Learning what Others Know

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I present recent work on modelling scenarios in which agents are given (or gain) access to all the relevant information possessed by some other agents (including information of a non-propositional nature, such as data, passwords etc). Modelling such scenarios requires us to extend the framework of epistemic logics to one in which we abstract away from specific announcements. In order to do this, I introduce a general framework for such informational events, that subsumes actions such as sharing all you know with a group or individual, giving one access to some folder or database, exchanging all relevant information within a closed subgroup, hacking a database without the owners knowledge, etc. We formalize their effect, i.e. we express the state of affairs in which one agent (or group) has epistemic superiority over another agent/group, using comparative epistemic assertions (the extend to groups the individual comparative formulas considered in [5]). Another ingredient is a new modal operator for common distributed knowledge, that combines features of both common knowledge and distributed knowledge, and characterizes situations in which common knowledge can be gained in a larger group of agents (formed of a number of subgroups) by communication only within each of the subgroups. This is joint work with Sonja Smets [1], though I position it in the context of other related work [2-8].

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