

IAT 445 – Lab 9

Facial Animation Techniques



Facial Animation Techniques

Joint based vs Blendshapes?

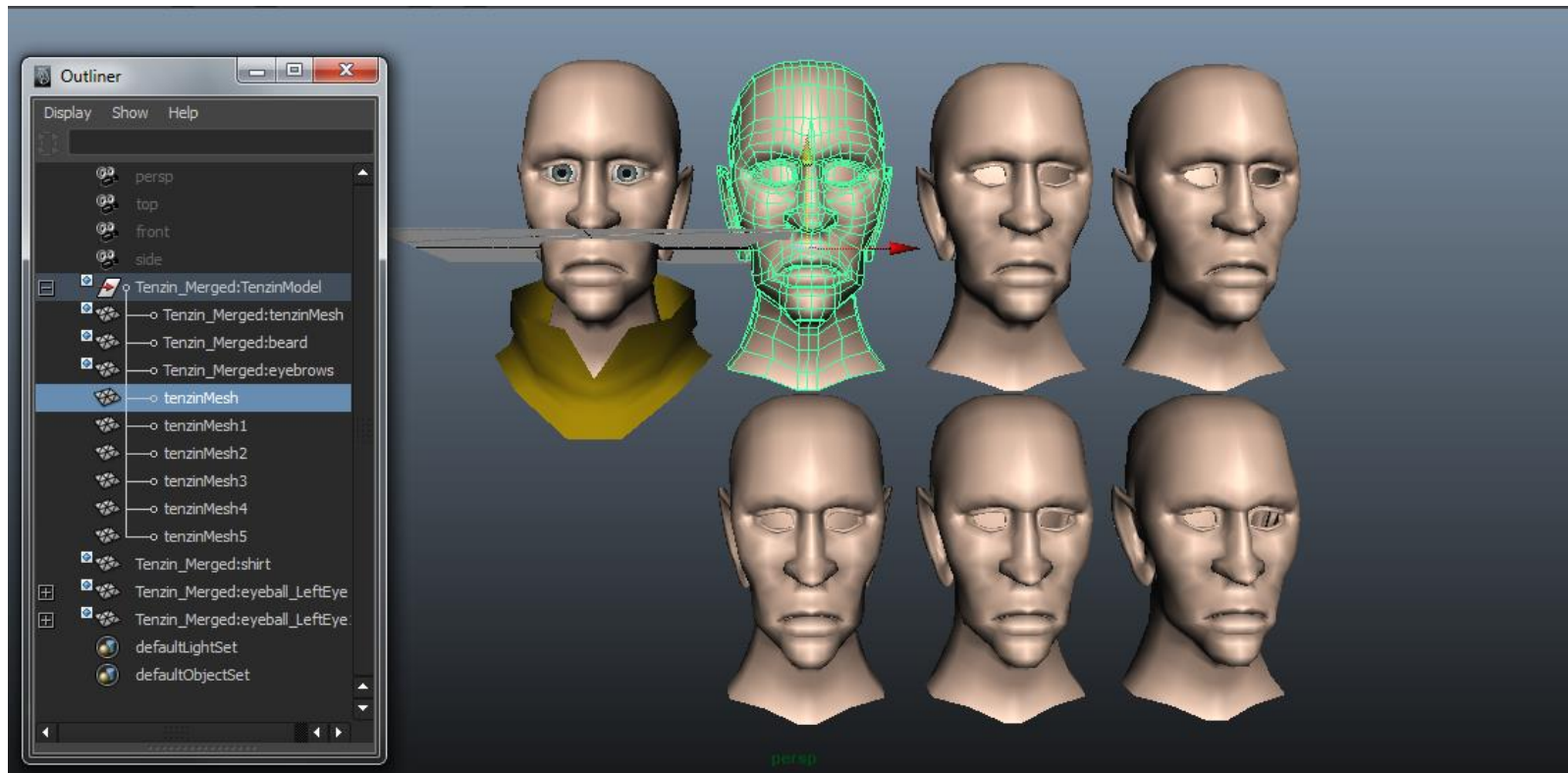
BlendShapes:

- Blendshapes are more precise because you can specify the exact locations of vertices for each expression.
- It is pretty fast to start setting up different expressions.
- Easy-to-use sliders to key the different expressions.
- It requires duplicate versions of the model, therefore, it can be a bit messy and hard to deal with.
- You cannot easily control deformations of multiple meshes simultaneously.
- Does not play well with file referencing.
- Is not supported in Unity.

