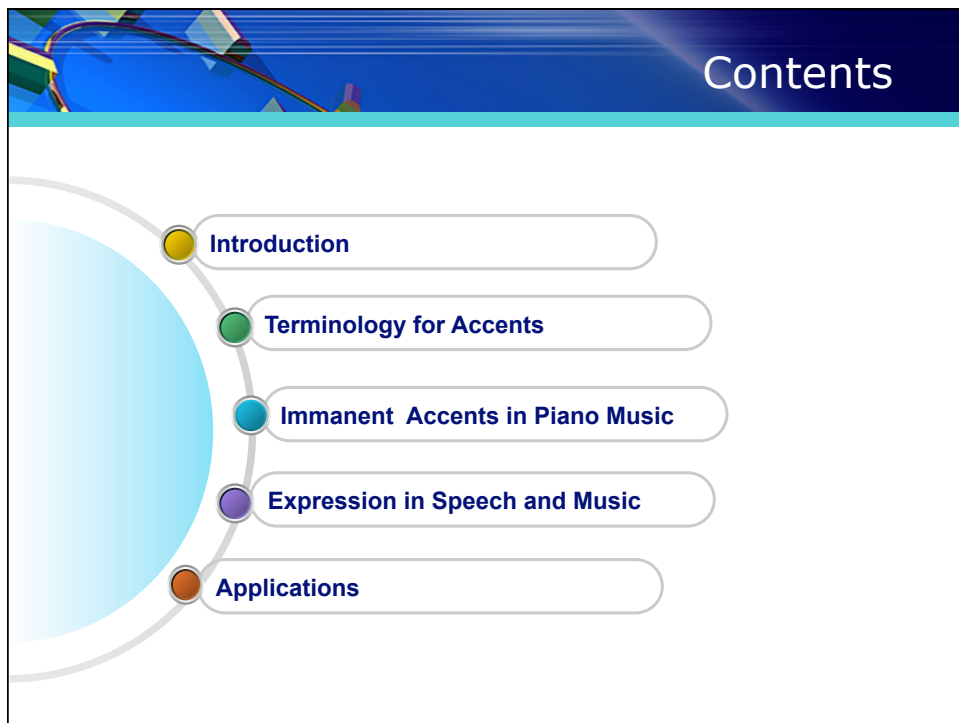




Accents and expression in piano performance

Authoried by Richard Parncutt • Presented by Li Bo



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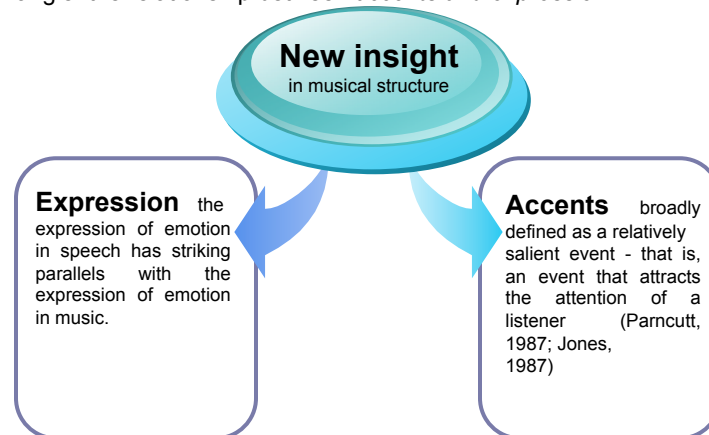
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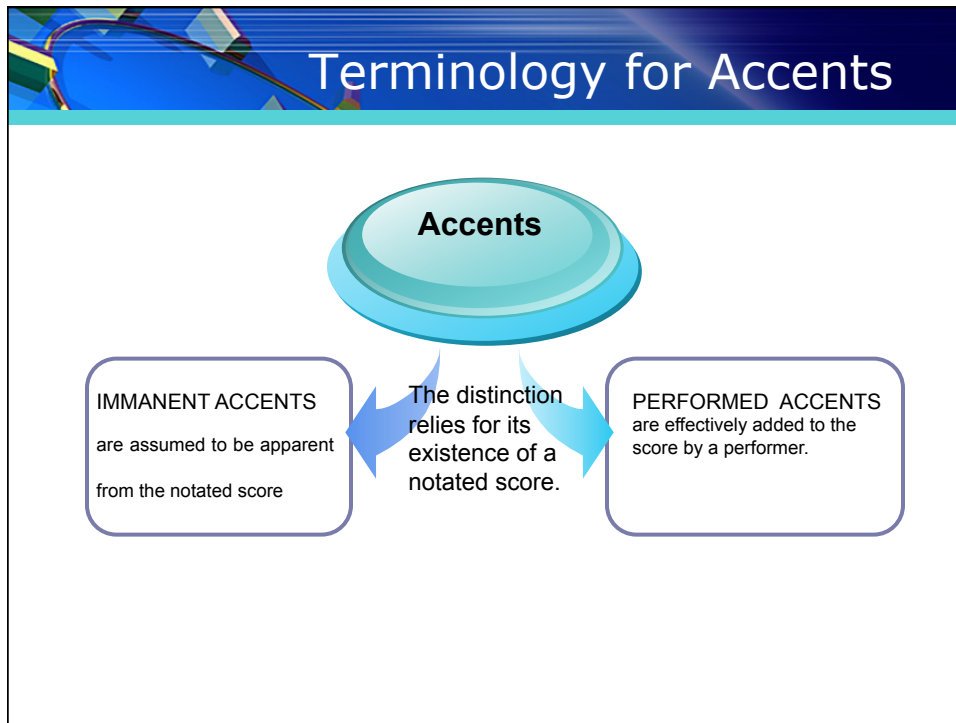
Introduction

- Most recent computer-based attempts to create expressive musical performances (e.g., Clynes, 1985; Friberg, 1991; Honing, 1990; Mazzola & Zahorka, 1994; Sundberg, 1988; Todd, 1989) have focused on the role of musical structure.
- Recent research (Bresin & Friberg, 1998; Gabrielsson & Juslin, 1996; Juslin, 1997) has returned to the question of exactly what combinations of performance parameters are used to communicate which emotions.
- Interpretation also appears to depend on the *dramatic content of a piece of music, whereby* "drama" may be understood to imply interactions between real people, or at least fictional characters.
- Yet another potentially important influence on musical interpretation may be the body of the musician - the brain, ears, lungs, lips, fingers and so on

Introduction

The approach adopted in the article is to return to the idea of *structure* from a new angle: the relationship between *accents and expression*.

