

THE MICRO-MACRO CONSTITUTION OF POWER<sup>1</sup>*Cristiano Castelfranchi*-  
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## Premise

How important power is in human relations, organizations and societies does not need many words to be argued. Consequently, power is also a fundamental topic in the social sciences, in particular in sociological theory (starting from classics like Marx, Pareto, Weber), in political science, in organization sciences, in anthropology; but also in economics (negotiation power, position power, theory of oligopolies and monopolies, etc.). On the contrary, Cognitive Science and, in particular, models of artificial intelligence and interaction have systematically ignored this perspective (Castelfranchi, 1991).

This is probably due to the fact that the prevailing perspective in AI was ‘individualism’ and ‘mentalism’ (Gasser, 1991) that looks far from this social phenomenon. We will on the contrary show that for a good theory of power

1 A preliminary version of this work ‘All I know About Power (and Something More)’ has been presented as an invited talk at 2nd SARA Workshop in Lisbon February 11, 2000. I would like to thank Helder Coelho and the other participants for their comments. This work has been developed within the *ALFEBIITE* European Project: *A Logical Framework For Ethical Behaviour Between Infhabitants In The Information Trading Economy Of The Universal Information Ecosystem* FET-IST- 1999-10298; and the Italian MIUR-Cofin2001 Project “Agenti software e commercio elettronico”. I’m also very grateful to Raimo Tuomela and to Maria Miceli for their remarks.

also an individualistic and cognitive perspective (bottom-up approach) is necessary, although it is also fundamental to model social relations both in an 'objective' perspective (no awareness, shared knowledge, etc.), as a collective construct and 'convention', and in a structural, emergent, and macro-level perspective.

The focus of this work is the complex and dialectic relationship between personal, social, and institutional powers. This distinction is not new, it is even obvious or commonsensical. For example, within the theory of law, Hohfeld (1913) explicitly distinguished between "legal power" (of/for doing a legal action) and the "physical power" needed to carry out the act necessary for the exercise of a legal power.<sup>2</sup> However, first, this multi-layered nature of power is not acknowledged in all the disciplines (for instance sociology typically rejects the idea of a connection between the personal powers and the social ones; see § 10); second, in our view there is not a good analytic theory of the personal and interpersonal layers of power and of their – not so obvious – relationships with the power that we prefer to call "institutional" (where the "legal" one is just a sub-case based not simply on conventions, traditions, and social norms but on a system of laws<sup>3</sup>). For example, Hohfeld's term "physical power" is a bit reductive, since in fact one not only needs strength, skills, and a working body, but the appropriate action plan and the relevant information, i.e. knowledge, and also the required mental abilities and conditions (motives, awareness, confidence, and so on).

We have developed in the past years an extended theory of *personal* and *interpersonal* forms of power and – on such a basis – of the relationships of "dependence" and "autonomy" (Castelfranchi, 1995a; Falcone and Castelfranchi, 2003). We will present here this ontology and theory, and we will also attempt to connect it to the theory of *institutional actions* and of *institutional powers* and *empowerment*.

The research program of our group has been in fact the modeling of the intermediate layer and the transition between individual mind and action, and the collective and institutional reality, while modeling the cognitive mediators of macro-social and institutional action, and the socio-cognitive

2 He also distinguished between the "legal power" and the "permission" to carry out those acts (see later).

3 When considering the institutional aspects, power has been mainly addressed from a normative and legal point of view (authority, responsibility, authorization, etc.). See in particular Jones and Sergot (1996).

character of pre-institutional, merely interpersonal, informal forms of deontic notions (Conte and Castelfranchi, 1994; Castelfranchi, 1998, 2000). We claim that understanding how collective or macro-social phenomena are “implemented” in and work through the actions (and thus the mind, but not necessarily the consciousness) of the individual agents is crucial and provides part of their theoretical foundations.

Our issues here are:

- how institutional action and power require and use personal powers; how social – pre-institutional – powers are built upon and result from personal powers and the objectively emerging interpersonal dependence relationships;
- how social powers and institutional powers feed back to the personal layer and augment personal powers;
- how deontic notions (like permission) are related to those levels of power;
- different kinds and levels of “empowerment” and their relationships;
- how individuals (unconsciously) empower institutions (and their representatives) and institutions give power to them.

In a sense our hidden issue – beyond the inter-layer (institutional-personal) relation – is the polymorphic nature of power: how one form of power changes into another.

Notice that our categories apply to *abstract* “agents”, independent of granularity. This is why it just *looks like* an “individualistic” approach. In principle, one might recursively apply the notions of “personal” powers or the dependence network to collective agents (like groups, organizations, or nations) or to positional entities like roles (endowed with powers and depending on each other – Conte and Sichman, 2002). However, we will exemplify the “basic” level as relative to “individual” agents (i.e., not composed of autonomous agents).

Let us first build our basic personal and social notions, with their dialectics, and then get to the institutional dimension.

In the first part, we adopt the bottom-up stance, providing an ontology of individual and personal powers, discussing some paradoxes related to these notions, and deriving from them (plus the interferences and interdependencies among agents) the most important forms of social power at the social interpersonal level. In the second part, we discuss a more institutional notion of power, special powers given by role and representation. We also discuss the complicated circular relationship existing between the power of

the institution and the powers of the individual playing its institutional role.

All this is far from being complete and formalized (and even fully coherent); it is also a non-experimental (simulative) study. However, we believe that it might be inspiring both:

- for formal studies and for MAS systems, and for simulation studies: in particular,
- for modeling the dynamic aspects of the dialectic between the micro and the macro level that cannot be accomplished just with speculative or formal means.

## 1 The Bottom Up Perspective. Starting from the non-social/personal sources of power

Contrary to commonsense expectations and to social sciences' definitions, Power is not an intrinsically social notion<sup>4</sup>, and does not pertain only to the theory of society or at least of social action. Of course, it expresses a very important societal and interactive phenomenon, but it basically refers to the relationship between an agent, its goals and its ability and resources, and is grounded in the general theory of action.

The basic notion of power is for us the notion of "*Power-of*" (personal power, Latin *potest*).

To have power is a notion relative to a goal. First of all, power is power *of* doing or achieving something (Parisi and Castelfranchi, 1978); second, the meaning that we ascribe to "X has the *Power-of*N" is as follows: "If X has/had the goal of N, X would be Able and in Condition of N" (where N is either "doing action A" or "achieving goal G"). "To be able and in condition" constitute the "basic" powers<sup>5</sup>, but also the conditional clause is very important because it might imply two crucial facts:

- that X does not really or fully have the *Power-of*N if she<sup>6</sup> has no discretion about the use of this power (of the basic powers), i.e. if she *cannot* (lack of power!) N *whenever* she wants and likes.
- that a particular condition (for cognitive agents) for doing something is the possibility of choosing and intending it.

4 There is a correction of this for autonomous agents (see Note 10), but it is better to be clearcutting here in opposing to current sociological stereotype on power.

5 To be interpreted in a broad sense: physical but also mental and social skills.

6 X will be a "she" while the other agents Y, Z, .. will be "he".

This provides a layered structure of “having the power of” with some sort of basic powers and meta-power.

Let’s sketch along these lines our notions of personal (non -social) power to later build on it – while following the tradition of Hobbes, but rather far from current sociopolitical view – various kinds of social power.

This concept that an agent is *capable and in condition to do a given action A and/or to achieve a given goal G realizing a given state p* has very important non-social consequences. For example, the agent’s decision about what candidate intention or active goal to choose as an actual intention to be pursued is based on this; more precisely it is based on the beliefs the agent has about one’s own power relative to that goal and action/plan (see Bratman, 1988; Cohen and Levesque, 1990; Castelfranchi, 1996; and § 3.).

What we claim and want to show is how very important aspects and types of social power are based on and derive from the agent’s individual “*Power-of*”. In fact, the Dependence of an agent on another (Conte & Castelfranchi, 1994; Sichman et al. 1994) is the result of the lack of power of the first agent relative to a given action/goal, while the other agent has such a power (Castelfranchi, 1991). This makes the former agent dependent on the latter, irrespective of any awareness or decision.

We need two notions of power:

- one is “objective” i.e. from the point of view of an observer (say the scientist),
- the other is “subjective”, i.e. what the agent itself believes and feels about its *Power-of* (Sichman, 1995).

Among cognitive agents (like BDI agents) this is important since there are paradoxical relationships between the two levels. However, we do not want a definition that necessarily includes the agent’s awareness in the basic notion of power. This will not be general and applicable for example to reactive or behavior-based agents.

## 1.1 A Basic Ontology of Individual Powers

Let us shortly provide a basic vocabulary or ontology for a vocabulary (for an extended introduction and argument see Parisi and Castelfranchi, 1978, Castelfranchi, 1991).

The notion of an a-social, individual “*Power-of*” reaching one’s own goals is based on

- a) “internal powers” or abilities, capacities, action repertoire (skills), knowledge, motivation, etc.;
- b) “external powers”: resources, favoring conditions.

The agent is endowed with a certain action in her repertoire, she CANDO such an action; and she CAN, by successfully executing such an action, achieve her goal-state p. <sup>7</sup> More precisely:

*Power-of' X A (action)*

X has the necessary skills (in her repertoire) i.e. she is able to perform action A; she is also in condition to do it, since the necessary external conditions and opportunities hold.

Sometimes, the predicate CANDO or CAN are used (including or not external opportunities). Consider the definition in van Linder and al. (1996). Here CAN includes not only the agent's ability but also opportunities; but for our need it is so strong that the definition includes the predicate KNOW i.e. that X also knows to have such a power. As we said this would make the notion of power applicable only to cognitive agents.

Notice that this notion of *Power-of* is *context* sensitive and dependent, since it incorporates “to be in condition to do A”, i.e. the external opportunities, means and conditions. To be complete one should specify that X has the *Power-of A/p* in context C and at time T (which should be an interval, from  $t'$  to  $t''$ ).

