Chapter 25. Meeting 25, Formats and Distribution

25.1. Announcements

- Mix Report 2 due Wednesday 16 May (no extensions!)

- We might listen to mixes if available before class

- Track Sheet Logs: show me after class today

- Subject evaluations!

25.2. Reading: Millard: Tape Recording and Music Making

- What form of recording did the earliest electromagnetic recorders replace?

- For what applications did musicians use portable magnetic recorders? What does this suggest about the kinds of music these musicians were interested in?

- Other than duration, what were some other advantages of recording on tape?

- What were some features that led to the success of the Philips compact cassette?

- Why does the author suggest that "rap ... could only have begun on cassette tape"? "

- In what ways did the casette affect the development of world music?

- Has digital technology, like tape, changed the "corporate nexus of independent companies and media conglomerates" in the music industry?

25.3. Ordering Mastering Processors

- Exciters should be early in signal path

- EQ might come before or after compression (prefer before with multiband compression)

- A final limiter is often (nearly always) the penultimate processor

- Dither is always last

25.4. Sample Setups

- Sample minimal: filter, limiter, dither

- Sample maximal: manual fading, exciter, filter, multi-band compressor, limiter, dither

25.5. Mastering Dynamics: Limiting

- Increase loudness with little change to mix

- Remove "unnecessary" transients or spikes

- Will not drastically change relationship between instruments in the mix

- Limiting should be fast and shallow (low threshold around -3 to -6 dBFS); some processors set input level into a fixed (0 dB) threshold

- Ouptut ceiling should be set no higher than -0.2 dBFS

- May create flattened, distorted, and lifeless sound

- Example: Sonnox Oxford Limiter

- Example: Logic Limiter

- Example: Live Compressor as Mastering Limiter

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25.6. Mastering Dynamics: Compression

- Increases loudness

- Favor ratios less then 3:1

- Favor long attacks (over 14 ms) and short releases

- Most transparent compression with small ratio (1.01 to 1.1:1) and deep threshold (-30 to -40 dBFS)

- Preserve transients: long (high) attack; Avoid noticeable release times

- May drastically change relationship between instruments in the mix

- May add punch and strength, make tracks gel

- Activity in some frequency ranges may have negative side effects for other frequency ranges

- May create flattened, distorted, and lifeless sound

- Example: Sonnox: Oxford Dyanmics

- Example: Logic Compressor

- Example: Live Compressor as Mastering Compressor

Courtesy of Ableton AG. Used with permission.

25.7. Mastering Dynamics: Multiband Processors

- Benefits: each band is independently optimized

  Example: a peak in the vocal line will not turn down the bass

  Example: high frequency overtones and transients remain while mid-range dynamics are controlled

- Detriments: alters balance of mix, alters phase, may phase distort at crossover transitions

- "The multiband device's virtues permit louder average levels than were previously achievable -- making it the most powerful but also potentially the most deadly audio process that's ever been invented." (Katz 2007, p. 128)

- Use as few bands as necessary, from 2 to 5

- Tune bands to the particular material

- Can aim for comparable gain reduction in each band

  Can aim for gain reduction only in specific bands

- Favor slow attacks, low ratios, and deep thresholds

- Favor slow attacks, low ratios, and deep thresholds

- Example: Apple Multiband Compressor

- Example: Izotope Ozone 5 Dyanmcs

25.8. Mastering Filters

- Goal of achieving tonal balance

- Adjustments have secondary / complimentary effects

- Less is more: +/- 3 dB may be sufficient

- Adjustments alter internal balance of mix

- Adjustments should be listened to for long durations and with A/B comparisons

25.9. Mastering Filters: Common Applications

- Focusing middle range: using a parametric to boost or cut

- Controlling bass: boosting between 80 and 120 Hz while reducing below 60 Hz

- Sparklies or air band boost: initially seductive but can cause long term fatigue

- DC Offset removal: HPF at 20 Hz

- Filters may have a sound independent of filter settings

- Example: Logic Fat EQ

- Example: Sonnox Oxford Equialiser & Filters

25.10. Mastering Exciters

- Generate favorable distortion

- Add harmonics: different processors add different combinations of harmonics

- May lead to unmusical or excessively bright or edgy results

- May add warmth and presence to dry and cold mixes

- May model tube or analog processing or saturation

- Example: Logic Exciter

- Example: Sonnox Oxford Dynamics

- Example: Izotope Ozone 5 Exciter

25.11. Mastering Maximizers

- Psychoacoustic or other perceptual techniques

- Specialized limiting

- Example: Sonnox Inflator

- Example: Izotope Ozone 5 Maximizer

25.12. The Complete Processing Chain

- As little as necessary from each processor

- As few processors as possible

- Example: Dirt Feelin

- Example: Katherine Young's Pretty Monsters: Feldspar

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