

EDITORIAL

This is the 2nd part of the special issue devoted to 'Logics of Communicative Interaction.' It includes two papers. Thus, in total, we have accepted the following five papers, among which the paper by Réka Markovich and Olivier Roy and the paper by Penghao Du, Fenrong Liu, and Dazhu Li are invited papers.

- Giorgio Cignarale and Roman Kuznets: "*A priori* Belief Updates as a Method for Agent Self-recovery," RAP, Vol. 4, No. 1, pp. 1–37.
- Réka Markovich and Olivier Roy: "The Right to Know: A Logical Analysis," RAP, Vol. 4, No. 1, pp. 39–75.
- Tomoyuki Yamada: "Uncertainty of Uptake in Speech Acts," RAP, Vol. 4, No. 1, pp. 77–125.
- Gaia Belardinelli, Lei Li, Sonja Smets, and Anthia Solaki: "Logics for Personalized Announcements and Attention Dynamics," RAP, Vol. 5, No. 1, pp. 1–41.
- Penghao Du, Fenrong Liu, and Dazhu Li: "Modal Logics for the Poison Game: Axiomatization and Undecidability," RAP, Vol. 5, No. 1, pp. 43–71.

All these papers, including invited papers, have been accepted for publication after peer review.

The paper by Cignarale and Kuznets proposes to model self-adaptive and self-organizing distributed systems in scenarios of communicating agents through the use of Dynamic Epistemic Logic. The agents considered in this paper come equipped with both *a priori* beliefs and *a posteriori* beliefs. Whereas *a priori* beliefs agents have are designed by system designers to model agents' common initial assumptions that enable them to reason about the (higher-order) reasoning of other agents, *a posteriori* beliefs are beliefs agents obtain through their experience such as communication with others and observations of the states they face. When the *a priori* beliefs an agent has do not adequately describe the epistemic scenario that she is in, the beliefs she has may become inconsistent. In such a situation, she needs to find a way to

update her *a priori* beliefs in a process of belief ‘self-recovery.’ Cignarale and Kuznets define the models and model updating operations and use them to analyze how *a priori* belief updates work (or fail to work) in concrete examples. As such an update does not always lead to the resolution of the agent’s conundrum, they also propose some heuristics for *a priori* belief updates.

Markovich and Roy examine mainly the possibility of analyzing the right to know, such as the expectant parents’ right to know the result of a medical test “carried out to determine whether or not the child suffers from a particular disease,” as a claim-right in the typology of Hohfeld (1923) in the legal theory. “A claim-right of an agent x towards y corresponds to a duty of y towards x ,” where the duty involved is a legal duty. They present four related but nonequivalent formalizations of the relevant duty, namely, the static unconditional version, the dynamic unconditional version, the static conditional version, and the dynamic conditional version. The dynamic versions are proposed in the form of the product updates by epistemic action models in the style of Dynamic Epistemic Logic (DEL). The authors also briefly analyze the right to know as a power in Hofeldian typology. Here again, both static and dynamic versions are considered. They end their paper with a metareflection on the benefits and limitations of the provided formal analysis based on combinations of deontic, epistemic, and action logics.

Yamada proposes to apply the method of product update using deontic action models to analyze the uncertainty of uptake in speech acts. As the conventional effects of an illocutionary act depend on the agreement shared by the utterer(s) and the addressee(s) about what illocutionary act has been performed, the securing of uptake, which “amounts to bringing about the understanding of the meaning and the force of the locution” (Austin, 1955, pp. 116–117), is necessary for an illocutionary act to be performed. However, there are sentences that can be used to perform both an act of commanding and an act of requesting, for example, and so, it is sometimes unclear to some (or almost all) of the agents involved whether a command is issued or a request is made. The author imports two different deontic updating operations that respectively interpret acts of commanding and acts of requesting from his earlier papers, and analyzes what will happen (1) in an example in which the addressee understands the meaning and the force of the locution but another agent involved does not, and (2) in another example in which the addressee remains uncertain whether a command is issued or a request is made.

Belardinelli, Li, Smets, and Solaki use dynamic epistemic logic to model different types of scenarios in which information filtering can affect the beliefs of agents. They consider two types of information filtering: filtering by a recommender system that sends agents personalized announcements and attention-driven filtering. Their model illustrates the effect of a recommender system that filters information on the basis of the expressed opinions of the users

in a social network. The authors present four different filtering conditions as examples. In addition to the filtering by the system, the limited attention resources the users have are also considered as another type of filtering. A user can access a recommended announcement if she has enough attention resources to do so. The attention resources are modeled as a budget from which the costs of processing announcements are paid. If the budget an agent has is insufficient for the cost of processing the announcement she receives, she will not access it. The dynamics is modeled via action models and uses the product update mechanism of Dynamic Epistemic Logic.

The topic of the paper by Du, Liu, and Li is a poison game, which was originally used to reason about graph-theoretical notions and recently, applied in the theory of abstract argumentation. It is a zero-sum perfect information game played on progressively and locally finite directed graphs by two agents, *Mover* and *Poisoner*, who play alternately. *Mover* starts the game by choosing a node s from the set of nodes W , and then *Poisoner* has to choose a successor t of s , which causes node t to be ‘poisoned for *Mover*.’ Then *Mover* has to choose a nonpoisoned successor u of t , and so on. *Poisoner* wins iff *Mover* cannot make a legal move. The authors examine two versions of logics, poison modal logic (PML) and poison sabotage logic (PSL), that are used to reason about poison games. Many properties of these logics are already known, but there are also remaining questions, and in this paper, Du, Liu, and Li present solutions to the following three questions: (1) whether or not PML and PSL can be embedded into a fixed variable fragment of First Order Logic (FOL), (2) whether we can have Hilbert-style proof systems for PML and PSL, and (3) whether or not the satisfiability problem for PSL is decidable. The authors end their paper with questions to be examined in future work concerning the complexity of the model checking problems for these logics and indicate connections to a wider class of logics studied in the context of Dynamic Epistemic Logic.

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