*Power-of' X p (goal/result)*

There is an action A in X's repertoire such that (*Power-of X A*) & this action produces p, & p is the possible goal of some agent.

Thus: (*Power-of X A*)  $\rightarrow$  (*Power-of X p*)

Vice versa, the *Power-of p* presupposes the *Power-of* doing *some* action (at least one) that produces p.

*Subjective Power-of' X A* (or Subjective-CAN X A), where X knows to be able and to have the opportunity of/to..

Analogously it exists the *Subjective Power-of' X p*.

These are the “basic” powers; the basic constitution of an agent's power.

<sup>7</sup> Several logics have been proposed and could be used to formalize these notions: modal, action and ability logics; both in philosophy (for example, Pörn, Balzer), and in AI (for example, Werner, Meyer, Cohen-Levesque, etc).

One might also distinguish between *direct* and *indirect* power. This seems important for some social issues (in particular we will find this distinction necessary for a good notion of “empowerment”).

In fact one agent could be able to make another agent do something (perform an action or realize a goal) while she is not personally, directly able to do so.<sup>8</sup>

As we will see, if an agent X has not (directly/personally) the *Power-of* doing A and achieving p, but she has the *Power-of* inducing or obliging (in some way) another agent to do A or to achieve p, then the former gets the power she lacks: she exploits the power of the other, she in fact expands her powers, and “acquires” by sociality the *Power-of* A/p.

#### *Lack of Power X A/p*

The notion of Lack of Power is important since the whole theory of Dependence is based on it. When X has not the *Power-of* A/p, she either lacks some skill, or some resource (is resource-dependent) or some opportunity (for ex. necessary access to knowledge). She is not able to reach some of her goals. It would be possible to measure such a lack of power (and consequently possible Dependence; see later). For example: how many of her goals can X reach by herself?

#### *Subjective-Lack of Power X A*

X believes that he has not the ability or the opportunities of/to... (see § 3.)

## 1.2 Beyond “Basic” Powers: the Intention and Deliberation Components.

Skills, abilities, know how, and external resources and opportunities represent the “basic” power, in its Internal and External attribution. But there is

8 It is possible to express this for example with the “bring it about that” predicate (Pörn, 1970; Jones and Sergot, 1996; Santos et al., 1997; see note 52, with a different symbol).

The fact that X makes Y realize p usually implies that X brings it about that p.

ExEyp ==> Exp

One might have on the contrary also a “directly/personally” bringing about, where

Edir xp ==> Exp

since (Edir xp) would be one of the ways for (Exp); but not vice versa: Exp !=> Edir xp

ExEyp ==> Not Edir xp

Edir x p ==> Not Ex Ey p

a very important part which has to do with the teleological character of action and agenthood, and with the possibility of intending and deliberating.

*Lack of Power because of Goal-Balance*

A very important form of Lack of Power (and conversely a fundamental constituent of having the *Power-of*) is the lack of power due to goal-balance and preferences in decision. If X – in context C – *cannot* choose goal G because there are strongly coercive and prevailing urgencies (like fear, or obligations, or hunger), it is not really in condition to pursue G. She does not fully have the *Power-of* p in those conditions, since she is not free to pursue p. This is important in particular at the social layer, since acting on goal balance (via incentives or arguments) is one of the main ways of conditioning the power of others and for acquiring *Power-over* them.

*Power Possess in the true/full power*

As we saw, the notion of power is relative to a goal or an action A (that presupposes a goal); however, an agent endowed with the power of realizing p (of performing A) doesn't necessarily have that goal. In this case her power is useless for her, and is not even full and complete, since having a goal is a condition for pursuing and realizing it. Thus, X lacks the motivational part of *Power-of*.

Moreover, there is another fundamental part, related to the goal: the possibility and capability to decide about it and to pursue it at one's own *discretion*. Without this very core of power, power is not complete. We might distinguish between two parts or notions of power: the possession of power (Barnes, 1988) and the "basic", possessed power. The possession of power presupposes and incorporates the other<sup>9</sup>. The true and full power is the "power possession". That is the meta-power consisting in disposing of, deciding about its actual employment; in having control over the resources, action capabilities and conditions.

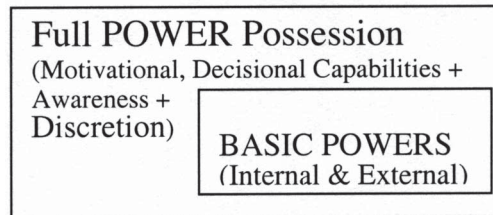
This includes the capacity to decide (motivation, intentionality, awareness of power (see 3.), decision, etc.), social autonomy<sup>10</sup>, non-dependence as for

9 Obviously, the possess of nothing is nothing; but, also, having something without deciding about its use, without disposing of it is not having it, is having nothing (as for power).

10 So eventually it happens to be true that the *full* notion of power for agents is intrinsically and unavoidably social. But not because it applies only to sets of agents (Barnes, 1988) or because it is synonym of "influence" (Weber, Dahl, etc. – see § 10.), but because it presupposes *autonomy* from the others, non-heterogeneous-determination, endogenous control.



decision (*discretion*) (Falcone and Castelfranchi, 2000). Without this kernel (control, discretion) power is not true power, since it is incomplete for a true “agent”.



*Fig.1*

- The power of an agent X is of the agent that disposes of it, controls it for its own purposes; this can be X herself or another agent. (see § 5. on power circulation, etc.).

Let us now build *social power relations* on such a simple basis, starting from the *objective* level.

## 2 Towards Sociality: From Personal Powers to Social Dependence

Sociality presuppose a “common world”, hence “interference” (Castelfranchi, 1998): the action of one agent can favor (positive interference) or hamper/compromise the goals of another agent (negative interference).

Since agents have limited personal powers, and compete for achieving their goals, they need social powers. They also compete for resources (both material and social) and for having the necessary power for their goals.

### *Dependence*

Dependence is an objective social relation between at least two agents. It is “objective” in the sense that it holds independently of the involved agents’ awareness and wants. It is the combination of lack of *Power-of* of one agent (relative to one of its own goals) and the corresponding *Power-of* of the other agent. It is the result of some interference between the two.

**Dependence X Y A p** = Lack of Power X A/p & Power-of Y A/p  
that is X needs Y’s action or resource to realize p.

### 2.1 Dependence Relations among Agents

Dependence constitutes the basis of all social interaction, the reason for Society; it motivates cooperation in its different kinds. There are several typical dependence patterns. In (Castelfranchi, 1991) the *OR-Dependence*, a disjunctive composition of dependence relations, and the *AND-dependence*, a conjunction of dependence relations, were distinguished. To give a flavor of those distinctions let us just detail the case of a two-way dependence between agents (*bilateral dependence*). There are two possible kinds of bilateral dependence:

- *Reciprocal Dependence*, in which A depends on B as for his goal p, and B depends on A as for her own goal q. They need each other's action, but for two different personal goals. This is the basis of a pervasive and fundamental form of human (and possibly artificial) interaction: *Social Exchange*, in which A performs an action useful-for/required by B for q, in order to obtain an action by B useful for his personal goal p. A and B are not co-interested in the fulfillment of the goal of the other.
- *Mutual Dependence*, in which A depends on B as for his goal p, and B depends on A as for the same goal p. They have a common goal, and they depend on each other as for this shared goal. When this situation is known by A and B, it becomes the basis of true Cooperation. A and B are co-interested in the success of the goal of the other (instrumental to p). A helps B to pursue her own goal, and vice versa.

The Dependence network *determines* and *predicts* partnerships and coalitions formation (Ketchpel, 1995; Shechory and Kraus, 1995), competition, cooperation, exchange, functional structure in organizations, rational and effective communication, and *negotiation power*(§ 4.3).

Dependence has a quantity or degree. This quantity derives from:

- a) the value of the goal p for X and its necessity;
- b) the degree of power of Y as for p;
- c) the number of goals for which X depends on Y;
- d) the number of alternatives (OR-Dep links) at X's disposal as for reaching p; (see 4.3) <sup>11</sup>

11 See also Emerson (1962) "the Dependence of an actor A upon actor B is (1) directly proportional to A's motivational investment in goals mediated by B, and (2) inversely proportional to the availability of those goals to A outside of the A-B relation." The

- e) in case of Reciprocal Dependence there is also a problem of Differential Power: is X more dependent on Y than Y is dependent on X?

Another very interesting notion (deriving from Durkheim) is that of “cohesion” defined as the degree of interdependence (see also Emerson, 1962); the maximum degree would occur when given a group of N agents (each with a single personal goal) each agent in the group has N-1 agents depending on her. This is also a very balanced situation. But as we will see there are very unbalanced situations of interdependence. We will not develop here the quantification of Dependence (and power).

### 3 The Paradox of Power and Dependence Among Cognitive Agents

At a first sight, since dependence is objective and independent of subjective awareness, and the agent can know or simply believe it, the situation is rather clear, like in the following figure:

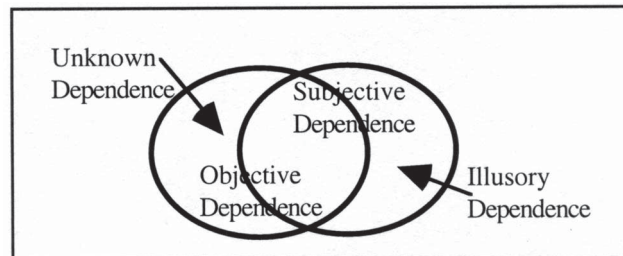


Fig.2

However, this is too simple; there are in fact strange effect of one's beliefs on one's own power and thus on one's dependence relationships: if X is a cognitive agent and believes that she does not have some power, if X does not know that she has that power, she really lacks it because of this 'misbelief'. So, this belief is a self-realizing assertion.

importance of Dependence relations is well established both in social theory (Emerson; Thibaut and Kelley; the tradition of *social networks* (see the very good special issue by David Miller, 1992° and 1992b; Gould,1993; Markovsky et al. 1993) and in MAS and social simulation (Luck; Yu; Ossowsky; and in particular: Sichman, 1995; Conte and Sichman,1995; Conte and Sichman, 2002).

