

Workshop AGAPE

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Attendees

IRIT (M. Mittelman - U. Grandi - E. Lorini and L. Perrussel) - LAMSADE(J. Lang - J. Lesca) - IBISC (F. Belardinelli)

First version of ADL (*Auction Description Language*)

A first version of ADL has been presented by the IRIT group. This version has then been polished and submitted to ECAI2020. It focuses on multi-unit, single-good and single-side auctions (ascending, descending, Vickrey mainly). Two key issues:

- if we want to consider multiple goods, we need a bidding language as a “sublanguage” of ADL. It will describe how bundles may be constructed and what are the bidders preferences over the bundles.
- how ADL may be adapted to close allocation problems: exchange, fair division and matching.

From a technical perspective, numerous questions were raised:

- how does ADL connect to PDDL and can we take advantage of GDL to generate (and compile) actions descriptions?
- how State-transition models connect to CGS and reactive models? Is there an easy translation?
- how to use SMT-solvers to check ADL properties?
- What are the advantages of using ADL in relation to CGS and PDDL? ADL is a declarative formalism, which facilitates its use on competitions.

Going back to what is an auction

We further discuss on what is an auction, i.e. the goal is to define the “boundaries” of ADL? Participants agree that we have two key components:

- monetary transfer
- central authority

We stress that there is no central authority in Mechanism Design while in matching or service exchange it may have no money.

Taxonomy of Allocation to distinguish auctions from other types of allocation, such as negotiations (decentralized), exchange (transfer of goods or services), market mechanisms (decentralized), ...



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investigation: going further

Survey of auctions:

- spectrum auction
- power auction
- landing slot auctions
- pollution auction
- ad auction