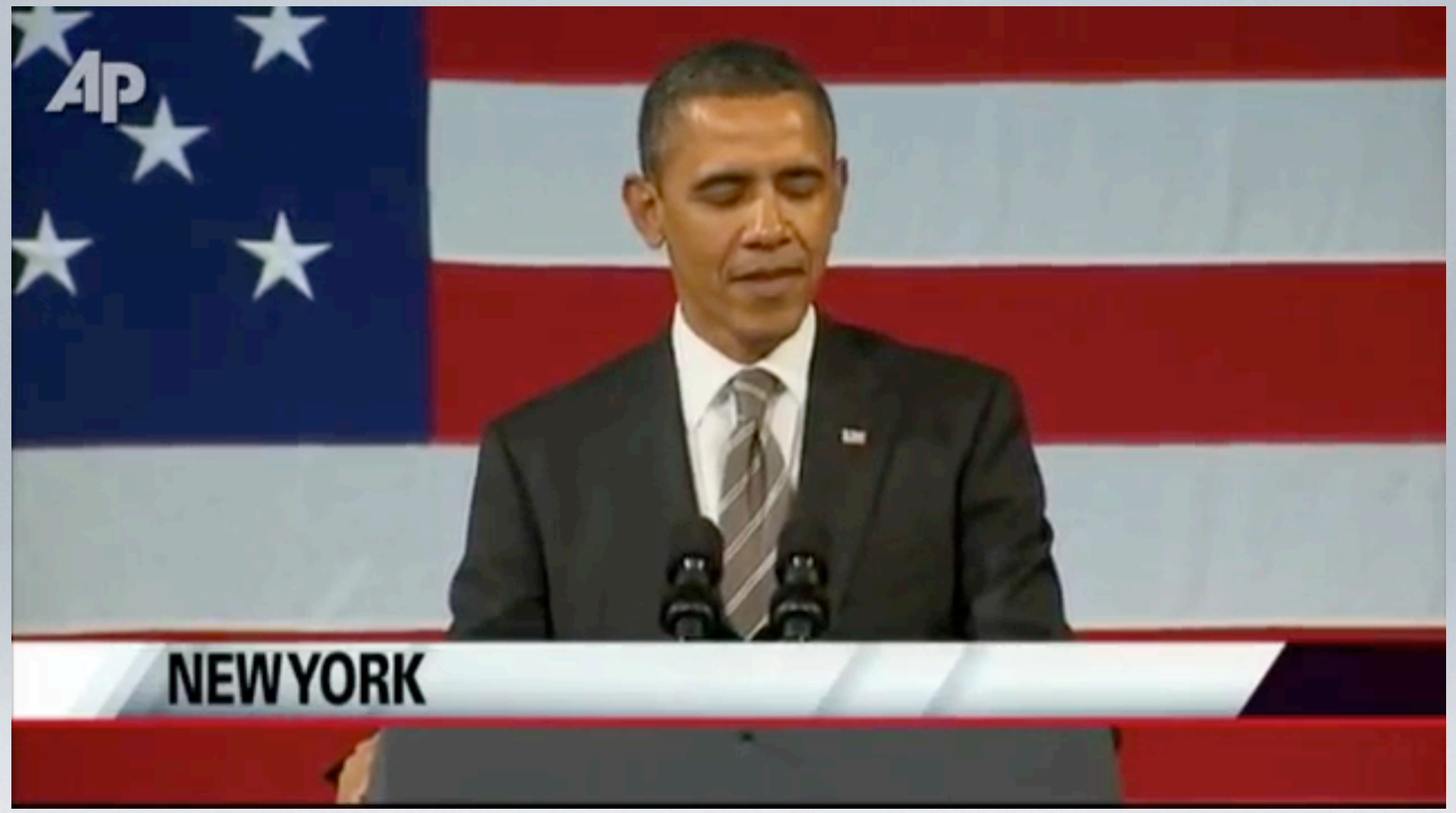
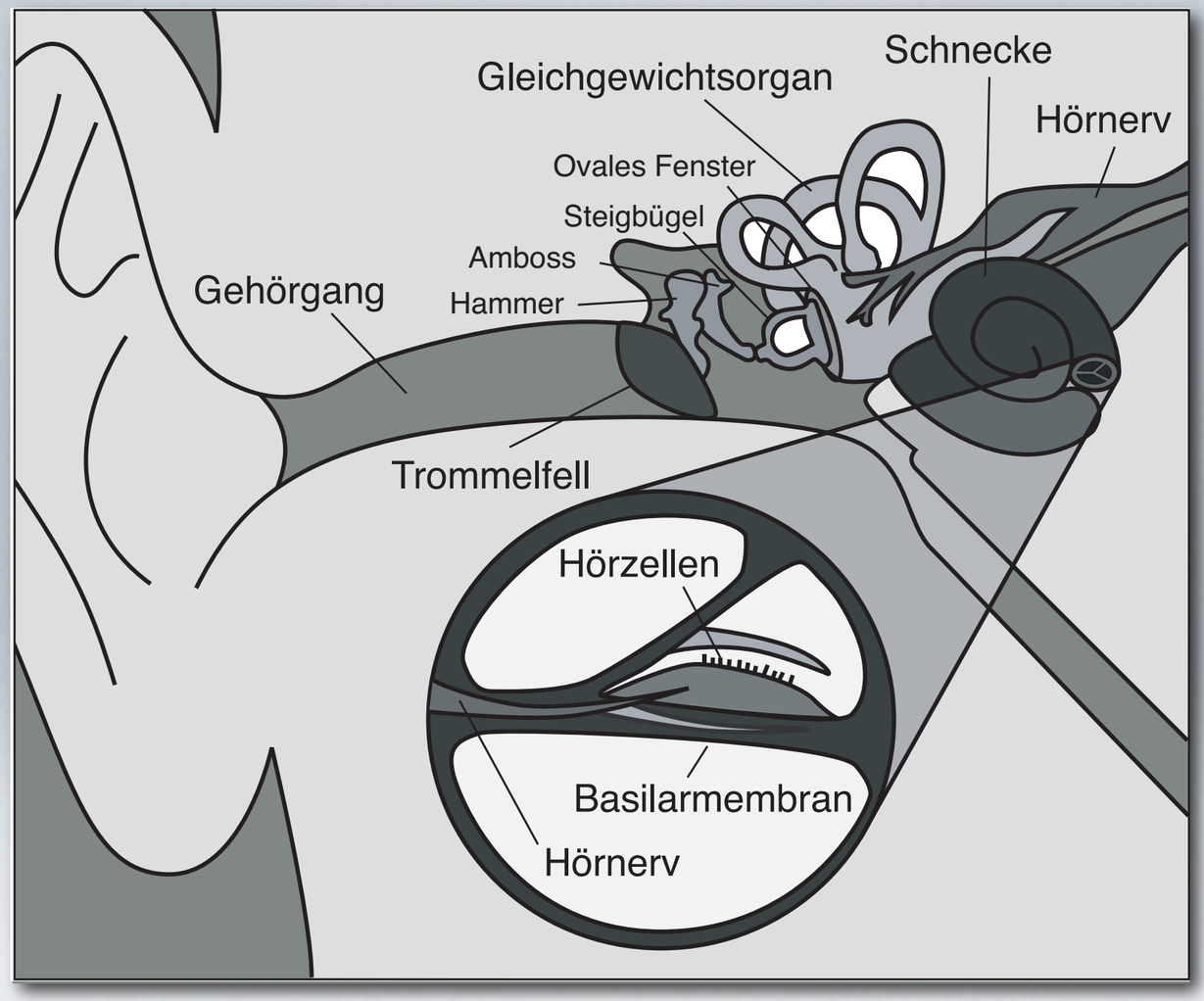
Wired for Music

