

the corpus highlight that the patches are not just locally connected. Instead, these different uses hinge on a shared understanding of the concept of communication—differently from what the perspective of “patchwork concepts” requires. I explore this core meaning of the concept, and conclude that indeed BIOLOGICAL COMMUNICATION is a scale-free concept, applicable at all levels of biological organization. Nevertheless, there are some important **limitations** to the meaning of COMMUNICATION recovered directly from the scientific literature, hence I consider the definition schema proposed in light of a series of case studies drawn from the literature, to further finesse the understanding of what communication is, and how it relates to other causal phenomena.

In Chapter 4, I explore specifically how this view of communication relates to information theory—and how information theory features in the biological discussions of communication across the scales. This analysis allows me to highlight several misconceptions in extant philosophical treatments of these questions. More importantly, however, I focus on numerous central assumptions that formal frameworks of communication make, which are not met in the biological realm. Considering the limitations of the formalisms in detail, I argue nonetheless for a realist interpretation of the “information-talk” in the context of BIOLOGICAL COMMUNICATION, specifically for a perspectival realist view on the matter, which **allows** to fully appreciate the epistemic benefits that emerge from the use of information-theoretic tools—despite the falsities these models bring.

Finally, in Chapter 5, I touch upon one of the central questions at the intersection of philosophy of biology, of cognitive science, and of mind: the naturalistic explanation of the origins of semantics. Motivated by the realization that at least apparently, meanings are imputed to signals across the scales of life, I use a number of leading naturalistic accounts of intentionality from the philosophical literature to uncover whether and how researchers in life and cognitive science ascribe meaning to biological signals. The results indicate that such “semantic practices” are widespread across the different domains covered by the dataset, but there are important differences in how such ascriptions are made with regard to the cell-level and organism-level processes. I analyse these different contexts through the lens of existing philosophical accounts of meaning to make sense of the scientists’ practices, and identify the sources of this split. Ultimately, though, I arrive at a view which allows for a shared origin of the two types of semantic practices and casts their differences as related to the