

# Refinement Process

## Five simple steps to get great lip sync

To ensure you have the best possible lip sync in your vub, take these five simple steps:

### STEP ONE

## Assess Your Vub

Is there anything you want to change?

### STEP TWO

## Interpolation Pass

Only vub the frames that need vubbing

### STEP THREE

## Jaw Pass

Ensure that the jaw movement is smooth and not too big or small

### STEP FOUR

## Scale Pass

Tweak performance size and articulation

### STEP FIVE

## Mouth Shape Pass

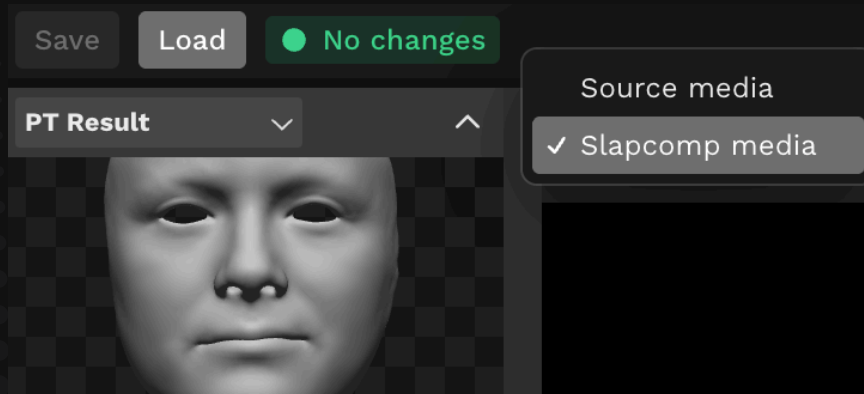
Refine mouth shapes where needed

## STEP ONE

# Assess Your Vub

Is there anything you want to change?

► Look at the **vub** – the Slapcomp media



► **Know the dialogue** that is meant to be spoken – if there's a transcript handy, check it first.

► Play the vub:

- Did you **believe** that the character was saying the new dialogue?
- Were there any specific moments that stood out or did something simply not **feel** right?
- Trust your reaction from your **first viewing** – if something didn't feel right then it is likely something that can be improved. It can be harder to assess the vub honestly in subsequent viewings.
- **Note the moments you want to improve** – you don't have to work out **what** is wrong at this stage, just that there are areas to focus on.

## STEP TWO

# Interpolation Pass

Only vub the frames that need vubbing.

The Interpolation slider allows you to define **how much** of the **new** performance (the Driving Data) is transferred to the shot. It works like this:



- **Interpolation = 0** gives the full **original** performance
- **Interpolation = 100** gives the full **new** performance

A key principle of vubbing is to **only change the frames that need changing** – typically, you want to retain as much of the **original** performance as possible – this could be when:

- There is dialogue that **hasn't changed**
- There are **gaps** before/after/between lines where the actor is **not talking**

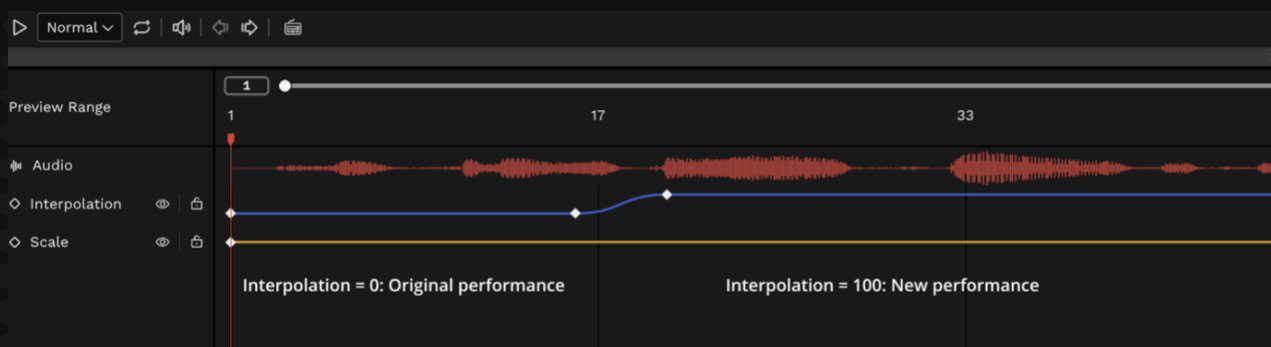
You can ramp in and out of the new performance using Interpolation. To do this, **expand your Plate Proxy window** so you can clearly see the original performance alongside your vub (minimize your 'PT Result' and 'Driving Data' grey face windows to help).



