

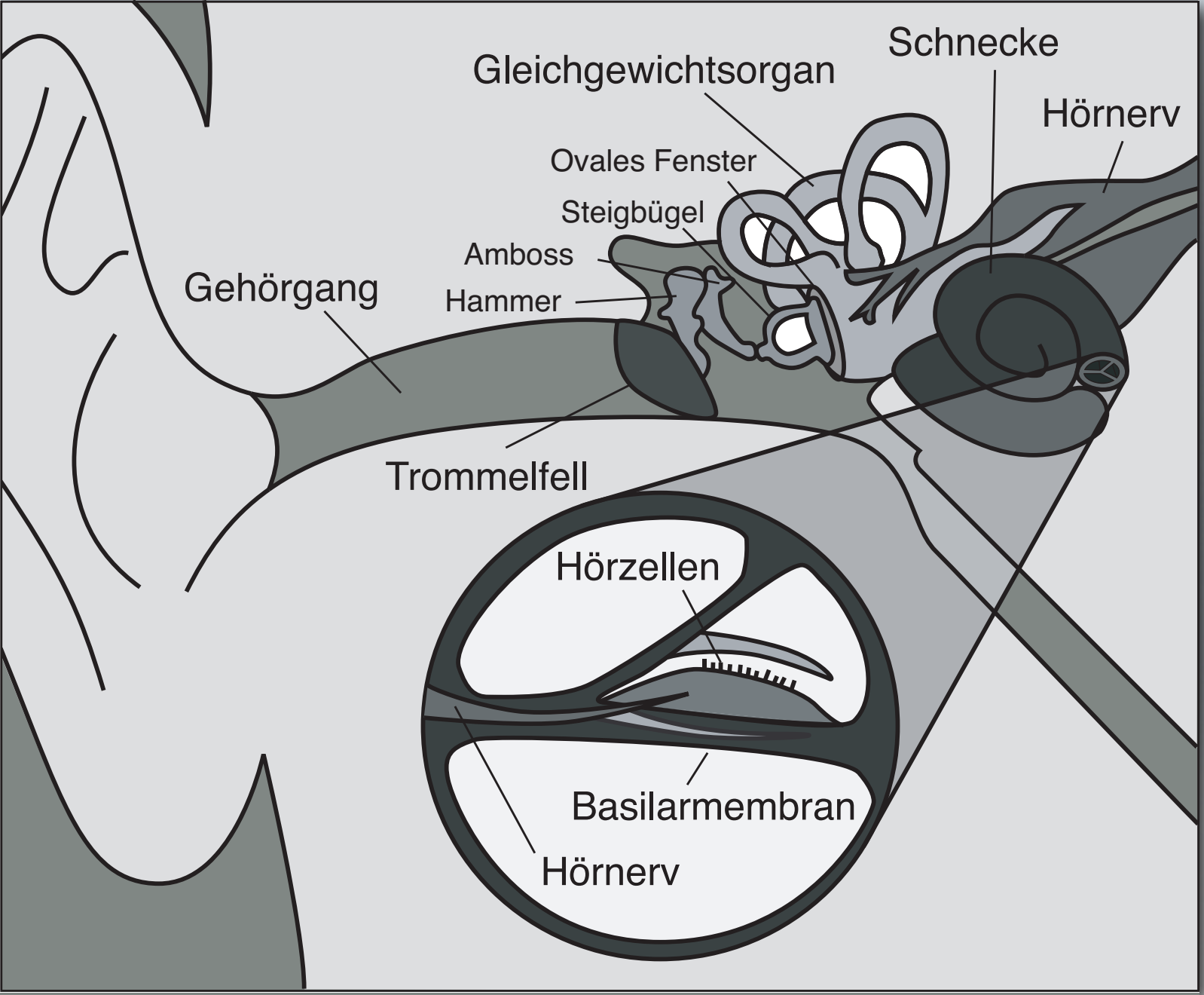
Wired for Music

Why Everybody is Musical





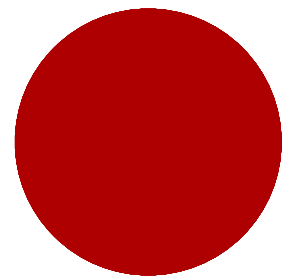




**Six Reasons
Why You, Too,
Are Musical**

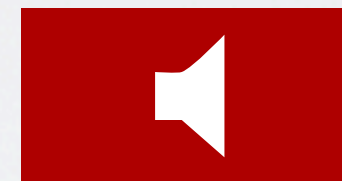
1.
You Got Rhythm.

