

Conventions of Animation

6. Facial Animation

The Categories of Facial Animation

- **Sadness and agony**
- **Anger**
- **Surprise and Fear**
- **Disgust and Contempt**
- **Happiness**

Sadness

- **Often Involuntary**
- **Invoked by witnessing sadness**
- **Difficult to mimic – combination of conflicting expressions**

Recognising Sadness

- **Mouth**
 - **Corner of lips pulled down**
 - **Raised cheeks**
 - **Sometimes dropped jaw (for agony and crying)**
- **Eyes**
 - **Upper eyelids drop**
 - **Inner corners of eyebrows raised and brought together**

Animating Sadness

- **Upper eyelids drop**
- **Inner corners of eyebrows raised and brought together**
- **Raised cheeks**

Anger

- **Not invoked by witnessing anger**
- **Easier to copy than Sadness**

Recognising Anger

- **Jaw clenched**
- **Mouth has a rectangular shape if teeth on show**
- **Thinning of the lips**
 - Subtle, but the first sign of anger
- **Lower jaw sometimes forward**
- **Glaring eyes**
 - Raised upper eyelids
 - Possibly tensed lower eye lids
 - Tighten up area around eyes
- **Eyebrows lowered and brought together**

Animating Anger

- **Jaw tightly clenched**
- **If teeth exposed, mouth has rectangular shape**
- **Glaring eyes**
- **Raising of upper eyelid**
- **Eyebrows lowered and brought together**

Surprise and Fear

- **Hard to distinguish between the two**
- **Surprise is temporary**
 - **Often converts to other emotions**

Recognising Surprise and Fear

- **Eyes**
 - Upper eyelids raised as high as possible
 - Tensed lower eyelids
 - Eyebrows raised and slightly closer together
 - Eyes staring straight ahead
- **Mouth**
 - Lips stretched horizontally
 - Possibly dropped jaw

Animating Surprise and Fear

- **Upper eyelids raised as high as possible**
- **Tensed lower eyelids**
- **Stretch lips horizontally**
- **Dropped jaw**
- **Eyebrows raised and close together**

Disgust and Contempt

- **Similar to Anger**
- **Often triggered by a personal reaction**

Recognising Disgust and Contempt

- **Tensing of muscles around nose**
- **Eyes can be relaxed compared to anger**
- **Often a-symmetrical across the face**
 - **Creates a feeling of un-ease**
- **Raised eyebrows**
- **Raised upper lip**

Animating Disgust and Contempt

- **Active muscles around nose**
- **Eyes can be relaxed**
- **Can be limited to one side of the face**

Happiness

- **More general term**
 - **Describes a state of mind**

Recognising Happiness

- **“Duchenne Smile”**
 - As opposed to a fake smile
- **Involuntary**

Animating Happiness

- **Most frequently observed in animations**
- **<> Fake smiles**

Lip Sync

- **Think ‘mouth sounds’ not ‘letters’**
 - Letters are for writing, Sounds are for speech
- **Mouth shapes are influenced by the sounds that follow and precede them.**
 - If you do not animate within context, you will get very ‘poppy’ results
 - Speech is all about the FLOW of sounds
- **Hit your sound shape 1 or 2 frames before the audio – we see faster than we hear so we actually pick up cues from the shape**

Phoneme Mouth Shapes



AAAH, A



EEE



I



OH!



**OOOH
(U AND W)**



FUH, VUH



**MMM,
PEE, BEE**



LUH, LAA



**ESS, SSSS,
STUH, DEE,
GEE, SMALL EEEH,
MOST SMALL CONSONANTS**

Example Workflow

- **Main structure**
 - Animate your mouth open/closed (Jaw)
 - Animate your mouth in/out (Corners of Mouth)
- **Details**
 - Animate eye-brows (basic motion)
 - Add the rest of the facial animation
- **Timing**
 - Shift key-frames where appropriate so that the animation matches the audio
- **Polish**
 - Add in micro-expressions
 - Add a-symmetry where appropriate (makes the animation more interesting)

Tips and Tricks

- **Don't try to animate every letter and sound!**
- **Facial animation is still there when the dialogue is silent**
- **Check the curves of your keys**
 - **Especially check the Jaw for 'stepping'**
- **Watch out for mouth 'flapping'**
 - **Never go from wide open to closed (or vice-versa) in only 1 frame.**
- **Try to avoid the corners of your mouth moving in/out while the jaw moves up/down**
- **During a smile, your mouth widens rather than the corners rising.**

Tips and Tricks

- **Use a mirror!**
 - You should always have a mirror available so that you can use your own mouth as reference when lip-syncing
 - A webcam can also be used for this, gives you the ability to save the image
- **Where possible, record video as well as audio to use as reference**
 - Especially useful to fill in facial animation during quiet portions
 - Also shows a-symmetry in the actor's face
- **Don't forget the tongue!**
 - 'N' 'Th'

Tips and Tricks

- **Hold M's and F's for a couple frames**
- **Break up your mouth angles**
 - Tilt your jaw
 - Helps with a-symmetry
 - Makes the face more interesting
- **Don't forget your cheeks – they move as we speak**
 - Especially useful on a smile, add the creases/dimples
- **Exaggerate – Don't be afraid to go extreme!**
 - Louder noises = greater movement

Questions?