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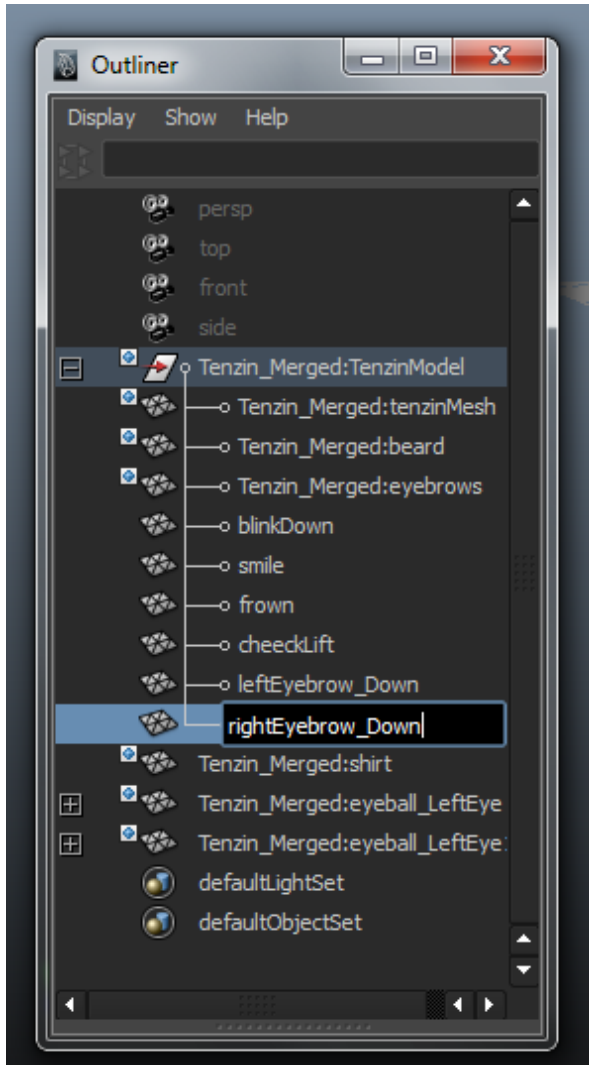
Blendshapes:

1. Create duplicates of your head (Shift + D).



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Blendshapes:

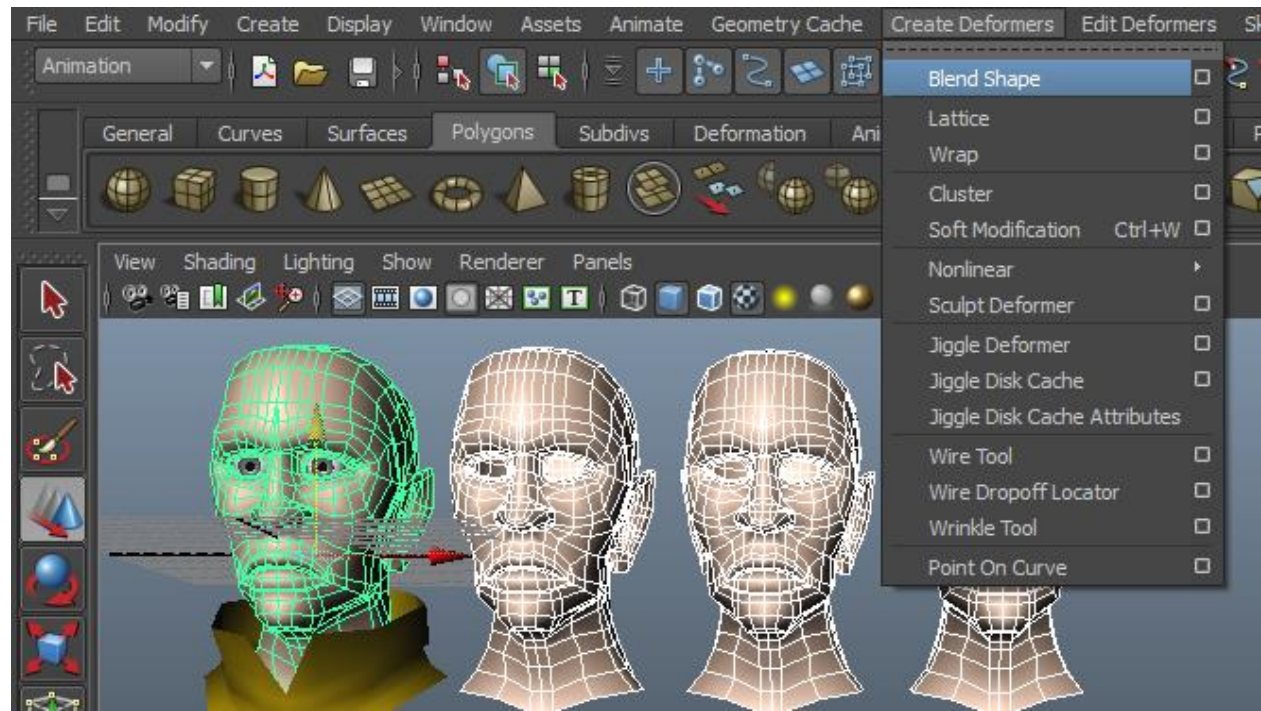


2. Carefully name each duplicate based on the expression or muscle movements it will create.

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Blendshapes:

3. Select all the duplicates THEN select the original model LAST.
4. Make sure you are in the animation menu set.
5. From the animation menu items select: **Create Deformers > Blend Shape**

