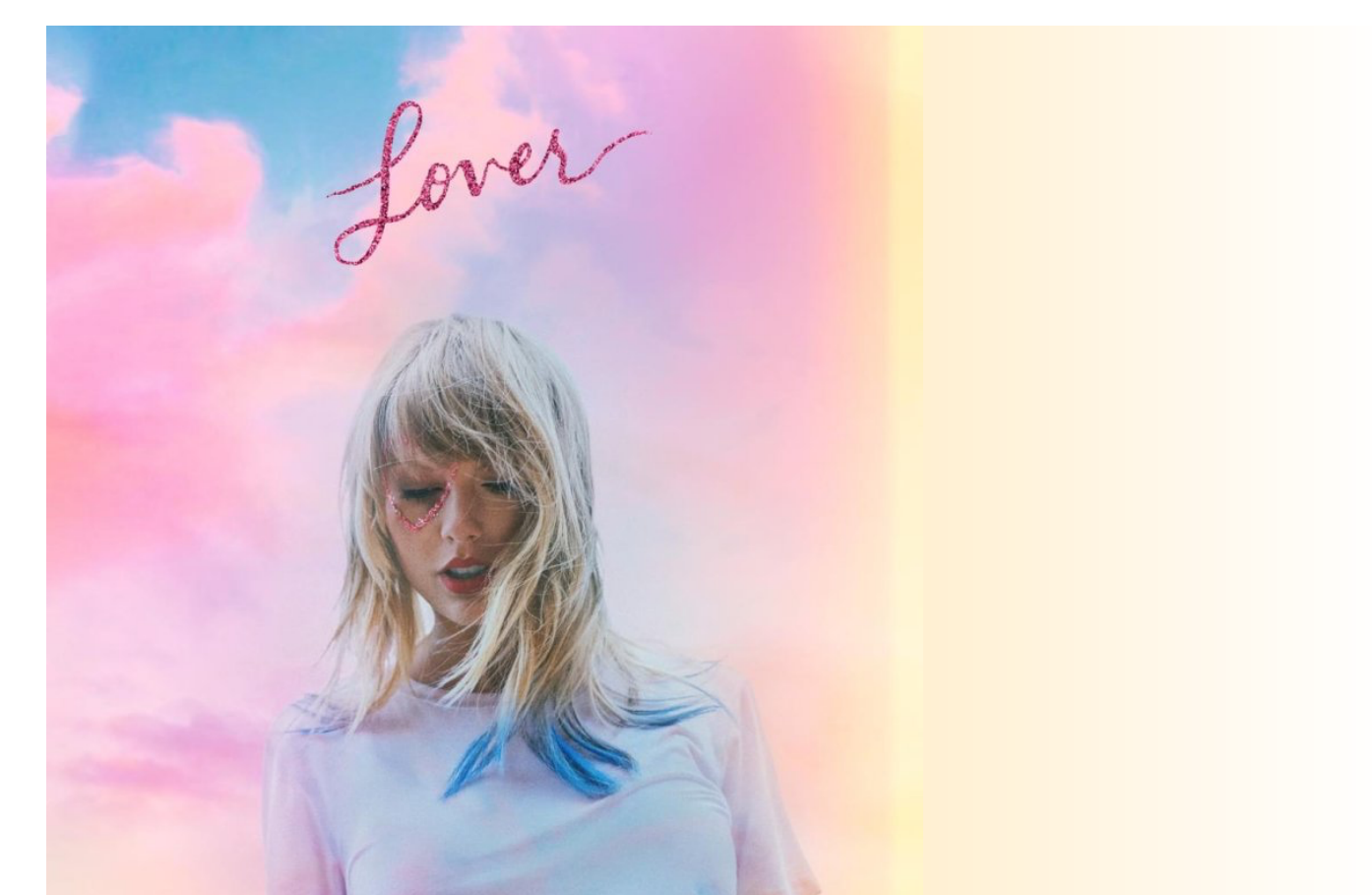


# Metal vs. Make-up: The Musical Composition Formulas within the 2019 Albums of Tool and Taylor Swift

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**Tool** is a leading band within the progressive heavy metal genre. Tool adds elements of psychedelic musicality with introspective, metaphorical lyrical themes projected as subdued vocal parts. Compositions fit the long-duration, non-radio-friendly format, using recapitulated motifs and includes odd-meter rhythm. Interest is created by frequent changes of rhythm, instrument timbre, dynamics, and form complexity.

Tool's **Fear Inoculum** album debuted at #1 on Billboard's "Top 200 Albums" chart this year. At the album's release, Tool set a new ranking record for holding all top 10 slots of the Billboard "Rock Digital Sales" chart with the band's songs [3, 4].