Not (Subj-Power-of X A/p) – > Not (Power-of X A/p)

To fully have some power one should be aware of it (see Figure 1.).

Correspondingly, *if X believes that she is dependent on Y (provided that his belief about the power of Y is correct) it is really dependent on Y*, because of this belief. Notice that the produced Dependence is an Objective one, because - as we will argue- he really needs the action of the other agent.

This depends on a very special and important feature of Cognitive Agents: the fact that *they base their goals and decisions on what they believe* (Bratman, 1988; Cohen and Levesque, 1990; Castelfranchi, 1996).

More precisely in order to decide to do something, to intend something, and then to pursue (and to achieve) a goal, they have to believe to be able to do what is needed, or at least not to believe to be unable (“*let’s try*”). If they do not believe so (i.e., if they believe they don’t have the *Power-of*) they cannot<sup>12</sup> and will not do the action, pursue (and achieve) the goal. Thus, if they do not believe they can, they in fact cannot!

This is not true for any kind of purposive system or agent. In fact more simple goal-oriented or even goal-directed architectures are conceivable, where the selection of the goal and the presence of the appropriate (associated) action in the repertoire (ability) is enough for executing it, and having the *Power-of* that action/goal.<sup>13</sup> Simple animals and simple animats do not need to “believe” to be able in order to be able.

In cognitive agents one of the pre-conditions for the execution of the action is paradoxically that the agent believes to be able to do it.

From what we argued it also follows that: *if a cognitive agent believes to be dependent on another it is so.*

Or better this is true at least for the first belief component of believing to be dependent:

(Bel x (Not (Power-of x A/p))) & (Bel x (Power-of y A/p))

If it is true that (Power-of y A/p) then the first belief -although perhaps initially false – makes X actually dependent. In a sense, we should include -for

<sup>12</sup> Notice that this requires another definition of CANNOT: it is not simply equal to “not in his action repertoire”.

<sup>13</sup> Thus, for example in a logic of action and agency while it is correct to define the CAN operator as “Knows x Able x A” (van Linder et al. 1996) if we want to model BDI or in general cognitive agents, this cannot be the general notion of CAN, and a weaker definition is needed for non-cognitive agents, where CAN just means that the agent has such an action in its repertoire and the opportunities/conditions for that action hold.

cognitive agents– the fact that X knows that she is able to do A, among the pre-condition for the actions execution; if X ignores that she is able to do A, a crucial condition for performing that action is lacking.<sup>14</sup>

There seems to be a contradiction between – on the one side – including mental and motivational processes among the “internal powers” that give X the *Power-of A/p*, and – on the other side – claiming that Power is a *potential* notion, not necessarily “on act” (§ 10.); X has the power even while not doing A. It is true that to be “executive” X’s power must converge with X’s intention (“If X would Intend to do A, she could (would be able and in condition to)”). But we also need a potential notion that does not imply X’s actual intention to do A. As we saw, what is enough for X’s *Power-of A/p* is that X *can intend* to do A, she is able (mental skills) and in condition (not necessarily lacking the possibility of choosing A/p: *goal-balance lack of power*).

#### 4 Towards Sociality: From Personal Powers (plus Social Dependence) to Social Powers

There are several forms of social power among humans and animals (and several of them will be important also in virtual and artificial societies). We will consider only four forms: *comparative value*; *Power-over* and its ‘species’ of *incentive-power* and *rewarding-power*; *influencing power* and its ‘species’ “*command*” power and *negotiation power*.

##### 4.1 Social Comparison and Hierarchy of Value

X’s *Power-of A/p* already starts to be social for the mere fact of being compared with Y’s *Power-of A/p*. If this power is quantifiable and quantified<sup>15</sup> X’s power-of A/p can be greater than that of Y’s. And in general X’s powers (in a given domain) could be better than Y’s powers. This contributes to X’s “market” value. This also determines –when believed by others– X’s status in the symbolic hierarchy of his society (“who is the best as for...”), i.e., his social

<sup>14</sup> The mere belief is sufficient for “attempting” but is a cause of failure.

<sup>15</sup> We didn’t introduce the idea of more or less *Power-of A/p*. A degree of power can be established on several dimensions. For example, the probability of X’s action to achieve p, or the probability of X’s ability to be successfully employed, or the probability, etc. But also a possible degree of achievement of p when p is a scalable goal; or the number of different skills/resources X has for p; etc.

reputation and image. This evaluation determines whether X will be preferred or not as a partner in social interactions (Miceli and Castelfranchi, 1989).

X's reputation, image, value-position is a fundamental social power and greatly improves X's personal power. Position and reputation are "capital"; they reflect power and give power. There is a hard competition for this form of power among social agents.

"Negotiation" power (§ 4.3) is in a sense a more complex and rich form and an application of this power (although it can be defined also objectively, while we defined this power in terms of agents' beliefs).

#### 4.2 Power-over (*Rewarding and Incentive Power*)

*Power-over* is due to Dependence. More precisely it is just a facet of the social dependence relation; it is Dependence from the perspective of the other agent.

In fact,

Lack of Power X A/p & Power-of Y A/p

implies Y's capability (power) of letting X realize her goal p (*Positive power-exercise*), or of preventing her from reaching it (*Negative power-exercise*). In other words, when X is Dependent on Y for satisfying her goal p, Y gets some *Power-over* goal p of X, thanks to his *Power-of* performing A.

One might prefer to call the power of Y over X not the mere objective fact that X depends on Y, but the fact that Y is aware of this (and thus can use it). The awareness of this relation gives him such power (cf. also 3.). This is a reasonable terminological choice for cognitive agents social theory. We will adopt this stronger (objective + subjective)<sup>16</sup> notion of *power-over* in this paper.<sup>17</sup> In this perspective one should define Power-over as follows:

<sup>16</sup> The merely objective form would be (O-Power-Over  $y$  x a p) = (DEP x y a p); the merely subjective form would be (S-Power-Over  $y$  x a p) = (Believe y (DEP x y a p)). This would have an illusory form: (S-Power-Over  $y$  x a p) = (Believe y (DEP x y a p)) & (Not (DEP x y a p)) (but see note 19); and a realistic form that we have just preferred.

<sup>17</sup> However, we should not forget that Y in fact can, is in condition of favoring or damaging X even when he ignores or does not want this relation. Moreover, a complete theory would be needed relative to bilateral unawareness, X's awareness, Y's awareness, X's mere belief, Y's belief.

$$(\text{Power-Over } Y \text{ X A/p}) = (\text{KNOW } Y (\text{DEP } X \text{ Y A/p}))^{18}$$

Both the ingredients of the definition are necessary:

- if there were only Y's Belief about X's Dependence, there would be not a power of Y over X, but only a subjective delusion of power;
- if, on the contrary, there were only the objective Dependence of X on Y, without Y's awareness, Y would have just an "accidental" *Power-of* damaging or favoring X's goals, but in fact he would not "dispose" of such a power. To "dispose" of it, Y must know it (as we saw this is a general problem; § 3.).<sup>19</sup>

When Y uses this Power-over X's goal in order to influence X, to induce her to do something, we call his power *Incentive-Power* since Y uses it for providing an incentive to X (incentives are for influencing, for motivating) or *Rewarding-power* (if and when Y uses it for giving X positive or negative reinforcements, frustrations or satisfaction, for learning, for example in training X). We will see how an agent will use this Incentive/Reward power for influencing the other and acquire new powers.

Frequently, what really matters is not Y's Power-over X, but X's belief about Y's power (note 16 and 19): *the show is more important than the substance* (signs and exhibition of power; marketing; politics; etc.).

#### *Power-over Relations Mirroring Dependence Relations*

Since Dependence relations are the direct basis of "Power-over" relations, we can derive from a Dependence Network a corresponding Power-over Net among the agents involved. The properties of Dep relationships turn into the properties of the Power-over relationships. For example, the more X Depends on Y as for p, the more Y gets Power-over X; the more X depends on

18 This is a merely static relation (like Dependence): the power that y has over x (more precisely, over x's goals). It is not the *exercise of this power*, which would be an action of y toward x. relative to and based on such a power

19 It is in fact sufficient that X believes to be dependent on Y, and that Y believes the same or believes that X believes so. Also because X's belief is self-fulfilling, as we know. Notice that apart from this trick (of restricting '*Power-over*' to the conscious one, the full form) it would be impossible to have social situations without power relations: *any social reality implies power relationships*. In fact, sociality consists of and is based on a "common world" i.e. "interference" (Castelfranchi, 1998) and interference produces Dependence and the other side of dependence relationships are power relationships (Emerson, 1962; Miller, 1992a, b).

Y for many goals, the more Y gets in general Power-over X. If Dependence has a quantity, Power-over has a related quantity.

Bilateral Dependence relations generate bilateral Power-over relations. In exchange, for example, we have reciprocal Reward/Incentive powers: X can satisfy or “sanction” Y, and vice versa.

It is also possible to derive other Power-over relations from a given Power-over relation. For example, Power-over has a sort of restricted “**Transitivity**”: if Y has Power-over X’s goal p thanks to his action  $A_y$ , and X has power-over Z’s goal q thanks to her action  $A_x$ , and p is “that X does  $A_x$ ”; then Y has power-over Z’s goal q (since Y can prevent or induce the action of X needed by Z) (see also 8.2).

