

Reading – 3 by Cas Boot

Ware describes bottom up and top down processing of visual information in the brain. Give a concrete and detailed example of how bottom up processing is influenced by top down processing, leading to a potentially wrong interpretation of “reality” by the viewer. Your example can include a screenshot, photo, or web site URL to refer to the scene that is being viewed.

Bottom up processing is driven by the visual information in the pattern of light falling on the retina. After going through the feature processing stage, patterns are recognized in the brain. Then objects most relevant to the task at hand are held in the visual working memory. With top-down processing this process is reversed. The brain is consciously looking for certain objects, knows what patterns it needs to find and eventually finds them in feature stage.

Top-down processing influences bottom-up processing because at the low level of feature and elementary pattern analysis, top-down attention causes a bias in favor of the signals that we are looking for. What we end up perceiving is the result of information about the world strongly biased according to what we are attempting to accomplish. As an example I would like to take the painting of animals below. When first start looking at the painting you use bottom up processing and recognize an elephant. Then quite quickly you recognize another animal, probably the horse or the monkey. Now you make the switch to top-down processing and start actively looking for other animals. Then you start seeing the dog, the cat and the mouse.

This can be seen as a potentially wrong interpretation of “reality” by the viewer. This is so because you might be so actively searching for more animals in the picture that you might start seeing some that are not actually there. To name a fairly ridiculous example, you might start seeing a snake in the space between the elephants body and its tail. This even though the author never intended you to see a snake there.