Example 1



25 Images/s

Example 2



44,100 Samples/s



youtu.be/cJOZp2ZftCw

2.

**Babies Are Born
With a Feeling for Music.**

“Music”

The image displays two systems of musical notation for Schubert's Valse Sentimentales, Op. 50, No. 1. Each system consists of a treble clef staff and a bass clef staff, both in 3/4 time. The first system shows the beginning of the piece, with a treble staff starting on a whole rest and a bass staff starting with a whole note chord. The second system continues the melody in the treble staff and the accompaniment in the bass staff. The notation includes various note values, rests, and chord symbols.

Schubert: Valses Sentimentales, Op. 50, No. 1; Perani et al. 2008

“Altered Music: Dissonance”

First system of musical notation (measures 1-4). The treble clef staff is highlighted with a red box. The key signature is three sharps (F#, C#, G#) and the time signature is 3/4. The bass clef staff shows a steady accompaniment of eighth notes.

Second system of musical notation (measures 5-8). The treble clef staff is highlighted with a red box. The key signature is three sharps (F#, C#, G#) and the time signature is 3/4. The bass clef staff shows a steady accompaniment of eighth notes.

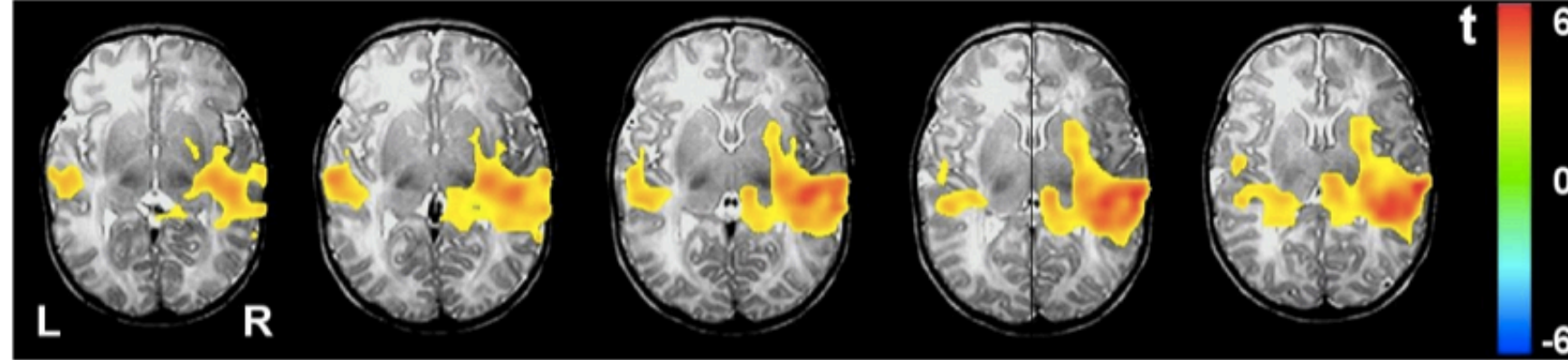
Schubert: Valses Sentimentales, Op. 50, No. 1; Perani et al. 2008

“Altered Music: Key Shifts”

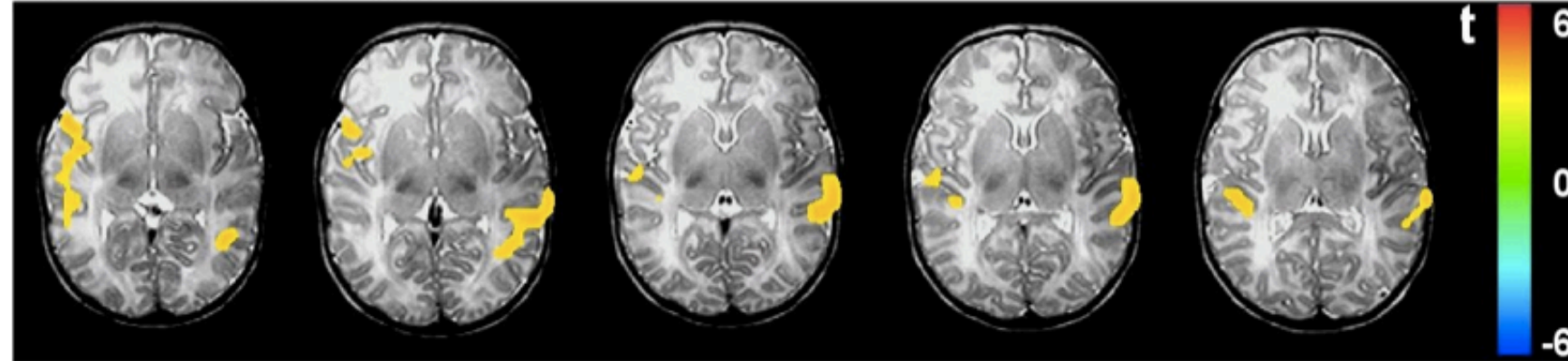
The image displays a musical score for Schubert's Valses Sentimentales, Op. 50, No. 1, in 3/4 time. The score is presented in two systems, each with a treble and bass staff. Three specific sections of the music are highlighted with red rectangular boxes, indicating key shifts. The first box is located in the first system, the second in the second system, and the third in the third system. These boxes highlight changes in the key signature, which are characteristic of the 'Altered Music' concept discussed in the slide.

