

DWRL Workshop, 26 Feb 2013

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# Audio Issues

- Recording
  - Cleaning up
  - Editing
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# Outline

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- ❖ Basic concepts
- ❖ Recording right
  - microphones
  - settings
- ❖ Cleaning up
  - Noise Removal
  - Compression
  - Equalization (EQ)
- ❖ Sleights of Hand: MakeSomethingShittySoundAwesomeOrAtLeastNotQuiteAsShitty



# Some Key Ideas

# Signal-to-Noise Ratio

## Signal:

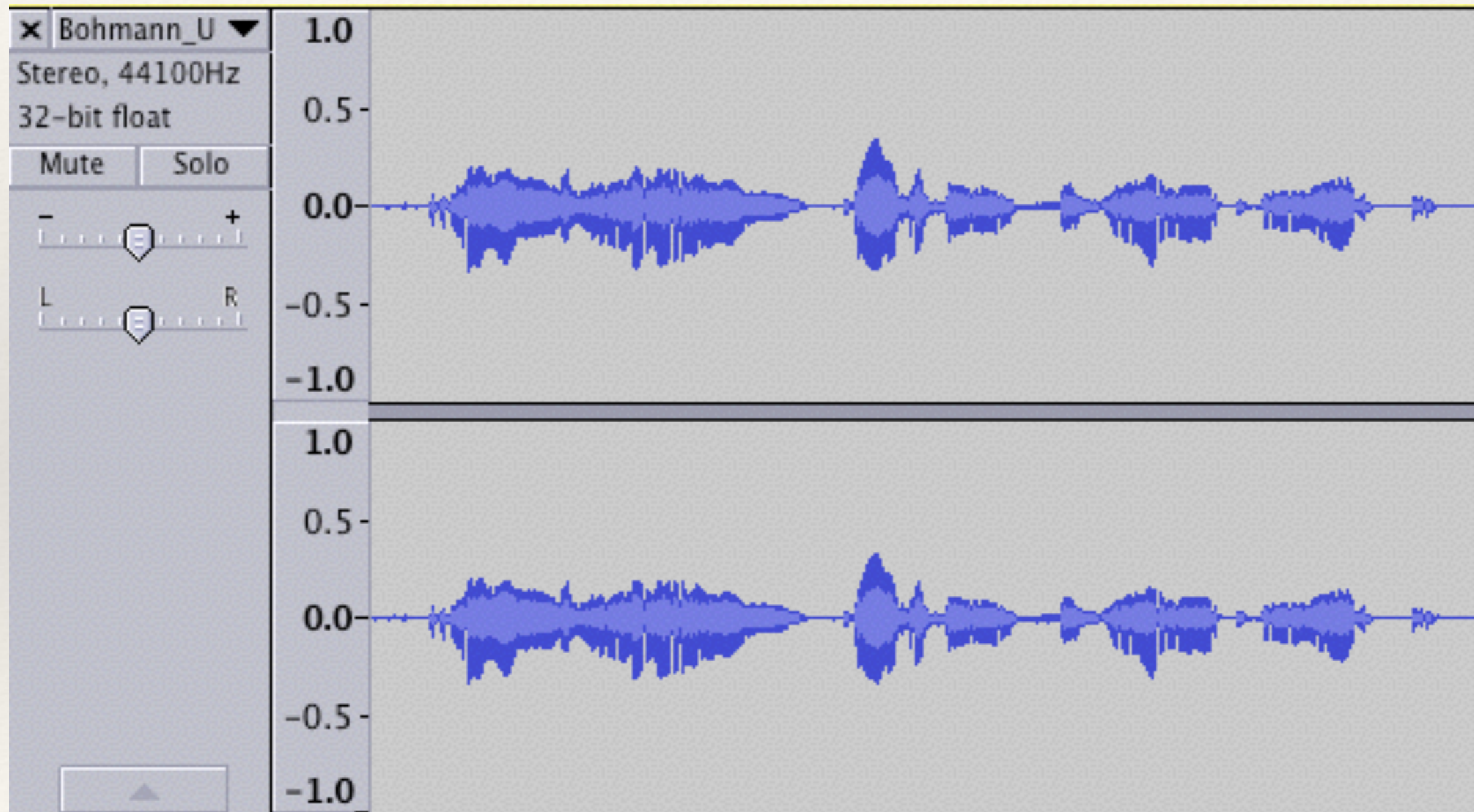
What you want  
(voice, instrument,  
ambient sound)