## STEP TWO

# Interpolation Pass (continued)

- Work your way through the shot and identify areas of the **original** performance you would like to use.
- Whenever you find these areas, add Interpolation ramps **down to 0** then go **back up to 100** when you want to return to the **new** performance.



- Ensure that the ramps are **long enough** to **transition smoothly**. Typically 4-6 frames produce good results.
- Once you've done your interpolation pass, **Render** your shot and review your changes.



### Tip

- In the Refinement tool, frames with **zero interpolation** will show a **neural render** of the original performance.
- However, when you do an **Export**, the compositing step will transition to the **exact original frames** in these areas. This ensures the best image quality possible.

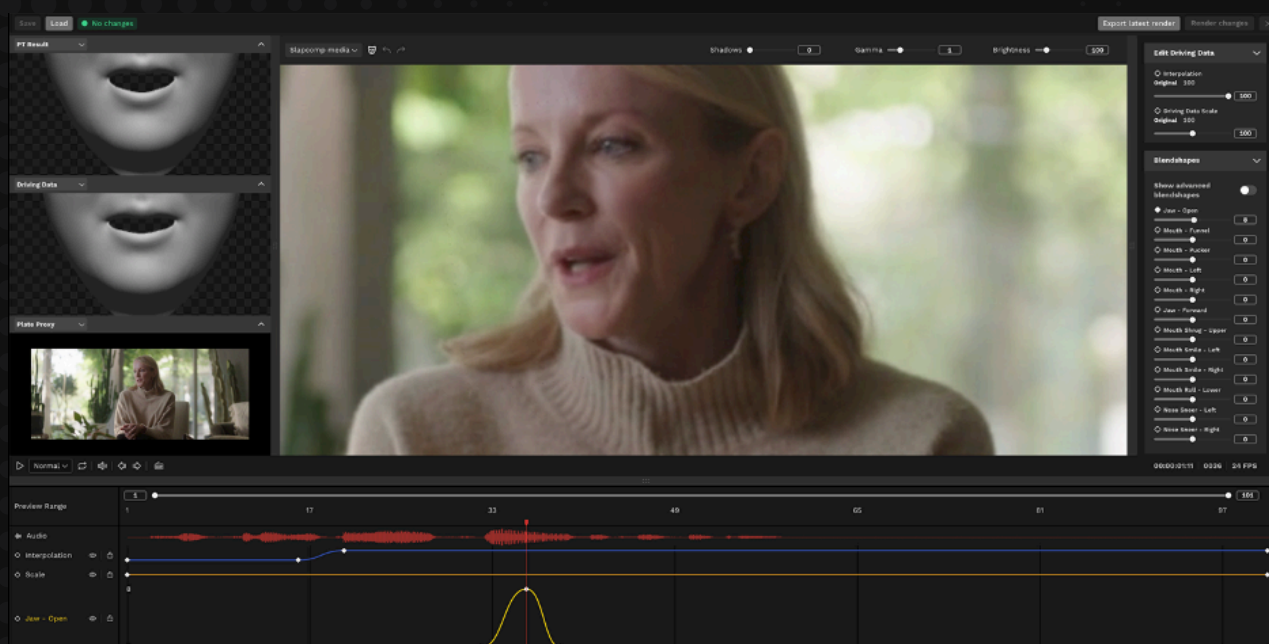
## STEP THREE

# Jaw Pass

Ensure that the jaw movement is smooth and not too big or small

There are **three key things** to remember about the jaw:

1. The jaw is the **slowest moving part of the mouth** when talking: sudden sharp movements can feel unnatural. If these exist in your vub then use **Jaw - Open** keyframes to smooth out these movements.
2. The jaw is the biggest contributor to the viewer's perception of **performance size**. Reduce or increase the size of jaw movements using the Best Practice guide for keyframing.
3. As a general rule, the jaw movement in the Driving Data is moving in the **right direction** on any given frame, so it's important that placement of keyframe overrides is not damaging this by introducing **unwanted changes** of direction.

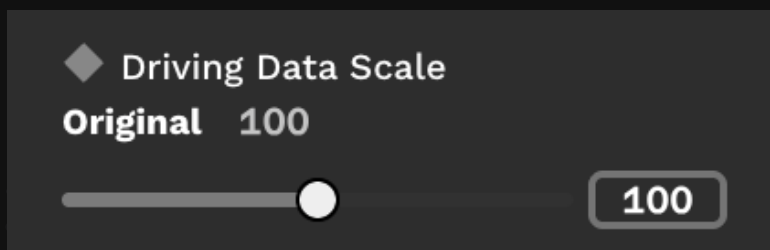


## STEP FOUR

# Scale Pass

### Tweak performance size and articulation

The **Driving Data Scale** slider is found underneath the Interpolation slider.