#### 4.3 Negotiation Power

Zlotkin and Rosenschein (Zlotkin and Rosenschein, 1993) observed that, intuitively, in multi-agent systems, agents differ with regard to the following dimensions:

- a) the *Power-of* deciding whether to form coalitions and with whom;
- b) the social alternatives each has got;
- c) the value each agent’s collaboration has for the other agents.

As these authors conclude, an agent scoring high on all these dimensions could augment the price for its share. The authors’ intuition is obviously right (it is the very classical notion of power in market; Miller 1992), and we will endeavor to do justice to it in our framework.

Intuition (a) is correct. Some agents find themselves in a privileged position with regard to their capacity and their efficacy to negotiate, induce others to join them in coalition, and obtain a greater share of the global utility. This is related to points (b) and (c).

Intuition (b) is also correct. Some agents have more options than others. They can choose whether and with whom to exchange or cooperate. In our terms, suppose X is dependent either on Y or on Z; and both Y and Z are co-dependent on X. From X’s point of view, this is an advantageous situation, because she can choose the more convenient partner to interact with.

Finally, intuition (c) is correct as well. As we said, both Y and Z depend on X. In other terms, X has no rivals, and her abilities are valued twice as much as those of Y and Z on the market.



In other words, the price at which X can sell her performance is higher. So, the authors' conclusion is also correct. This is also why agents move from one market to another: to improve their negotiation power. While entering a new market, X can completely change her value and power: in Market M, she was for example dependent and helpless. Besides, she lacked the abilities required to fulfill the others' needs. Consequently, she could find no partners for cooperation or exchange; in Market N, she is perhaps highly requested: many agents are co-dependent on her (everybody needs action Ax), and she has got many alternative partners for exchange or cooperation (several agents can perform the action she is in need of).

Therefore, from the market in which they are inserted, and precisely from their dependence relations, agents derive their "power of negotiation". More precisely, such a power is grounded upon a specific pattern combining *co-dependence* and *OR-dependence* in a bilateral-dependence structure. (For a formal treatment of the negotiation power and agent value, see (Castelfranchi and Conte, 1996)).

- By "*co-dependence*" we mean that *a set of agents Agj depend on the same X* which is a contended for social resource. In other words, X happens to find herself at the center of a dependence network.
- *The agent X is in a relationship of "OR-dependence" with regard to a set of agents Agj when she depends on any of them for a given goal of his.* This equals saying that each member of Agj has at least one action sufficient for X's goal to be achieved. Any member of the set Agj is sufficient but unnecessary for X's goal. OR-dependence provides the dependent agent with a number of alternative ways to achieve her goal, among which she shall choose the most convenient. The number of *alternatives* amounts to the number of agents contained in the set Agj.

If we assume one given agent X as the temporary center of a dependence network and compare her (possibly null) social appeal with her (possibly null) need for social resource, we may derive her value on the social market, that is to say, her capacity to establish relationships of exchange, cooperation, coalition, etc.. More generally, we will derive her *power of negotiation*, or her *exchange value*. This property is supposed to be a quantifiable dimension along which different agents are compared. Intuitively, this notion of the power of negotiation corresponds to how well the agents can sell on their market, how useful they are precisely for those agents whose abilities they need.

#### 4.4 From “Power-over” to “Power of Influencing” (and from Dependence to the Goal of Influencing)

*Power-over* is important not only because it gives the agents the opportunity to help (cooperate, exchange) or fight against each other; it is very important also as the main basis and instrument of their *Power of Influencing* others. This is the most typical notion of power considered in the social sciences. They are interested in the different reasons and ways (authority, sanctions, prestige, etc.) an agent Y can induce another to do something (see §10.)

In fact, autonomous agents in M-A worlds do not limit themselves just to “Coordinate” their actions (plans, goals), trying to avoid interferences, damages, delays, and wastes, and to take advantage of each other. They are much more ambitious and able: *they try to change the goals (and thus the behaviors) of the agents present in the same world.* This is the most important motivation to social action; this is, for example, the main motivation for communication (more important than information for coordination).

For example, if agent X Depends on agent Y as for her goal p, X is not satisfied with just waiting for Y’s doing the expected action, or with hoping that Y does not perform some dangerous action (remember that X can depend on the execution or the non-execution of a certain action: in other terms, the omission of an action is an action). X will actively try to obtain from Y the desired action or to prevent Y from executing it. In other words, X will have the *Goal of Influencing* Y to do or not to do something. Given that an autonomous cognitive agent’s behaviors depend on his goals, X has the goal that Y “Wants” or “does not Want” to do something.

Thus, from the Dep of X on Y we derive a Goal of X of influencing Y (Castelfranchi, 1991):

$$(\text{DEP } X \text{ Y } A/p) \Rightarrow (\text{GOAL } X (\text{INTEND } Y (\text{DO } Y \text{ A})));^{20}$$

and for this goal she intends to do something in order to induce such an intention in Y.

But the goal of Influencing is nothing without the *Power of Influencing*, i.e. the power to induce someone to do (or not to do) something, or better (among cognitive agents) *the power to induce someone to have a certain goal, and possibly to intend something.*

20 We use Cohen and Levesque’ notation integrated with the Dependence predicate. This means that X has the intention of doing A *since and until she believes that* this will induce Y to have the goal.

(Let's notice that, paradoxically, if X depends on Y, X has the Goal of Influencing Y, but Y has the Power of Influencing X ! <sup>21</sup>)

We define X's *Power of Influencing* Y about goal p (INFL-POWER X Y Ax p), the fact that X has (thanks to her action Ax) the *Power-of* making Y pursue goal p. Since Y is a cognitive agent, to pursue p Y must intend p. Thus the influencing power is the *Power-of* making Y intend/pursue p. <sup>22</sup>

That is: X has the *Power-of* influencing Y if she CANDO such an act that makes Y have p as a goal of his own. This action generally implies making Y believe something which is somehow related to p. For instance, an act of that sort might be a threat ("If you don't pursue p, I will thwart your goal q").

It is important to notice that the Power of influencing is not a power of *Control* over Y's action. In fact X can induce Y to do A, but to have a full control over the behavior of Y, it should be true that Y does A if and only if X exercises her power (see § 10, on Porn's theory).

A relevant concept related to the *influencing power* (following Weber's, Emerson's, etc. tradition) is that of "*resistance*" to power. *Resistance* of Y is due to the costs Y incurs (abandoned goals; wasted resources; risks; etc.) for doing what X wants he does. Perhaps one should consider as part of Y's "resistance" also the resistance to accept the beliefs that X uses to persuade him, when influence is obtained through communication. For surely the power of influencing and inducing Y to do something presupposes Y's possible resistance and entails the power of overcoming it.

A special, relevant case of *Power of influencing* is what we may call *Command Power*: the power of influencing *with some normative base*; based on some subordination, norm, authority, role, hierarchy (see § 9), previous agreement and contracts (Castelfranchi, 1995):

Y has the *obligation* (and by giving a command to him X creates or instantiates such an *obligation*) to do what she asks him to do.

There are many causes or *bases* of X's Power of Influencing Y, like prestige, authority, hypnosis or psychoanalysis; however, the most basic and relevant case lies in X's *Power-over* Y and this transition is very important for social theory.

21 This is a very frequent "human tragedy", for example in love, but also in business, politics, etc.

22 In (Castelfranchi, Miceli, Cesta, 1992) we defined it as follows:  
(INFL-POWER X Y A p) =def (CAN DO X A) & ((DONE-BY X A) => (EVENTUALLY (GOAL Y p))).

Obviously this is the "objective" version of such a power; also the subjective is possible. If Influencing Power is based on Power-over, it is necessarily subjective since we gave a subjective version of the Power-over.

By using her *Power-over* Y relative to Y's goal q (threatening or promising q)<sup>23</sup>, X can induce Y to do or not to do something (better, to have the goal to do it). Of course, many additional conditions are required:

- a) that Y believes in X's *Power-over* his goal;
- b) that the value for Y of his goal q is greater than the cost of adopting or pursuing X's goal p;
- c) that X puts as a condition for favoring or not damaging Y's goal q, the fact that Y adopts her goal that p.

Notice that: (INFL-POWER X Y Ax p) & (*Power-of* Y Ay/p) → (*Power-of* X p)

That is: if X has goal that p, and has -through his action Ax- the power of influencing Y to pursue p; and Y is in fact able to realize p through his action Ay; then X has the *Power-of* p (although obviously an indirect one) (like, in the logic of "bringing it about", EyExp → Eyp – Pörn, 1970 – notes 8 and 52).

Since X's *Influencing-Power* on Y can be due to her *Power-Over*, i.e. to some *Power-of* q, we observe both

- a multiplication of powers (X gets new *Powers-of*)
- a circulation of powers (Y's *Power-of* p becomes X's *Power-of* p) (§ 5.), and
- a transformation of powers (X's *Power-of* q becomes X's *Power-of* p).

Power transformation and multiplication are very important. Power tends to be like money: it can be spent for everything independently of its original "use value"; X spends her *Power-of* q for obtaining p. This is one of the bases of Hobbes' pessimistic view in the *Leviathan* about "a general inclination in all mankind, a perpetual and restless striving of power after power, that ceaseth only in death". And Hobbes built this view starting from power at the action/personal layer.

Other bases of the *Influencing* power are not due to *Power-over* (rewards, incentives) but just to spontaneous adhesion and submission or benevolence (like in a baby-mother interaction), or imitation/contagion.

23 To be sure for having the *Power of influencing* Y, it is a sufficient condition that Y *believes* that X has some "*Power-over*" his goals (the toy guns in robberies).

For example, if X knows that Y imitates her, and does whatever X does, X can on purpose induce Y to do A, without using Y's dependence on her as reward.

