Toward Music Structure Annotation

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Introduction

Music Structure research ?
    Improvement of algorithms
    Improvement of performance measure
But how pertinent is the music structure annotation used for these evaluations ?

Structure Annotations possibilities:

based on "Music role"

- Music role that a part plays in a song
- Introduction, Verse, Chorus, Bridge, Ending
- Problems:
    - Intro, Outro= time position, can be the Chorus
    - Several version of Chorus and Verse
    - Definition of Chorus and verse not clear (Rap, R'n'B)

based on "Acoustic Similarity"

- Acoustic similarity between parts
- Problems:
    - Similar= identical, What about if small variation ?
    - How to quantify ?
    - How to put the threshold ?
    - What criteria for similarity ? Timbre ? Harmony ? Rhythm ? Lyrics ?
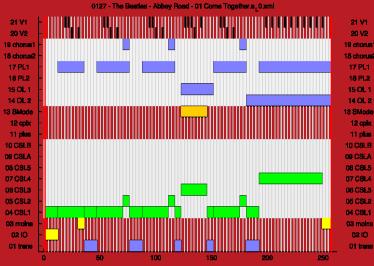
based on "Instrument Role"

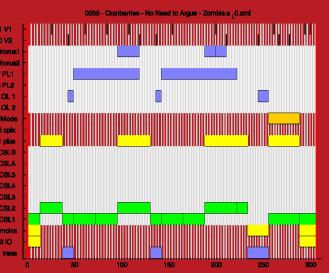- Location of lead singer, location of solo guitar
- Problems:
    - Few insights into the global structure
    - Identify instrument: huge number of labels (guitar= classical ? Folk ? Electric ? WhaWha ?)
- Solution: Describe the instrument role: Primary Lead, Secondary Lead

based on "Perceptual Tests"

- Average human perception of structure
- Problems:
    - Very costly !
    - Labels used by people are usually not shared

0127 - The Beatles - Abbey Road - 01 Come Together.s_0.xml

0055 - Cranberries - No Need to Argue - Zombie.s_0.xml

Multi-dimensional structure annotation

Use simultaneously (but independently) the various view-points:
    "acoustical similarity", "musical role" and "instrument role"

A track is formed:
- by a set of <u>Constitutive Solid Loops</u> (CSLoop)
     represent a "musical phrase"/"musical exposition" (succession of chords).
     CSLoop with similar ID represent the same "musical phrase" although large variation can occur between them.
- over which are super-imposed <u>variations of the CSLoops ID</u>.
    "--": same CSLoop in a lighter version (for example without the drum or without the bass)
    "++" if it is in a stronger version (for example with an extra second guitar)
- over which are superimposed important "instrument roles":
    such as <u>primary leads</u> (lead singer in pop., lead instr. in jazz/ electro)
    <u>other leads</u> (choir, other lead instruments or melodic sample)
    or <u>solo mode</u> (electric-guitar solo, jazz chorus solo, ...)
- which plays a "<u>musical role</u>" (intro, outro, transition, obvious chorus, solo).

- When a part is too complex to be described, it is annotated as <u>ComplexMode</u>.
- When a CSLoop is an <u>obvious chorus</u> it is annotated as "chorus", when it is not obvious, it is not annotated as "chorus" but it is still annotated as the repetition of the occurrence of a specific CSLoop, with PrimaryLead and OtherLead (Choir) which are distinctive elements.
- <u>Segment sub-division problem</u>: <u>markers</u> can be placed inside a CSLoop segment to indicate further possible sub-divisions. Two types of markers can be placed (V1 and V2) indicating respectively similarity and dissimilarity between the parts on the left and on the right of the marker.

More in LSAS09 paper (December) "Is Music Structure Annotation Multi-Dimensional? A Proposal for Robust Local Music Annotation"