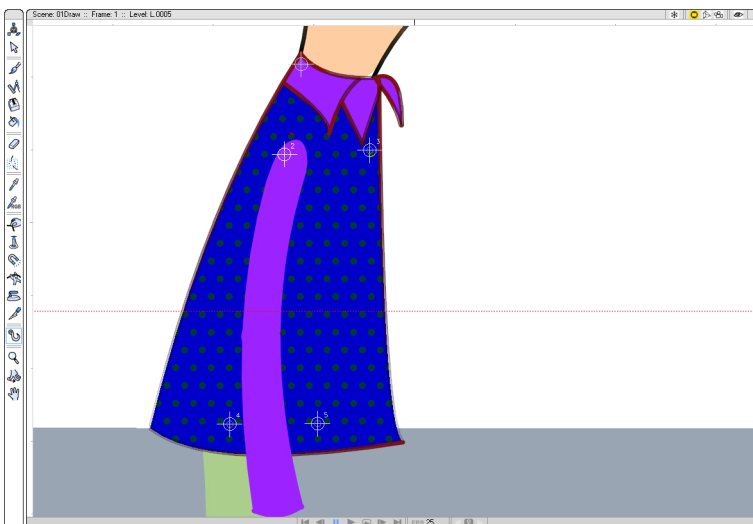




hook the limbs and the head to the body. The result is available in the project folder as scene **01Draw.tnz**, whose drawings can be retrieved in the **draw\01Draw** folder.

**To create the puppet character:**

1. Draw the character's elements on different levels.
2. Select the body level (level L in the provided material) and choose the Hook tool.
3. Add five hooks by clicking on the body drawing: one for the head, two for the arms and two for the legs. Repeat this step for all the levels, adding an hook for each point you want to be a joint for the animation.



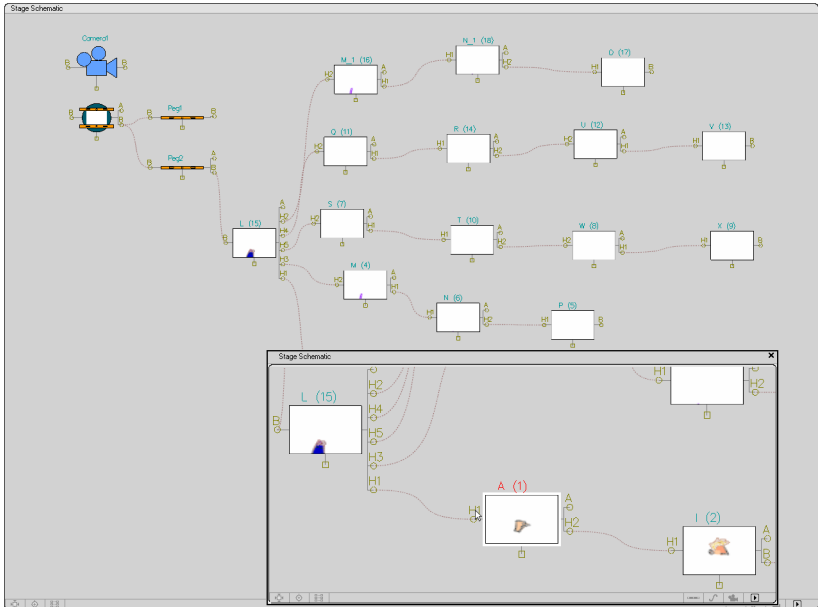
## Creating Hierarchical Links

In this section the hierarchical links between the different puppet elements will be created. The result is available in the project folder as scene **02Hierarchy.tnz**, whose drawings can be retrieved in the **draw\02Hierarchy** folder.

**To define hierarchical links:**

1. Create the hierarchical links in the Stage Schematic using the body as father and creating different branches for the head, the legs and the arms.

2. Click the nodes handles and drag up or down to scroll and select the relevant hooks that have to overlap. For example if the hook 2 of the arm has to overlap hook 3 of the body, choose H2 on the left handle of the arm node, and H3 on the right handle of the body node. Repeat these steps to set the hooks attachment for the other branches.



3. Connect the body column to pegbar 2, and use it to place and scale the character in the center of the shot by using the Edit tool.

## Creating the Walking Cycle

In this section animation keys will be added to create the walking cycle. The result is available in the project folder as scene **03WalkingCycle.tnz**, whose drawings can be retrieved in the **draw\03WalkingCycle** folder.