## Noise:

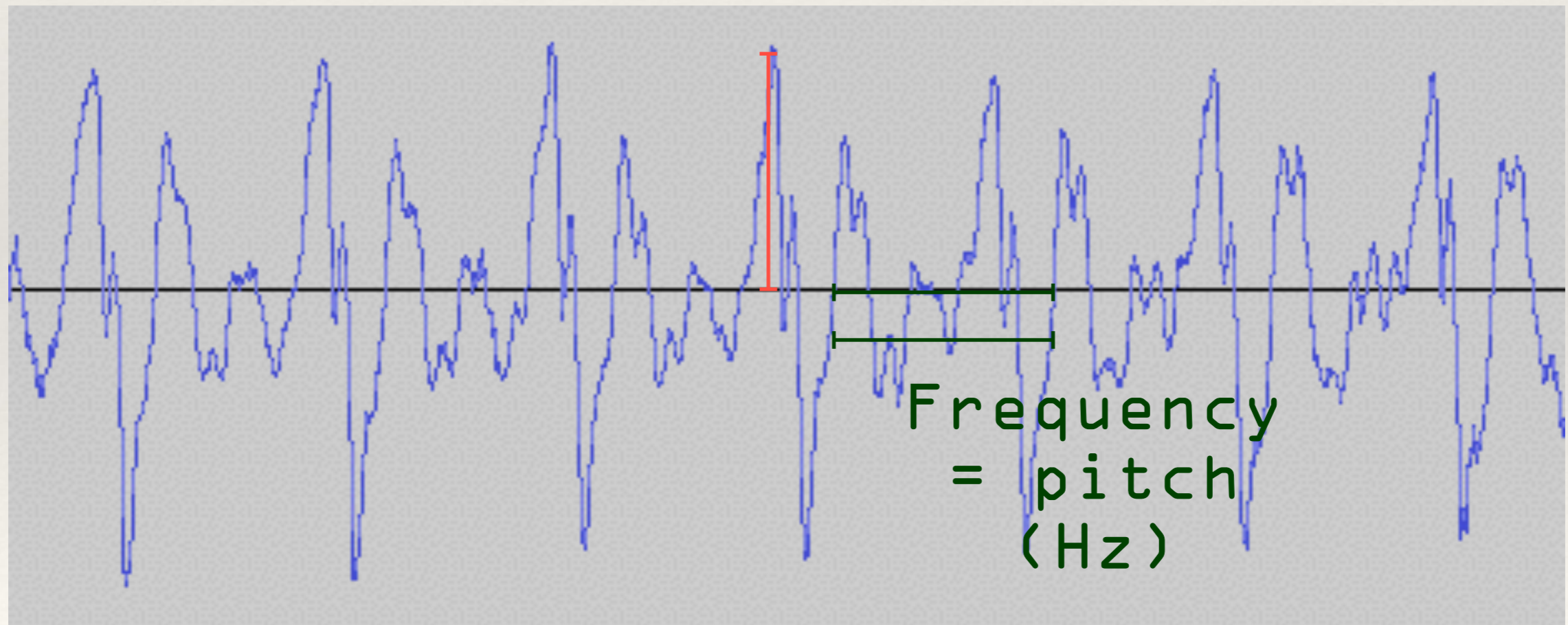
What you don't want  
(AC, undergrads,  
trucks, Bieber)