Schubert: Valses Sentimentales, Op. 50, No. 1; Perani et al. 2008

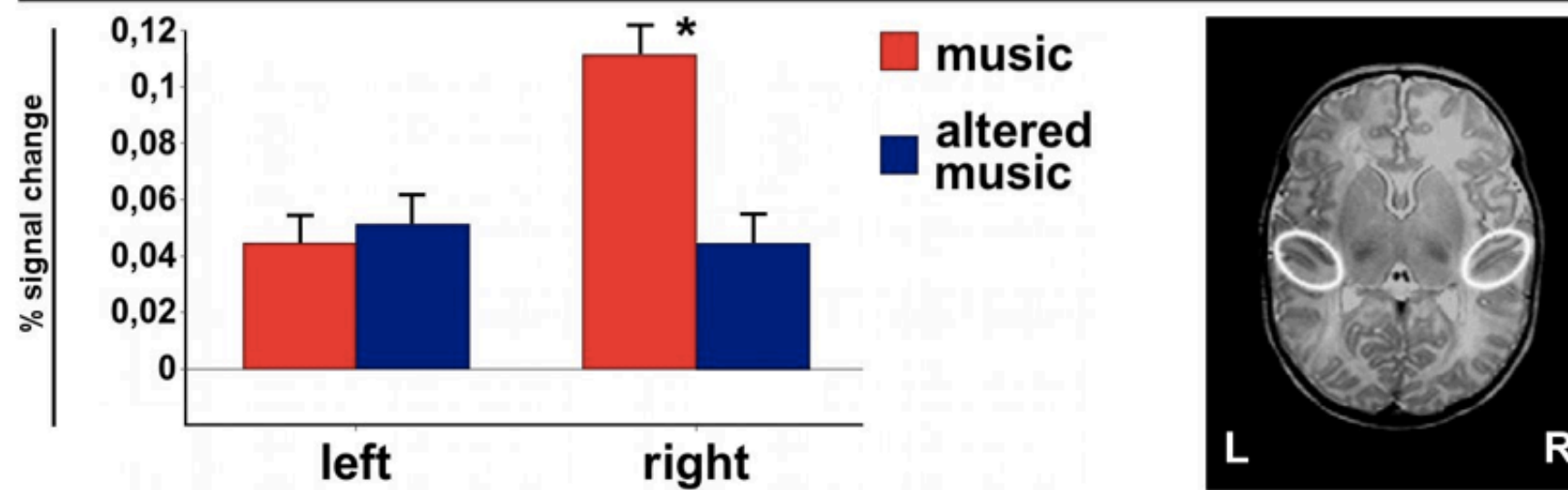
Music vs. Silence



Altered Music vs. Silence



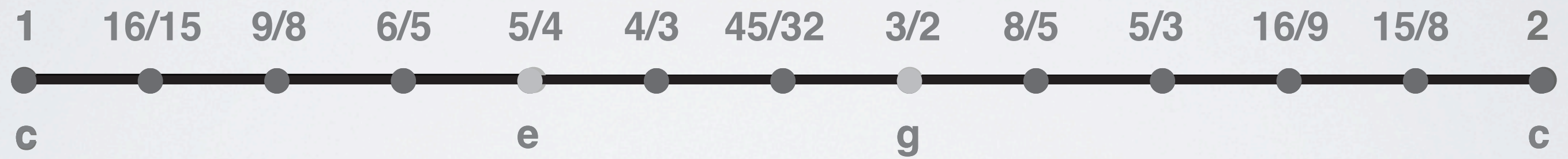
B



Perani et al. 2008

3.
You Know
Musical Scales.







$$\left(\frac{5}{4}\right)^3 = \frac{125}{64} \neq 2$$

Three major thirds aren't an octave!

$$\left(\frac{3}{2}\right)^{12} = 129.75 \neq 128 = 2^7$$

Twelve fifths aren't seven octaves!

