

Assimakis Tseronis: "Arguing about nanotechnology with verbal and visual metaphors: the case of nanobots"

According to philosophers of science and scholars in science communication, metaphor in scientific discourse and practice is said to help form new concepts and construct models and explanations. One field of science where metaphors and imagery abound is nanotechnology. In this field of research, scientists from chemistry, biology, physics and engineering study matter at the level of one billionth of a meter. Because matter at that level becomes visible only through the use of electronic microscopes and dedicated software, imagery plays an important role not only for the study of these nanostructures in the laboratory but also for the communication of the advances regarding nanotechnology to the general public. One recurrent metaphor is that of the nanobot, a nanostructure visualized as a spaceship, rocket, or insect at the scale of an atom, able to carry out some programmed task.

In order to show how metaphor contributes to arguments advanced in and about science, and the effect that its use has, one needs to have recourse to argumentation theory. At the same time, one needs to acknowledge the fact that metaphor can be conveyed in other modes than simply language. In this paper, I study the verbal and visual ways in which the nanobot metaphor is conveyed and how these contribute different content to the argument that can be reconstructed from its use. I compare the verbal and visual construal of the metaphor in a series of news articles about nanotechnology. I show that the positive or negative associations one can make with the machine source domain of the metaphor are enhanced by choices made at the verbal or the visual level of construing the metaphor. I show how the metaphorical mappings, cued verbally or visually, can be reconstructed in the argumentation put forward, and discuss the different effect that verbal and visual manifestations of the machine-metaphor has for the argumentation process.