The slider effectively acts as a 'multiplier' of the articulation from the Driving Data. There are two main actions:

- **Increase / decrease** the scale to exaggerate or soften the performance size / articulation:
  - Occasionally, you'll run into a situation where the performance size in a vub does not quite match the perceived performance size in the audio. Tweak the Scale to refine this.
- **Mute** the performance by setting the Scale to **zero**:
  - This will **remove the speech movements** while retaining the **average emotional expression** for the shot. This is an alternative method of removing the delivery of a word or words if you don't want to edit the audio.



### Tip

It is important that, if you decide to increase Scale, then you use it **minimally** as too much exaggeration can be detrimental to the result.

## STEP FIVE

# Mouth Shape Pass

## Refine mouth shapes where needed

In the real world, not every sound is visibly articulated. It's easy to try to make **every** sound clearly defined, but this is not the way people talk. So it's important to concentrate on the **key** sounds and mouth shapes with a focus on making sure they obey the ground rules for being **able** to form those sounds.

1. Check and correct the **top priority** mouth shapes across the **whole shot** to make sure they are formed correctly.
2. Check any remaining problem areas for the secondary mouth shapes to identify and refine outstanding issues.
3. Check any remaining problem areas for the **secondary** mouth shapes to identify and refine outstanding issues.



### TOP PRIORITY Mouth Shapes

M / B / P

F / V

W / Oo



### SECONDARY Mouth Shapes

S / Z / T / D

Th

Ch / Sh / Dge / J

R

N / L

Ah

Ee



# M / B / P

(e.g. "mat", "tube", "cap")

## TIMING AND SHAPES

- For **B & P**:
  - The lips should be **pressed together** on the frame **before** the sound (and possibly the frame before that too, depending on the strength of the B or P).
  - The lips **must release** from each other when the B & P sounds start.
- For **M**:
  - The **M** sound occurs **only while the lips are closed**.
  - The lips **release** when the **next** sound occurs.

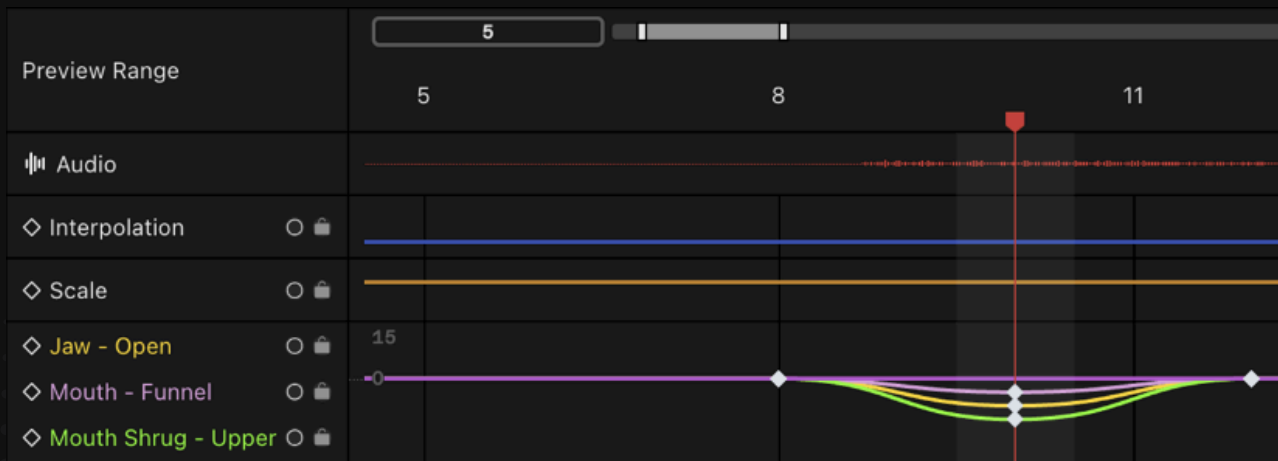
## CONTROLS TO USE

If the lips are not closed when they should be for an M, B or P, then close them with the following overrides:

- **Jaw - Open** (*negative value*)
  - Close the jaw to bring the bottom lip up to meet the top lip. Use in tandem with 'Mouth Shrug - Upper' so that the lips come together in unison.
- **Mouth Shrug - Upper** (*negative value*)
  - Lower the top lip to bring it down to meet the bottom lip. Use in tandem with 'Jaw - Open' so that the lips are coming together in unison.
- **Optional: Mouth - Funnel** (*negative value*)
  - Pull the lips inwards and press slightly together with a gentle negative value.



