Electronics Institutions:
Methodology of Multi-agent Systems Development

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Abstract. Human interactions very often follow conventions; that is, general agreements on language, meaning, & behaviour. By following conventions, humans decrease uncertainties in the behaviour of others, remove conflicts on meaning, give expectations on the outcome of the interaction and simplify the decision process by restricting the potential actions that may be undertaken to a limited set. These benefits explain why conventions have been so widely used in aspects of human interaction such as trading, laws, games, and the like. In some situations, conventions become foundational &, more importantly, some of them become norms. Norms establish how interactions of a certain sort will & must be structured within an organisation &, therefore, they become the essence of what is understood as human institutions. This is so, for instance, in the case of auction houses, courts, parliaments or the stock exchange. Human institutions not only structure human interactions, but they also enforce individual & social behaviour by obliging everybody to act according to the norms.

The notion of electronic institution thus becomes a natural extension of human institutions by permitting not only humans, but also autonomous agents, to interact with one another. I will show in this talk how this concept becomes a very powerful tool to specify, verify and develop Multi-Agent applications. An example of a deployed application to model concurrent auction houses will be explained in detail.