Why Everybody is Musical


AP
NEW YORK

rowohlt
Hast DU Töne?
CHRISTOPH DRÖSSER
WARUM WIR ALLE MUSIKALISCH SIND

C-Dur Tonleiter
c h a g f e d c
ro ro ro
CHRISTOPH DRÖSSER
DER
MUSIK-VERFÜHRER
Warum wir alle musikalisch sind
verbessert die Gehirnleistung!!!

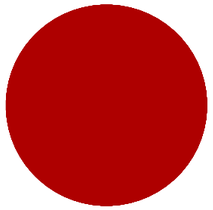

Gleichgewichtsorgan
Schnecke
Hörnerv
Ovales Fenster
Steigbügel
Amboss
Hammer
Gehörgang
Trommelfell
Hörzellen
Basilarmembran
Hörnerv

Six Reasons Why You, Too, Are Musical

1.

You Got Rhythm.

Example 1



25 Images/s

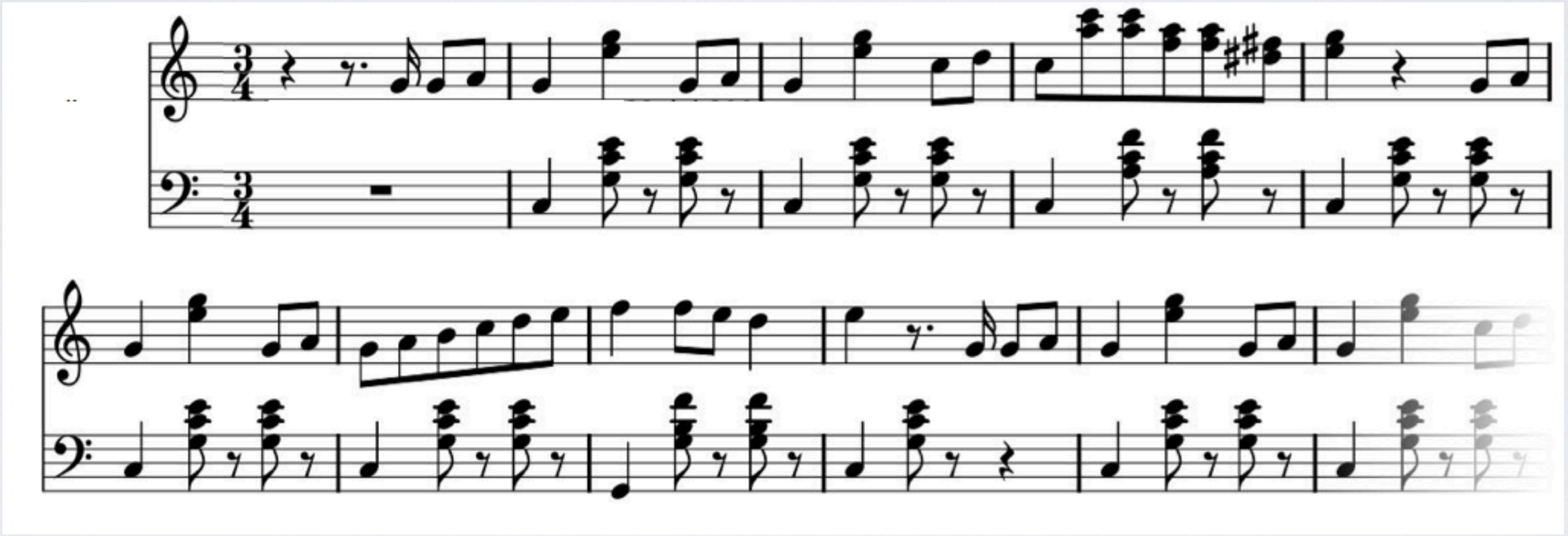
Example 2

44,100 Samples/s

youtu.be/cJOZp2ZftCw

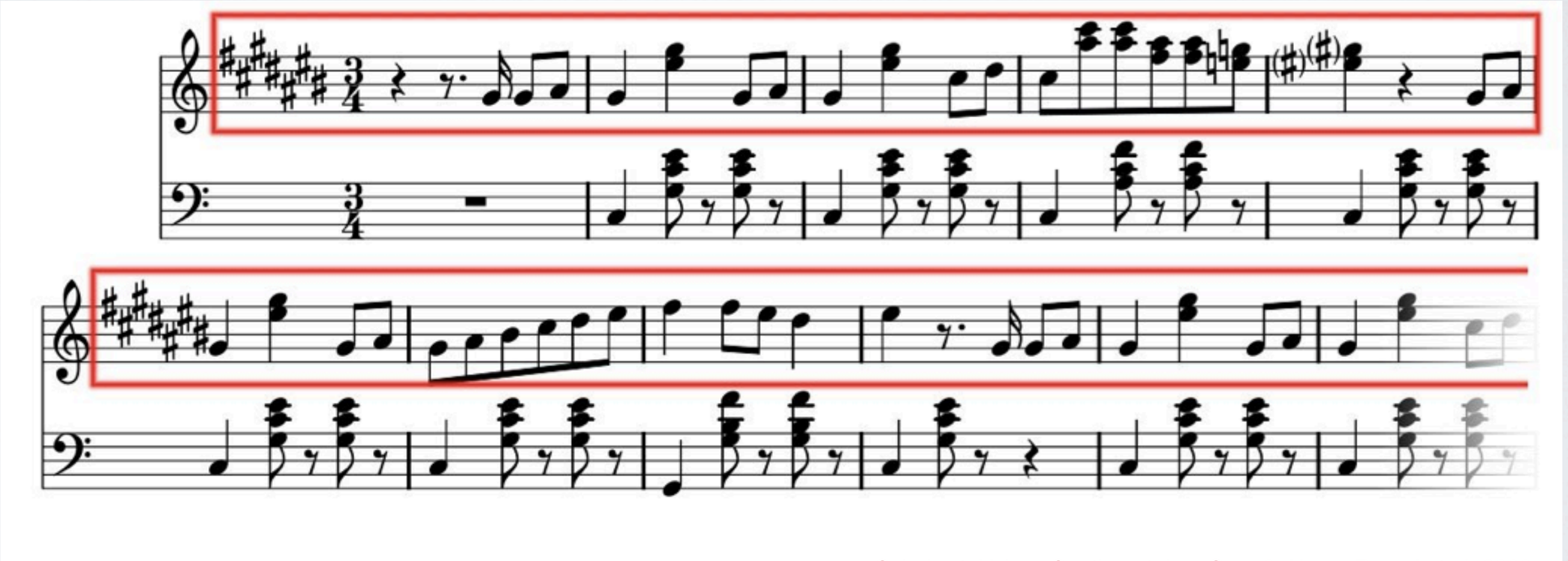
2.
Babies Are Born
With a Feeling for Music.

“Music”



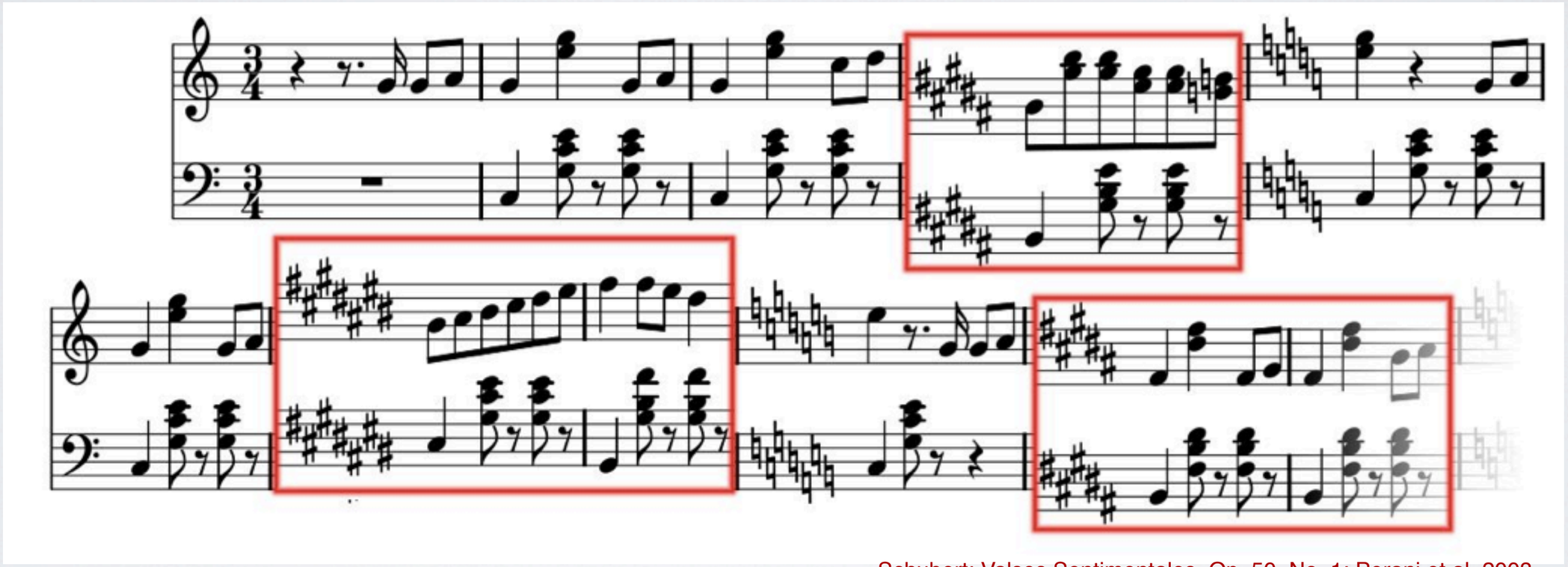
Schubert: Valses Sentimentales, Op. 50, No. 1; Perani et al. 2008