# M / B / P (continued)



If the lips are **closed** in your vub when they are meant to be **releasing**, then use the **reverse** of the actions above i.e. to **open** the lips use:

- **Jaw - Open** (*positive value*)
- **Mouth Shrug - Upper** (*positive value*)
- **Optional: Mouth - Funnel** (*positive value*)

# F / V

(e.g. "fate", "turf", "velcro")

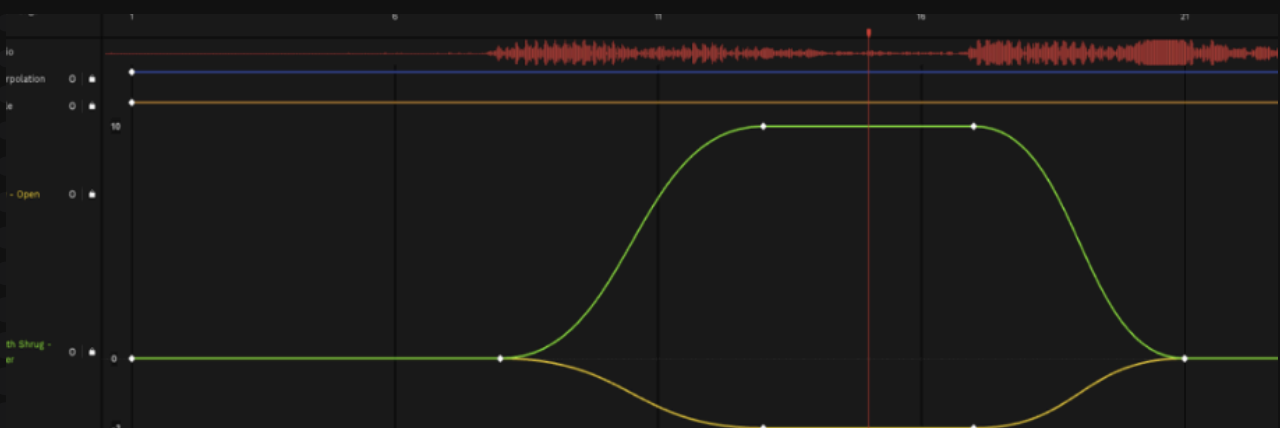
## TIMING AND SHAPES

**F & V** sounds only occur **while** the **bottom lip** is in contact with the **top teeth**. **No lower teeth** should be visible.

## CONTROLS TO USE

If the bottom lip is **not** making contact with the top teeth on the desired frames, then achieve this with the following overrides:

- **Jaw – Open** (*negative* value)
  - Close the jaw with a negative value so that the bottom lip covers at least some of the top teeth.
- **Mouth Shrug – Upper** (*positive* value)
  - Once the jaw has been adjusted such that the bottom lip is in contact with the top teeth, ensure that the lips are now not sealed by raising the top lip if necessary.
- **Optional: Mouth Roll – Lower** (*positive* value)
  - This brings the lower lip inward and can help give the impression that the lower lip is pressing against the bottom teeth. Fs in particular can be formed using different parts of the bottom lip making contact with the teeth, so use your judgement of how the actor would form an F.
- **Optional: Mouth – Funnel** (*positive* value)
  - Mouths can purse together when saying F or V. This can help create this slightly rounded shape.