# What Sound Looks Like



# Basic Parameters

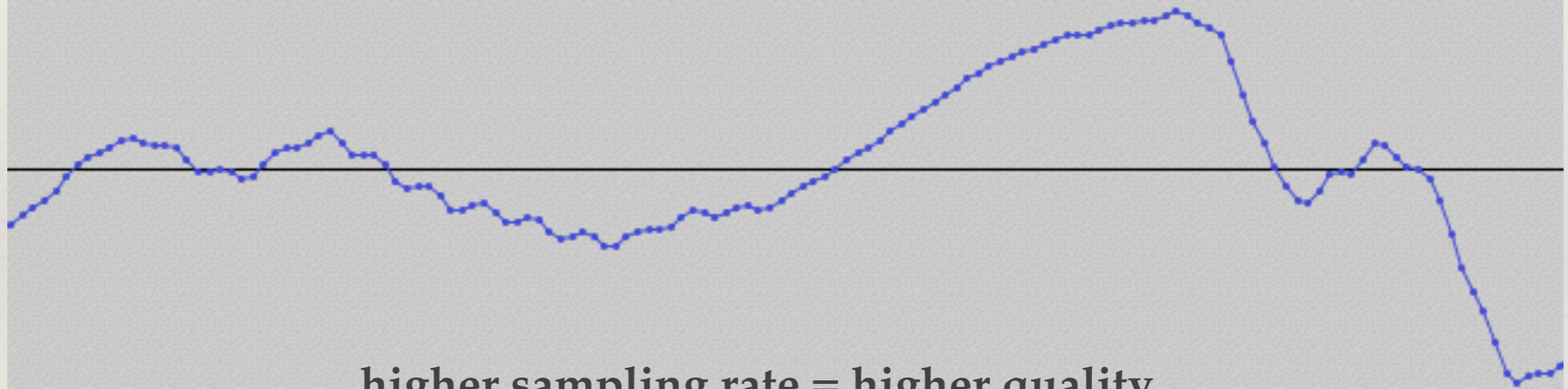
Amplitude  
= Volume (dB)