The compromise:

$$12\sqrt{2}$$

“Equal temperament”

Different Cultures, Different Scales

Major (western)



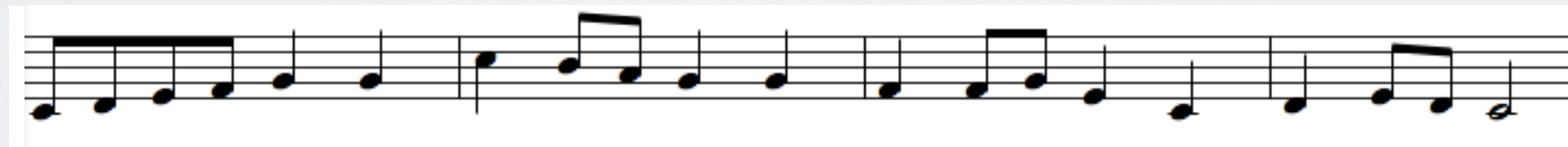
Todi Raga (India)



Pelog (Java)

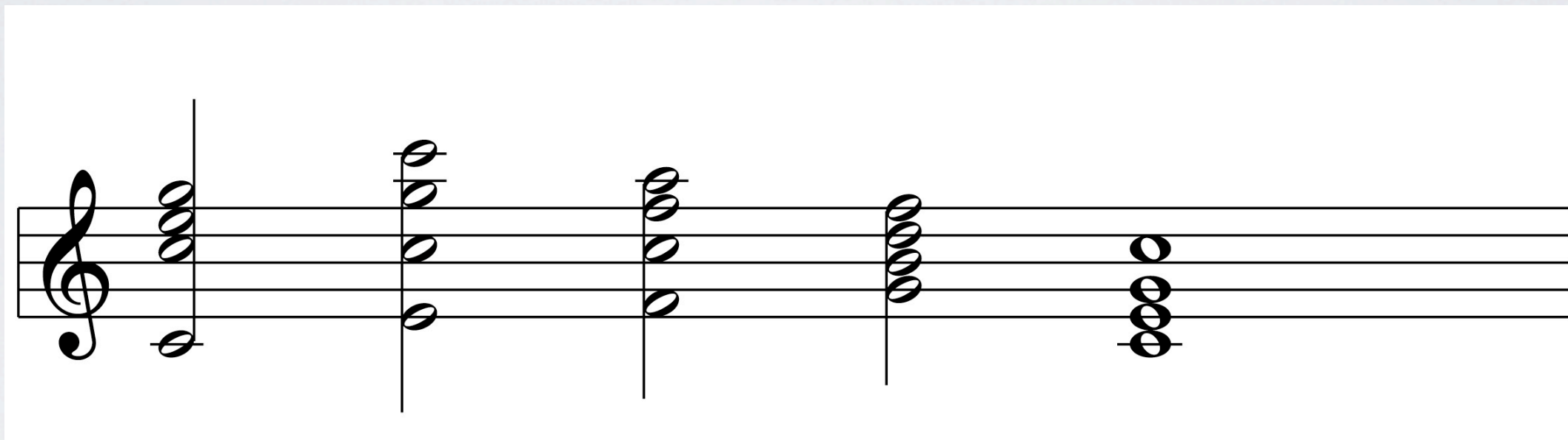


Source: Patel, "Music and the Brain"

