UC San Diego

Lecture 4 Music and Language

MUS 20 Exploring the Musical Mind

Summer Session II 2025

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Language and Music Similarities

- Ubiquitous in human societies (w/ rich cultural variation)
- Involve sound (in a similar frequency range)
- Involve interpersonal communication (that tends to be ‘multi-modal’)
- Are often **combined** and may exist on a continuum (poetry; music as a speech surrogate; tone-languages)
- Are acquired early and with little effort (becoming bilingual or bimusical later in life is more challenging)
- Have ‘rules’ for combining elements (e.g., words & sentences / tones, melodies and musical ‘phrases’)
- Can be notated (but don’t have to be); learning to ‘read’ both involves explicit instruction

Language and Music Similarities

- Use prosody (‘tone of voice’) and intonational phrasing (although music tends to use fixed and discrete pitch).
- Show some overlap in skills development: musical training provides benefits to language learning (including reading skills), and tone-language speakers and bilinguals perform better on a variety of music perception tasks.
- Express basic emotions similarly:
  - ‘active’ emotions (happiness, anger, fear) = loud, fast, more pitch variation
  - ‘less active’ emotions (sadness, tenderness) = soft, slow, less pitch variation

LANGUAGE & MUSIC DIFFERENCES?

Language	Music
Semantic (referential)	Evocative (emotional)
'About' message transmission	'About' temporal experience ('meaning' is opaque)
Uses verb tenses (past, present, and future)	Uses repetition (and sometimes 'quotation' or sampling)
Emphasizes 'turn taking'	invites a 'participatory orientation'; Synchronous and often synchronized

Music & Language as Expressive Culture

- Music and language are crucial to social bonding
- They are nourished, negotiated, and sustained by communities
- We learn through immersion and exposure in families, communities, and societies.
- The mass media and ‘new media’ play increasingly prominent roles.

Music as Language

A Generative Theory of Tonal Music

- The Generative Theory of Tonal Music (**GTTM**) is a system of music analysis developed by music theorist *Fred Lerdahl* and linguist *Ray Jackendoff*.
- GTTM constitutes a "formal description of the musical intuitions of a listener who is experienced in a musical idiom" with the aim of illuminating the unique human capacity for musical understanding.
- GTTM focuses on four hierarchical systems that shape our musical intuitions. Each of these systems is expressed in a strict hierarchical structure where dominant regions contain smaller subordinate elements and equal elements exist contiguously within a particular and explicit hierarchical level.

Music as Language

A Generative Theory of Tonal Music

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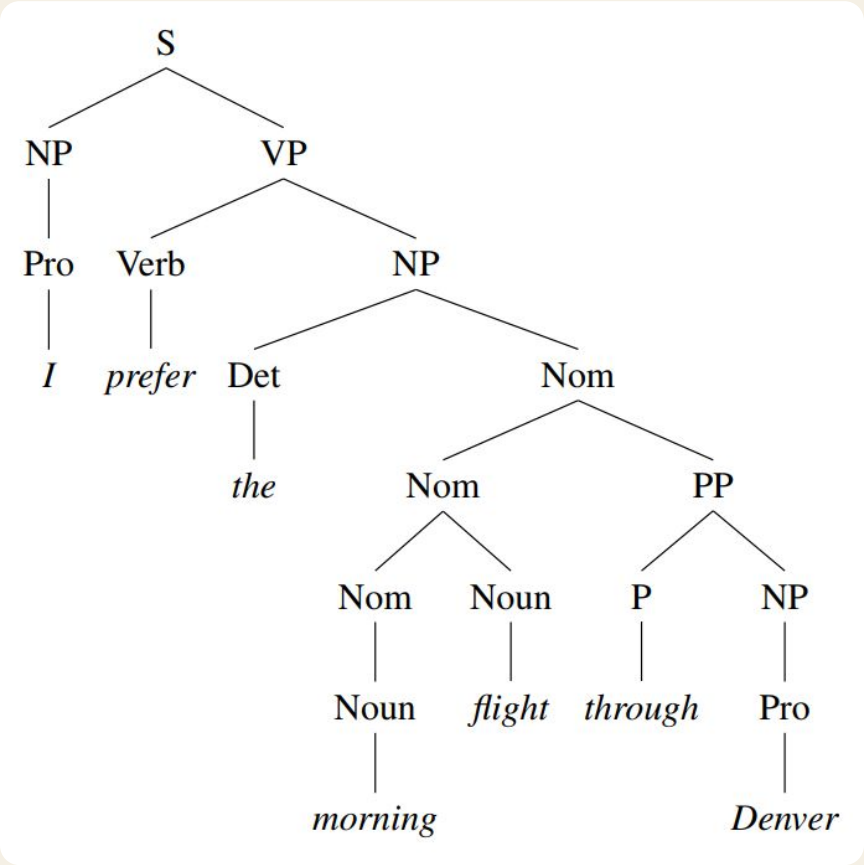
- Adopted a stance analogous to that taken in the study of language by the school of *generative-transformational grammar*, most widely known through the work of *Noam Chomsky*.
- Specified a structural description for any tonal piece; that is, the structure that the experienced listener infers in his hearing of the piece.
- The ultimate goal is an understanding of *musical cognition*, a psychological phenomenon.