# W/Oo

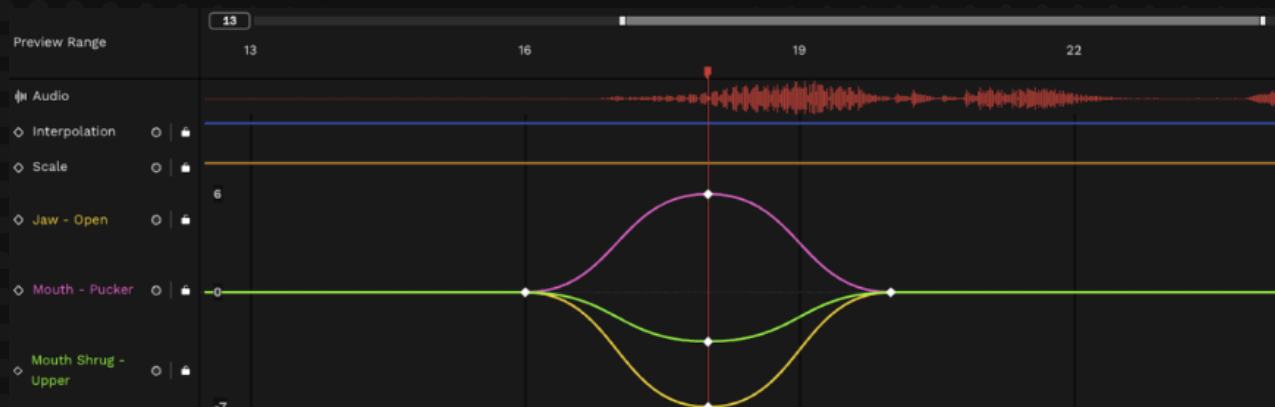
(e.g. “how**ever**”, “**w**hen”, “**cool**”, “move”)

## TIMING AND SHAPES

- Oo and W sounds occur with a rounding of the lips and a small lip opening.
- The Oo sound is heard **while** the mouth shape is held.
- The W mouth shape is strongest on the **frame before** the peak of the sound as it releases into the next sound.

## CONTROLS TO USE

- If the W/Oo shape is not sufficiently formed, then achieve this with the following overrides:
  - **Jaw – Open** (*positive or negative value*)
    - The jaw typically opens a little in the forming of a W/Oo, so ensure that this is happening – but only a little.
  - **Mouth – Pucker** (*positive value*)
    - To create a more rounded shape
  - **Mouth Shrug – Upper** (*negative value*)
    - Slightly lower the top lip to bring it closer to the bottom lip and reduce/eliminate the visibility of the top teeth.



# S / Z / T / D

(e.g. "sausages", "hazy", "potatoes", "fades")

## FIND THE FRAME(S)

- Using Audio Scrubbing, find the frame or frames where you hear the 'hiss' of the S or Z sounds, or the **frame before** you hear the 'pop' of the T or D.

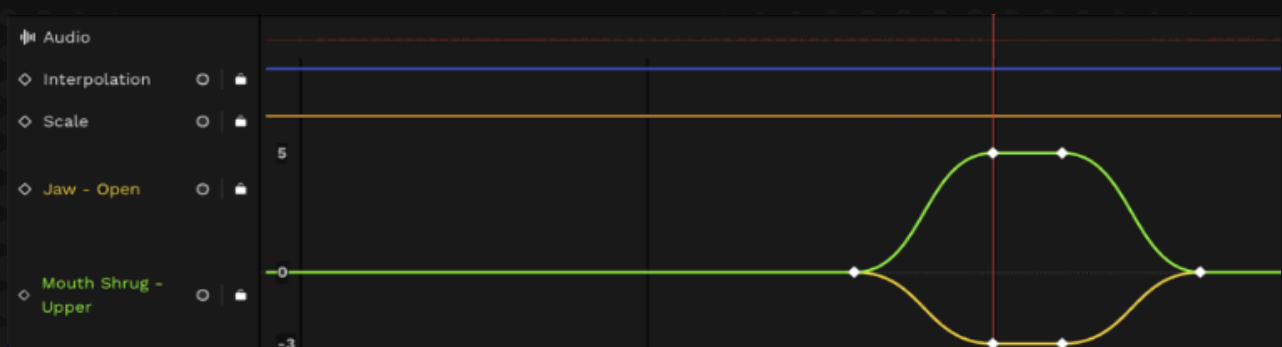
## TIMING AND SHAPES

- Typically, the mouth shape for S/Z is made **while** the sound is made.
- Typically the mouth shape for T/D is made the **frame before** the sound is made.
- The lips must not be fully sealed
- There should ideally be some visibility of the teeth with no visible gap between them.
- The jaw for T/D sounds can sometimes be **fractionally** more open than for S/Z sounds.

## CONTROLS TO USE

If the mouth is too open for a S/Z/T/D to be formed, use the following controls:

- **Jaw - Open** (*negative* value)
  - Adjust the jaw so there is little to no gap between the teeth.
- **Mouth Shrug - Upper** (*positive* value)
  - After setting the jaw correctly, ensure the lips do not seal by raising the top lip, if needed.