**Taylor Swift** is a leading artist within the pop-vocal-electronica genre. Swift and her collaborating songwriters employ compositional elements to project stories of her personal heartbreak and her party-centric lifestyle. Compositions fit the sing-along radio-friendly formula of verse-chorus-bridge in 4/4 rhythm, with minimal instrumental complexity and few harmonic changes [8]. Interest is created by slight asymmetry in arrangement and form. Swift's vocals and lyrics project from the forefront.

## Harmonic Analysis and Form

Tool, *Fear Inoculum* (A Phrygian)

The title track, "Fear Inoculum," shows Tool's complex song structure (colored circle) with varied time-signatures, section lengths, and tempos (grey circle). Length of each section, in measures, is indicated; ex: (8). Interest is created by frequently varying instrumentation, timbre, or rhythm. Time signatures change throughout, even within sections. The arrangement is shown via surrounding letters (see legend, below left). Scale degrees of the guitar melody, Phrygian, are shown in the inner circle. Variation to reprise a prior section is denoted with prime marks (') in the section name. Both minor ("–") tonality and guitars using "Drop-D" tuning are used throughout the album.

Tool, *Pneuma* (D–)

Taylor Swift's **Lover** album contains a large number of songs: 18. *Lover* charted at #1 on Billboard's "Top 200 Albums" chart for one week this year until being displaced by Tool's *Fear Inoculum*. Every song from *Lover* simultaneously ranked on Billboard's "Hot 100" chart [3,5]. The average length of the song tracks on the album is 3 min, 26 sec., typical for the radio-friendly genre.

Artistic complexity between the respective title tracks, "Fear Inoculum" and "Lover," are compared (right). Lyrical content, rhythmic content, and instrumentation are normalized by the number of sections in each song.

### Citations

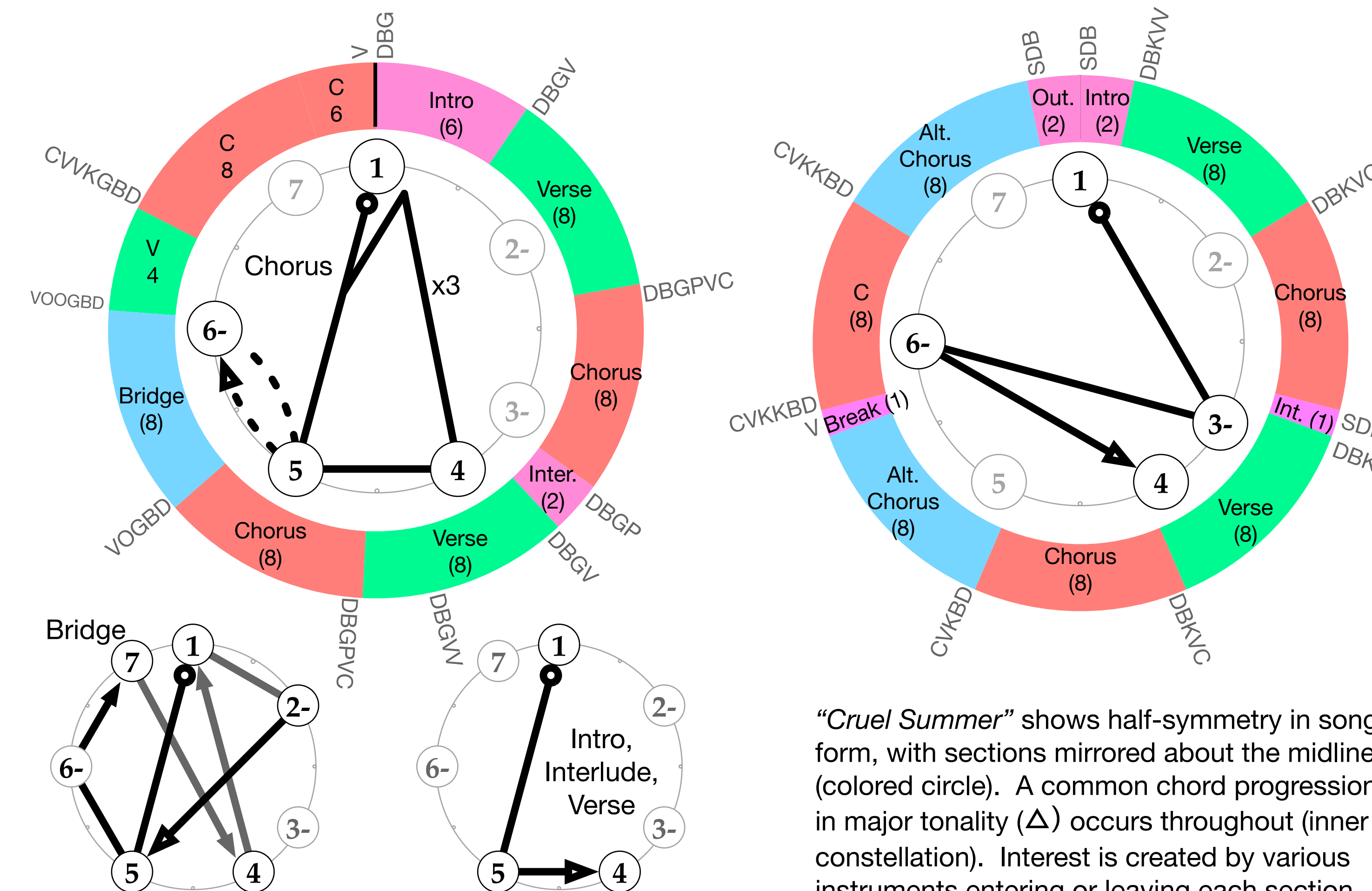
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The title track, "Fear Inoculum," set a historic precedent as the longest duration song to have ranked on Billboard's "Hot 100 Songs" chart. The album contains six extended-length song tracks and several percussion instrumental tracks. The average duration of song tracks on the album is 12 min, 23 sec., well beyond the standard for radio-friendly song length [8].