For example, If Y is Benevolent (in Cohen and Levesque' sense) towards X, X has got an Influencing Power on Y; X is able and in condition to induce Y to do A or pursue p, independently of any specific *Power-over* Y's goals.<sup>24</sup>

In sum, in this section we saw how all the most important forms of social power completely or mainly emerge from and build upon the agents' personal powers

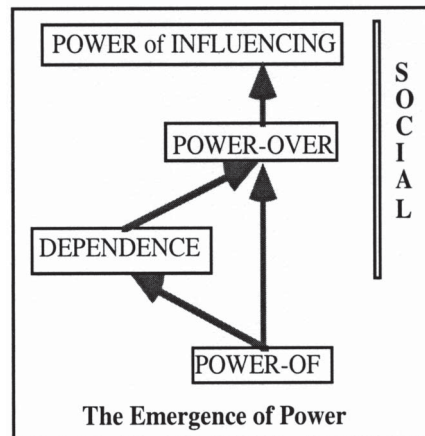


Fig. 3

## 5 Circulation, multiplication, and transformation of Power

The main function of pro-social or positive sociality is *the multiplication of the power* of the participating agents.<sup>25</sup> Unlike Huberman and colleagues

<sup>24</sup> Paradoxically, this non-reward based power of influencing gives X rewarding *Power-over* Y. In fact if X can when she likes induce Y to do A, Y is no longer in condition to pursue his own goals when he likes; thus he is dependent on X for being free of pursuing his own goals, thus X has *Power-over* Y.

<sup>25</sup> It seems that the less the "individual Self-Sufficiency" (number of self-realizable goal, on number of needs) the more sociality is useful and could multiply the powers. (But the function is complex, because we need agents' high "power of" (capability, resources), and low "Self-Sufficiency"). In other terms, the more the individuals are dependent on each other, the more sociality multiplies their power. This is one of the reasons why division of labour and specialisation are so productive.

(Huberman and Hogg, 1994) we do not assume that the greatest advantage of (cooperative) sociality is to speed up the search for solutions to common problems, or to find better solutions to them, but rather to *multiply individual powers*: Any agent, while remaining limited in its capabilities, skills and resources, finds the number of goals it can pursue and achieve increased by virtue of its “use” of others’ skills and resources. In a sense, any agent’s limits of power, and its differences from others in the kind of power it is endowed with, turn into an advantage:

although not omnipotent, the agent is allowed to overcome its cognitive, and practical limits through “sociality”.

But, within this general phenomenon we should distinguish two very different kinds of Power improvement. Let us call “circulation of powers” the first, and “complex power construction” the second.

*Power Circulation or Exchange, and Power Conferring*

Suppose X has goal G that p, and the *Power-of* producing q (action Ax with effect q); Y has the goal G that q, and the *Power-of* producing p. In other words, if X had goal p Y could satisfy it; the reverse for Y. X and Y are Dependent on each other (§ 2.1).

Positive sociality (goal adoption in form of help, exchange, etc.) allows the use of the power of Y for the goal of X (and/or vice versa). One agent can use the power of another agent for his own goals.

The result is a *multiplication* of each individual *Power-of*; of the average *Power-of*, and of *the total number of goals that are reached (or could be reached) in the community-population*.

The ability or resource already exists for some agent, but either it is not used for a certain result (goal of some agent), or it is not used for the goal of a certain agent. More agents will reach their own goals just using the potential power of other agents. (As we observed above, this also implies some “*transformation*” of the agents’ powers).

This is the “market” mechanism, but there is also another facet of the phenomenon.

*Conferring Power*. While non-opposing, letting, permitting, acknowledging rights, etc. X gives power to Y, creates (in part) Y’s power. While adhering to Y’s request, by obeying, submitting, (i.e. using her own powers for Y’s goals) again X gives power to Y, creates (in part) his power. We call this inter-

personal “conferring” of power.<sup>26</sup> This effect of multiplication, transfer or conferring of power to the other is quite different from the next one.

#### *Co-Powers*

This is the case of the *creation of a completely new power* that no agent already personally would have, made of the combination of more elementary individual powers.

In fact, some goals require “complex actions”, i.e. some complementary actions organized in a suitable way (in sequence and/or in parallel); in other words, a multi-agent plan is needed.

Suppose that there is no agent capable of executing all such actions (or of executing them in the right temporal-spatial pattern: for example, simultaneously).

In this case, only cooperation (agents sharing the same end), or, more in general, the combination of the individual powers in the same plan for the same end, allows the fulfillment of this end. Such goals could even be invented, created in a combinatorial way by the agents, given that the combination of the effects of their actions is open. No agent perhaps had such a goal before the social interaction: *new means create new ends*.

This power is *the power of the Collective*:

the collective agent (group, organization) can have more power than the trivial sum of the powers of its members.

New results can be achieved thanks to coordinated collective action<sup>27</sup>. For example no agent can have the personal *Power-of* playing “ring-a-ring-o’-roses”. This is Werner’s notion of CoCAN (Werner, 1990).

If an agent can control a collective power, he acquires an enormous power (Barnes, 1998).

#### 5.1 *Collective Power*

Let’s call *Collective Power-of A/p* the power of a team, a jointly intending group of agents (Gilbert, 1999; Tuomela, 1988, 1998), of successfully performing action A, and achieving goal p. Which are the relationships between the power of a collective and the powers of its members? Is the collective

<sup>26</sup> This obviously applies also between groups, organizations, institutions, etc.

<sup>27</sup> Also quantity can be important; there might be some threshold, some minimal necessary effort for achieving p.

power the resultant of the individual powers? The answer is yes, but –as we just saw– it is a bit complicated by the co-power phenomena, where individually no agent is able to bring it about that p although collectively (by cooperation) they can; only the joint coordinated effort can succeed.

So we can claim that: a necessary condition for a team T having the *Power-of A/p* is that

- either at least one of its members individually has the *Power-of A/p*,
- or a sub-group sT of T has the *Co-Power-of A/p*.

However, this is not a sufficient condition.

That an agent X, member of team T, has the *Power-of A/p* is not enough for T having this power. Additional conditions are necessary, at least that:

- i) X is – when required – willing (spontaneously or by influence and coercion) to use her power;
- ii) the other members of T will not or cannot interfere, and they will (in fact or intentionally) coordinate with X, for example, they have the intention that X performs A (Grosz and Kraus, 1996: “intention that”; Castelfranchi, 1998 “delegation”).<sup>28</sup>

In other terms a collective power (or a we-power) is a power that the collective has only if the agents are willing and coordinated, e.g. are only jointly intending.

If X is a loyal and obedient member of T, always ready to obey or adopt T’s goals, all his powers are under T’s control and become collective powers. Groups usually regulate by norms and rules which powers of each member should be “at disposal”, under the control of T.

The collective power of a group tends to “concentrate” in what we call the “power possessors” (Barnes, 1988), that is in a few individuals or sub-groups that decide about its use, precisely because to be effective it needs some orchestration. They have discretion about, they “dispose” of and control the employment of the collective power, so they really have it. In fact we know that there is a special crucial nucleus of power as capacity and

28 Since our notion of *Power-of* is context sensitive and incorporates “to be in condition to do A”, i.e. the external opportunities, means and conditions, one might consider the “non negative interference” of the others as one of those conditions and include point (ii) in the very notion of X having the *Power-of A/p* in the context/situation of team T. Analogously, one might be parsimonious also on condition (i) while claiming that in fact the “intention to do A/achieve p” is one of the internal conditions of an effective *Power-of A/p*. But – as we saw in § 3. – this is too strong.



this nucleus is the possibility and meta-capability of deciding about its use (§ 1.2).

## 6 The Dialectic Between Individual *Power-of* and Social Power

There is either a virtuous or a vicious circle between *Power-of* (personal power) (i.e. being able and in condition to achieve goals) and Social Power. Any lack of personal power (lack of abilities, competence, knowledge, controlled resources) reduces the various forms of social power, and the probability of having goal-adoption relationships able to increase that power. Conversely, the greater our personal power, our value, the greater the possibility to acquire social power and -through this- to increase our personal power:

- i. Social Power derives from *Power-of*;
- ii. Social Power increases *Power-of*

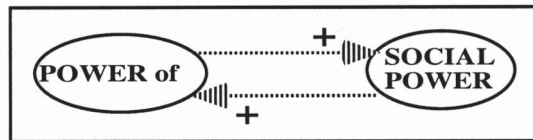


Fig. 4

As we saw there are several forms of social power, and this dialectic (figure 4) is generally true for all of them.

As the agents compete for their private/personal *Power-of* they compete even more for social power (image/status, incentive power, influencing power, negotiation power), especially because several forms of it are intrinsically comparative and hierarchical.

As already noticed, for example, the Power of Influencing is generally based on the *Power-over*, but the Power of Influencing is also a new basis for a new level of *Power-over*. *From X's Power of Influencing Y we can derive a new power of X over Y's goal*. In fact,

- the Power of Influencing Y is the power to induce Y to do or not to do something, to pursue or not pursue a certain goal, to have a certain intention; and

- to have an active goal, to pursue it, to choose it as an intention is one of the main conditions to achieve it, thus
- X can favor or prevent the achievement of Y's goal p (*Power-over*) (or of another alternative goal q) just by inducing Y to pursue or not to pursue p (*Power of Influencing*)!

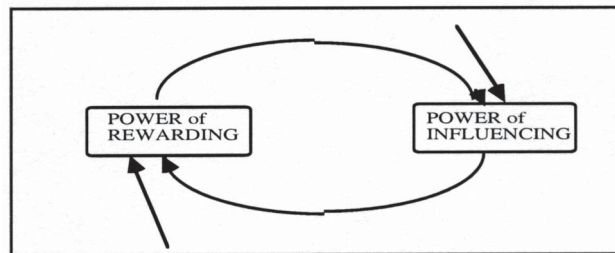


Fig. 5

#### How Power-over gives Power-of

It is pretty clear how X's *Power-of* (combined with Y's lack of power) gives X some *Power-over* Y; but let us see better the reverse: how X's *Power-over* Y gives X some *Power-of*.

