**Section 2c - Scientific Libertarianism by Dr Angela Sirigu**

**Background:**

* Over the last century science has been seen to support determinism (see earlier notes).
* However, in recent years advancements, particularly in genetics and cognitive neuroscience, have potentially developed support for libertarian ideas.

**Cognitive Neuroscience**

* One such recent development, in neuroscience (the study of the brain) was carried out by Dr Angela Sirigu and her team, in early 2012, at the Cognitive Neuroscience Centre in Bron, France.
* They reported that they had potentially found that free will is sited in a part of the brain called the parietal cortex (check out on the internet where the partial cortex is in the brain).

**The Experiment**

* Sirigu discovered the above by electrically jolting the parietal cortex in seven patients, undergoing brain surgery.
* Each of the seven patients was awake during surgery, so they could answer questions put to them by Sirigu. Each patient claimed to feel a desire to move when they were jolted by the electricity: such as to wiggle their fingers, roll their tongues or move their limbs. Stronger electrical pulses convinced patients they had actually carried out these movements, though in reality their bodies did not move.
* What Sirigu found from the above experiments was that the parietal cortex was sending only one specific instruction (wiggle your finger, roll your tongue, etc.) to another part of the brain, called the premotor cortex.
* The premotor cortex then returns the outcome of the movement (the finger wiggled, etc.) to the parietal cortex. As Sirigu states: **“You need both systems, the parietal and premotor cortex to generate intention and check whether this is followed through.”**

**Sirigu’s Conclusions**

* However, the fundamental part of the experiment for Sirigu is that the partial cortex only passes on one specific instruction to the premotor cortex. Therefore, according to Sirigu, the parietal cortex must go through a variety of possible movements that could be made but only selects one to send to the premotor cortex that then makes the move.
* Therefore, at some point the parietal cortex must decide which particular movement to make from a variety of potential options. As Sirigu argues: **“What it tells us is there are specific brain regions that are involved in the consciousness of your movement.”** Therefore, there is a part of the brain (the parietal cortex) that potentially allows people to make a specific decision from several choices.
* Therefore, Sirigu believes that she has discovered the region of the brain that illustrates the mechanics of free will.

**Support**

* Patrick Haggard, a neuroscientist at University College London, believes the above scientific theory breaks new ground on the study of free will.
* This is because it pinpoints the specific part of the brain where free will resides. As he states: Sirigu’s experiment is **“extremely interesting, because up to now it has been very difficult for neuroscientists to deal with the idea of intentions or wishes or will.”**