“Altered Music: Dissonance”

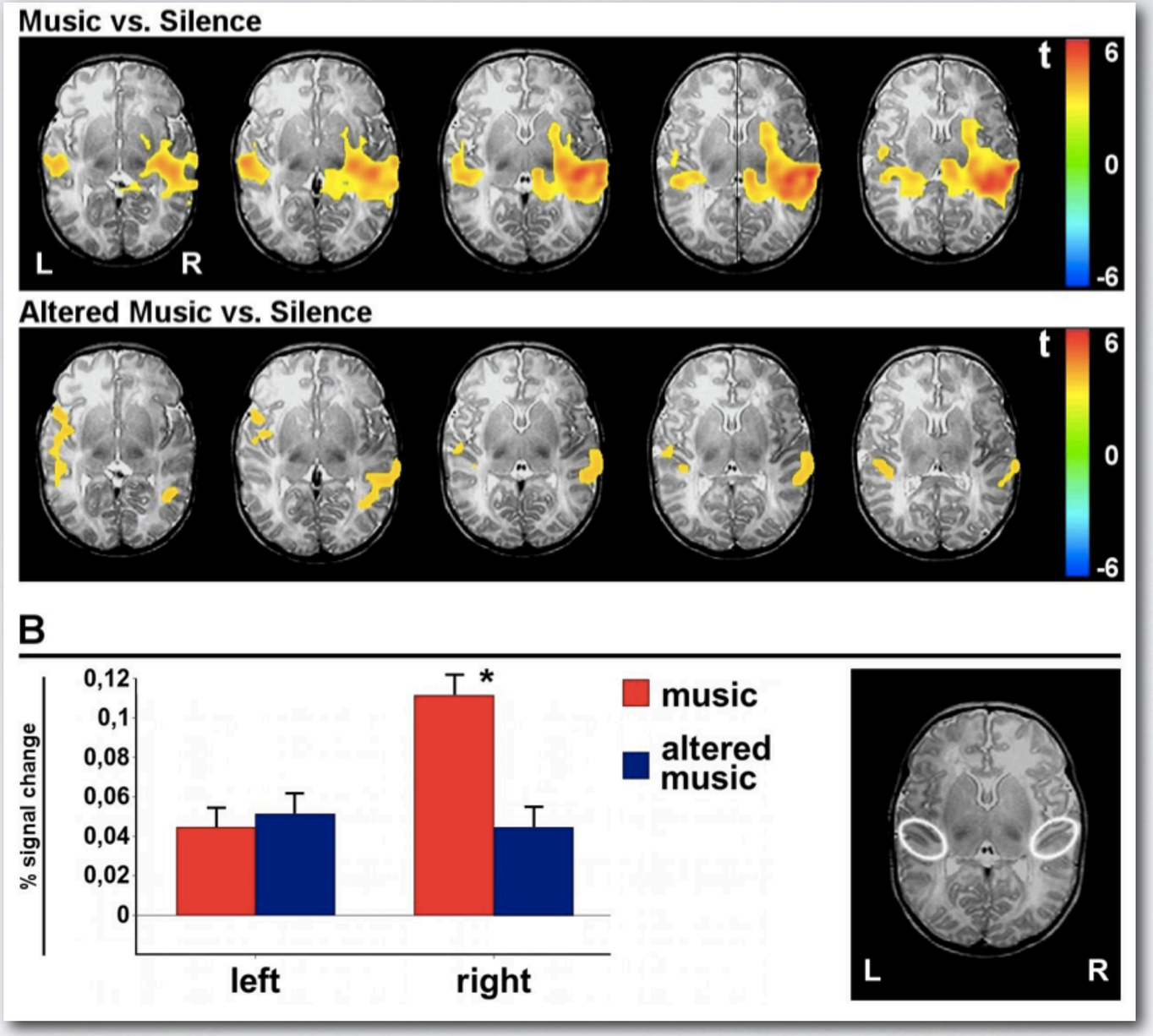


Schubert: Valses Sentimentales, Op. 50, No. 1; Perani et al. 2008

“Altered Music: Key Shifts”



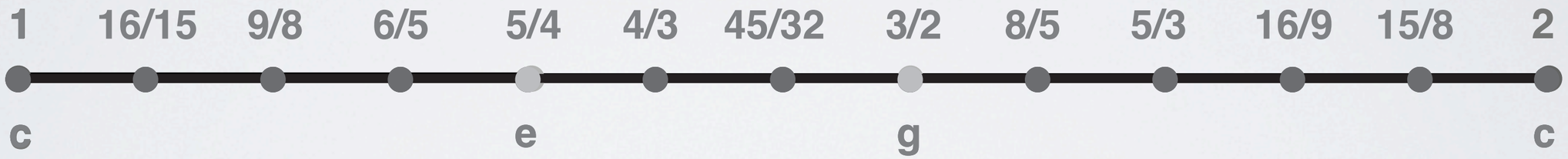
Schubert: Valses Sentimentales, Op. 50, No. 1; Perani et al. 2008