Social interaction is aimed at satisfying some goal, by acquiring or maintaining *Power-of* achieving goals. Pro-social interaction (exchange, cooperation, etc.) is *empowering*: an agent tries to achieve a goal through the action and then the *Power-of* of another agent (reliance/delegation – see § 8.4) or at least thanks to the “permission”, the lack of opposition and obstacles from another agent.

When X depends on Y she lacks some power (cannot achieve p) that Y has; if X succeeds in obtaining (through induction, coercion, exchange, cooperation, or whatever) that Y does what she needs, X will achieve p. In other words, X's ability to induce Y to do A (to realize p) becomes X's ability to achieve p (through Y); Y's power becomes X's power; more precisely X – thanks to social power and interaction – acquires the *Power-of* p. X's power is greater than in isolation.

If – for whatever reason – X can induce Y to do whatever she wants, X acquires (can exploit) all the powers of Y's.

We have shown how Y's *social goal-adoption* gives power to X. But how does X obtain Y's adoption? How does X induce Y to do A? Through some form of social power; for example thanks to the fact that Y too depends on X, and X uses such a dependence for promoting “exchanges” via some promise or

threat. Thus X's *Power-over Y* gives X *Power-of Influencing Y (to do A)*. But what gives X such *Power-over Y*? As we know, *Power-over is just based on Power-of and lack of power*.

Thus

- iii. *Power-of* produces *Power-of* through the social medium (Fig. 4).

But also

- iv. Social Power produces Social Power through the acquisition of *Power-of* (Fig. 4).

#### *Value (evaluation) and Signs of Power*

It is important to emphasize that we gave a simplified and “objectivist” view of these relationships. Actually, what really gives agents Social Power are mostly the *beliefs* of the other cognitive agents (Barnes, 1998), and in general the “signs” of *Power-of*, not the real *Power-of per se*. We mean:

- For social comparison, social value and hierarchies, this is obvious since the subjective perspective, the belief, is in the definition of the notion of value and of comparison; as we said we refer to a hierarchy of “images”, of evaluations, just mental constructions (Miceli and Castelfranchi, 1989).
- Also in order to use our *Power-over* (which is objective and independent of the awareness of the other) as Incentive Power, it is necessary that the other *believes* that we have *Power-over* his goals. Moreover, this is not only necessary: it is sufficient! Our real power might be a bluff.
- Also our Power of Influencing, based either on our Incentive (Promise/Threat) power, or on some prestige, authority, etc. depends on what the other believes and perceives about us (Barnes, 1998).
- This is not true only among cognitive agents (driven by their explicit beliefs and evaluations of others), this is true also among simple animals or behavior-based agents. There can be hierarchies among them, and influencing power, based on the individual power (for ex. strength, aggressiveness, etc.), but in fact this means that there is some “sign” for learning or for attributing a power to the other (the size for strength, for example); thus in fact it is not real power (strength) but its “sign”, the basis of the acquired social power.

*Institutional Empowerment as Independent of Individual Power-of*  
 Statements (i) and (ii) are less true for Institutional power, which is in a sense “artificial” and arbitrary, not “naturally” based on or derived from the qualities or the resources of the individual. It is just *conventional*. Thus the individual can be empowered by the institution, receiving a lot of power from it, independently of his own *Power-of*. We will see later that this is not completely and always true (there is a dialectic also between the power of the institution -and the institutional empowerment- and the personal power of the role-player); however, it remains important that in that case the source of the power the individual has over others, or of his influencing power, is not his own power. (see § 8. and 9.)

## 7 The Dynamics of Dependence and Power

It is worth noticing that our notion of social power is intrinsically *non-static, non-hierarchical, non-dyadic*.

We adopted some sort of context-dependent “emergentist” perspective: *power emerges from personal capacity, resources, goals, and preferences*, and from the presence of network of agents endowed with different capacities, resources, goals, and preferences.

This notion is non hierarchical for such bottom-up, distributed, peer relations, and pre-institutional view.

All this makes it non-static because the definition allows for a very strong dynamics in dependence and power relationships. Dependence and power positions and relations are *continuously changing* and Dependence dynamics determines Power dynamics. (We will address this point in detail in the next section.)

Our notion is also only seemingly dyadic. Rewarding-Power is in fact *a relation between two abstract agents* (then individuals, groups, organizations, etc.), however:

“the power existing between them *cannot be understood* by simply considering their relation *without reference to their wider social context*”  
 (Wartenberg, 1992)

- Our degree of dependence of X on Y is related to the M-A context in which they are situated: their *market*.
- Changing the M-A context in which X and Y are situated, the power relation between them could change dramatically. The power rela-

tion between them is only relative to a certain M-A *context*

## 7.1 Dynamics

Dependence (and power) relation change very simply and continuously in an open and evolving world:

### *Exogenous Dynamics*

- Agents may abandon a given world or population or “market”; the disappearance of an agent can change the dependence relations among several others.
- New agents enter a given world or population or “market” by immigration or birth; the appearance of a new agent can change the dependence relations among several others.
- Through social adoption and alliances Agents acquire (and lose) indirect-powers
- Dependence (and power) relations can be *created*, maintained or eliminated *on purpose*. For example, X in order to induce Y to exchange with him, can create Y’s dependence on him, by activating or creating in Y a new goal he is not able to achieve, either by persuasion (communication), or by acting on Y’s body, or by modifying Y’s world or representation of the world. For example X could destroy some physical condition necessary for some action/goal of Y, that Y is not able to restore. X can also make Y dependent just by inducing in Y the belief to be dependent. (In this way X increases her *Power-over* Y, and her negotiation power; see § 3.5).
- In partnership formation the agent’s Dependence increases. Usually, when X chooses Y as a partner she has some alternatives (that affect its “degree of dependence” and the strength of Y’s *Power-over* X); but after this choice and agreement usually some of those opportunities (offers) disappear (because of deadlines or formation of other partnerships). Moreover, in decision, in negotiation, in agreement some resource is consumed, there are costs; if after that transaction X changes her mind and abandons Y, those costs are wasted. For those reasons, X, in choosing Y, *is making herself more dependent* on Y for that goal.<sup>29</sup>

<sup>29</sup> Additional reasons for this reinforcing effect are: acquaintance and increased trust; specialization and its effects (Durkeim); routine behavior, etc.

*Endogenous Dynamics*

- Agents can acquire (by learning) or lose capabilities, know how, expertise.
- Agents change their goals; since dependence is goal-relative, a new goal can create new dependence relations; the loss of a given goal means the elimination of dependence; after an agent has satisfied a goal (thanks to another agent) he is no longer dependent on the latter as for that goal.
- Agents acquire or lose resources (because of their activity, competition, exchange, etc.); new resources imply new powers and possible dependence of others; lost resources imply lost power and social power (fewer possible agents depending on us).

As a consequence of these two factors and of their combination Dependence Networks are very dynamic structures<sup>30</sup>

*7.2 Struggling for Power*

Part of such a dynamics is due to competition and conflicts. As we pointed out along all the paper, there are several levels and kinds of “struggling for power”. Agents compete at the basic level for resources, knowledge, etc. that give them personal power (*Power-of*); they compete for establishing dependencies relations and on such a basis for negotiation power, alliances and partnerships that improve their power; they compete for their comparative *value* and consequent position (status) in the social hierarchy, that increases their power; they compete for influence; they compete for power positions in organizations and institutions and for having authority roles (Hobbes’ view).

This competition can be both objective and even unaware (X tries to achieve goal p – to have a given power – and in doing so she negatively interferes with Y’s goal q, damaging Y, i.e. reducing his power). But when the agents are aware of a competing situation they could initiate conflicting and agonistic behavior. In other words, they can plan additional actions for preventing others from achieving their goals, or for handicapping, damaging, eliminating others. Thus “war” among agents is – like the dynamic establishment and transformation of alliances and cooperation – a very dynamic factor for the continuous change of agents’ dependence relations and powers.

30 Sichman, 1995; Sichman et al. 1994; Veneziano et al., 1996.

## 8 Empowerment

Empowerment is i) a state transition, ii) a (social) action, iii) a relationship. It is a relationship and a social action between two agents: Y (the empowering agent) and X (the empowered agent). Empowerment in fact means that an agent X comes to have more power than before, and this power is *given* to her by another agent Y. Thanks to Y's action (that we call "empowering action") X *acquires* the additional power P' (state transition).

Thus "empowerment" is a relation between Y, X, an additional power P' of X's, Y's action Ay of bringing about that X passes from a set of powers S to a larger set S' (S + P').

(EMPOWER Y, Ay, X, Ax/G, P'):

by doing Ay Y empowers X as for the action Ax and its goal G; X acquires the *Power-of* G.

We can reasonably restrict the notion of "empowering" to non-accidental "bringing about that"; i.e. to intentional actions aimed at augmenting in a specific way X's powers.<sup>31</sup>

This is the *broad and weak notion of "empowering"*: to make X able and in condition to do Ax (if she likes). The *Webster NewWorld Dictionary's* definition is: a) to give power to, authorize; b) to enable. (The former is in fact a sub-case of the latter, which is probably too broad; see later.) At the pre-institutional, interpersonal layer, any "power" in its abstract sense, i.e. any internal or external resource of X or condition necessary for a *successful action* (performing the action Ax and achieving its goal G), can be an object of an empowerment relation and act.

*X is dependent on Y as for a given resource or condition r* (let's put them together in an abstract notion of "resource" r that designates whatever is necessary for Ax). *X lacks r and thus lacks power P' for successfully performing Ax. Y acts in order to make X no longer dependent on him, and disposing of r. After this X is endowed with power P' (she has the necessary resource r).*<sup>32</sup>

Y can empower X by providing her *knowledge* (for example the solution of the examination test; a password; the enemy's plan; the phone number of a

31 We leave the non-intentional cases in a broader notion and set of "causing that X gets greater power" that for example includes wrong moves in competitions and wars that give advantages to the enemy, and that for sure we would not like to call "empowerment".

