Scientists observed patterns may be the product of chance, defined as something happening “unpredictably without discernable human intention or observable cause” (Merriam-Webster.com). Here I present three possible examples of this, in the realm of Cognitive Sciences.

Imagine a humanoid robot, capable of carrying out assigned tasks with whatever approach it chooses. We could observe a consistent behavioral pattern of manipulating objects using its left hand rather than its right, which could be interpreted as “left-handedness”, a real preference for using one over another. It’s possible however, that the robot starts with some algorithm to decide which hand is better suited for the task, and if this one is not available, resorts to its other arm. Now, if this humanoid robot were to have some dislodged wiring in its right arm, it would attempt to use its right hand, fail, and resort to its left. The pattern of using the left hand is because an error, caused by chance, prevents it from using its right.

Suppose a linguist finds a pattern that anytime a language’s speaker points to a dog, they utter the same sound. The linguist may reasonably interpret this sound to represent the word “dog”, because every dog encountered was referred to as this. However, it’s possible that, by chance, every dog encountered is named “Snoopy”, and that this sound actually means “Snoopy”. The word for “dog” could be entirely different, but by chance, every dog encountered had the same name, so this name is assumed to mean “dog”.

Suppose an experiment seems to successfully isolate the neural correlate associated with “blue”. Stimulating this neural pathway makes subjects report thinking “blue”. This pattern can be interpreted as real because it appears to be a controlled experiment where the same stimulation produces the same result across different subjects. However, it’s possible this neuronal pathway is actually in charge of making you think of your favourite color, or your favourite four letter word, or something different for each subject. Then, by chance, all subjects seem to have the same answer to the thought elicited by the neuronal pathway. This pathway may have nothing to do with the colour blue, but by chance, the thought process it does control leads all subjects, coincidentally, to the same thought: “blue”.

Confounding should always be considered when finding patterns or correlations. It’s always possible for a pattern to be explained by a third variable, including chance.

Works Cited