Silence--not necessarily silent

by Matthew Wright; from Aspect Ratio, a Cinema Blog

• “the silence around the solo instrument”
• Gary Rydstrom
  ♦ sound for Terminator 2: Judgment Day, Jurassic Park, Saving Private Ryan
  ♦ believes that effective sound design begins with **contrasts:**
• But it’s also about how frequencies work together. There’s a trick to making a gunshot big using multiple layers of elements. You take the high snap of a pistol and add to it the low boom of a cannon and the midrange of a canyon echo. You orchestrate it. On an über scale then, we do that to the whole soundtrack, making sounds work together.
• Silence can be thought of as a type of sound. It’s like when somebody years ago figured out that zero was a number. And silence is just as valid as an amazing sound.
Use of Silence and contrasts from MI-1
• mix of near and absolute silence
• CIA -- get computer files
• vault sound and heat sensitive
• very quiet with sonic reprieves
• total silence as knife falls
  • heightens tension
  • emphasizes the choreography
• When sound returns.....more powerful
• Brian De Palma ultimately said, “No, take it all out.” And for the most part, that scene plays with nothing on the track. I went to see it with an audience and it had the desired effect: It made everyone lean in, pay closer attention, get nervous. Tension comes from the silence of that scene.
Spoken Sound

◆ A. Narration
◆ B. Dialogue
◆ what is said is essential to meaning
◆ how said also shapes meaning
◆ interpretation is function of director and performer
1. Direct Narration—describes what is being seen or heard

- Storyteller
- Straight news reports
Isabel Allende--Chilean Author
Storyteller
2. Indirect Narration

- Action or sound of a scene tells us what is happening
- Narration supplements:
  - why
  - context
  - significance
Direct Narration-Indirect Narration
from Arabs, Jews, and the News
3. Contrapuntal Narration

- juxtaposes narration and action
- makes a composite statement not present or explicit in either element
Contrapuntal Narration  
*non-fiction*

*from Arabs, Jews, and the News*

- Also music lyric as narrator
Propaganda 2 by Wil Youmans
the Iron Sheik

- "Israel only acts defensively and targets terrorists exclusively. See Israel's the only democracy in the region. If you're truly grieving the Holocaust, you gotta support the Jewish state. If you criticize, it's cuz you're full of hate. We made peace, but the Arabs rejected. Playing the victim, they perfected it. It's not our fault they fled in 48'. When Arab armies tried to terminate our little state in a sea of Arab rage. We just want a little tiny sliver piece of land. We'll deliver peace when Arafat meets our very small demands. Trust me, we're the ones who want peace. The terrorists are a wretched disease. Trying to drive us to the sea. Israel's America's friend in the Middle East. Fighting the same enemies"
Contrapuntal Narration

non-fiction

from Arabs, Jews, and the News

- Uses rap lyric as a foil to scenes of destruction
- what we see is ironical juxtaposition with the lyric
- Ken Waltzer
  - Israel justified
  - explains
- Rap lyric
  - Israel acts defensively
  - terrorists exclusively
  - Hot button words
    - Holocaust
    - democracy
Contrapuntal Narration-fiction film
from Platoon
Contrapuntal Narration-fiction film
from Platoon

- Poetic, letter-like lines
  - to grandmother
- Explains inner thoughts and feelings
- Alienation from family
- Too protected
- Family history--WWI, WW2
- Bottom of the barrel
- Pride about “grunts”
Usually, indirect and contrapuntal narration are stronger than direct.

- supplement and broaden content and are less obvious
Direct most effective when

- sounds and images not convey enough info
- information is complex and educational in nature.
- mixing the styles can improve communication
Direct Narration

from The Nucleus Factory
B. Dialogue

- conversation between 2 or more people
- at the core of storytelling
- not just the writer’s responsibility
  - director
  - actor
  - sound designer
  - editor
Interpretation

1. Accent
   - Location
   - Social class
   - Origin

Appropriate/believable
Can alter meaning
Accent

• from Out of Africa--Meryl Streep
Interpretation

2. Pace -- general guidelines
   - Deliberate -- inner tension
   - Faster -- urgency or nervousness
Pacing

from Schindler's List
Pacing

- unlimited choices
- not just the words
  - that which is unsaid
  - eyes part of conversation -- “eyes to meet”
  - let the characters study each other

- Spielberg
  - breaths, air, pauses--phrasing
  - silence
Interpretation

3. Patterns

- sentence structure
- vocabulary
- speech rhythms
  - educated, informal or contemporary

- make it appropriate
4. Emphasis--stressing a syllable or a word changes the meaning