Generative grammar

Syntax Constituent Parsing Tree

- Generative grammar is a research tradition in linguistics that aims to explain the cognitive basis of language by formulating and testing explicit models of humans' subconscious grammatical knowledge.
- A parse tree is an ordered, rooted tree that represents the syntactic structure of a string according to some context-free grammar.

A Generative Theory of Tonal Music (GTTM)

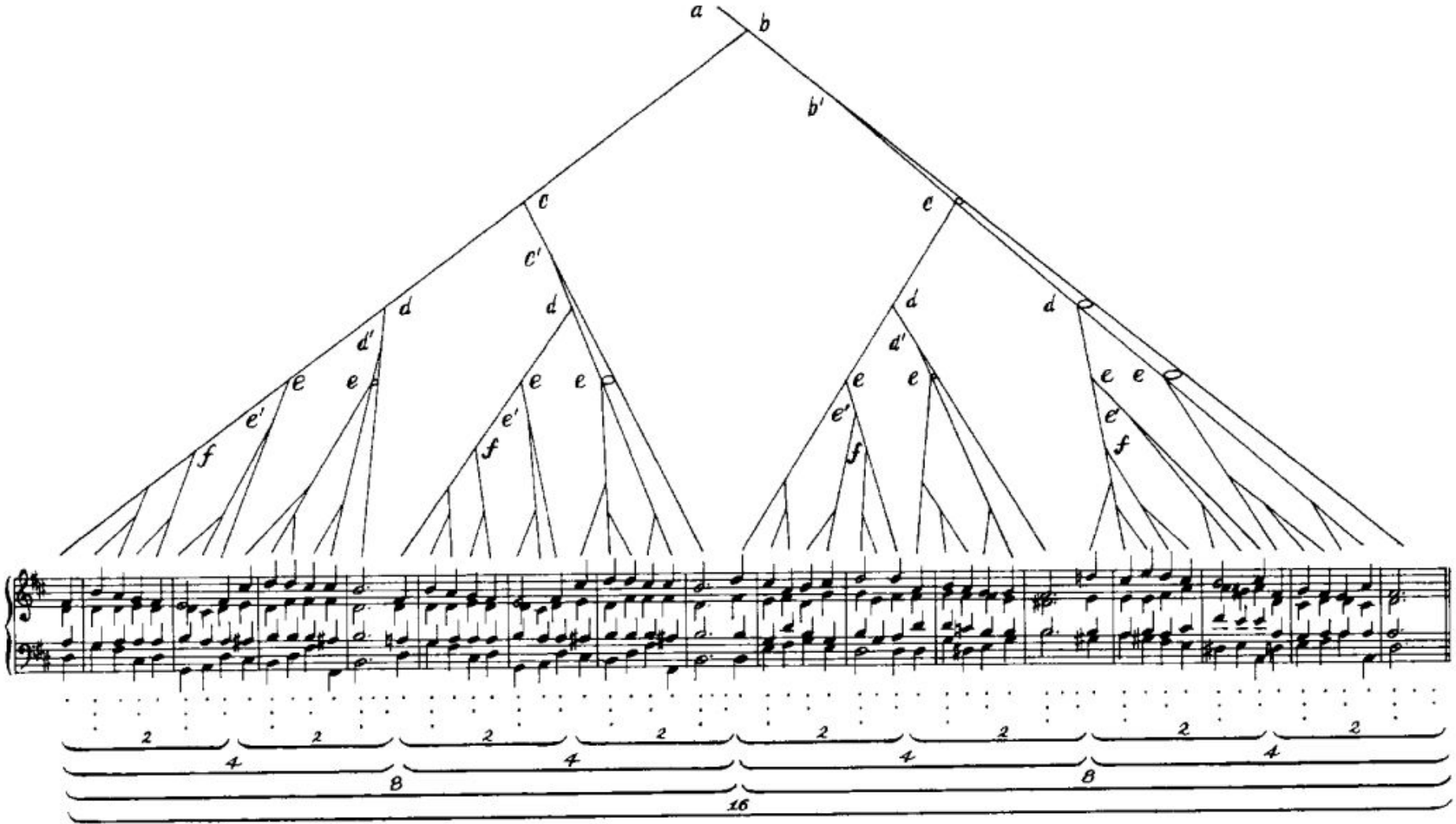
- Whereas music characteristically functions as art, language does not. The data for linguistic study are the sentences of the everyday world , for which there is no musical counterpart (perhaps poetry or drama).
- A comprehensive theory of music would account for the totality of the listener's musical intuitions . In GTTM for the most part the study is restricted to those components of musical intuition that are *hierarchical in nature.*
- Other dimensions of musical structure – notably *timbre*, *dynamics*, and *motivic-thematic* processes – are not hierarchical in nature, and are not treated directly in the theory as it now stands. Yet these dimensions make crucial contributions to the principles that establish the hierarchical structure for a piece. The theory thus takes into account the influence of nonhierarchical dimensions.

