Ana-Maria Olteţeanu – Re-representing Problems in Cognitive Systems

Humans can represent problems in new ways, in order to come up with solutions for them. Re-representation is considered one of the key elements of creative problem solving. But how do natural cognitive systems do it? And can it be implemented in artificial cognitive systems?
This talk explores re-representation as a cognitive technique, and aims to lay the groundwork in enabling its computational implementation. We scrutinize a set of problems, and their re-representation(s) with restructuring. The qualities of each re-representation are discussed.
Can re-representation be split in two cases – that is re-representation involving or not involving restructuring? The differences between these re-representation types are examined by prospecting non-restructuring variants for the previously presented problems.
A summary of the observed strategies for re-representation is then presented. This gives way to an initial set of heuristics for re-representation. Finally, general requirements for re-representation in computational systems are extrapolated.