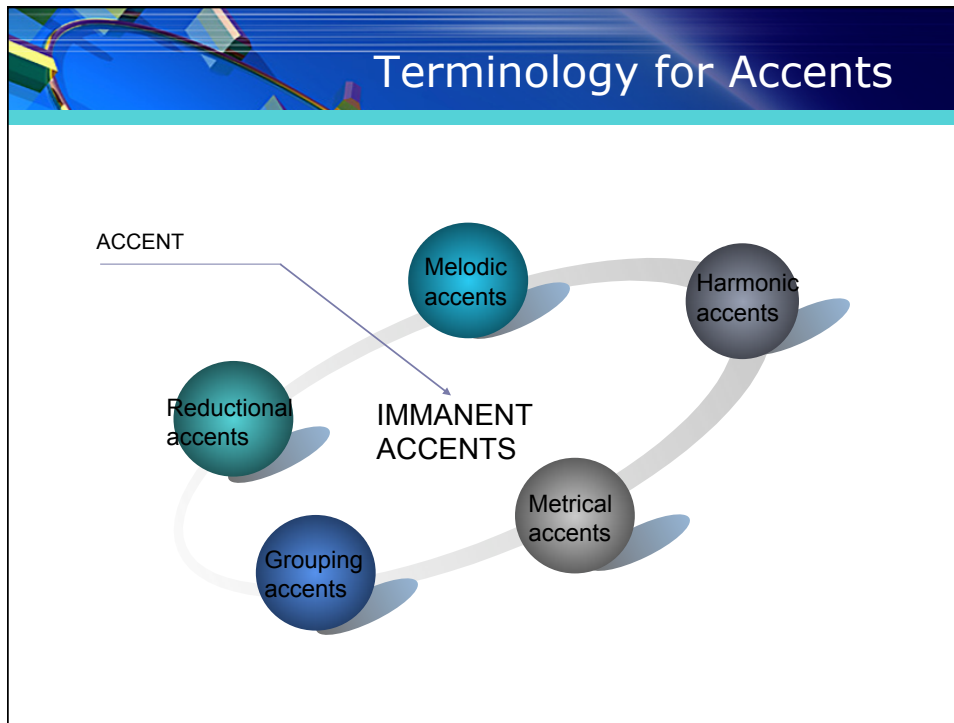




Terminology for Accents

	IMMANENT ACCENTS	PERFORMED ACCENTS
time	-grouping -metrical	-onset time(agogic) -duration(articulatory) -amplitude envelope
pitch	-melodic (contour) -harmonic -reductional	-intonation
Loudness	-dynamic	-stress
timbre	-instrument/orchestration	-coloration

Table 1: A Taxonomy of Accents in Music



Melodic Accents

Melodic accents may be divided into *turns and skips*. Turns are the peaks and valleys of melodic contours; Skips are disjunct intervals between consecutive tones.

Pitches at the extremes of the musical texture are more clearly audible than pitches within the texture – another effect that may be explained by masking. Thus, the further a melodic turn lies from the mean pitch of its context, the greater will be its perceived accent.

Examples 1 demonstrate melodic accents with reference to extracts from the scores of some well-known piano pieces. The accents are marked C for contour;

Ex. 1b. Mozart: Sonata K.304 for violin & piano, first movement.

Lento

Ex. 1c. Brahms: Sonata Op. 100 for violin & piano, first movement.

Allegro

Ex. 1d. Schumann: Träumerei, Op. 15, No. 7.

Allegretto amabile

Ex. 1e. Chopin: Etude Op. 25 No. 1 (reduction).

Ex. 1a. Chopin: Etude Op. 25 No. 1 (reduction).


Allegretto amabile

Harmonic Accents

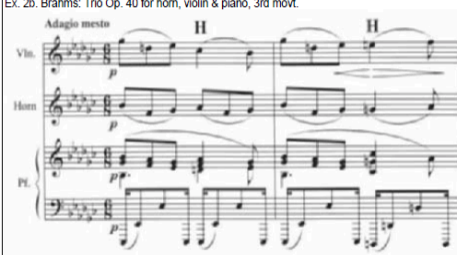
Harmonic accent corresponds closely to harmonic *tension*, as *measured and modeled*. Harmonic accents occur both at harmonic *changes* and at harmonic *dissonances*. The salience of a "horizontal" harmonic change increases as the harmonic distance between a chord and its context increases.

Harmonic dissonance depends on the spectral and temporal envelopes of a sound, which in turn depend both on the instrument playing and on the playing technique; it may therefore be either performed or immanent. By contrast, the harmonic distance between two chords is always immanent.


Ex. 2a. Mozart: *Fantasie* K. 397.



Ex. 2b. Brahms: *Trio* Op. 40 for horn, violin & piano, 3rd movt.



Ex. 2c. Bach: *Prelude* No. 12, Bk. 2, *Well-Tempered Clavier*.




Metrical Accents


In the present definition, metrical accents are essentially confined to music; in speech, they only occur in metrically recited poetry. A possible definition is that metrical accents imply body movement or dance.

Metrical accents are marked M in Examples 3. In the Eb Rhapsody (Ex. 3a), Brahms marks accents on the downbeats of the opening bars, evoking a march-like mood. Metrical accents with similarly powerful effect occur in the *Ballade* (Ex. 3b). In Schubert's *Des Baches Wiegenlied* from *Die schöne Müllerin* (3c), the regularity of metrical accents is evocative of the rocking of a cradle.


Ex. 3a. Brahms: *Rhapsodie* Op. 119 No. 4.



