Chapter X

Grounding Organizations in the Minds of the Agents

Cristiano Castelfranchi

ISTC-CNR, Italy

ABSTRACT

This chapter presents organizations as a macro-micro notion and device; they presuppose autonomous proactive entities (agents) playing the organizational roles. Agents may have their own powers, goals, relationships (of dependence, trust, etc.). This opens important issues to be discussed: Does cooperation require mentally shared plans? Which is the relationship between individual powers and role powers; personal dependencies and role dependencies; personal goals and assigned goals; personal beliefs and what we have to assume when playing our role; individual actions and organizational actions? What about possible conflicts, deviations, power abuse, given the agents’ autonomy? MultiAgentSystems discipline should both aim at scientifically modeling human organizations, and at designing effective artificial organizations. Our claim is that for both those aims, one should model a high (risky) degree of flexibility, exploiting autonomy and pro-activity, intelligence and decentralized knowledge of role-players, allowing for functional violations of requests and even of rules.

INTRODUCTION

The main thesis of this chapter is that organization is a notion, a model, and a technical device that presupposes individual agents; it is a way of exploiting and improving the co-powers of agents, producing efficient cooperative results. Organizations have to be funded and grounded in the powers of the agents and in particular on and into their minds (knowledge, goals, reasoning, choice, etc.).

In fact, “Organization” is organization of something: precisely of the activities of sub-units, able to get and process information, to act in a coordinated manner, to co-operate, and to do this with some
local – decentralized – autonomy, and adaptation to the context. In particular, ‘organizations’ are coordination structures for cooperation among several agents, in view of *iterated and typical problems* or problem-solving activities. Any ‘organization’ entails *some Multi-Agent (MA) plan*, and the agents have to work (case by case) within some common plan.

Some level of autonomy and of purposiveness of the component units is presupposed: the active entities able to play a role within the organization and its plans, must be able to perform actions in view of specific results, that is, to pursue and locally monitor goals (their ‘tasks’), and must have some degree of ‘autonomy’ for adapting the action to its context and for solving problems.

‘Autonomy’ is a relational notion: X is autonomous *from* somebody else (Y) and *as for* something (O) (Castelfranchi, 1995a). Autonomous means that X doesn’t depends on Y as for (having/realizing) O; does not need Y for this. X can have or realize O by itself. An active entity can be autonomous on various dimensions and for various “resources” or “activities”: for example, for accessing information and data, for learning, for reasoning, for decision making, for abilities and skills, or for external material resources (money, a car, etc.). One might be autonomous as for a given O but not for another one. For example, X may be autonomous as for deciding but not as for the needed data, because she is blind; or, X may have the practical resources for doing action A, but not being able to do it, and she needs the help of Y for this.

“Agents” - as defined in MAS - are autonomous entities (“Autonomous Agents & MAS”): there is not a fully centralized processing; they have local independent information and results, and, sometimes, independent learning or reasoning; they have some pro-activity (Wooldridge and Jennings, 1995); they are regulated by internal representations (sometimes strictly ‘purposive’ ones, like in BDI Agents). The most qualifying and advanced form of autonomy obviously is autonomy in goals: when an agent has its own independent *motives*, and will pursue our objectives only if there is some reason and advantage for doing so.

In sum, for us, the “sociological” and “institutional” level of processing and activity must be funded on the basic notion of agents activity: action, decision, belief, plan, etc. and in particular on the *individual social* action. It is a typical mistake to try to found collective levels per se’ or directly on individual agent theory ignoring sociality at the interpersonal level as the very basis of sociality at the collective level (Tuomela, 1995; Castelfranchi, 2003c). So, for example, there are typical and fundamental aspects to be modeled in organization, like ‘dependence’, or ‘coordination’, or ‘delegation’ and ‘reliance’, like ‘goal-adoption’ or help, that are already present at the interpersonal level and must be defined first of all at that level (see in this chapter Section on ‘Socio-Cognitive Organization Pillars’).

Given this premise and perspective several important issues should be taken into account in organization theory and design.

Is it better to organize an efficient coordination and cooperation of (at least partially) autonomous entities, or it would be better not having a real organization (in human-like sense), but just a well pre-programmed and orchestrated merely executive system? Are true ‘organizations’ – presupposing autonomous members - just a human damnation, just due to human imperfection and limits; or there is some specific advantage in autonomous, intelligent, cooperative entities? Why building an ‘organization’ of ‘Agents’? Why having problems with initiative and autonomy? Wouldn’t be better many pre-organized perfect executors of their own tasks, understanding nothing, negotiating nothing, and changing nothing. Which are the advantages of autonomous entities playing roles, and which are the risks?

Since the agents have to play ‘roles’ within and for the organization and its activities, but they have their own individual ‘mind’, how is the dialectics, the complex relationship between the possible indi-
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