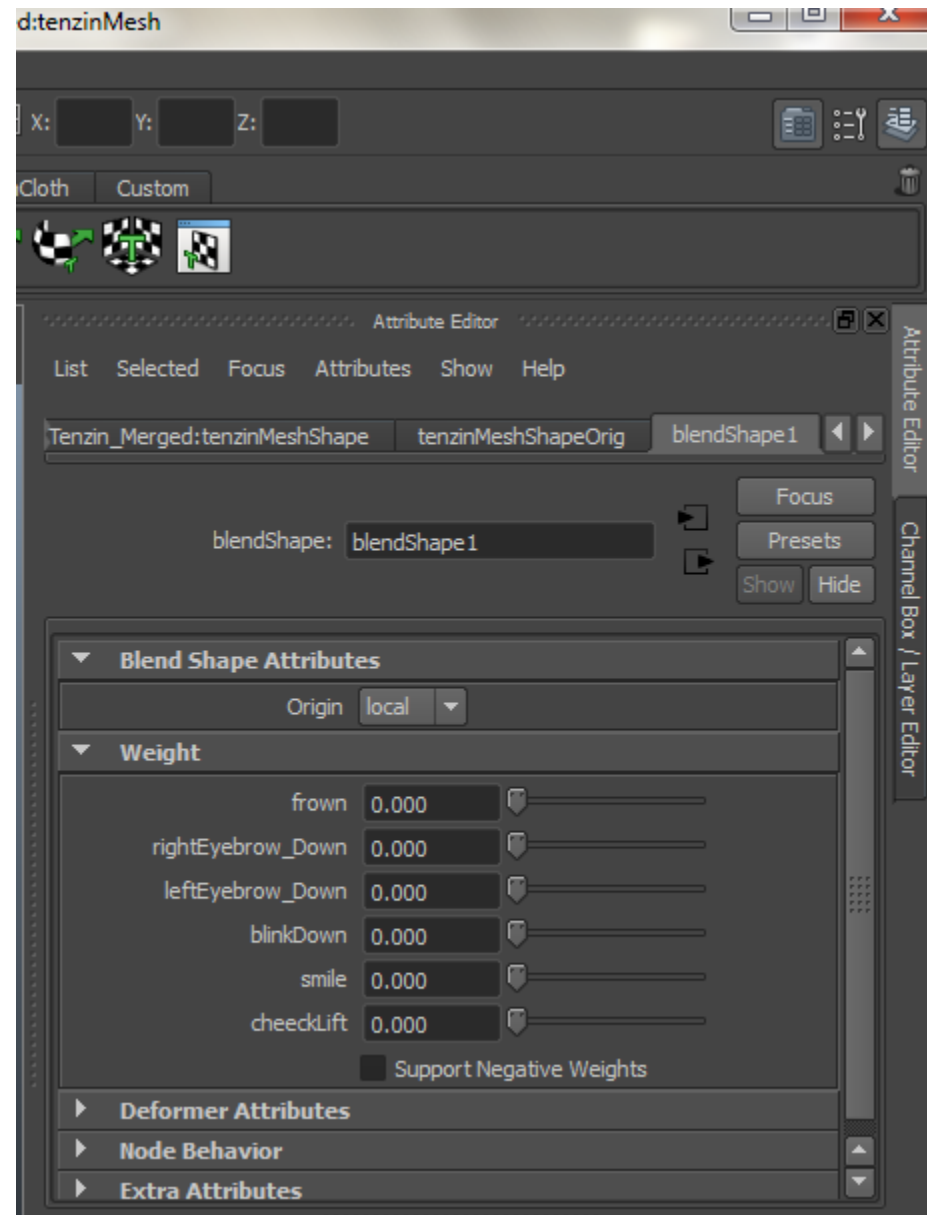


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Blendshapes:

5. View your sliders by selecting the main object and going to the new “blendShape1” tab in the Attribute Editor.

*Note: Maya automatically names the sliders based on the objects used. That’s why its helpful to **name the objects first**.*



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Blendshapes:

6. Change the expression on one of your duplicates by editing the vertices.

7. Move that slider to see the main model make that same expression. Combine sliders to combine expressions.



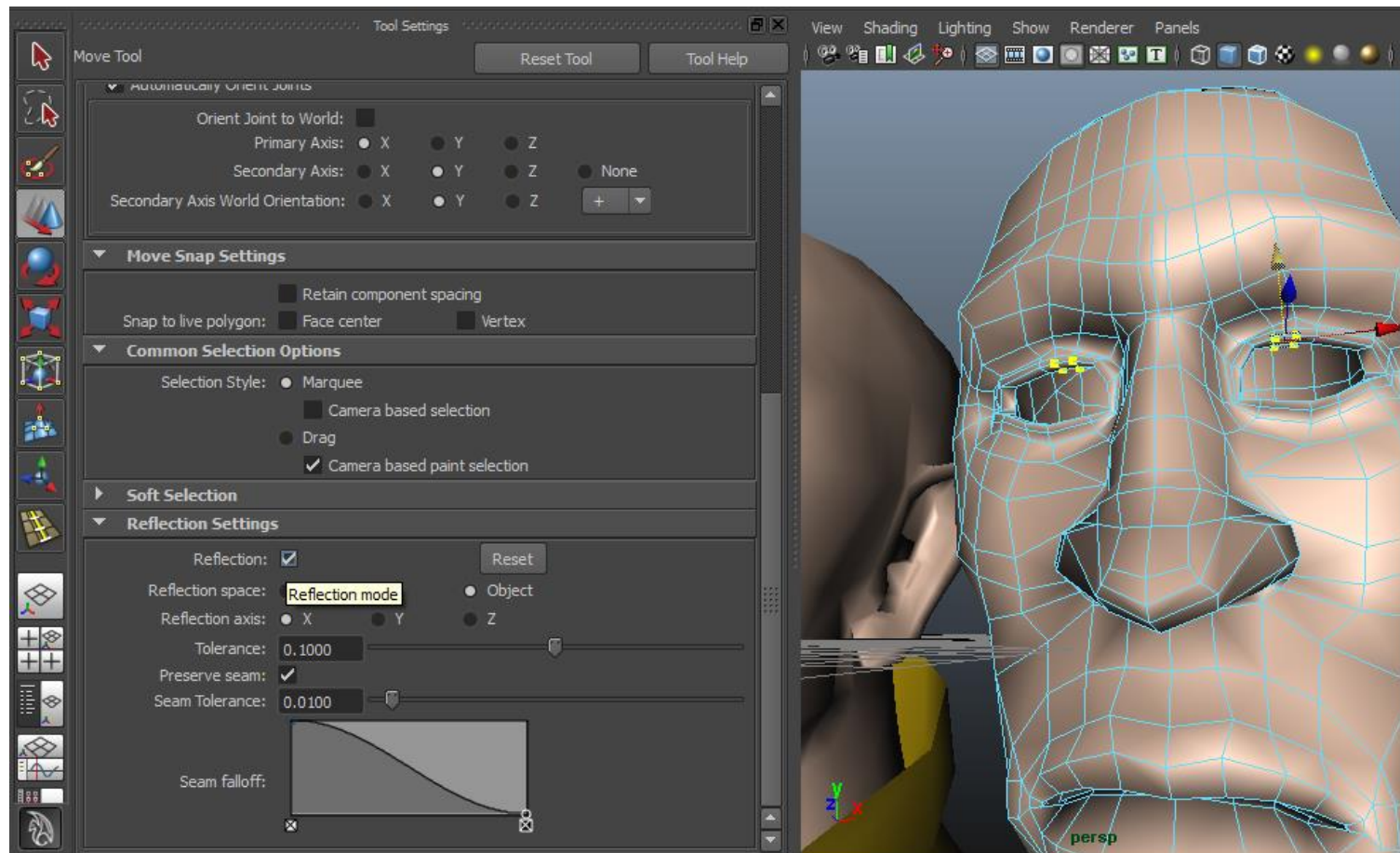
Example of a smile combined with eyes closed