32 X will not necessarily perform Ax; she simply "can".

man; etc.), *know how, skills* (by training and teaching), *tools and means* (money, a gun, a car, etc.), *external practical conditions* (by removing obstacles, for example by leaving open the door of the prison where X is imprisoned; by opening the sea for letting X pass through; etc.). To be sure, for a narrow and more precise notion of “empowering” this seems too broad: occasionally and contingently “helping” X (so that she can realize her goal G) is not enough for “empowering” (it is just permitting or helping). After Y’s action, X should be able to achieve G by herself, without Y’s intervention, directly and autonomously. We mean that if, thanks to Y’s direct and active help, X achieves her goal there is no “empowerment”. Except in the case that Y’s help is at X’s *disposal* (for example thanks to a promise, or a hierarchical position), where X has the power of inducing Y to do what she needs when she needs it. For a true empowerment, X has to acquire – thanks to Y’s action – the *Power-of* autonomously producing/achieving G: *the resources and all the actions in the plan for realizing G must be under her control.*<sup>33</sup>

In some cases, when Y provides r to X he loses r, viz. he can no longer use, enjoy r (money, car, ... or space, when Y moves off in order to let X pass through). In other cases, Y does not lose r while letting X accede to it (skills, knowledge, etc.). However, in any case, Y loses something: his (at least occasional) *Power-over* X, X’s dependence on him as for r, Ax, and G.

Not necessarily X “receives” this power from Y and Y “passes” this power to X (*transfer or transmission of power*).

Neither is it in fact necessary that Y has the power P’ that he provides to X (for example, Y might give X the access to a room, or to a meeting, where he is not permitted to accede; for example, a trainer or a teacher could not fully have the abilities that he develops in the student), nor is it necessary – in case he has P’ – that he loses P’ while passing it to X.

The most important distinction between different forms of empowerment seems that between “practical” and “deontic” empowerment. *Deontic power* means here that from the normative point of view X is in condition to perform Ax; i.e., she is permitted, authorized, entitled to do Ax, or has acknowl-

33 One would probably like to exclude from the notion of “empowerment” the simple acquisition of one-action or occasional power. Perhaps we do not like to conceive any action that puts X in condition of... as an “empowerment”, and we would prefer to refer to more stable powers. This means – as we just saw – that Y gives X a power that she controls and can spend if and when she likes, and perhaps *several times*. In case of external conditions, resources, and tools this means that X has a stable access to r, and in a sense “possesses” it and controls it (that is obvious for internal r). The distinction is commonsensical but not so strong. Even official and institutional authorization can in fact be just for one time.



edged rights to do Ax. Obviously, she can be normatively in condition to do Ax (*without incurring oppositions, violations or punishments*) without being practically capable or in condition to do Ax. That is, she can lack the “practical power” for acting. Vice versa, X might be perfectly able and in condition to perform Ax, but she does not have permission, consensus, authorization, title or whatever is normatively needed for an acceptable and accepted action.

The two forms of power are rather (but not completely) independent. Y can empower X in both ways. Let us study the relationships between these two forms while analyzing the relationships between permission and empowerment at the interpersonal, pre-institutional level, where the notion of permission is much weaker than in law.

### 8.1 *Permission Vs. Empowerment*

Empowering is not the same as providing permission, and vice versa.

On the one hand, at a pre-institutional level, there are other ways and forms of empowerment that do not include or use “permitting” (for example, teaching and training in the use of guns and war techniques).

On the other hand, permitting is just a specific and partial case of empowering. In our view, pre-legal, pragmatic permission (Castelfranchi, 1997) provides in fact power, a specific form of it. But, for example, it does not provide skills, knowledge, tools, and other possible bases of power. It provides *deontic power*:

*the possibility of doing the action without conflict, without violating another's (entitled) expectations, without upsetting him and eliciting opposition and persecution (retaliation and punishment).*<sup>34</sup>

When the conflict with the other and his opposition also creates a practical obstacle to the use of the needed resource or condition r for action Ax, the “deontic” lack of power determines a *material lack of power*: X is not able and in condition to do action Ax (and achieve her goal G) since she depends on Y for successfully performing Ax (and has no alternative plans to Ax).

Sometimes, on the contrary, Y's permission is *materially* superfluous; X is able and in condition to do Ax in any case; she does not depend on Y for

34 That become legal violations, legal persecution and sanctions, legal obstacles, .. when “the other” who should permit is the authority.

performing Ax. X simply has a broader goal G' (G + g) where g is "not disappointing Y, not having Y's protests or retaliation or conflict". In our vocabulary X is only "weakly dependent on Y": she depends on Y for the broad goal G' but not for G that she is able and in condition to achieve.

In the latter case (*weak dependence* – Jennings and Mandami, 1992), permission provides only what we call the deontic conditions, the *deontic Power-of*; in the former case (strong dependence) permitting while removing the deontic obstacle also provides the material power for Ax/G.

Y could prevent X from doing Ax (i.e. Y can negatively interfere, has *Power-over* X's goal; X depends on Y's *not* opposing, and *not* creating obstacles)<sup>35</sup>. Y decides not to hamper X, i.e. he lets/permits X to achieve G. Thanks to Y's abstaining from interfering, X acquires the complete *Power-of* G.

X would be able		X would NOT be able	
Y can prevent	Y cannot prevent	Y can make X able	Y cannot make X able
<b>EMP</b>		<b>EMP</b>	

Fig. 6

In conclusion, when Y gives permission to X as for action Ax, he can either give X the *Power-of* (performing) Ax or not. But *Y empowers X* in both cases. Empowerment is goal-relative; either Y is empowering X relative to performing action Ax (a sub-goal for G, and thus for G), or is empowering X for G' a higher-goal of G.<sup>36</sup>

In a celebrated example of Makinson (cited in Jones and Sergot, 1996), a priest is paradoxically *empowered* to marry a couple that did not promise to bring up their children in the same religion, but he is *not permitted* to do so given the specific instructions of the ecclesiastic authorities. If we analyze this paradoxical situation more carefully, we can notice that the priest is empowered to marry people and that couple too (the marriage would be valid), but

35 A threat of possible protests, retaliations, or sanctions of Y after X's action is an *obstacle* for X in the sense of *lack of power from goal-balance*: X cannot do Ax because of serious expected consequences (§ 1.2).

36 Only a sufficiently analytic theory of goals and goal directed actions can deal with deontic problems.

– since he is not permitted to do so – he does not have the *Power-of* marrying that couple *without violating* a prescription of the authorities! So he is weakly dependent on the authorities: he does not depend on them for the goal of marrying, but for the goal of “marring without violating instructions”. Permission would provide him this larger power, would empower him with regard to the broader goal. *Permission (in its appropriate pragmatic conditions) empowers.*

### 8.2 Transmitting Powers

In some cases in empowerment Y’s personal power, *Power-of*, is “transferred” to X. How is this possible?

- *Via resource transfer*: Without a given resource that Y controls (by regulating the access to it), X cannot achieve his goal G. Y makes such a resource accessible to X. Now X is able to achieve her own goal (a special kind of resource is authorization, normative permission; another is information)
- *Via education and training*: Y trains X so that X becomes – via learning – independently able to achieve G (Notice that not necessarily Y himself is able to do A; thus it is not necessarily a *transfer* of power).
- *The strange triangle*: Y uses his *Power-of* to create X’s Reward and Influencing Power.

Y makes Z believe that if Z does not do what X asks, he will use his *Power-over* Z’s goals. Now X has the *Power-over* Z’s goals and on such a basis the power of influencing Z, which are in fact based on Y’s *Power-of* and *Power-over*. But it is “as if” X had such a *Power-of* and *Power-over*. Consider for example the case where Y pays Z for obeying X.

Notice that in our terminology X is not empowered of, does not “receive” Y’s “*Power-of*” (for example, of beating Z, or of paying Z), but she receives the *Power of influencing Z*; since she can do this by herself, after Y’s action.

This works through a threat or promise “If you (do not) do what X expects, I will do A (which is bad/good for you)”, which is based on Y’s adoption of X’s goal. In such a way Y empowers X.

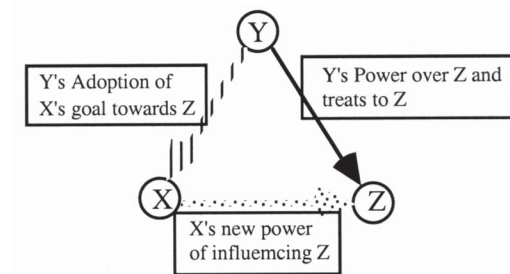


Fig. 7

### 8.3 Sub-institutional and Institutional Empowerment

As we said, several of these notions and mechanisms are applicable also at the institutional level. Within an organization, or between organizations, precisely the same mechanisms work. Organization O can empower its member M or the organization O', via (material, cognitive or deontic) resource transfer, training, or triangulation. We call this sub-institutional empowerment because the definitional notions do not require anything special and specifically institutional or organizational. We would like to call "institutional" action, power, empowerment, the level where something special and new happens. In particular, we have in mind the conventional, artificial, and "performative" value of institutionalized action, when a normal act of agent X "count as" (Searle, 1969, 1995; Tuomela, 1999, 2002<sup>37</sup>; Jones & Sergot, 1996) a conventional or institutional action, and acquires special effects – which are not natural effects of that action – out of an institutional context (see § 9.) (Goldman's "conventional generation"). In other words, power (delegation, action, etc.) at the institutional level uses "natural" (personal and interpersonal) mechanisms and special mechanisms.