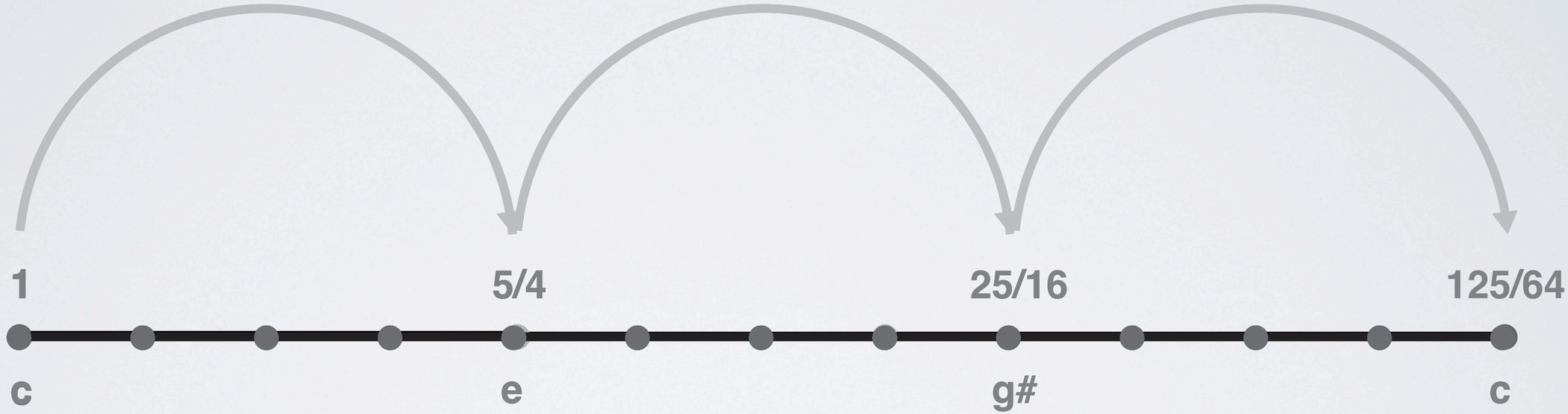


Perani et al. 2008

3.
You Know
Musical Scales.

1
5/4
3/2
2
3
4
5
6
7
8
c
e
g
c
c
c


1
16/15
9/8
6/5
5/4
4/3
45/32
3/2
8/5
5/3
16/9
15/8
2
c
e
g
c


1
5/4
25/16
125/64
c
e
g#
c

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

Three major thirds aren't an octave!

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

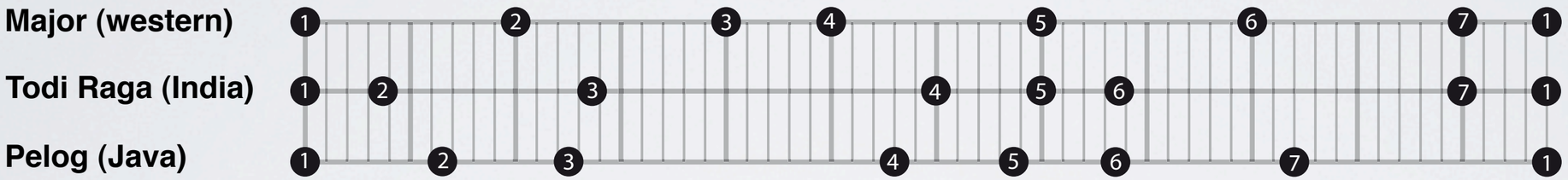
Twelve fifths aren't seven octaves!

The compromise:

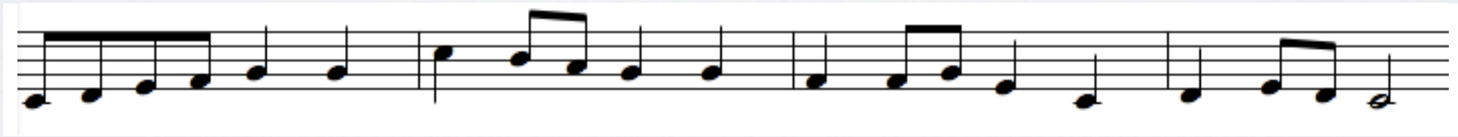
$$\sqrt[12]{2}$$

“Equal temperament”

