


9. Applying a Binary Mask to a Grayscale Volume

This exercise demonstrates how to multiply a grayscale data set with a binary data set. The binary brain will act as a mask; all voxels in the grayscale data set that fall within the binary mask will be kept, while the voxels that fall outside will be removed.

- Open Transform and navigate to Image Algebra. **1**
- From the formula drop-down, select the third option down: (Bin!=0)*Gray. **2**



Download the MRI_3D_Head and MRI_3D_Brain_Bin data sets to follow along <http://analyzedirect.com/data/>

Spatial Transforms

Intensity Transforms

Image Calculator

Image Algebra **1**

Formula

Output= Input

Output

(Bin!=0)*Gray **2**

(a>=#in_min#)*(a<=#in_max#)*a+(a<=#in_min#)*#out_m

RED(r)+GREEN(g)+BLUE(b)

RED(Input)

ADDTOT(3,1)

ADDAVG(5,1)

((xpos(a)+ypos(a))%2)*a+((xpos(a)+ypos(a)+1)%2)*b

(ypos() %2)*a+((ypos()+1)%2)*b

Volume

Start Number ☒ All ☐ Specified

Increment

Slice

Start Number ☒ All ☐ Specified

Increment

- The input variables will appear as tabs labeled with the variable names.
- Drag and drop the binary data set into the designated space on the Bin tab. **3**
- Do the same with the grayscale data set on the Gray tab.