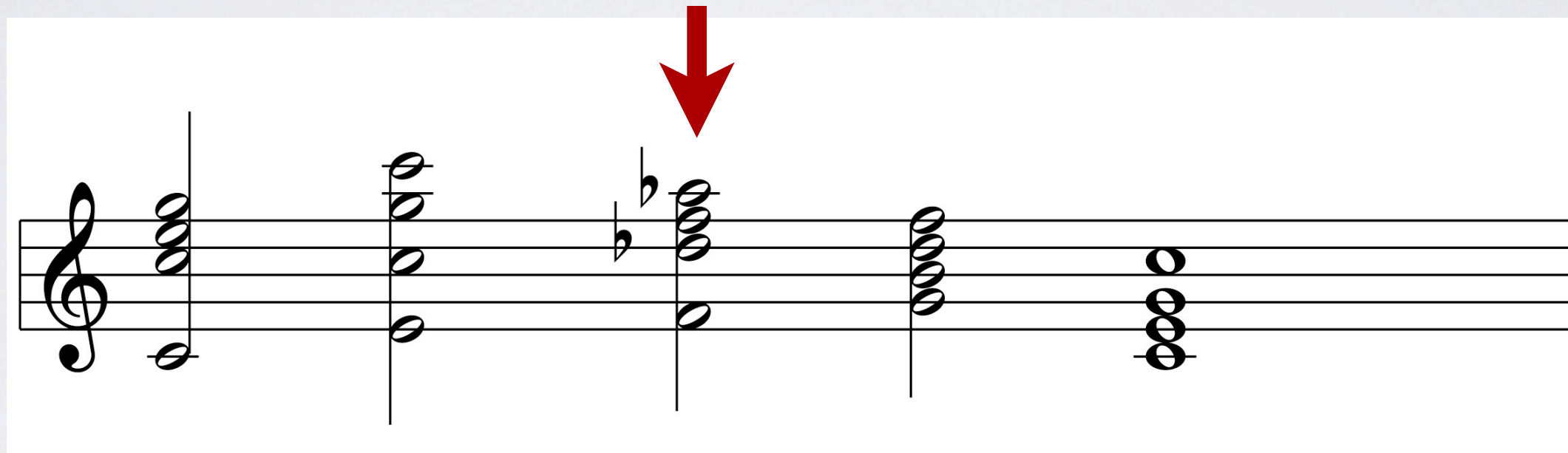


4.
You Understand
Musical “Grammar.”

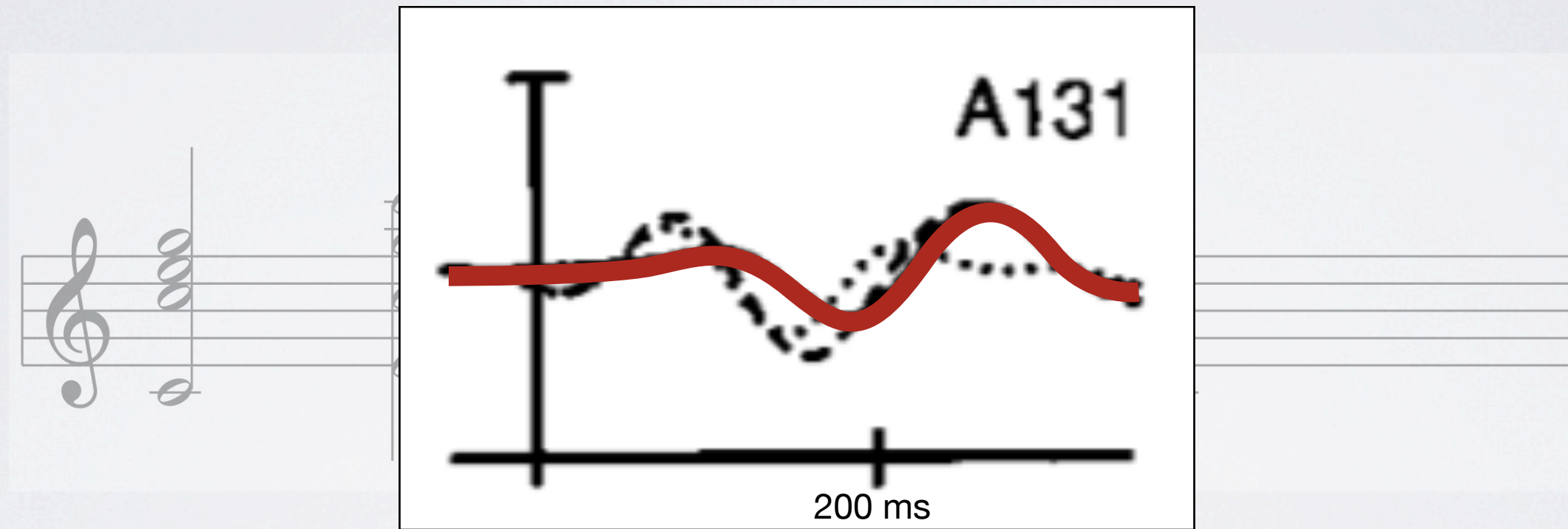
“Normal” Cadence