# Digital Sampling

These dots are called samples

They are the actual data a of your recording



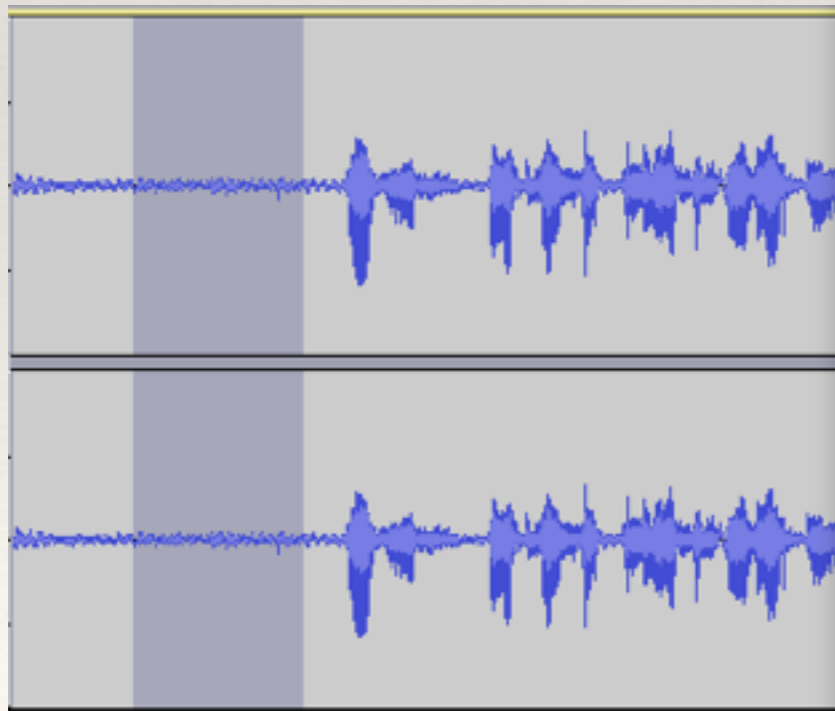
higher sampling rate = higher quality

44.100 Hz is standard and good enough for mot purposes

# Noise: What You Want to Avoid

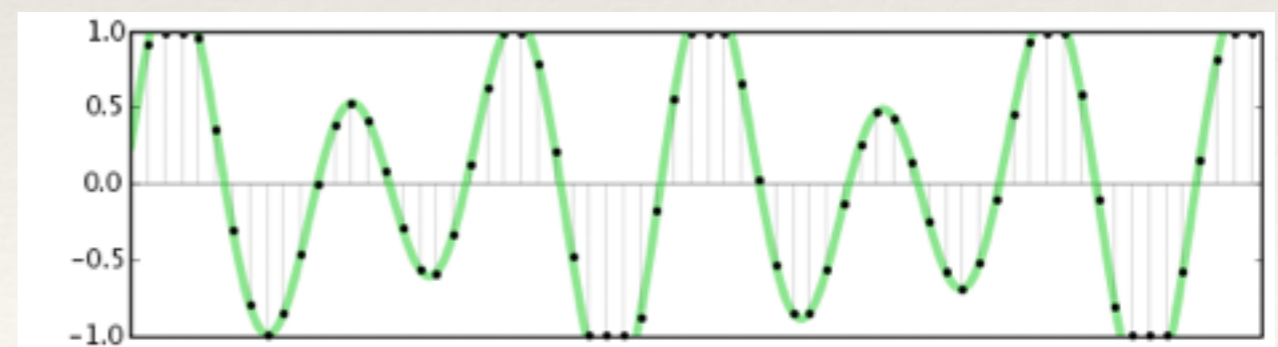
## Fixed-frequency Noise

- Continuous ambient noise (mic static, AC, etc.)
- Within a limited frequency range
- Hard to avoid completely
- Comparatively easy to fix



## Dynamic Noise

- Individual bad parts, such as
  - shocks to the mic
  - clipping
  - hisses and plops
- Take precautions to avoid this
- It's much harder to remedy





# Recording Right

# Microphone Directionality

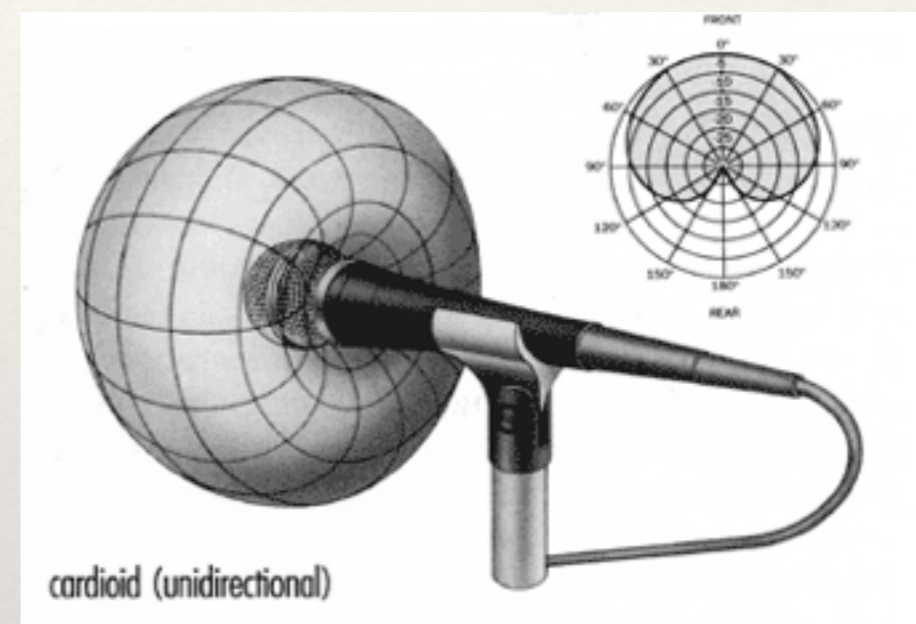
Omnidirectional



Bidirectional



Cardioid and Supercardioid



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# Choosing the Right Mic

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## ❖ **Omnidirectional:**

- picks up everything, so not suited to eliminate noise
- good for flexibility
- lavalier microphones are often omnidirectional

## ❖ **Cardioid:**

- capture a relatively fixed, relatively close source
- will pick up sound, but allows homing in on source

## ❖ **Supercardioid:**

- allows narrower pickup (exclusion of background noise)
- especially suited for distant sources and/or noisy environments

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# Using the Mic Right

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## ❖ Distance:

- Closer is better (... up to a point)
- Keep distance fixed
- to avoid popping sounds, speak at a slight angle to the mic (or use a pop filter)

## ❖ Sensitivity:

- Record at a high volume (to reduce static noise), but
  - Make SURE to avoid clipping (this will be hard to fix)
- ❖ Have a separate mic for each source you want to pick up
- ❖ Check cables and (if applicable) battery levels



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# Recording Environment

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- ❖ Choose a noise-free location
- ❖ Sources of noise to consider:
  - AC, computers, fridges, lighting
  - Acoustic properties of the room
  - traffic
  - mumbling
- ❖ Think ahead: if noise cannot be completely eliminated, can it be redefined as signal instead?
- ❖ Always record a portion of 'pure' noise use when cutting or for noise filtering

# Salvaging Bad Audio