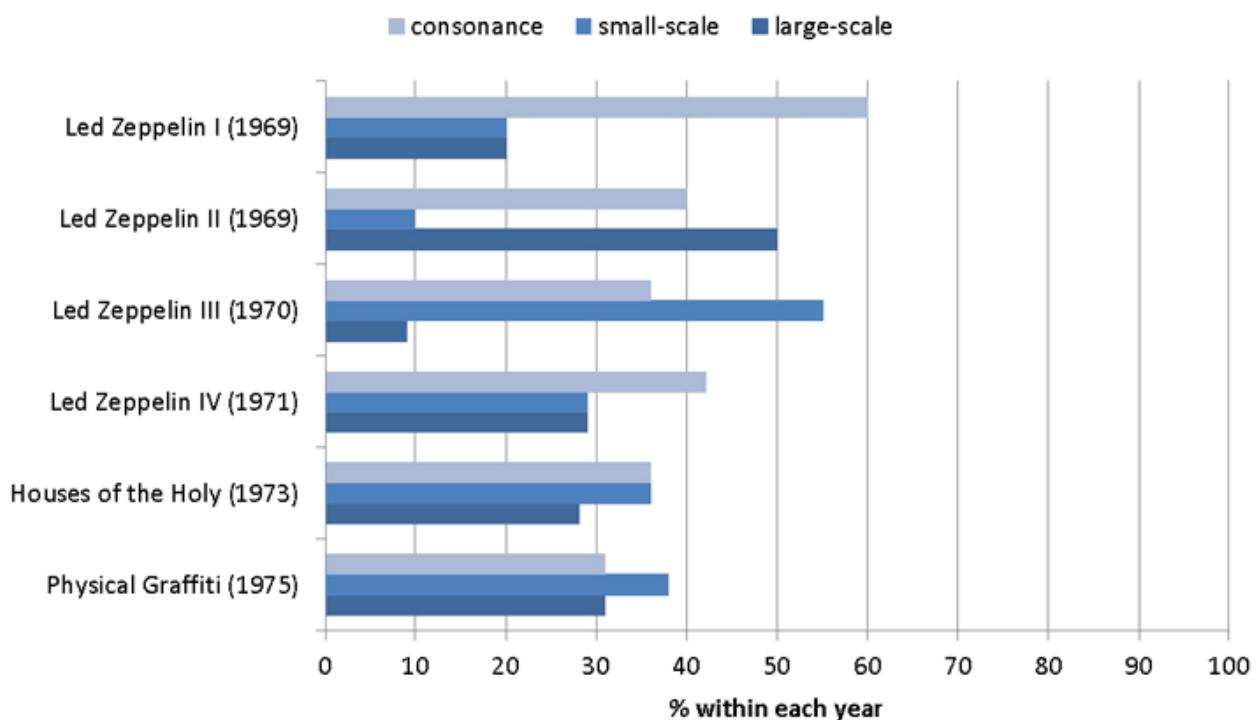


Example 19. Led Zeppelin corpus: 59 songs (first six albums)