Different Cultures, Different Scales

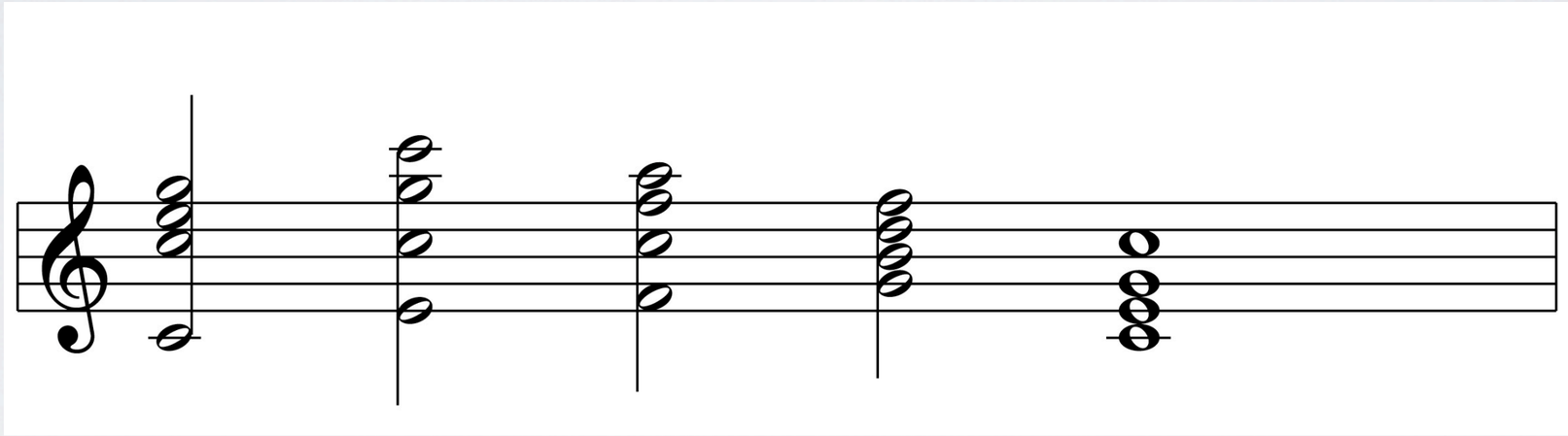


Source: Patel, “Music and the Brain”

