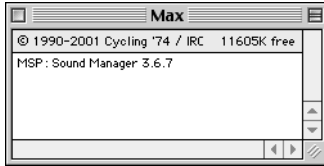


## Composition: Electronic Media I

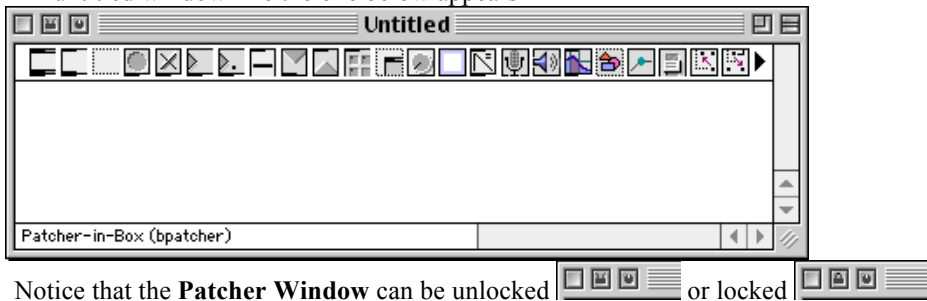
Fall 2004











### Intro to Max/MSP

1. Prepare to launch **Max/MSP** as follows:
  - a) Bring up mixer faders 1,2,9,10.
  - b) Assign the faders to the desired buses and output channels.
2. Launch **Max/MSP** by selecting its icon in the **dock**.
  - a) Select **Apple Menu>Process/Synthesize>Max/MSP**
  - b) A **Max** window like the one below will appear. It is used only for messages.



3. Open a new **Patcher Window** as follows:
  - a) Select **File>New Patcher**
  - b) An untitled window like the one below appears



- c) Notice that the **Patcher Window** can be unlocked  or locked .
  - d) When the window is unlocked, the patch can be created or edited.
  - e) When the window is locked, the patch can be played.
4. Notice that the unlocked **Patcher Window** displays a series of icons along the top. These icons are the **Object Palette**. Several important objects are:
    -  Object Box. Creates Max or MSP objects. Notice inlets on top and outlets on bottom.
    -  Message Box. Used for Messages like “Start”, “Stop”, “Open”. Notice inlet on top and outlet on bottom.
    -  Comment Box. Used for comments like “Larry’s Patcher”. Notice no inlet or outlet.
    -  Button. Used to trigger events with Bang messages. Notice outlet on bottom.
    -  Toggle. Used to toggle between states such as “on” and “off”. Notice outlet on bottom.
    -  Number Box. Used to generate numbers (integers—whole numbers). Notice inlet on top and outlet on bottom.
    -  Float Number Box. Used to generate decimal point numbers (such as 1.112). Notice inlet on top and outlet on bottom.
  5. Create a **dac~ object** as follows:
    - a) Drag an **Object Box** into the **Patcher** and position it in the lower middle part of the window
    - b) Disregard the **Object List** window
    - c) Type “dac~” into the **Object Box**, as shown below:
    - d) Notice the following:
      1. “dac” stands for digital to analog converter. It converts digital sounds into analog audio sounds.
      2. The ~ (tilde) sign indicates that the object is an audio or MSP object.
      3. The dac~ object has a left audio inlet and a right audio inlet.
      4. You can make the object box longer by grabbing the right side and resizing.

6. Create “start” and “stop” **Message Boxes** as follows:
- Drag a **Message Box** into the **Patcher** and type “start”.
  - Drag another **Message Box** into the **Patcher** and type “stop”.
  - Arrange these boxes to the left and above the **dac~ object**.
  - Patch the **Start** outlet to the **dac~ left inlet**.
  - Patch the **Stop** outlet to the **dac~ left inlet**.
  - The **Patcher** should look like this:



- Notice the following:
  - The **dac~** needs to be turned on and off. “Start” and “stop” accomplish this.
  - These patch cords are radial. Segmented patch cords are another option (see the **Options** menu).
  - The patch cords are plain, black lines, which indicate that these are control signals, not audio.

7. Create a **Signal Multiplier Object** as follows:

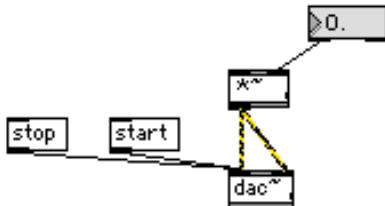
- Drag an **Object Box** into the **Patcher** and position it above the **dac~ object**.
- Type “\*~” into the **Object Box**.
- Patch the **Signal Multiplier** outlet to the **dac~ left and right inlets**.
- The **Patcher** should look like this:



- Notice the following:
  - The **Signal Multiplier** will be used to control the volume of the left and right channels of the **dac~**.
  - The patch cords are dashed, yellow and black lines, which indicate that these are audio signals, not control signals.

8. Create a **Float Number** object as follows:

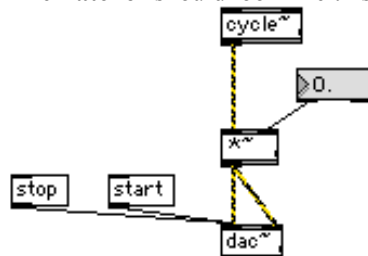
- Drag a **Float Number Box** into the **Patcher** and position it above and to the right of the **Signal Multiplier**.
- Patch the **Float Number** left outlet to the **Signal Multiplier right inlet**.
- The **Patcher** should look like this:



- Notice the following:
  - The **Float Number Box** will be used to supply a decimal number to the **Signal Multiplier**.
  - This decimal number will function as a volume control for the **dac~**.

9. Create a **cycle~** object as follows:

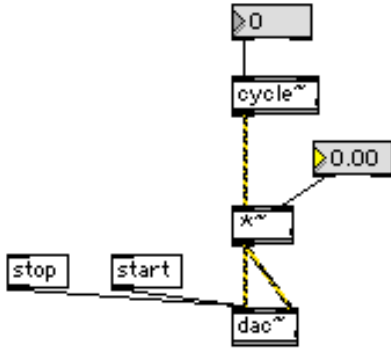
- Drag an **Object Box** into the **Patcher** and position it above the **Signal Multiplier**.
- Type “cycle~” into the **Object Box**.
- Patch the **cycle~** outlet to the **Signal Multiplier left inlet**.
- The **Patcher** should look like this:



- Notice the following:
  - The **cycle~** object is a sine wave.
  - The patch cord is an audio signal.

10. Create a **Number Box** object as follows:

- a) Drag a **Number Box** into the **Patcher** and position it directly above the **cycle~** object.
- b) Patch **Number Box** left outlet to the **cycle~** object left inlet.
- c) The **Patcher** should look like this:



- d) Notice the following:
  1. The **Number Box** will function as a frequency control.
  2. The patch cord is a control signal.

11. Play the patch as follows:

- a) Lock the **Patcher**.
- b) Press “start”.
- c) Adjust the volume from the **Float Box**.
- d) Adjust the frequency from the **Number Box**.
- e) Press “stop” to stop the sound.

12. Save, name, and store the patch, then quit **Max/MSP**.