a. types of metric dissonance

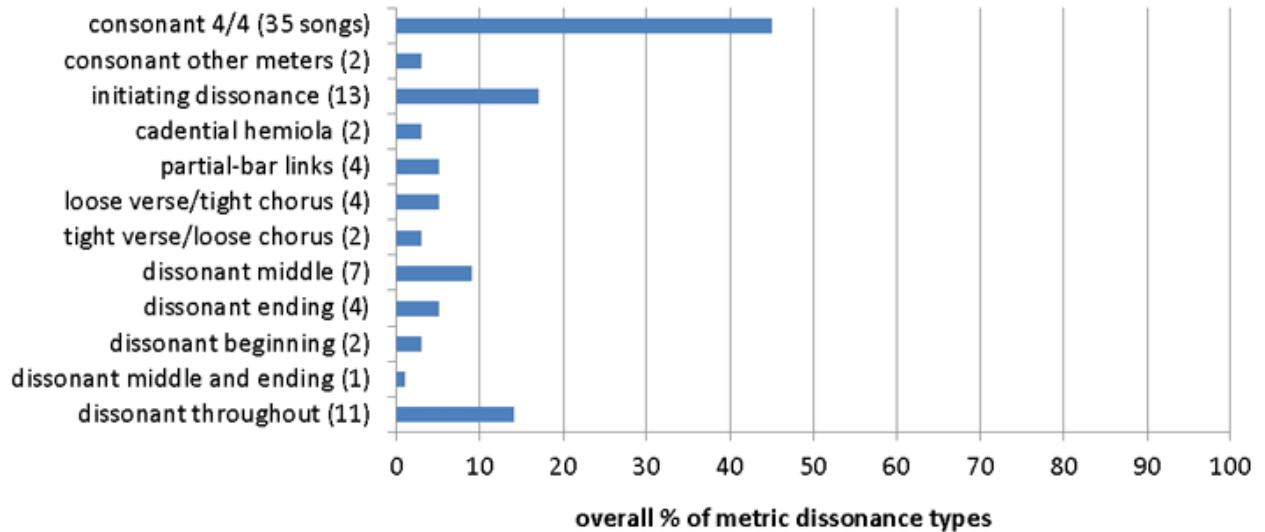


b. chronological distribution of metric dissonance

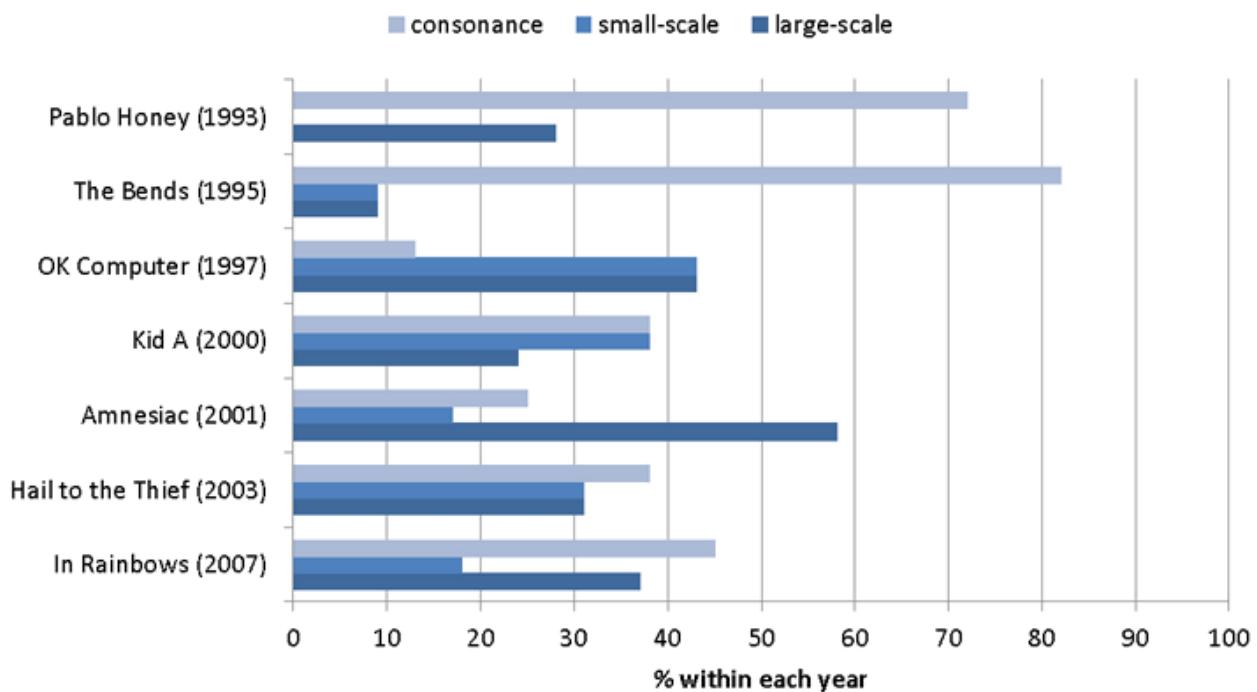


Example 20. Radiohead corpus: 77 songs (first seven albums)