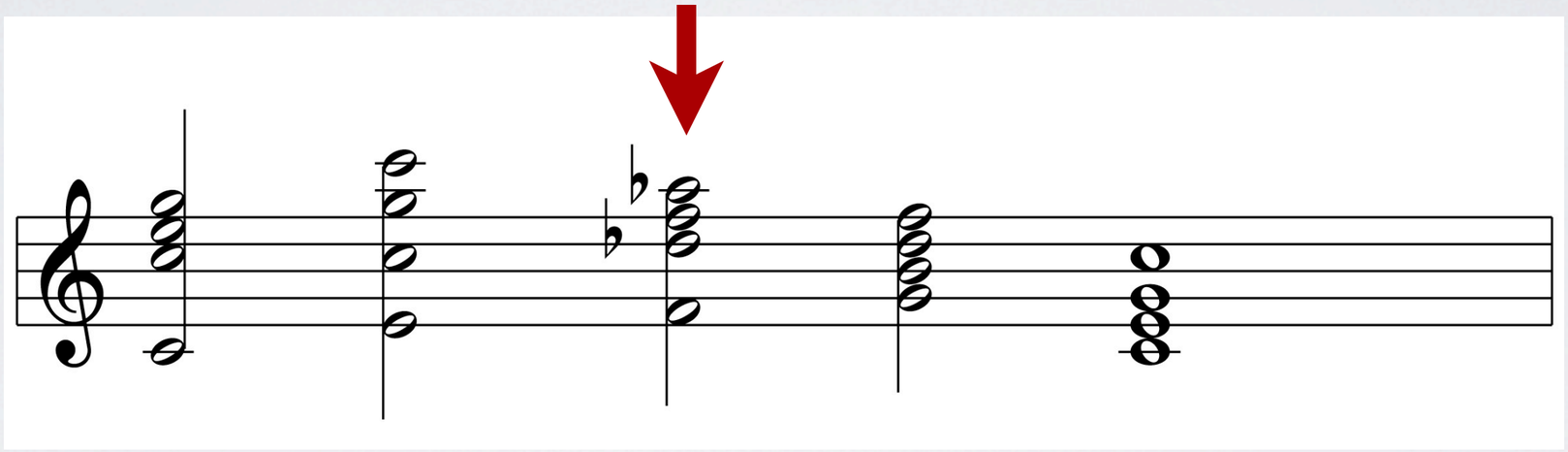


4.
You Understand Musical “Grammar.”

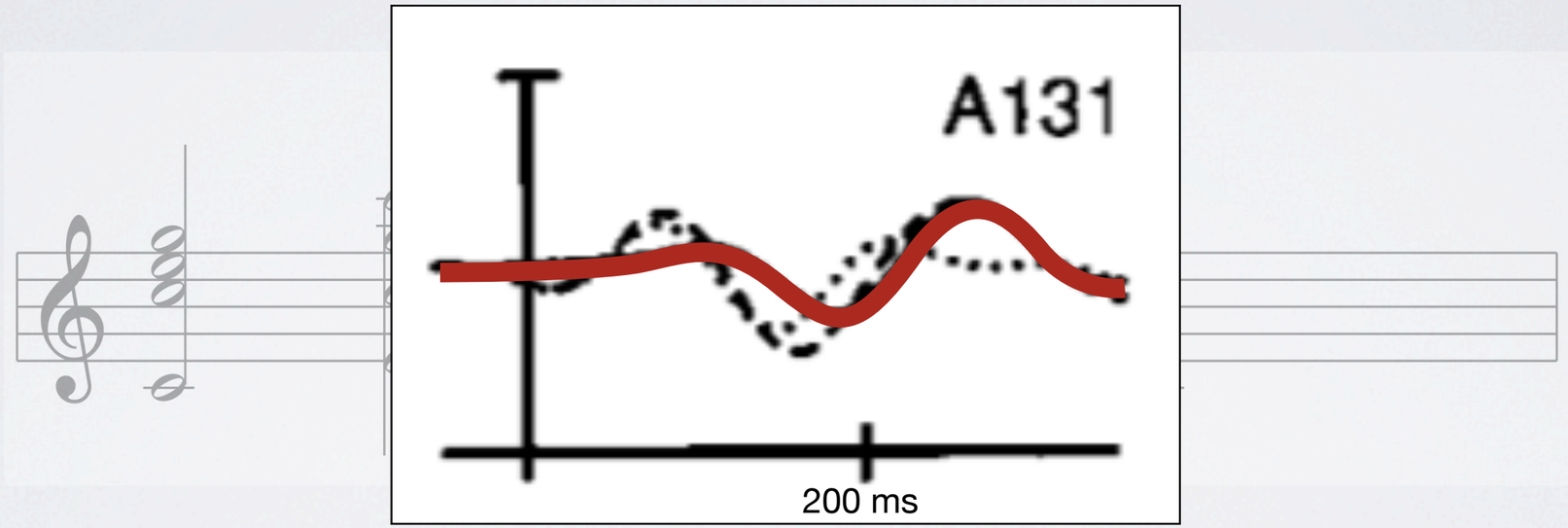
“Normal” Cadence



Neapolitan in the Middle

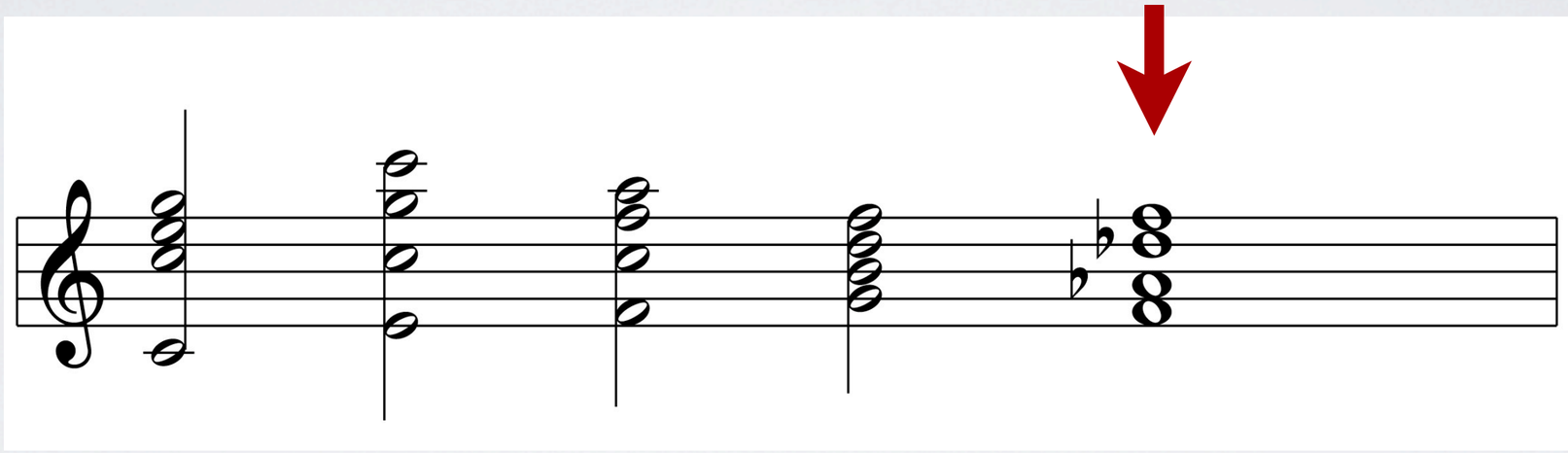


Neapolitan in the Middle

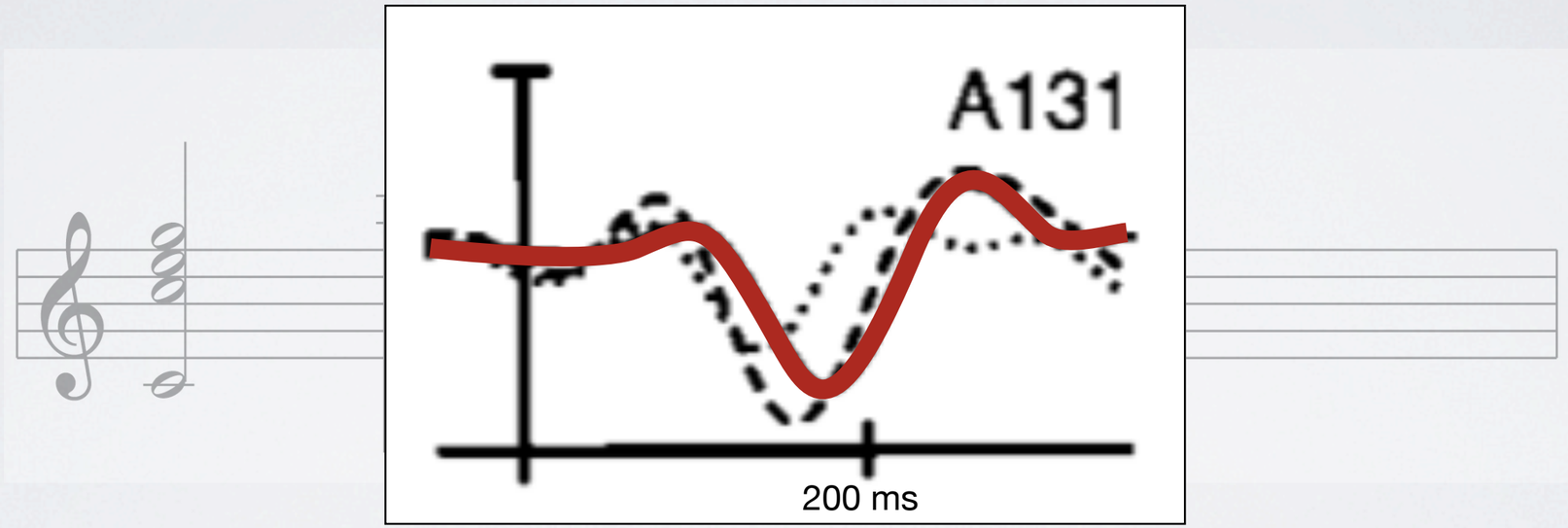


Koelsch 2001

Neapolitan at the End



Neapolitan at the End



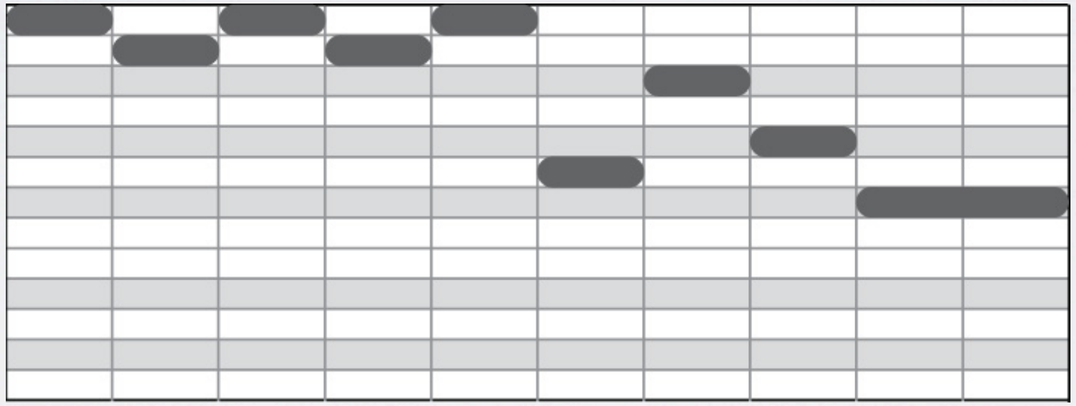
Koelsch 2001

5.

