waveIt.mel V 1.0 (By George Nakhle) - 2008

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Description:

waveIt is a Maya MEL script, that you can use to create any sort of objects waves (can be used to simulate people waves in football stadiums, or someone waving some kind of tapestry made of interconnected bars, or any other effect that needs objects to be animated in a wavy way). The script has a manual as well as an automatic mode (explained later). This version takes into account only Y waves, so for a full 3 axis version please feel free to contact me or edit the script on your own.

Installation:

All you have to do is to copy this script to your scripts directory this being:

…/*user*/my documents/maya/scripts under windows

/home/*user*/maya/scripts under Linux

Usage:

- N.B:

1 - When you open a file containing a wave, or you create a new wave, you may see some odd behavior the first time you hit play, this is completely normal, and it is because the variables hasn't been initialized yet. Just hit stop, goto start then play and everything should look normal. If you still see odd behavior please read point 2.

2 - With the play speed set to real time the output in the viewport may look odd and jumpy, and your wave may not look continuous, but don't worry in the render it will look ok, and if you want to visualize it correctly in the viewport in such case just set your play speed to play every frame.

3 - Some of the parameters can be changed during playback, some others need going back to frame one to give the expected result and that depends on your situation.

4 - If the first frame of your timeline isn't below frame 1, you have to expect odd behavior when clicking on the go to start button; this is easily fixable manually, feel free to ask me if any assistance is needed.

- Setup the wave:

1 - Create your objects that you need to create a wave on. In this step you have to respect a simple naming convention, which can be described by the following:

> - The name of your first object (where the wave always begins)has to end with 1, being for example myObject1.

> - The following objects, beginning from the nearest to the farthest one from the first object, has to have the same base name as the first object, with the only difference that the number in the end has to be increased by 1 at a time, being myObject2-myObject3...myObject76...etc

2 - Select the first object of the wave (i.e. myObject1) and issue the following command from Maya's command line or the script editor: waveIt; (you may also add it to your shelf)

3 - Now the wave is created, and all of your objects are grouped under one group called myObject_waveGroup. (By default all your objects having myObject# are taken into account, to be able to define only a subpart of your objects to do the wave, feel free to edit manually (for more info please contact me)

4 - Select this group (from the outliner, or by selecting any of the wave objects and hitting the up arrow key, or any other one from the available methods), then in the channel editor you will see the wave parameters.

> **- Parameters:**

> **1** - **Switch On**: This parameter is the on/off switch of the wave.

> **2** - **Auto Function**: When this parameter is set to on, your objects will be animated using an internal automatic function to drive the wave, the parameters influencing this internal function are: Amplitude, Freq Mult, Multi Cycle, Where To Rebegin and Playback Speed (all explained later). When this parameter is set to off, your objects will follow the first object. Which in other terms mean, that here you are in manual mode, and any animation you do on your first object will make the other objects follow in a wavy way.

> (N.B. remember that this version is only done for Y axis translation, so they won't follow any rotations or any other animations along the other axis.)

> (N.B. one method to do your wave on the x or z axis for example, is by creating it along the Y axis then rotating the waveGroup)

> **3** - **Amplitude**: only for the Auto Function mode, this value will define the amplitude of the wave when in Auto Function mode.

4 - Damping   : works in both the Auto Function and the manual mode; this parameter allows you to set the value of the damping that occur to the wave while traveling from the first to the last object.

(N.B. by default damping is equal to zero, which implies no damping will occur, the more you increase this value the more damping you will get)

5 - Freq Mult: only for the Auto Function mode, this value is a frequency multiplier, increasing it will increase the frequency of the wave, and eventually decrease the wave length.

6 - Multi Cycle: only for the Auto Function mode, if this parameter is set to off, the wave will do one wave at a time. Which means that the wave will begin at the first object, then the others will follow, but when the first object will reach its initial state it will stand still untill the last object has got also back to its initial state. On the contrary if this parameter is set to on, the wave will be able to do multiple waves in one objects' cycle, which means that the wave will begin at the first object, then the others will follow, but when the first object will reach its initial state it will stand still until - and here's the difference - the wave has arrived to the Nth object where N = Where To Rebegin (explained on the next line).

7 - Where To Rebegin: only for the Auto Function mode, this parameter takes effect only when in Auto Function mode and the Mutli Cycle is turned on. In such case the wave won't wait for the last object to get to its initial state to rebegin a new wave, but instead it will begin a new wave when the previous wave hits the Nth object where N = Where To Rebegin.

8 - Playback Speed: just put your Playback Speed in this parameter.

For any questions, suggestions or help don't hesitate to contact me @:

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Visit my webpage: www.geonak.com

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