

*Neuronal plasticity, language and causality. Towards a new concept of free will.*

Bernard Feltz, Philosophy of Sciences, Université catholique de Louvain, Belgium

Recent studies in neurosciences show that connections between neurons in the brain are marked by a great plasticity. I would like to analyze consequences of such a phenomenon on the concept of 'free will', specifically in relation with language learning. My topics will be in four parts. First, I would like to refer to the works of Eric Kandel (2006) and Gerald Edelman (1989, 1991, 2000) to describe different modes of neuronal plasticity. Their conception of consciousness and the relation with unconscious will be analyzed. I will show that the *Theory of Neuronal Group Selection* permits to think twice consciousness and the relation with unconscious. A complex approach of 'free will' can be derived from that theory. Second, in relation with Habermas's (2008) philosophy of language, I would like to analyze the impact of language learning on the structure of the brain. In context of neuronal plasticity, his distinction between 'objective meaning' and 'subjective meaning' refers to different neuronal activities and permits to understand that the connectivity of the brain is deeply marked by the culture. Third, the question of causality will be studied in relation with the work of Kim on supervenience (Kim 2000 and Sartenaer 2013). I will show that language learning implies downward causation. In this context, the distinction between downward causation and environmental causation will be specified. Fourth, the contribution of these considerations on the question of 'free will' will be evoked. The dialogue between Spinoza (Atlan 2011) and Kant (1781) poses the general terms of the debate: the relations between 'free will' and determinism. The dialogue between Wegner (2002) and Habermas conducts to a concept of 'free will' deeply inscribed in a body. In this context, an effective 'free will' seems to be thinkable in relation with neuronal plasticity.