Neapolitan in the Middle

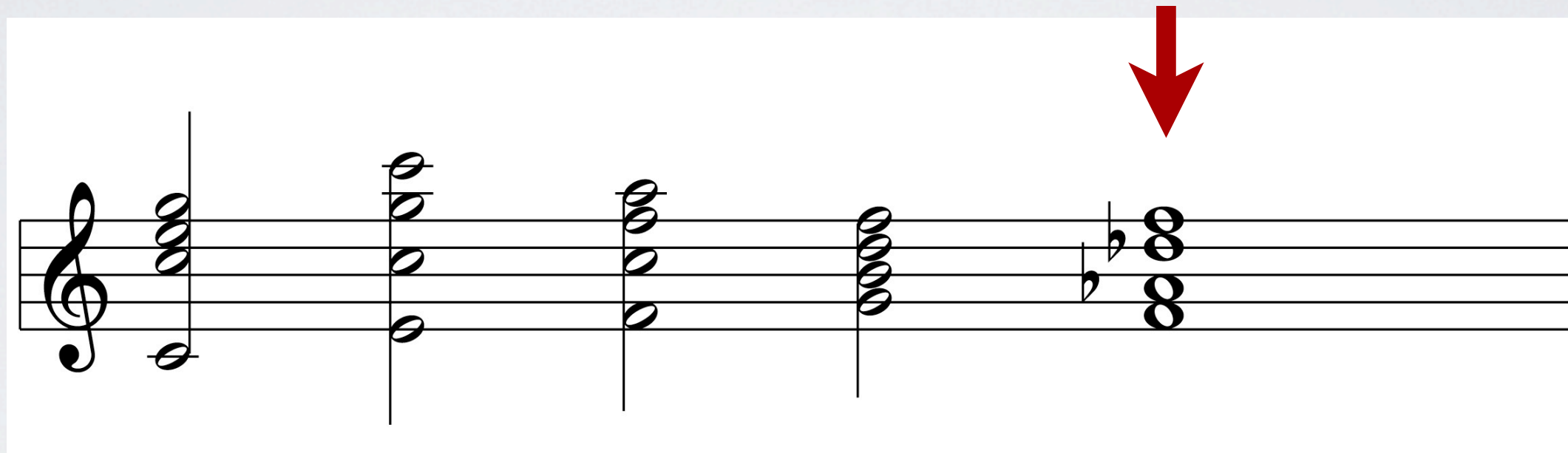


Neapolitan in the Middle

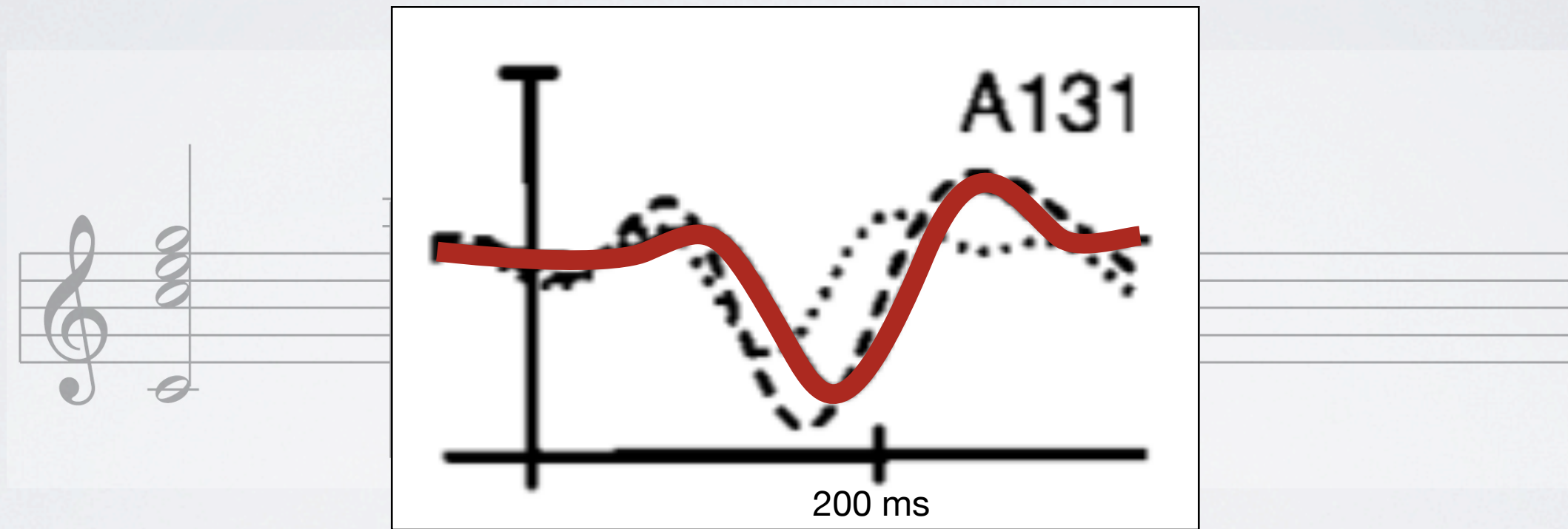