A Generative Theory of Tonal Music (GTTM)

Four hierarchical components entering into the structural description of a piece

1. **Grouping structure**: a hierarchical segmentation of the piece into motives, phrases, and sections.
2. **Metrical structure**: the events of the piece are related to a regular alternation of strong and weak beats at a number of hierarchical levels.
3. **Time-span reduction**: assigning to the pitches of the piece a hierarchy of " structural importance" with respect to their position in grouping and metrical structure.
4. **Prolongational reduction**: assigning to the pitches a hierarchy that expresses harmonic and melodic tension and relaxation, continuity and progression.

6.25



Music as Language

Linguistic and Music Grammaticality

- In a linguistic grammar, perhaps the most important distinction is grammaticality: whether or not a given string of words is a sentence in the language in question. A subsidiary distinction is ambiguity: whether a given string is assigned two or more structures with different meanings.
- In music, on the other hand, grammaticality per se plays a far less important role, since almost any passage of music is potentially vastly *ambiguous* – it is much easier to construe music in a multiplicity of ways. The reason for this is that music is not tied down to specific meanings and functions, as language is.

The Story of Tonality

- Although tonality is often used to refer to Western major and minor keys, tonal music is any music that recognizes a **hierarchy** (i.e., that privileges notes to different degrees).
- This tonal hierarchy is important in creating a sense of musical development or flow.
- It creates stabilities, attractions, and directionality (a sense of ‘gravity’, ‘momentum’, and ‘inertia’).

Reversing the “Music as Language” Metaphor

What does Thinking about Language as a Kind of Music Offer?

- Highlights the melodiousness and rhythmic character of speech
- Reminds us of the performative and contextual layers (prosody) that modify linguistic meaning (it's not what you say, but how you say it!)
- Counters the assumption that language is an adequate model of thought (or that propositional attitudes such as “believing that” or “desiring that” are most important)