

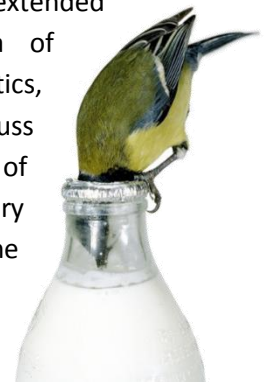
## Einladung zum Habilitationsvortrag

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#### **„Animal innovation, social learning and the extended evolutionary synthesis“**

The neo-Darwinian synthesis of evolution asserts that adaptive evolution is due to natural selection acting on heritable variability that originates through random genetic mutation. Some variability, however, arises through non-genetic processes, such as behavioural innovation, defined as solving a novel problem or finding a new solution to an old problem. Such innovation allows humans to survive and prosper across a large range of environments, but is also known to be widespread across taxa. Examples include primates, fish, birds and insects starting to use tools, or small songbirds starting to pierce foil caps of milk bottles to take the cream. The use of (initially) novel behaviour can spread between individuals through the process of social learning and lead to cultural evolution if within-generation learning from others is extended with intergenerational transfer. The phenomena of innovation, social learning and cultural evolution, together with those of epigenetics, ecological inheritance and parental effects, have led evolutionary biologists to discuss whether they are mere add-ons to the neo-Darwinian synthesis of evolution or are of such relative importance that they require the development of an ‘extended evolutionary synthesis’. In this lecture, I will present examples of animal innovation, describe the processes of social learning and cultural evolution and discuss how genetic and cultural inheritance affect evolutionary dynamics, in the end answering the question of whether we might need an ‘extended evolutionary synthesis’.



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