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“Pro” tip:

If you double click the transform tool it brings up the settings for it. Scroll down to the bottom and you’ll see “Reflection Settings”. This allows you to mirror your edits while still having a complete mesh to work with. **Note that this works best on symmetrical models.**

Double click
this tool button



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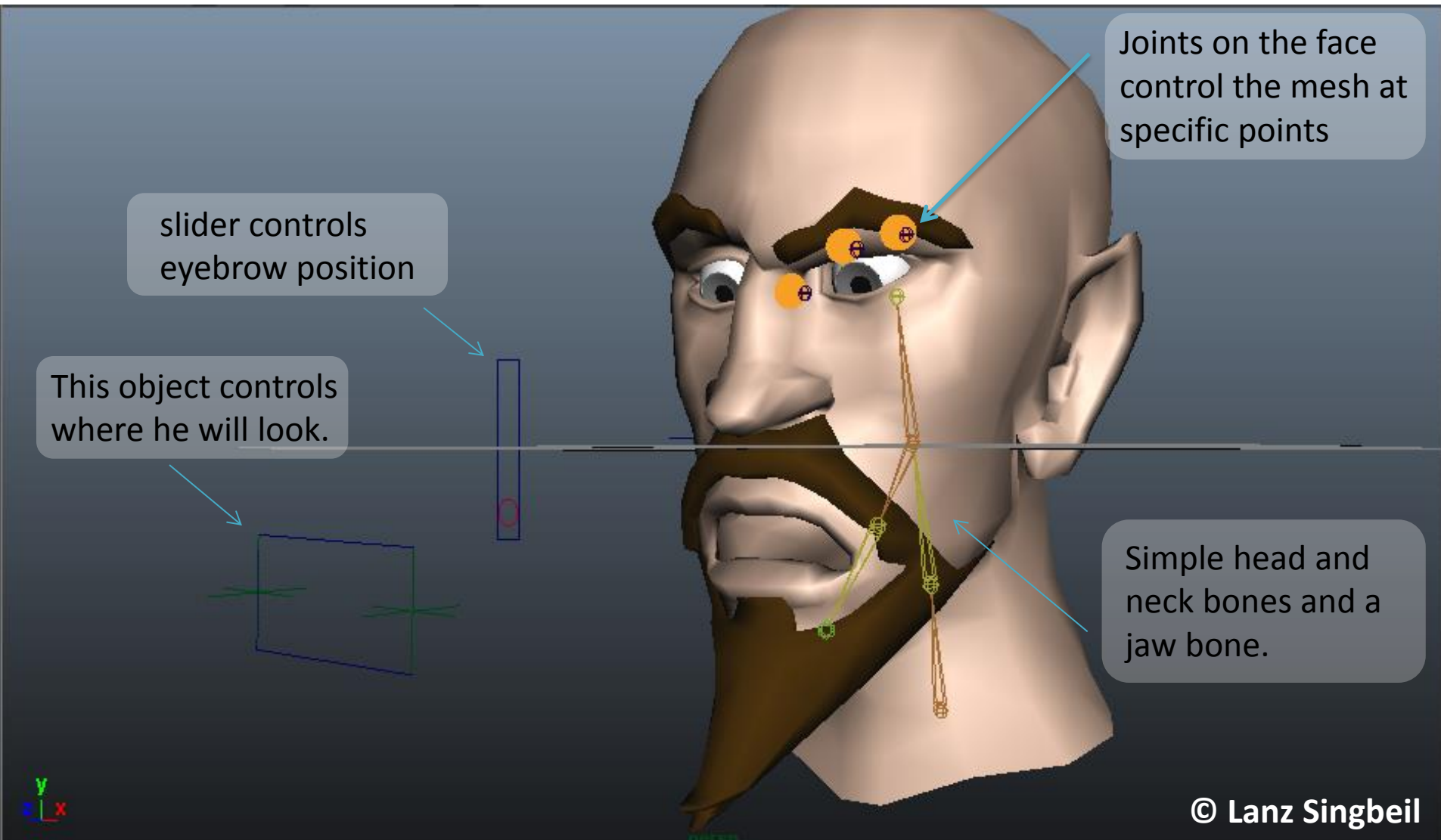
Joint based vs Blendshapes?