DR JOHANSSEN APPLIED PRESSURE ON ME AT THE OFFICE
Interpretation

5. Inflection--altering the pitch or tone of the voice

- raise pitch at the end of a sentence, declarative becomes question
- speak in higher pitch--intensity and excitement
- I love YOU
- Like PHRASING in music
Interpretation

- Young Filmmakers ignore
  - about the cool shot
  - thinking technically
  - ignore performance

- Story is first
  - function of image and sound
  - interpretation manipulates the story
  - study the great films
IV. HOW DO WE RECORD SOUND - microphones

- Electro-Mechanical Transducers
- Convert acoustic energy into electrical energy
- Different pickup elements
- Different pickup patterns
Microphones

- Carbon
  - Rugged
  - Cheap - $1 to $5
  - Limited Frequency Response 100Hz to 5KHz
  - Most Common type in the world
  - Inside telephones
Microphones

- Crystal or Ceramic
  - Fragile
  - Inexpensive $5 to $15
  - 80Hz to 8KHz
Microphones

- Dynamic Ribbon
  - First Pro Quality Mic
  - Somewhat delicate
  - Expensive - $150+
  - 50Hz to 15KHz
  - Slow Transient Response
  - Very Smooth/silky sound
Microphones

- Dynamic Moving Coil
  - Very Rugged
  - Reasonably Priced - $60 to $350
  - 50 Hz to 15 KHz
  - Most popular Pro Mic
Microphones

◆ Studio Condenser
  ● Fragile
  ● Costly - $150 to $7,000
  ● 20Hz to 20KHz
  ● Requires constant Polarizing Voltage--Phantom Power or external
  ● Excellent Transient Response
Microphones

- Electret Condenser
  - Rugged
  - Small
  - Reasonably Priced - $100 to $500
  - 30Hz to 18KHz
  - Requires 1.5 volt battery
  - Lavalier
  - Cell phone
Pickup Patterns

- Omni-Directional
  - Accepts sound from all around mic
  - Ideal for interview situations
Pickup Patterns

- Cardioid
  - Accepts sound primarily from the front
  - Ideal for live sound applications
Pickup Patterns

- Hyper-Cardioid & Super Cardioid
  - Accepts sound only from the front
  - Ideal for isolating sound—directional
  - “Shotgun” or “Boom” are common names
Pickup Patterns

- Bi-Directional
  - Accepts sound from front & back
  - Used in music studio recording
  - Also called “Figure of Eight”
Digital--pulse code modulation

- analog converted to dig, then back for playback
- quality excellent
  - increased dynamic range -96 db
  - reduced noise and distortion,
  - most analog problems eliminated (esp gen loss)
- Five steps
5 steps
1. Microphone--transducer

- Changes sound vibration into electrical signal
- this is an analog step
2. Anti-aliasing

- unwanted high frequency signals
  - above the normal hearing range but can be "aliased" into the audible range in sampling.
- pass the original analog (from the mike) signal through a low pass filter.
3. Sampling

- Sample voltages at fixed intervals along the waveform of the analog signal.
- How often you measure the voltage
  - Sampling frequency
    - Twice its frequency.
    - For 20,000 hz, 40,000 rate
  - Digital audio today uses 32, 44.1, and 48 kHz
    - 32 is for broadcast (max bandwidth is 15k)
    - Pros use 44.1 and 48
Sampling

lower sample rates take fewer snapshots of the waveform....

resulting in a rough recreation of the waveform.

faster sample rates take more snapshots....

resulting in a smoother and more detailed recreation of the waveform.
4. Quantizing

- samples are converted into discrete values called quantizing levels
  - greater number of levels, greater the accuracy of the representation of the signal.
Quantizing--bit depth

Original Waveform

Waveform Sampled at 16 bits

Waveform Sampled at 8 bits
5. Coding/storage

- Analog voltages converted to binary digits
  - series of pulses
    - (0--no voltage, 1--voltage)
  - each digit is a bit
  - each bit allows two levels of quantification
    - 2 bits gives 4 levels
- 16 bit system (65,536)
  - sufficient to deal with quantizing noise
    - artifact of the process of quantizing.)
- some 20 bit systems used.
\[ \text{n bits} = 2 \text{ to the n quantizing levels} \]

- 2 squared....4
- 2 cubed.......8
- 2 to the 4th...16
- 2 to the 5th...32
- 2 to the 6th...64
- 2 to the 7th...128
- 2 to the 8th...256
- 2 to the 16th...65,536
- 2 to the 32nd...4.3 million