Ex. 3b. Brahms: *Ballade* Op. 118 No. 3.

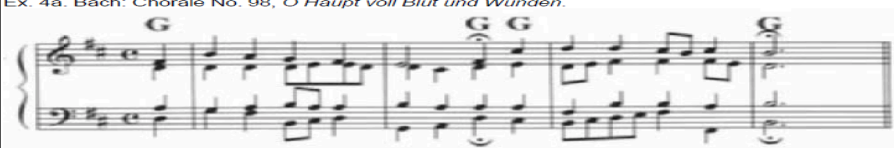


Ex. 3c. Schubert: *Des Baches Wiegenlied* from *Die schöne Müllerin*.




Grouping Accents

Ex. 4a. Bach: Chorale No. 98, *O Haupt voll Blut und Wunden*.



Ex. 4b. Chopin: Prelude Op. 28 No. 7.

Andantino



Ex. 4: Grouping Accents G.

Group boundaries are similar to points of stream segregation (Bregman, 1990) in that they typically occur when time and pitch intervals between successive notes are bigger than others in the immediate context. The strength of a grouping accent depends on the number of hierarchical levels that it demarcates.

According to this rule, the first and last grouping accents marked in both the Bach example (4a) and the Chopin example (4b) are more important than those that separate the two phrases in each case.

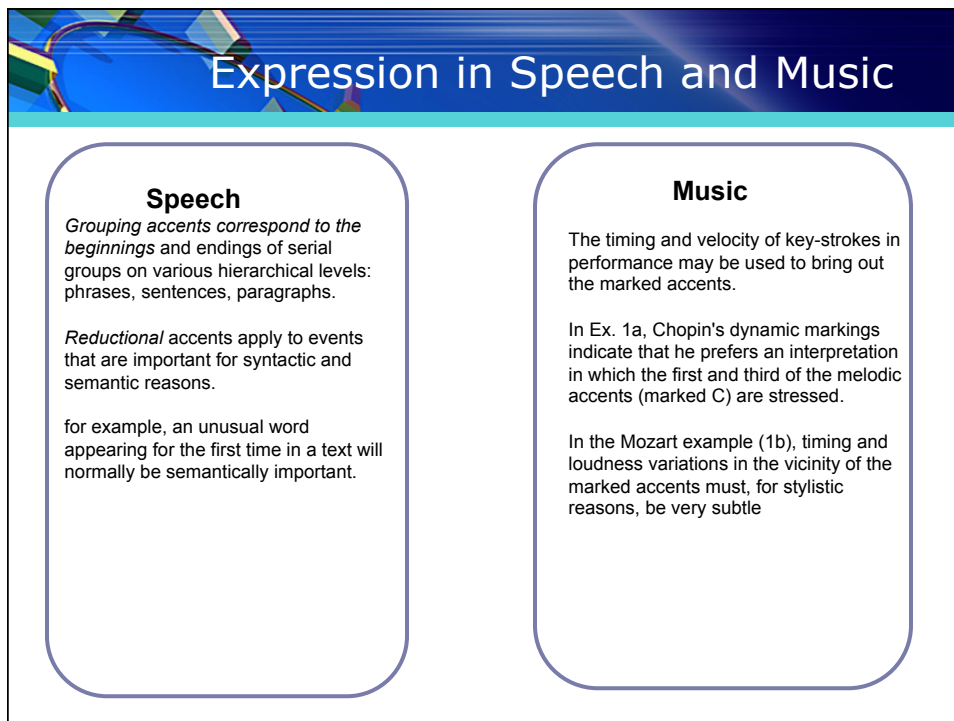
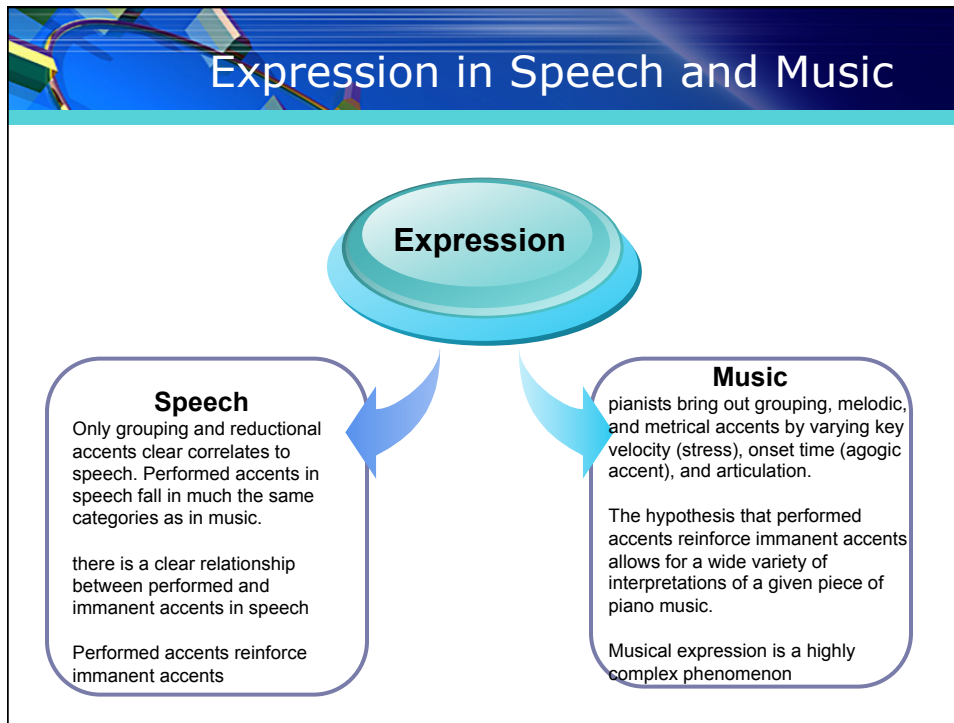
Reductional accents