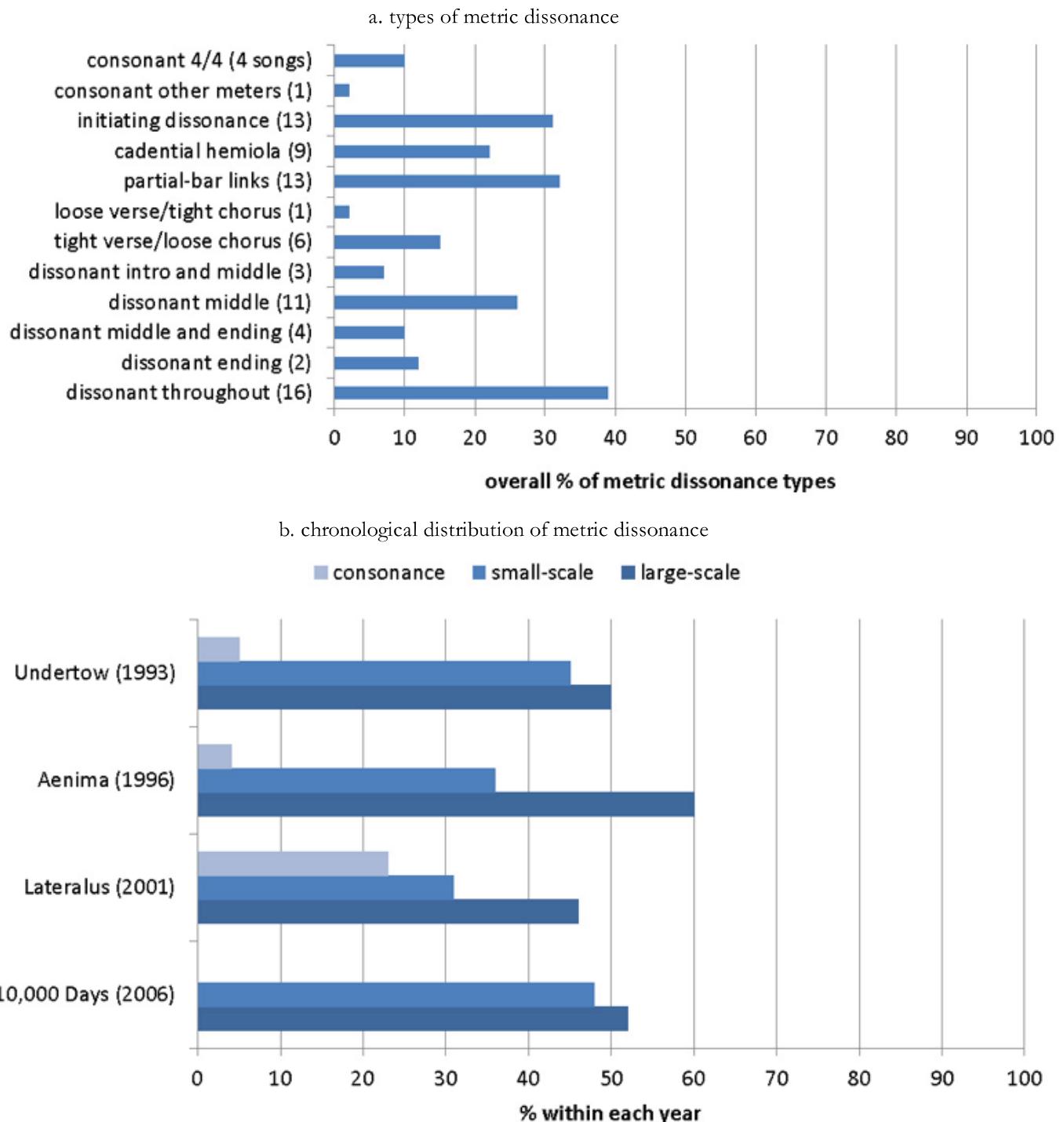
a. types of metric dissonance



b. chronological distribution of metric dissonance

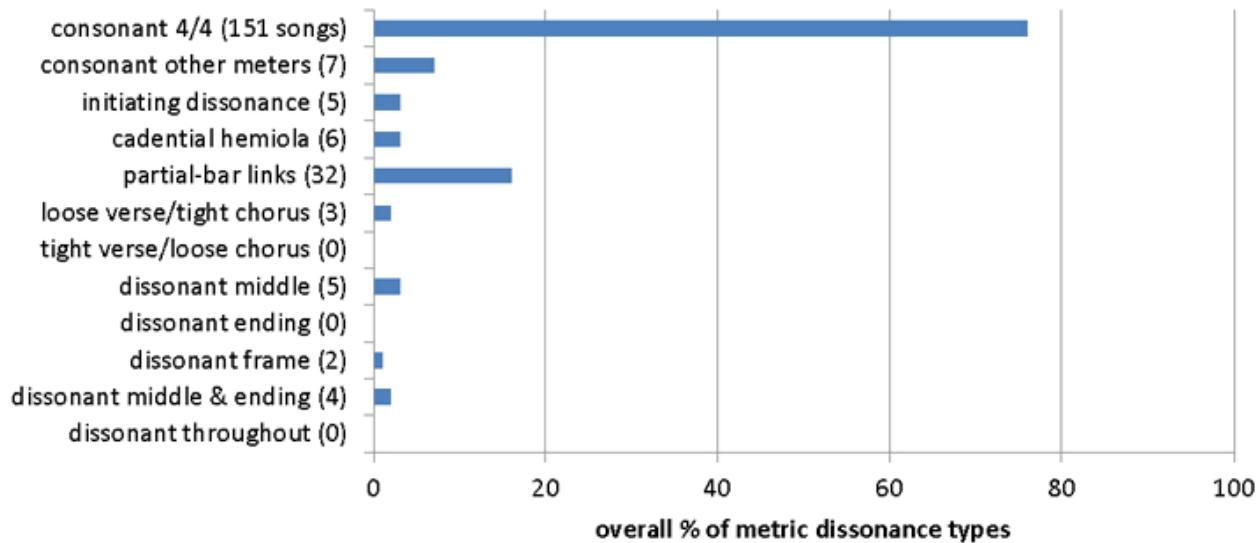


Example 21. Tool corpus: 39 songs (four studio albums)



Example 22. *Rolling Stone* 200 corpus: 200 songs (extracted from Rolling Stone Magazine's "500 Greatest Songs of All Time" in DeClercq and Temperley 2011)

a. types of metric dissonance



b. chronological distribution of metric dissonance

