Sjoerd Herlaar - Week 3

1. Ware describes bottom up and top down processing of visual information in the brain.
2. 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.
3. Your example can include a screenshot, photo, or web site URL to refer to the scene that is being viewed.

Before an example on how bottom-up and top-down processing can lead to a wrong interpretation of reality by the viewer, one must first define them properly.
Bottom-up processing can be visualized by following the steps from seeing something to registering it in your brain. Ware describes this in four short steps;

- Retinal Display
- Features
- Patterns
- Objects

The image that ends up on your retinal display. This is the image that is used in the processing. These images contain features; features are processed in parallel from every part of the visual field. Millions of features are processed at the same time. Out of these features patterns are built depending on the attentional demands. Attentional tuning enforces those that are more relevant to the situation. These patterns will help create objects, which are most relevant to the task at hand and are being stored in the *Visual Working Memory* where only one to three can be stored at a time. These objects have both visual and non-visual attributes and are used to make sense of what it is you see.It is clear that this way of processing start with what is seen, and therefore it can also be labelled as reactive processing.

Top-down processing features the same set of steps, albeit in a different order. Top-down processing can be seen as active processing since it is used to look for certain things or objects actively. Ware explains top-down processing by giving an example about looking for an orange. In this example, the object of an orange is divided into certain traits of the objects. These traits is what you will be looking for in order to identify the object one is looking for. When looking for an orange, the size and colour are important, and so these are some of the traits that you would look for in the produce section of your local supermarket. The receptors in your eyes that are sensitive to orange will "shout harder" so that this colour is more apparent. This way it is easier to find the given fruit. Because some features will be given a higher priority than others in order to find the orange, some details of the real world can be missed.

Brainiac, the "scientific" show created an entire episode around missing some of these details. Two of the tests involve paying attention to movement of certain objects. The first one asks the viewer to pay attention to a lunchbox that is passed in a group of people. While the viewer pays attention to the lunchbox being passed from person to person, he or she will probably not notice the last Brainiac casually strolling through the group of people wearing a bee costume.

This is a perfect example of top-down processing altering your perception of reality; because of your focus the bee-man is not noticed. But when you are not focusing on the lunchbox, and thus using bottom-up processing, you will probably see him quite quickly.

https://www.youtube.com/watch?v=LBL2SbRj5CA