

# Camera Work

## CS5245 Vision and Graphics for Special Effects

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# Cinematography

- The art of making camera and lighting choices for media production.
- Includes many aspects
  - Film gauge (size):  
8mm (amateur), 16mm (semi-pro), 35mm (pro), 65mm (epic)
  - Aspect ratio:  
4:3 (TV), 1.85:1 (widescreen movie), 26:9 (HDTV)
  - Lab work
  - Camera filters
  - Camera lens, depth of field, focus
  - **Camera shots and moves** [Che80, Col]
  - Lighting [KM01, Col]
  - Special effects

- Use of camera shot types helps to make the story interesting.
- Help to lead viewers to important part of the scene.
- Characterization of shot types [Che80, Col]:
  - Shot size
  - Camera angle
  - Others

# Shot Sizes



extreme wide shot



wide shot



medium shot



medium close up



close up



extreme close up

Avoid the following:

- **Indecisive cut:**

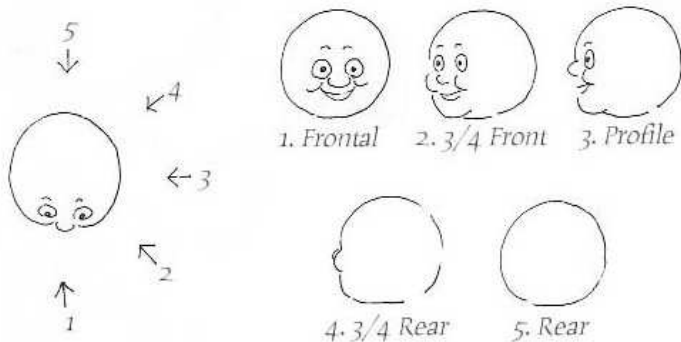
- When cutting from one shot to another of the same subject, the change in size must be significant.
- Otherwise, audience will perceive it as a mistake or a distraction.

- **Shock cut:**

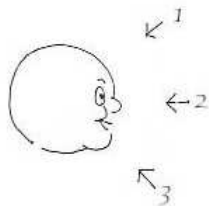
- When cutting from one shot to another shot, the change in size should not be too extreme.
- Otherwise, you produce a shock effect that is most likely inappropriate.

# Camera Angles

Horizontal camera angles:



## Vertical camera angles:



1. High Angle 2. Eye Level 3. Low Angle



high angle



eye level



low angle

## Avoid **indecisive cut**:

- When cutting from one shot to another of the same subject, the change in angle must be  $> 35^\circ$ .
- Otherwise, audience will perceive it as a mistake or a distraction.



# Other Shot Types



two shot



over-the-shoulder

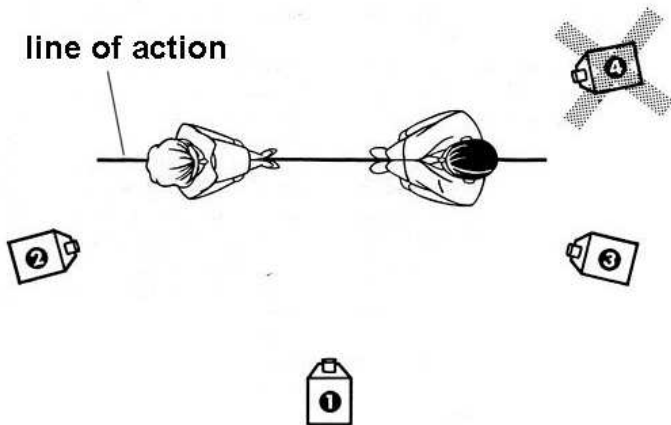


point-of-view

- Point-of-view (POV) shot:  
Show a view from the subject's perspective

# 180° Rule

When editing shots from multiple cameras into a seamless sequence, place all cameras on the same side of line of action.



- Camera 2 and 3: Viewer stays on same side of line of action.



- Camera 2 and 4: Viewer crosses line of action. Confusing.



# Composition Rules

Avoid frontal angle:

- Frontal camera angle tends to remove sense of depth.



frontal angle



oblique angle

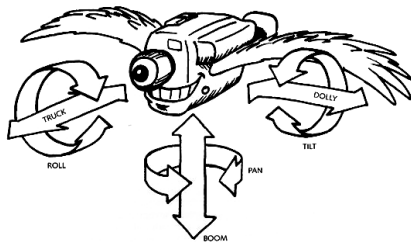
## Headroom:

- Leave empty space strategically in frame.



- Baby has **leading room** for him to crawl into.
- Mother has **looking room** for her to look into.

# Camera Moves



- Pan: camera rotates from side to side (horizontally).
  - Panning too fast can cause strobing effect (broken motion) and motion sickness.
  - One way to avoid strobing is to apply scene motion blur.
- Tilt: camera rotates up and down (vertically).
- Zoom: camera lens is adjusted.
- Dolly: camera moves in and out of scene or along a moving subject.
- Crane or boom: camera moves up and down, as if on a crane.

- Dolly is a small wheeled vehicle, piloted by a **dolly grip**, that is used to move a camera around in a scene.



- Need a lot of practice to perfect the skill.
- NG example
- Good example

## Difference between dolly and zoom:

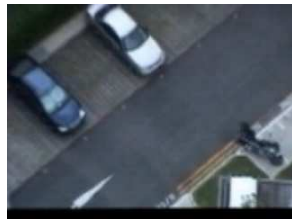
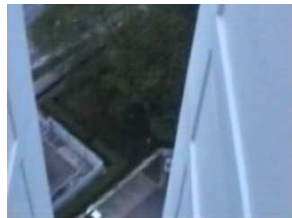
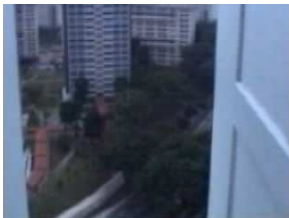
- Dolly
  - Camera moves.
  - No change in camera's focal length.
  - Perspective changes.
  - Example
- Zoom
  - Camera does not move.
  - Changes camera's focal length.
  - No change in perspective.
  - Example



# Interesting Examples of Camera Work

Change of shot size from extreme close up to wide shot: *Next* (2007)



Continuous camera move and shot change: *Just Do It* (2004)

Align music to camera shot: *The Lord of the Rings Part 2* (2002) [LoR]



Observe: change of shot follows 180° rule.




# Shooting Techniques

- Plan your shooting session.
- Position yourself and camera properly.
- Frame your shot: check camera setting, etc.
- Learn to walk backward.  
Someone places his hand at your back to guide you.
- Use tripod or dolly to reduce camera jerk.
- Stop recording 1 sec before you move: reduce camera jerk.

# Summary

- Camera shot types: shot size, camera angle, others (POV)
- Camera moves: pan, tilt, zoom, dolly
- Composition rules
- Shoot techniques

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