

### *What Mary didn't know*

Mary is a brilliant scientist who, since birth, has suffered from a rare optical disorder which only allows her to see in black, white, and shades of gray. She specializes in the neurophysiology of vision and learns all the physical information there is about what goes on when we see ripe tomatoes, or the sky. She learns just which wavelength combinations from the sky stimulate the retina, and exactly how this produces via the central nervous system the contraction of the vocal cords and expulsion of air from the lungs that results in the uttering of the sentence "The sky is blue", etc.

1. What will happen when Mary is cured, and can see ripe tomatoes and blue sky for the first time? Will she learn anything new or not?

2. Consider this argument, based on the above thought experiment:

If physicalism is true, physical facts about vision are all the facts there are.  
Mary (before her cure) knows everything physical there is to know about vision.  
When she is cured, Mary learns new facts about vision.  
Therefore, physicalism is false.

- a. Is this argument valid? Explain.

- b. Is this argument sound? Explain.

3. How would Mary's behavior change after her cure?