You Have a Huge "Musical Lexicon" That You Can Access Very Rapidly.

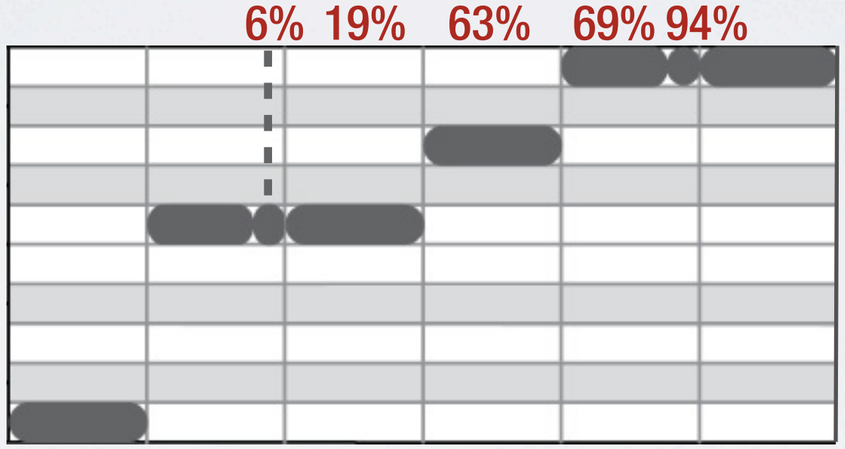
Name That Tune!

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

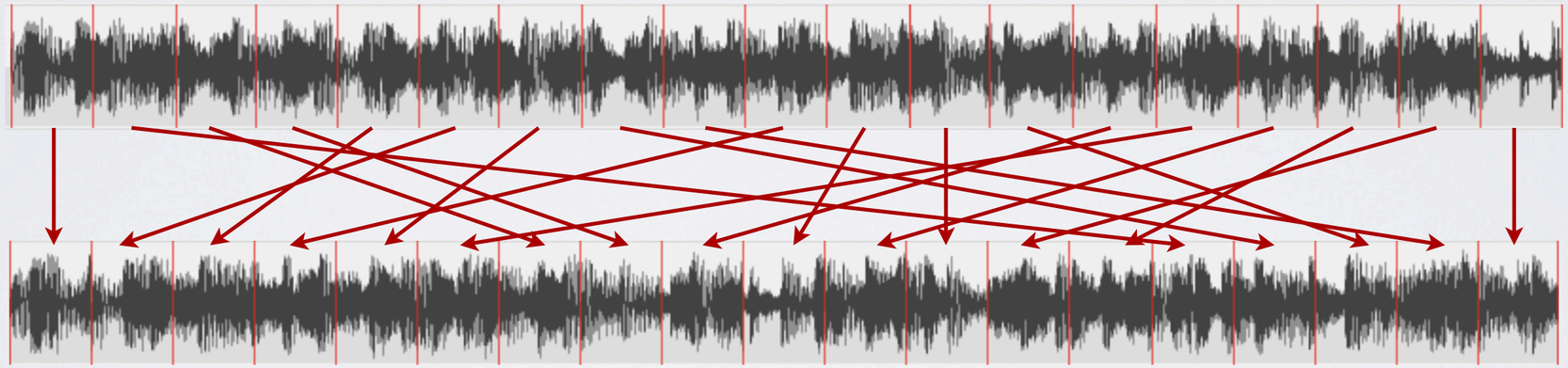
B

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	Hey Jude	Mrs. Robinson	Kl. Nachtmusik
Minor → Major	Major → Minor	Major → Minor	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