# Th

(e.g. “**th**ick”, “pa**th**”)

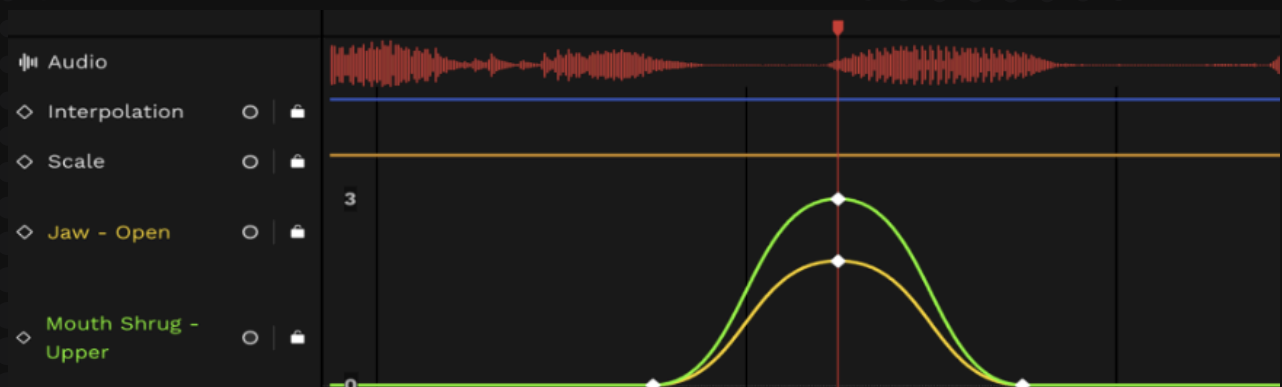
## TIMING AND SHAPES

- The Th sound only occurs while forming the Th mouth shape.
- The Th shape involves the tongue touching the underside of the top teeth, meaning that it can peek out between the teeth.  
DeepEditor does not currently control the tongue, so to make a **Th** shape work, ensure the jaw is open just enough to allow for a hypothetical tongue peeking out.

## CONTROLS TO USE

If the Th shape is not sufficiently formed, then achieve this with the following overrides:

- **Jaw – Open** (*positive or negative value*)
  - Adjust the jaw so there is a slight gap between the teeth (note that you don’t actually have to **see** the teeth, just to set the jaw to the right opening.
- **Mouth Shrug – Upper** (*positive value*)
  - After adjusting the jaw, raise the top lip if necessary to ensure the lips are not sealed.
- **Optional: Mouth – Funnel** (*negative value*)
  - Th shapes can involve a widening of the mouth corners. If desired, add a gentle negative value to ‘Mouth – Funnel’ to achieve this.



# Ch/Sh/Dge/J

(e.g. “**ch**annel”, “ma**ch**”, “cla**sh**”, “fu**dge**”, “a**j**ar”)

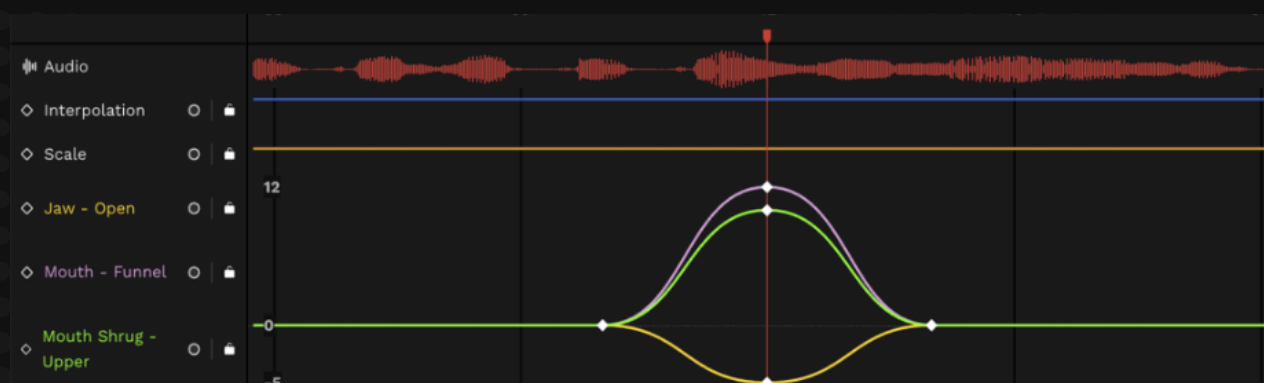
## TIMING AND SHAPES

- The lips should not be sealed.
- There should be little to no gap between the teeth.
- The lips often funnel outward.
- These sounds are typically heard as the mouth is starting to release from the position, except for elongated **Sh** sounds.