Joint Based:

- Can control multiple meshes simultaneously (such as hair and facial hair)
- Works off of the base model so everything is centralized. This means it plays better with file referencing.
- Animations done using joints can be baked and exported for Unity Games.
- Can be more challenging to set up
- Less direct control of individual vertices. A poor rig will give you only limited expressions.
- A good rig requires the creation of your own handles and sliders

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Joint Based: open Tenzin_Rig.mb



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Joint Based: Lab Activity

We will cover how to make new control points on the face as well as how to use set-driven-key to make custom sliders.

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Joint Based:

If you miss the lab, you can use this video to get started:

[http://poly-face.com/Maya Tutorial Facial Rigging part 1](http://poly-face.com/Maya_Tutorial_Facial_Rigging_part_1)

Its a good tutorial on starting to do joint-based facial rigging. It doesn't cover everything but you should be able to apply the same techniques for the other regions of the face.

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Animation in the Trax Editor

Regardless of the approach you use, at a certain point you'll have to start setting keyframes and animating your character.

Maya has built-in stuff to help you do animation.

That stuff is called the Trax Editor and Character Sets.

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Animation in the Trax Editor

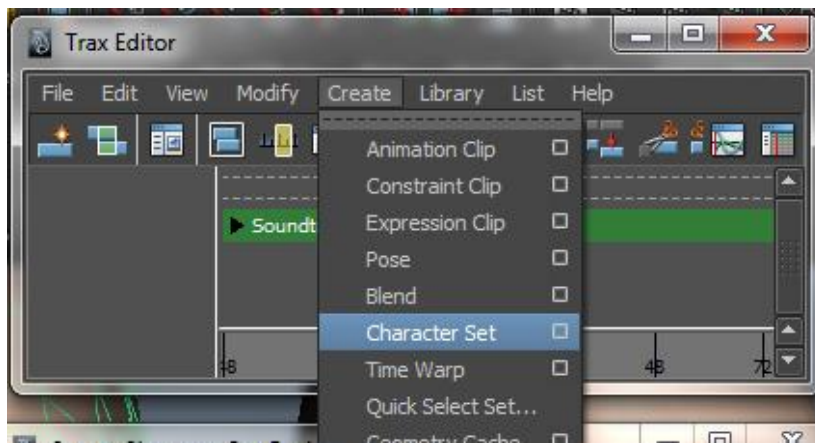
Creating a Character Set from joints is easy and there are lots of tutorials out there for doing that. Creating a Character Set from blend shapes isn't as clearly laid out so I'll cover it here:

