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What we’ll cover

- Session 1: The signal & recording techniques
- Session 2: Audio Capture
- Session 3: Tools and Techniques (1)
- Session 4: Tools and Techniques (2)

Audio Preservation

Note: the audio workshop is taught in both weeks 1 & 2.
Who are your instructors?

Arienne Dwyer – Associate Professor of Linguistic Anthropology, specializing in language contact in Central Asia and China: anthemlinguist@ku.edu

Tsuyoshi Ono – Associate Professor in East Asian Studies, specializing in Japanese and Ikema: tono@ualberta.ca
Why is audio important?

- Can be very high quality
- Allows for more accurate transcription
- Allows for analysis of sound
- Allows the creation of teaching materials
- Is often less invasive than video

Goal: Good, better, and best practices in audio recording and analysis
What makes a good recording?

- Let’s listen to a couple of recordings...
  - Which is better, and why?
    - Let’s listen once just to the audio, then
    - Let’s listen and look at the wave forms
Comparing the previous two...
Techniques: Minimizing noise

- ambient (background) – an example
- machine noise – another example

Equipment: Compression (e.g. CD vs. MP3)

- Compressed = small but “lossy”
- Uncompressed = big but “lossless”
What purposes?
- Acoustic (e.g. phonetic) most demanding
- Interview (e.g. oral history) least demanding
- Balance cost, purpose, archivability

Strongly recommended: lossless digital
- solid-state recorder (CF/SD/HD)
- Archive Formats: .wav, aiff, (.au)

Not recommended: dictaphones (also MP3, incl. iPod), cassette recorders

For interviews, barely acceptable: MP3
We all have analog cassette recordings

If you already have such recordings, preserve them!

These are fine:
- as “heritage/legacy” materials
- if you don’t have access to a digital device

But for future recordings, ideally, we’d recommend digital recording in wav format
Audio Formats and Workflow 1 [AD]

- **Recording** – what your device can handle
  - Sound frequencies in kHz (kilohertz)
  - 44.1 kHz or higher for linguistic work
  - (22 kHz - ok for some work)

- **Capture** (Day 2) – data transfer to computer
  - Involves a “linear” (lossless) sound card
  - If your device is not digital – conversion from analog to digital, then capture
Archiving – uncompressed formats
- Sound frequencies in kHz (kilohertz)
  - 44.1 kHz or higher for linguistic work

Presentation (web, CD, etc)
- Compressed formats often better
  - esp. .ale (Apple Lossless Encoding)
  - Faster downloads, take less space
Therefore, we recommend these formats for three different research contexts:

- **Working format:** wav
- **Archiving formats:** (highest-freq.) wav, bwf
  - NB – only as good as your original recording!
- **Presentation formats:** mp3, ra, wma
Focus on making good recordings today

- Jump-starting your recording (Pause/Standby)
- Holding microphone
- Eliminating echo
- Balancing quiet and “naturalness”, etc.

Tomorrow: focus on devices & mics

- Device, microphone, peripherals
recommend Solid-state recorders
- Here for testing are Edirol, Marantz, M-Track
- There are other, excellent ones (Session 2)
- You can consult with us on these

Using the R-09, the Marantz 620, etc.
- batteries
- SD/CF cards
- Settings: recording frequency, format
- Microphone: setting for external mic, stereo
We’ll talk more about the *types* of devices and microphones tomorrow

Today we focus on *techniques*

For microphone use, the main issue are *directionality* and *recording levels*
Microphone technique: directionality

- Get your mic as close as possible to the sound source (without making the person uncomfortable),
- have it pointed in the right direction
- (if it has one – some mics are omni-directional),
- have nothing in the way or touching the mic (eg, clothes), and
- have no other, unwanted sources of sound anywhere near the mic (ie, near the speaker).

[source for this pg: Peter L Patrick LG554 http://courses.essex.ac.uk/lg/lg554/index.htm]
Microphone technique: recording levels

- Important for optimal recording
  - Too low – hard to hear
  - Too high – “clipping” (see below)
Limiter (volume levels)

- Manual (impt. for every device you have)
  - Levels should be set manually
  - Monitored throughout the recording
  - Use headphones!

- Automatic volume – not recommended
Familiarize yourself with the devices now

This afternoon, please make a 2-minute recording in a challenging situation – including but not limited to a conversation, interview, outside with background noise (trucks, ocean, construction...), lecture...

Make sure you obtain verbal consent before doing so

Manuals are available for your use
On Metadata:
- Open Language Archives Community (OLAC)
  http://www.language-archives.org
- IMDI (Probably different URL); international Standards for Language Engineering
  http://www.mpi.nl/ISLE

Reviews of Audio hardware (recording devices and microphones):
- Vermont Folklife Center
  http://www.vermontfolklifecenter.org/res_audioequip.htm
- University College London
  http://www.phon.ucl.ac.uk/resource/audio/recording.html

On audio signal processing and archiving:
- Sound Directions
- EMELD

For software:
- Linguistic Data Consortium (LDC)
  http://www.ldc.upenn.edu
- http://audacity.sourceforge.net/
- http://www.fon.hum.uva.nl/praat/
Links and further references, 2

- Audio archives
  - Archives of Traditional Music at Indiana University
    http://www.indiana.edu/~libarchm/
  - Documentation of Endangered Languages
    http://www.mpi.nl/DOBES
  - AILLA http://www.ailla.org/

- Places to buy specialized audio equipment
  - For Edirol R-09, all the big dealers carry it: Amazon, B&H, J&R Photo, The Sound Professionals, etc.
  - US dealers who know about digital audio and microphones: Oade Brothers, Full Compass Systems
  - ...
Further training:

- Audio/video recording techniques: [http://www.bbctraining.co.uk/onlineCourses.asp](http://www.bbctraining.co.uk/onlineCourses.asp).