## CONTROLS TO USE

If the Ch/Sh/Dge/J shape is not sufficiently formed, then achieve this with the following overrides:

- **Jaw - Open** (*negative value*)
  - Close the jaw until you have nearly-touching teeth.
- **Mouth - Funnel** (*positive value*)
  - Add some curling outwards of the lips if needed.
- **Optional: Mouth Shrug - Upper** (*positive or negative value*)
  - These mouth shapes sometimes show the top row of teeth, so lift the top lip if needed. Conversely, if ‘Mouth - Funnel’ has **overexposed** the top teeth, you can lower the top lip if needed.



# R

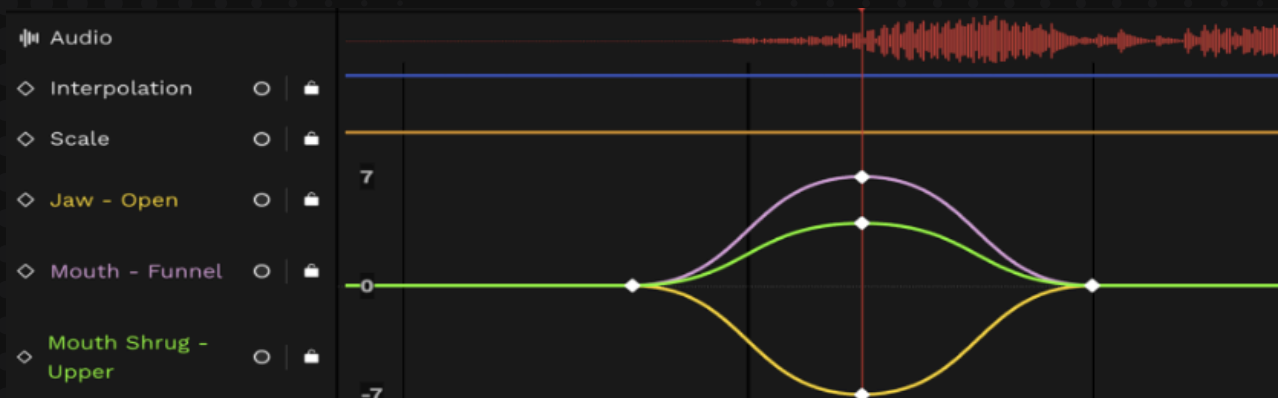
(e.g. “crash”, “erode”)

## TIMING AND SHAPES

- The lips should curl slightly outwards.
- There should be a slight rounding of the lips.
- The opening between the lips should be small
- The peak of a R mouth shape should be the **frame before** we hear the peak of the sound – which occurs as the shape is released.

## CONTROLS TO USE

- **Mouth – Funnel** (*positive value*)
  - To round the mouth and curl the lips outwards.
- **Jaw – Open** (*positive or negative value*)
  - If the jaw looks too open, slightly close it; however, it should never be fully closed.
- **Mouth Shrug – Upper** (*positive value*)
  - If the adjustment to the jaw has resulted in sealed lips, slightly raise the top lip to part them.





# N/L

(e.g. “panic”, “new”, “milk”, “ballast”)

