Facial Expression Using Morpher in 3D Studio MAX

Introduction

There are various setups and rigs for facial expression and lip sync. This simple tutorial is based on using morpher modifier to create a set of predetermined facial expressions that can be applied to animate moods as well as performing lip synchronization. Morpher is by far one of the simplest functions for skin animation.

Head Setup for Basic Facial Animation

Most models are modeled half to create a perfect symmetry. The symmetry modifier is efficient in this way. However, the edge of the model should be aligned to grid to be efficient as well as to prevent mistake when welded with its true center (the edge of the head). Lastly, it is to allow the rigger to paint the weights correctly. The symmetry modifier should not be collapse unless both sides of the face are intended to be different (features such as scars or any deformation). In most cases, due to complex facial setups, symmetry or mirror modifiers will be collapse. We will retain the modifier for this simple setup.

Next, clone the head model to several other models. These other models are used to create the different features for expression or lip sync. The several heads will be modeled to the desired features. Keep the original head unchanged. Few examples that are interesting to work on are the eyelids, a smiling face, and an angry face.

When you tweak the clone models, keep in mind how facial muscles move. An example would be a smiling face. When the mouth twitched into a smile, the muscles will affect the cheeks and slowly, easing off to the temples. One good practice is to observe muscle reactions by acting in front of a mirror. That way, you will get most of the features right. Once you are satisfied with your facial features, we will move on to add these expressions to your original head.
In the Modifier List dropdown window, select Morpher. In Morpher, there are sub-categories or Channel Color Legend, Global Parameters, Channel List, Channel Parameters, and Advance Parameters.

Creating A Series of Facial Feature / Expressions

- The empty slots are used to assign the tweaked models.
  - Select the first empty slot.
  - Click Pick Object from Scene.
  - Select the model with the expression.
    - If your model has a complex expression (example might be having a series of different laughs), then you need to pick the entire series and tweak the expressions and assign it to the selected slot. It will show the different models in the Target List.
  - To check the topology of the morph target(s) that are assigned to the Original head, increase the number in the parameter field of the selected slot.
  - Repeat for other facial expressions.

If the model did not morph into the expression that was assigned after keying the parameters, check the Target List under Progressive Morph. If there is nothing in the list, it means no tweaked model(s) has been assigned to the selected slot.

You may also want to change the Spinner Increments to 0.1 if you want the animation to be smoother or more subtle.

A good work habit for recommendation is to save the heads to a separate MAX file after you are done as you can delete the heads in the scene without compromising the effects. However, it will be quite hazardous if you did not keep a copy of the clones should you have a need to change or tweak them.
After you deleted the clone models, the slot activation color will be changed from green to blue. The head is now ready for animation. An important thing to note is that if you adjust the other parameters of the morph slot without first zeroing off the previous parameter, the deformation will stack. It simply meant that if you animate your character to smile and decide to change it to an angry expression, you should key your smile slot back to zero before keying the angry slot to hundred. It is because your angry model deformation will add to the smile deformation model, causing it to deform further if you did not zero out the parameters correctly.

Lastly, in order to attach the head back to the body, Edit Poly modifier has to be added to attach and weld the body vertices back to its original state.

**Summary (For those who fell asleep reading up to this point)**

- **Select** the head faces from the model
- **Detach** the faces as a separate object
- **Clone** the head model
- Tweak the cloned models
- **Add** Morpher modifier
- Load Multiple Targets
- **Select** the Clones ONLY
- Test the deformations by changing the parameters
- **Add Edit Poly** modifier to the original head model
- **Attach** the body
- **Weld** the vertices of the head and body
- Done