1. Select the main Tenzin model then open the Trax Editor

Window > Animation Editors > Trax Editor

2. In this window:

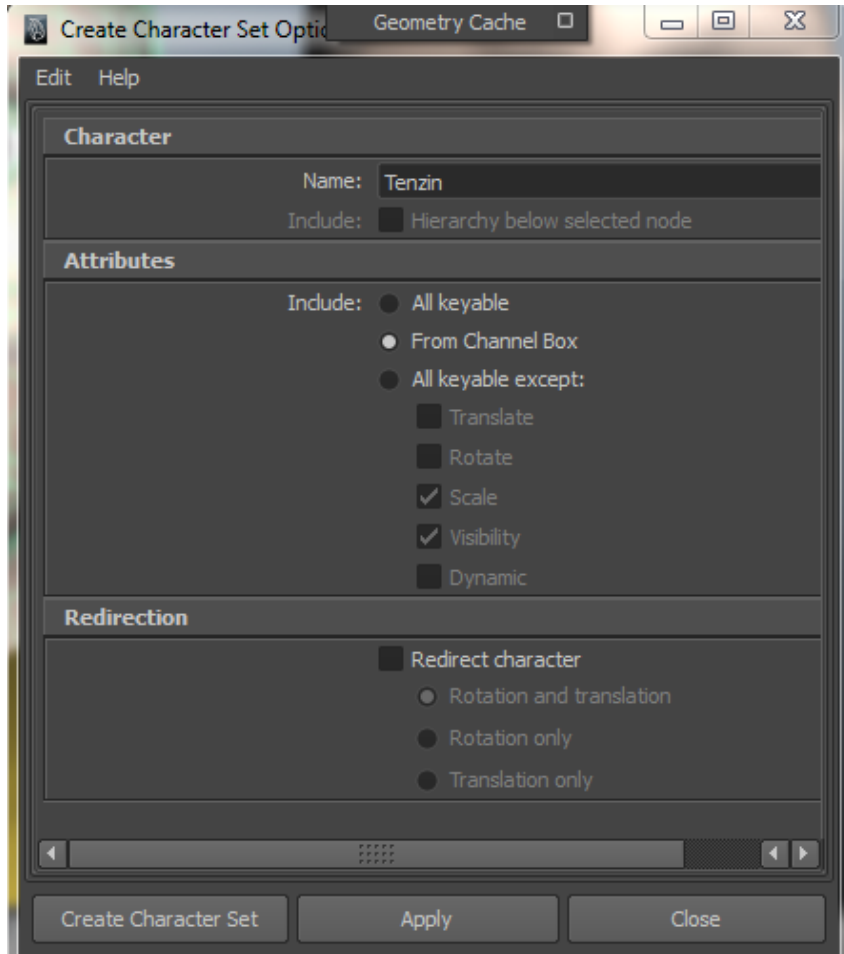
Create > Character Set > option box.



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Animation in the Trax Editor