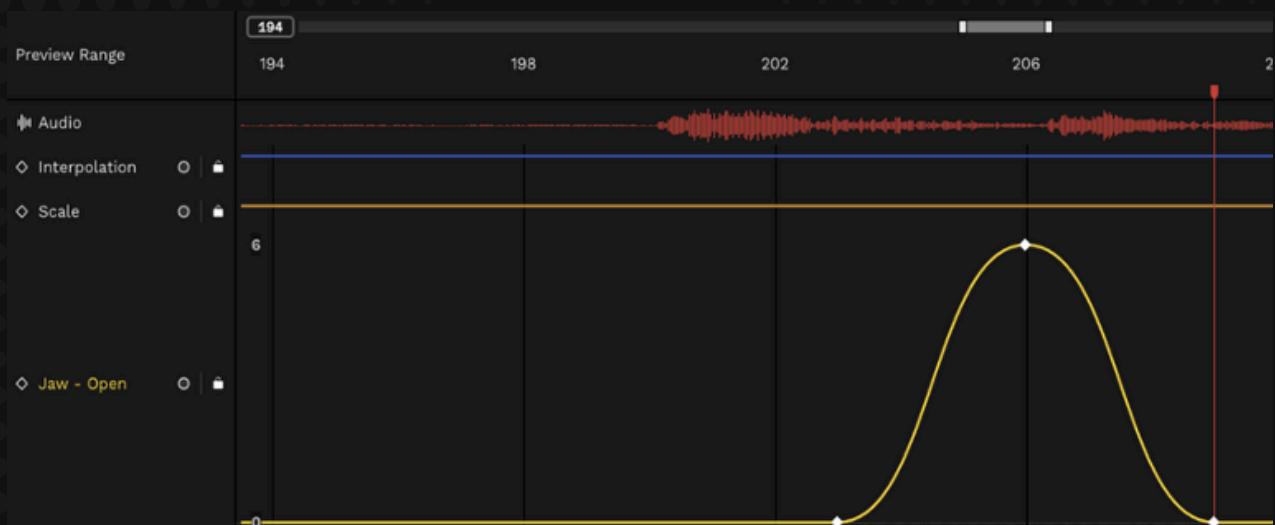
## TIMING AND SHAPES

- The lips should not be sealed.
- There should be a small visible gap between the teeth. N/L is formed by the tongue touching the roof of the mouth, so we focus the jaw opening to make this physically possible.
- The N and L sounds are heard when the mouth releases from this position.

## CONTROLS TO USE

If the N/L shape is not sufficiently formed, then achieve this with the following overrides:

- **Jaw – Open** (*negative* value)
  - If there is no visible gap between the teeth, open the jaw a little.
- **Optional: Mouth Shrug – Upper** (*positive* value)
  - Once the jaw is adjusted then, if the lips are still sealed, raise the top lip a little to help part them.



# Ah

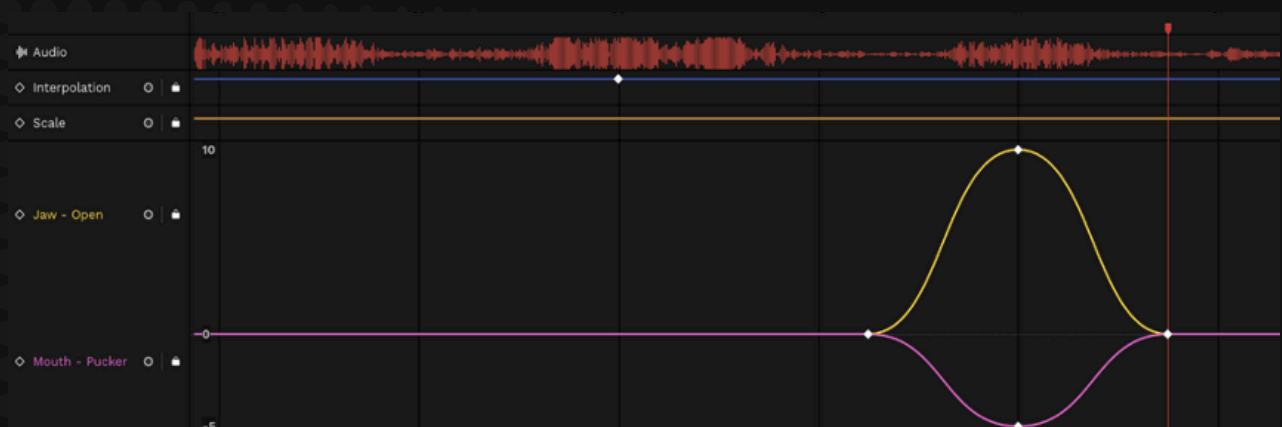
(e.g. "mat", "flap")

## TIMING AND SHAPES

- The peak of the Ah sound should match the peak of the jaw opening.
- The lips and jaw must not be closed.
- The size of the jaw opening should match the performance size.

## CONTROLS TO USE

- **Jaw - Open** (*positive value*)
  - Open the jaw enough to match the audio performance size.
- **Optional: Mouth - Pucker** (*negative value*)
  - If there is any rounding of the mouth, reduce or eliminate this.



# Ee

(e.g. “heed”, “happily”)

## TIMING AND SHAPES

- There should be a light jaw opening, leaving a slight separation between the teeth
- There should be an increased mouth width; it can look like a smile.
- The peak of the mouth shape should match the peak of the sound.

## CONTROLS TO USE

- **Jaw – Open** (*positive value*)
  - Ensure the jaw has a light opening.
- **Mouth Smile – Left & Mouth Smile – Right** (*positive value*)
  - Add ‘Mouth Smile – Left’ and ‘Mouth Smile – Right’, typically in equal proportions, to emphasise an Ee shape.
- **Optional: Mouth – Funnel** (*negative value*)
  - Using a small negative value of ‘Mouth – Funnel’ can create the look of the lips pressing against the teeth that can occur when with an Ee sound.