Reductional (or *linear*) accents correspond to notes at a deeper reductional level than the musical surface.

Table 2 shows some melodic reductions drawn from the above examples. The specific tones to which the reductions refer may be deduced by comparing the table with each example in turn.

Ex. 1a	G# A B A G#
Ex. 1c	C# B A A#
Ex. 1f	E D C B
Ex. 2a	F E D
Ex. 2e	D# E F# G# A# B
Ex. 3a	G Ab G F Eb
Ex. 3c	G# A G# F# E
Ex. 5	C Bb Ab Bb C D

Table 2: Reductional accents in Examples 1 to 4



Applications

The computer system would allow modulations of timing and dynamics associated with chosen immanent accents to be freely manipulated.

The user sets parameters for each performed accent. The parameters will depend on the model of expression that is being used (which in turn depend on musical style).

Fig. 1. demonstrates a simple model of timing in which the strength of the accent corresponds to the height of peak. A parabolic or exponential shape is consistent with recent experimental data and models on timing.

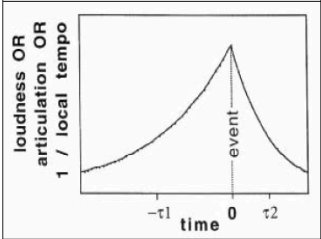



Figure 1. A Schematic Timing Curve For Individual Accents.



Ex. 5. Chopin: Posthumous Study No. 1.

Applications

Fig. 1. demonstrates a simple model of timing in which the strength of the accent corresponds to the height of peak. A parabolic or exponential shape is consistent with recent experimental data and models on timing.

Ex. 5. marks the accents that can be notated automatically on the score, in a similar way. The first note of Ex. 5 bears both metrical accent and grouping accent.

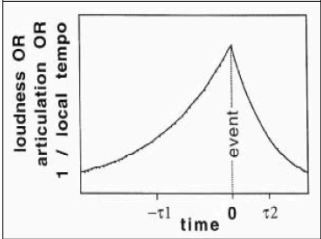



Figure 1. A Schematic Timing Curve For Individual Accents.



Ex. 5. Chopin: Posthumous Study No. 1.

