The Tipping Point Analogy for Musical Timing

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Video courtesy of Andy diSessa (UC Berkeley)

What is a tipping point
Physics: The point beyond which the line through the centre of gravity lies outside the base of the object.
Social: The line beyond which your parents get very cross.
Popular: The critical point in a situation, process, or system beyond which a significant and often unstoppable effect or change takes place.

First use 1959. (Merriam-Webster Dictionary)
Music: A timeless moment of suspended stillness, of stasis, beyond which a small perturbation will tip the balance and set in motion the inevitable return of the pulse.
Agenda

- Tipping Point Definition

... now for some examples
O mio babbino caro
from Gianni Schicchi
by Puccini:
Mi strugo e mi tormento!
O Dio, vorrei morir!
Babbo, pietà, pietà!
Babbo, pietà, pietà!

I am anguished and tormented!
Oh God, I'd like to die!
Papa, have pity, have pity!
Papa, have pity, have pity!

(lyrics and translations from wikipedia)
Function: Prolongs expectation – creates drama; emphasizes melodic leap, exaggerates emotion cues – heightens poignancy.
Puccini: O mio babbino caro: Graph of eighth note length vs. eighth note number

- Kathleen Battle
- Maria Callas
- Kiri te Kanawa

Dio

pietà pietà

pie–tà.....
Puccini: O mio babbino caro: Graph of eighth note length vs. eighth note number

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Dio

pietà pietà

pie – tà ......
Video available at https://vimeo.com/70618222
Emotional content of music arises primarily through composer’s choreography of expectation.
Agenda

• Tipping Point Definition
• Generating expectation/elicitng emotion
Burleske
by Richard Strauss

youtu.be/4q_zSvns0QY
Burleske
by Richard Strauss

Function: augurs inevitable change; release after prolonged suspense; augments tonal expectations; coordinates return

5 April 2013
E.Chew: PSN2: Tipping Point
Strauss: Burleske: Graph of bar length vs. bar number

- Glenn Gould
- Martha Argerich
- Sviatoslav Richter
- Elaine Chew

E.Chow: PSN2: Tipping Point
Video available at https://vimeo.com/70618400
Agenda

• Tipping Point Definition
• Generating expectation/eliciting emotion
• Cathartic release/coordinating return
Schon Rosmarin
by Kreisler

1936 version, with pianist Franz Rupp

youtu.be/RTNeHzzF8i8
Kreisler plays Schon Rosmarin: Graph of crotchet note length vs. crotchet note number
Kreisler plays Schon Rosmarin: Graph of crotchet note length vs. crotchet note onset time

Video available at https://vimeo.com/70621078
Agenda

• Tipping Point Definition
• Generating expectation/eliciting emotion
• Cathartic release/coordinating return
• **Playful simulation of gravity-defying moves**
Why bother
Performance pedagogy
  - expressive nuance
  - natural timing
  - the extra edge
Ensemble musicianship
  - coordination
  - co-creation
Music cognition
  - understanding creativity
Interactive systems
  - humans and machines
Current computer models: Problematic emphasis on pulse rate persistence; need to account for design (decision-making) aspects of performance
Performer creates a path (landscape of experiences)
sometimes laying tracks in real-time
trough which to bring the listener

Goldberg Variations kinetic sculpture at Logan Airport, Boston
ESP
with Jie Liu, Aaron Yang, Alexandre François
work done at USC MuCoaCo Lab

A literal take on the driving metaphor for expressive performance
Mapping from score to road

Brahms
hungarian dance no.5

prima

seconda

5 April 2013

E.Chew: PSN2: Tipping Point
Hungarian Dance No. 2, symmetric phrasing.

Hungarian Dance No. 2 roadmap, symmetric.
Brahms
hungarian dance no.2

Map for gestural performance

Hungarian Dance No. 2, gestures.

Hungarian Dance No. 2 roadmap, gestures.

5 April 2013
Agenda

• Tipping Point Definition
• Generating expectation/eliciting emotion
• Cathartic release/coordinating return
• Playful simulation of gravity-defying moves
• Why bother
Music: A timeless moment of suspended stillness, of stasis, beyond which a small perturbation will tip the balance and set in motion the inevitable return of the pulse.
Thank you

• **Some references:**
  – Score/performance time: Chew & Callender CMMR 2013

• **Further information:**
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