## Harmonic Analysis and Form

Taylor Swift, *Lover* (GΔ 68 BPM 4/4)

*Cruel Summer* (DΔ 86 BPM 4/4)



The major (Δ) scale is used throughout Swift's album. The chord constellations illustrate the harmonic changes in a song section by connecting scale degrees with vectors according to mathematical graph theory [6, 9, 10] as follows: scale degrees (1 - 7) of the chord roots are placed at the positions for the major scale. The arrow's circular end represents the start of a chord progression, and a large arrow indicates the final chord. The "x3" indicates a subset of chords within a complete progression are repeated prior to continuing the progression.

Each of the 18 songs on Swift's *Lover* album follow song formulas similar to the title track, "Lover", or the single, "Cruel Summer." That is, these two song forms significantly represent the artistic works on Swift's album.

Lyrical themes of Swift's album include personal confusion, longing, heartbreak, lust, rebellion against social mores, and alcoholism. The lyrics are literal, rarely metaphorical. Swift states the album is "very, very autobiographical" and includes "extreme personal confession" [7].

## Lyrical Phrases & Poetic Function

	<i>Lover</i>	<i>Cornelia Street</i>	<i>Cruel Summer</i>	<i>Thousand Cuts</i>
setting	our place	drunk in backseat	drunk in car	getting drunk
emotion	i'm suspicious	so terrified	cried not fine	don't know not okay
intent	be this close	never lose you	want you more	great love
conduct	our rules	the bar the car	no rules home from the bar	my body
object	my lover	you	your body	(lover) baby
resolution	take me home	hold my hand walk me back	love you	it wasn't enough

### Instrument Arrangement Legend

- D Drums
- B Bass
- S Sampled Percussion
- V Vocals (V V: Duet/Doubled Vocals)
- C Chorused Vocals
- K Keyboard (K K: Lead + Rhythm Keys)
- G Guitar
- P Acoustic Piano
- O Orchestral; Violin (O O: Lead + Backing)

### Instrument Arrangement Legend

- D Drums (D': Alt. Timbre; D D: Large Kit)
- B Bass
- S Sampled Percussion
- V Vocals (V V: Duet/Doubled Vocals)
- C Chorused Vocals
- K Keyboard (K K: Lead + Rhythm Keys)
- G Guitar (G': Timbre alteration/distortion)
- R Rhythm Guitar (R': Alt. Timbre)

Tool's "Pneuma" employs the form of theme & variation across and within sections. Interludes ("I") delineate some sections. Variation is indicated by letter names with prime marks ('). Instrumentation is modified by timbre, dynamics, and/or articulation to add interest or melodic focus. Frequent tempo changes are indicated (gray circle) and the scale degrees used for the minor ("–") key harmony are shown (inner circle).

Lyrical themes of Tool's album include personal strength, awakening, self-realization, and avoiding delusion or a waking lie. The lyrics are intensely metaphorical and allegorical.

## Lyrical Phrases & Poetic Function

	<i>Fear Inoculum</i>	<i>Pneuma</i>	<i>Descending</i>	<i>Tempest</i>
setting	(the body)	this flesh	primal body	tempest
emotion	(strength)	becoming wonder	madness (survival)	control (realization)
intent	expel	release (the breath)	rouse rise	follow the evidence
conduct	my tale my elegy	waking spirit	our slumber our fable	havoc
object	you deceiver	this guise	us	your delusion the lie
resolution	exhale exorcise	wake up reach out	stay alive mobilize	calm control