Koelsch 2001

Neapolitan at the End



Neapolitan at the End



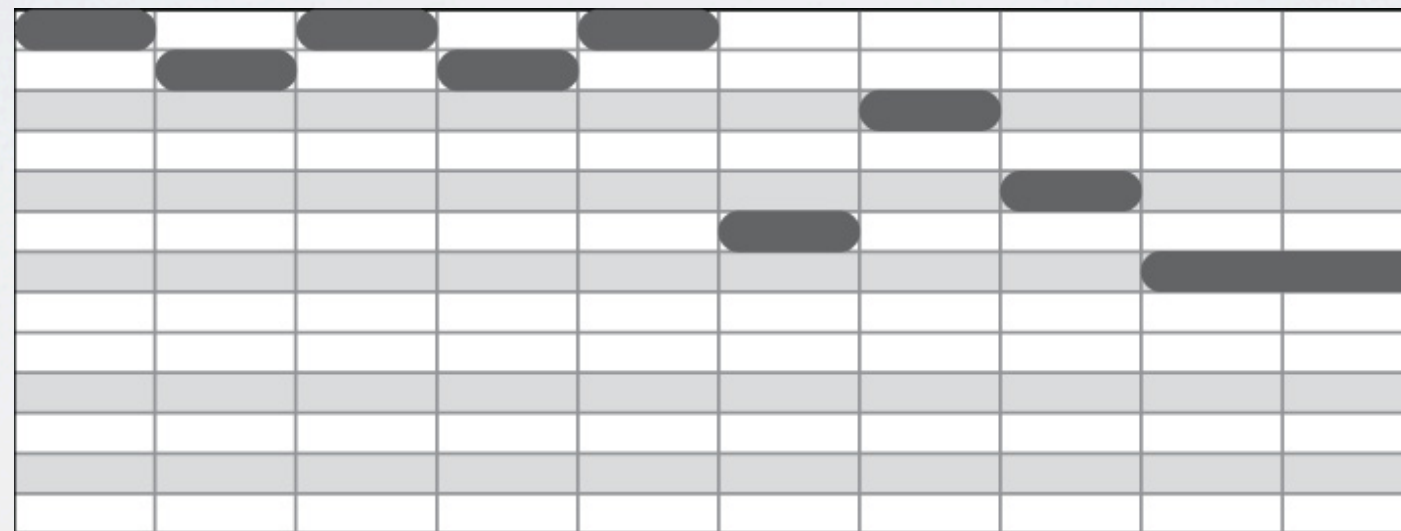
Koelsch 2001

5.