### To create the walking cycle:

1. Define key positions for the character's elements by selecting the related column and using the Edit tool. Keys should be created to define a walking cycle. In our example keys are placed at frame 1,7,9,11,13 and 17, where the same keys of frame 1 are used in order to close the cycle.

2. Create additional keys only for specific sections if required, for example for the foot tip when it reaches the ground.

## **Making the Character Stroll**

In this section a dummy level will be created and used as reference to make the character stroll by using the hook feature. In this way the movement will be generated directly by the SW and any kind of slide effect will be avoided. The result is available in the project folder as scene **04Stroll.tnz**, whose drawings can be retrieved in the **draw\04Stroll** folder.

**Note:** To see how the hook was positioned on the dummy level, in the schematic set center B on the left handle of the dummy level node.

### **To make the character stroll:**

1. Define a new level, and draw something in it. Duplicate the drawing so that the level is long as many frames as the walking cycle (in our example 17 frames).
2. In the Stage schematic attach the dummy level directly to the peg2, and the body node (L in the provided material) to the dummy one.
3. Select the dummy level in the xsheet, choose the Hook tool and add an hook in correspondence to the tip of the right foot when it hits the ground (frame 4 in our example). Add an horizontal guide to have a reference line for the ground level.
4. At each frame adjust the hook position so that it follows the original position of the right foot tip: in this way you will be able to anchor that specific feature on the ground. When the left foot is going to hit the ground (frame 10 of the provided scene), shift-click the hook and move the cross to pass the hook to the place where the other foot will be in the following frame. This means that from this frame on, the left foot will be anchored on the ground. To close the cycle, pass again the hook to the right foot at the last frame.
5. In the schematic, set H1 on the left handle of the dummy level node. The character will move up, but if you click the play button you will see that now the character moves keeping fixed the point defined by the hook.
6. Select and move the pegbar 2 to move the character in its final position.

## **Animating the Character's Body and Mouth**

In this section some drawings will be added to the body and the mouth level to improve the animation and show how to enrich a simple cutout

animation. The result is available in the project folder as scene **05Animate.tnz**, whose drawings can be retrieved in the **draw\05Animate** folder.

**To animate the character's body and mouth:**

1. Add more drawings to the mouth level (level A in the provided material) and draw different mouth positions. In case the mouth drawing changes shape, select the Hook tool and fix the hooks position to the correct place: in this way the joint point will be preserved throughout the animation.
2. Drag and drop the new drawings from the level strip to the xsheet column, and in the xsheet column adjust the drawings timing and sequence.
3. Repeat the previous steps for the body level.

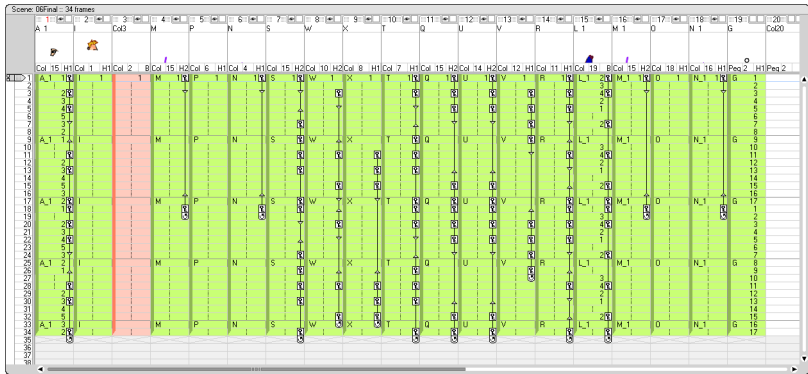
### **Completing the Cyclic Animation**

In this section the animation and the defined keys will be duplicated to have repeat the cycle as many times as needed. The result is available in the project folder as scene **06Final.tnz**, whose drawings can be retrieved in the **draw\06Final** folder.

**To complete the cyclic animation:**

1. Copy all the xsheet cells containing the animation (in our example cells from frame 1 to 17 and from column 1 to 19).
2. Select the first empty cell in the first column (in our example at frame 18) and paste the copied cells.
3. Right-click any key and choose Select All Keys from the menu that opens.

4. Select the cell in the first column where you inserted the copied animation (in our example at frame 18) and paste the copied keys.



5. Switch the Schematic to the FX view, right-click the dummy level node and choose Disconnect from Xsheet from the menu that opens: in this way the level will not be shown in the rendered output.
6. Check the animation by pressing the Play button.
7. Choose File → Output Settings to choose your output format, and then choose File → Render to render out the animation.