



# MULTISCALE APPROACHES TO COGNITIVE BEHAVIOUR



**11h A.M**

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## Inclusive heredity and the inclusive evolutionary synthesis

Heredity (patterns of parent-offspring resemblance) is a major factor of evolution by natural selection or drift. The Modern Synthesis of Evolution (MSE) tends to reduce heredity to the sole transmission of the DNA sequence. However, in the last 40 years, there are evidence that parent-offspring resemblance also rests on other types of information, not encoded in the DNA sequence. Thus the sole DNA sequence information is far from explaining the whole complexity of life. After introducing the concepts of inheritance, I will develop 3 examples of non-genetic inheritance to illustrate its ubiquity and the subtlety of the underlying mechanisms. The last example concerns our research on animal culture and its potential impact on evolution. Building on these examples, I will introduce what I call an 'Inclusive Evolutionary Synthesis' (IES), encompassing all dimensions of heredity, be they genetic or non-genetic. IES thus does not contradict the Modern Synthesis of Evolution but rather generalizes in order to better capture all the complexity of life



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