I will argue that we have been caught in a false debate between ‘coherence’ and ‘fragmentation’. Our knowledge systems are neither totally coherent nor totally fragmented. I find the idea of p-prims interesting but I argue that to the extent that we postulate the existence of such ‘sub-conceptual’ primitives, they do not remain fragmented in the knowledge system of novices but become organized in conceptual structures with some coherence and explanatory power. Categorization is a fundamental learning mechanism, well developed by the time children have acquired language, and, with it, a rudimentary conceptual system, which, however, is implicit and not subject to metaconceptual awareness. I argue that this initial rudimentary conceptual system continues to exist even when scientific and mathematical concepts have been acquired and that it interferes in the learning of science and mathematics. I will also argue that there is a failure in teaching to deal with this ‘duality’ – i.e., between initial and scientific understandings – which is often exhibited in inert knowledge, fragmentation, biases, and misconceptions. I will end with some thoughts about the broader implications of this analysis and about instruction.

Please join us for a more informal discussion with Dr. Stella Vosniadou during our “Coffee and Chat” session from 2:30 pm – 4:00 pm in the Natural Sciences Building (Room 3203).