3. Choose the “From Channel Box” option but don’t confirm yet.



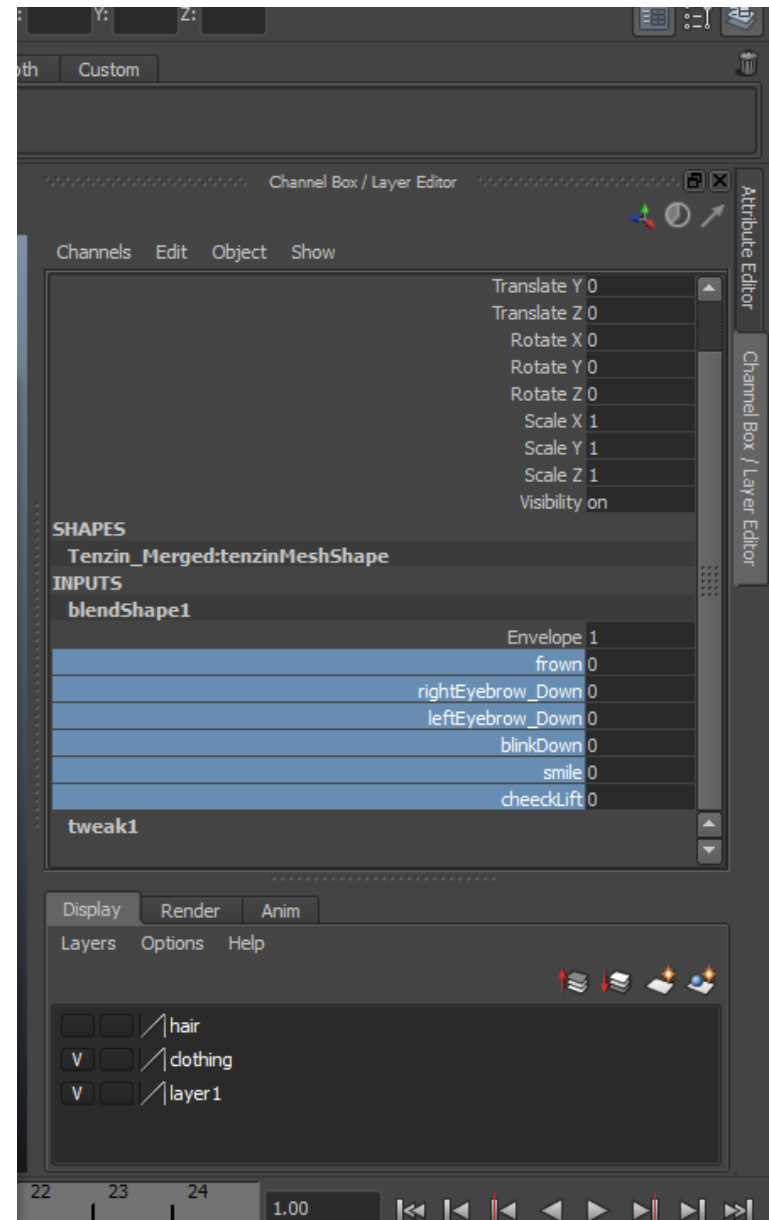
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Animation in the Trax Editor

4. Minimize the option window or move it to the side. Turn on the Channel Box/Layer Editor if it isn't active already.

Find blendShape1 (under Inputs) and expand it by clicking on it.

Highlight all the channels. These are your blend shape channels we made earlier.



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Animation in the Trax Editor

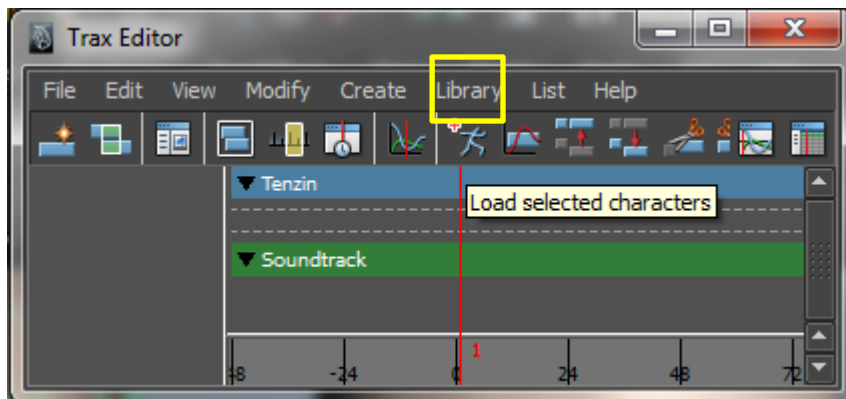
4. Once your channels are highlighted, go back to the option window for creating the character set and press Create.

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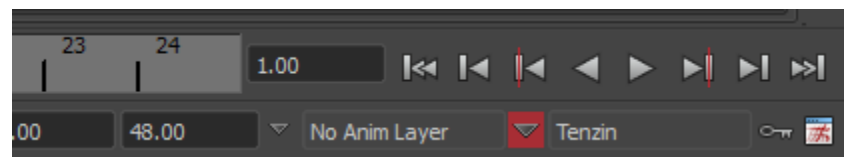
Animation in the Trax Editor

That's it! Now we can use the Trax Editor to create our lip sync.

The only preparation step left is to load the character set. Do this by making sure your model is selected then pressing the small man icon.



You'll know what character set is active by looking down at the bottom right:



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Animation in the Trax Editor

To use the Trax Editor simply create an animation from your blend shapes by setting keyframes then convert it to an animation clip.

To do that in the Trax Editor, go:

Create > Animation Clip > option box

- specify a name
- press create

It will then appear in the trax editor if you expand your character set. You can then duplicate it or change its duration.