Formula

Output= (Bin!=0)*Gray

Output **Bin** **Gray**

DRAG AND DROP HERE

3

MRI_3D_Brain_B

Volume

Start 1 Number ☒ All ☐ Specified 1

Increment 1

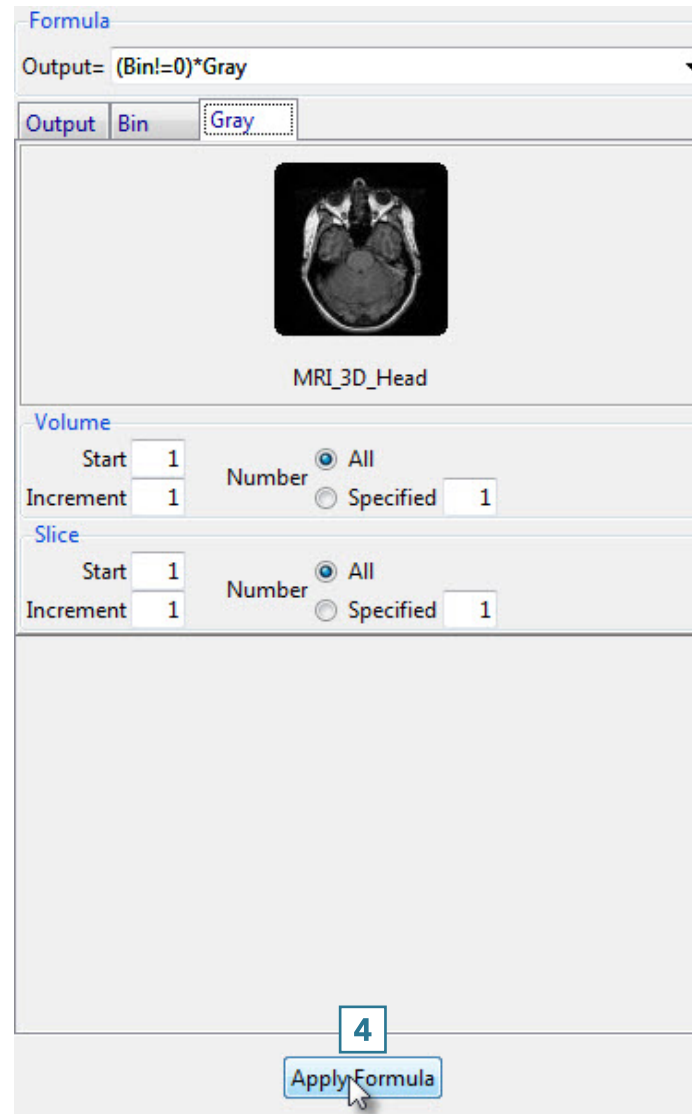
Slice

Start 1 Number ☒ All ☐ Specified 1

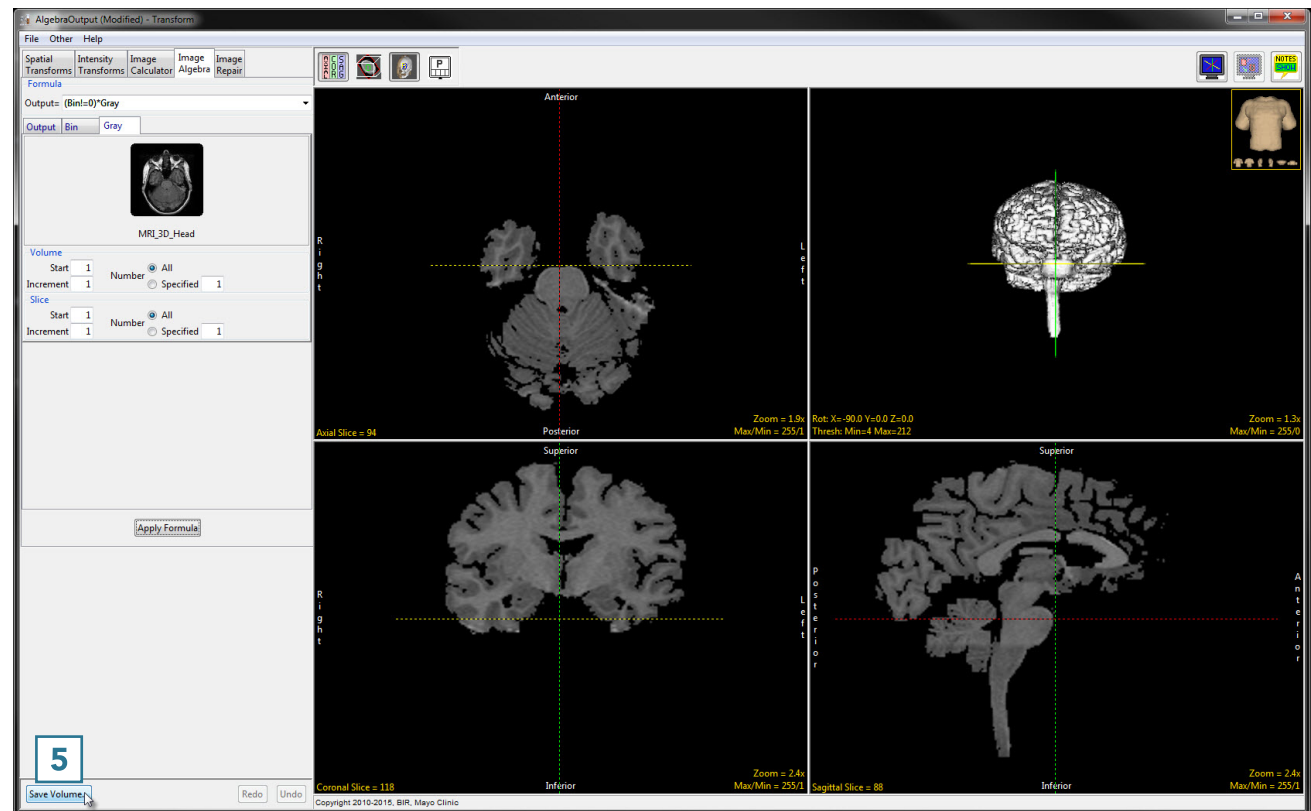
Increment 1

Apply Formula

- Once both data sets are loaded into Image Algebra, click the Apply Formula button. **4**



- The result is shown to the right.
- Click Save Volume **5** to save the masked data set.



- In the Save Transformed window, choose to create a new workspace volume **6** and rename. **7**
- Click Save Volume. **8**
- Close Transform.