**You Have a Huge
“Musical Lexicon” That You Can
Access Very Rapidly.**

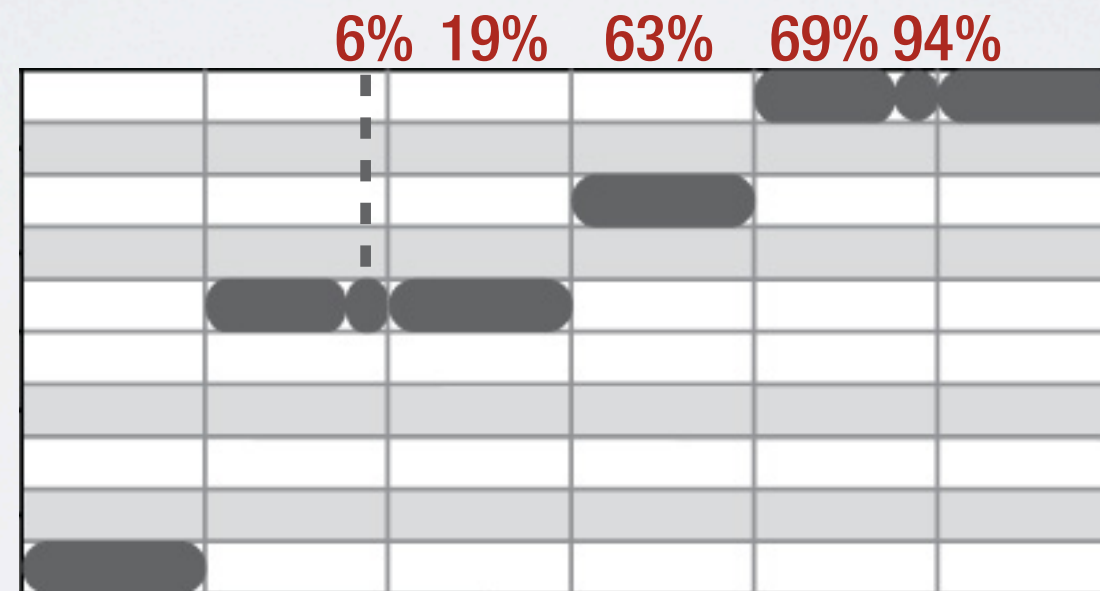
Name That Tune!

56% 69% 88% 94% 100%



Huron: Sweet Anticipation

Name That Tune!



Huron: Sweet Anticipation

Name That Tune!

A

The Beatles:
A Hard Day's Night

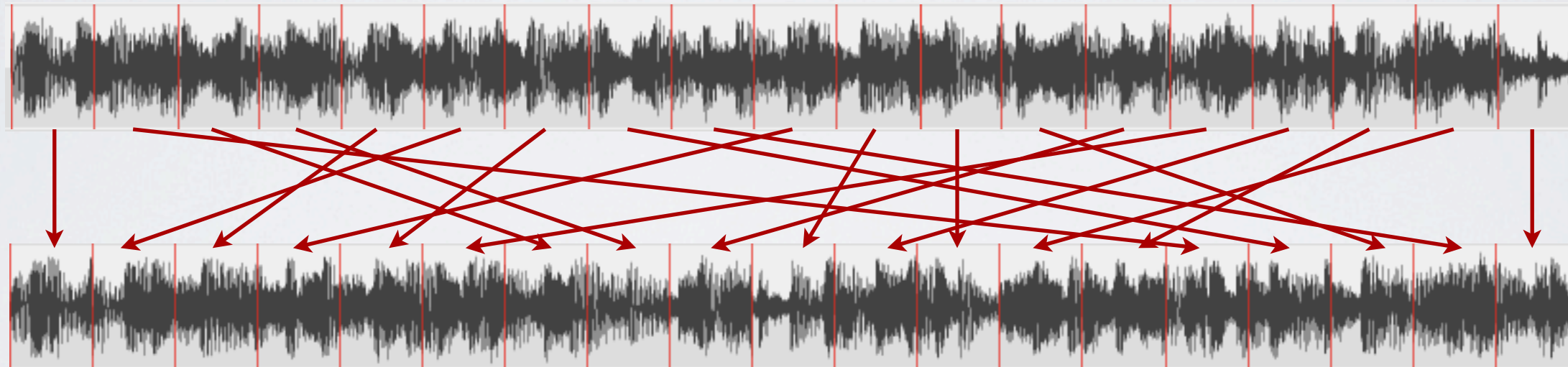
B

The Kinks:
Lola

Name That Tune!

- **Mozart: Sinfonie Nr. 40 g-Moll**
- **Beatles: Help!**
- **Bach: C-Dur-Präludium**
- **Led Zeppelin: Stairway to Heaven**
- **Oasis: Wonderwall**

Name That Tune!





R.E.M: Losing My Religion

<http://vimeo.com/majorscaledtv>

Name That Tune!

A B C D

Für Elise
Minor → Major

Hey Jude
Major → Minor

Mrs. Robinson
Major → Minor

Kl. Nachtmusik
Major → Minor

6.

**You Understand the
Emotions That Are
Expressed in Music.**

Version 1

Version 2

(F. Chopin, Opus 10 Nr. 3, Douglas Eck)



Hyderabad (India), August 2010



Washington D.C., January 2009

Why Music?

1.



Courtship Display

2.



Remote Childcare

3.



Social Glue