Since true institutional empowerment works through the collective acceptance and acknowledgment of the institutional role and of the *count-as* effect of the action, it necessarily requires communication and "signs" of the empowerment. People must know and recognize the fact that X has been empowered. Thus at that layer, empowering in part means giving to X the apparent features, the "signs" for exerting the power. Those are part of the "necessary resources" for successfully performing the institutional action, i.e. for

37 For a good discussion of those issues, see Hindriks, 2003.

the action  $A_x$  of X “counting-as” the institutional action  $A_i$ . Thus, institutions provide special and recognizable rooms for tribunals, special dresses, hats, ritual procedures, ‘magic’ words (formulas), etc.

#### *8.4 Reliance, Delegation, and Empowerment*

Does any delegation of a task to X entail an empowerment of X? Does any empowerment presuppose Y’s reliance upon X?

##### *The general notion of Delegation/Reliance*

In *Delegation* or *Reliance* Y needs or likes an action of X and includes it in his own plan: he relies on X. He plans to achieve p through the activity of X. So, he is constructing a MA plan and X has a share in this plan: X’s delegated task is either a state-goal or an action-goal.

##### *Unilateral Weak Delegation*

In Unilateral Delegation there is neither bilateral awareness of the delegation, nor agreement: X is not aware of the fact that Y is exploiting her action. One can even “delegate” some task to an object or tool, relying on it for some support and result (Castelfranchi, 1998). In the weakest and passive form of unilateral delegation Y is just exploiting the autonomous behavior of X; he does not cause or elicit it. For example I count on and exploit the action of another agent to stop the bus at my bus stop.

##### *Delegation by induction*

In this stronger form of delegation Y is himself eliciting or inducing X’s behavior in order to exploit it. Depending on the reactive or deliberative character of X, the induction is either based on some stimulus or on beliefs and complex types of influence.

##### *Delegation by acceptance* (strong delegation)

This Delegation is based on X’s awareness of Y’s intention to exploit her action; normally it is based on X’s adopting Y’s goal (Social Goal-Adoption), possibly after some negotiation (request, offer, etc.) concluded by some agreement and social commitment.

It is very important to notice two differences between weak and strong delegation.

- In weak Delegation Y and X do not necessarily have a common goal apart from the goal that X performs the delegated action (X could exploit some side effect of X intentional action); while in strong Delegation they necessarily have some common goal beyond the execution, since X has adopted some goal of Y. There is an agreement.
- In strong delegation X comes to have a goal (the delegated goal), while in the very weak form X happens to autonomously have such a goal.

A presupposition of Y relying on an action of X for the realization of some of his goals, is that Y believes that X is able and in condition to perform Ax (or will acquire the needed powers). Sometimes, while delegating an action to X, Y has to empower X because he believes that X lacks some of the necessary r for Ax. In such cases part of the delegation act and plan is Y's supporting X or transferring to X some resources. Thus,

Y's Delegation to X of action Ax frequently entails Y's empowerment of X as for Ax.

We cannot send our son to buy some food in a market without providing him with some money; we cannot ask or order X to do something for us without implying a permission to her to do that action. When an agent Y delegates to another agent X the realization of some goal or the execution of some task, he should at the same time intend to permit X to do what he has delegated, i.e. he intends not to create obstacles (Grosz and Kraus, 1996; Castelfranchi, 2003).

The institutional notion of "delegation" (which is also its most usual meaning) is richer than the interpersonal one. It implies the *transfer* of the task. It also entails some normative content of the actions: usually the delegated task was a task of Y, and there is some obligation to do it; Y has the authority and role for delegating a task to X; when delegated, X inherits the obligation and is explicitly or implicitly "authorized" to do Ax on behalf of Y and his organization; she will not use only her personal resources, but also resources of the organization, and she receives them and the authorization to use them; and so on. Thus, any institutional delegation is a *strong* form of delegation (an explicit or explicit "contract"), and entails some empowerment.

*At the true "institutional" layer of delegation empowerment becomes necessary and definitional.*

If an institution wants to act through the actions of some member, it must endow him with institutional (*count-as*) powers and the related signs of it.

In conclusion,

- not all delegations from Y to X entail empowerment from Y to X (except at the institutional layer);
- not all empowerments from Y to X entail a delegation from Y to X: that is Y's reliance on X for some original goal of Y. Empowerment can be just due to "goal adoption", i.e. to Y deciding of letting or making X realize her own goal.

True Institutional Empowerment (the *Count-As* empowerment) is a strange process compared with interpersonal empowerment because actually – at a deeper level of analysis – it is not a simple bilateral process and transfer. *The compliance of a third party is strictly necessary*: the public, the people involved in the institution. The efficacy of the conventional institutional act in fact presupposes a tacit agreement or consensus of people in front of it. People (P) must recognize X's act as a special one and acting on such a basis; actually is this that gives the act its special effect. If X's action  $A_x$  counts as action  $A_i$  of the institution  $I_{st}$ , people must act "as if"  $A_i$  has happened. It is a sort of self-realizing expectation: since and until people expect that  $A_x$  counts as  $A_i$ , it counts as  $A_i$ . They must (conditionally) believe or at least "accept" (Meijers, 2002) that this is true and that the others believe/accept as they do and will act accordingly. The effectiveness of the count-as effect passes through the minds and the consequential behavior of people. While endowing X with this special power the institution is prescribing people to accept this and to act on such a basis.

Thanks to P compliance with  $I_{st}$ , and its delegation and empowerment X is really empowered; in fact by both  $I_{st}$  and P. P obviously do not recognize this role; they are simply believed to acknowledge what already exists, but in fact they are creating it thanks to this acknowledgment.

Any Count-as effect (convention) and *any true institutional empowerment is due to a collective acceptance* of the fact, and to a *diffuse* or to *collective intention* of acting accordingly (Tuomela, 1999, 2002).

## 9 The Top Down Perspective. Institutional Power and Empowerment

Institutional actions, actions in a role, on behalf of, are special actions endowed with special conventional or "count-as" effects. For example, the action of "marrying" a couple requires some ritual conditions. The performer

must be a priest (actually in his function, and conscious, etc.) and in order to be valid (effective) the action must be performed following certain constitutive rules; for example by saying specific words like “I proclaim you husband and wife” (in the Italian rite). Performing this action in those specific conditions actually produces the “marrying” effect. This is one kind of special, “count as” effect. As Searle (1995) – see also Tuomela, 1999, 2002; and Jones and Sergot, 1996 – have theorized and formalized, the action A performed by X in that context or institution “counts as” action A’, and by bringing it about that p, X brings it about that q (let us call this: “performative” effect).

Consider now another example: X can be a member of a group/organization in an official role, acting in the quality/role of, and “on behalf of”<sup>38</sup>, and this means that when X performs a given action in her role the organization or the group had performed it. X’s action “counts as” group action (Carmo and Pacheco, 2000). This is another kind of special effect (“representative effect”).

We will now see how special actions require special powers, but not only.

*In order for an agent to be able to bring it about the institutional, symbolic action he must be able to perform the vehicle action, the material action that “supports” or “implements” such a symbolic action. X must personally have such a power.*

If the priest is physically unable to do what he has to do (say he is aphasic) he cannot marry the couple; if the policeman is not able to move his arms, he cannot regulate the traffic; if a manager is not able to sign a contract, he cannot sign a contract for his corporation.

Every execution of action A’ implies the execution of the supporting/vehicle action A which “counts as” A’. Not vice versa: not any performance of action A produces and implies A’ (contextual conditions are critical).<sup>39</sup>

*In sum, powers for “count-as-actions” are based on/exploit personal powers.*

However, this is not the whole story. For effectively performing a “counting as” A’, additional powers are necessary (powers *conferred* by the institu-

38 Jones and Sergot’s “to speak for”.

39 Analogously, X’s action as a member of O, in a quality, in the role... implies some X’s action. On this we disagree with Carmo & Pacheco (2000) assumptions. However, probably the solution of the problem is in the complex structure of the “action”. For surely X has to personally perform some action, however the action he is performing in a role is just the vehicle, the support of the complete action of bringing about that Ai. Same “actions” (or better behaviors) in different conditions produce and are aimed at producing different specific effects and *are in fact different actions*.



tion; Searle, 1995; see also Hindriks, 2002). Personal powers are necessary but not sufficient.

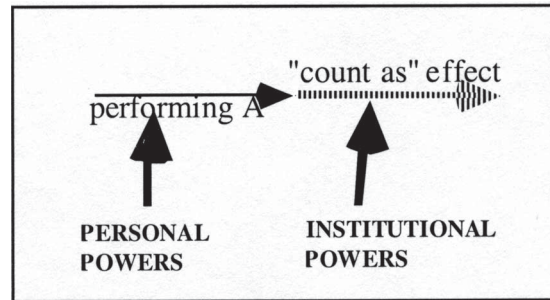


Fig. 8

In organizations agents are “fungible” (they can be replaced) precisely because the power for their institutional actions is provided by the organization itself and by the fact of being its members in that role. However, – obviously – they are fungible *on condition that* they have the required personal competence and qualities needed for implementing and vehicling the organizational actions. Thus fungibility is limited: not anybody can replace anybody and can play any role.

In sum, institutional powers cannot be reduced to the pre-institutional powers of the individuals or to their sum or “collective” effect (see 5.); there is something qualitatively new that *only institutions* give to the individual; however, institutional power presupposes and uses individual powers.

The distinction shown in Fig. 8 is important and clear but rather simplistic, in fact additional, institutional powers are frequently necessary or useful even for the “practical” effect of the action not for its performative effect. We mean that *the institution empowers also for the successful performance of the supporting action A* (especially when this is a social action, based on influencing others).

For ex. to *arrest* requires that X blocks, handcuffs and brings Y to prison. This is not enough to really institutionally/legally “arrest” and not simply kidnap somebody (X must be a policemen, acting not for private purposes, etc.); thus additional symbolic powers are needed for the symbolic action. But this is not my point here. My point is: does X personally, physically have the *Power-of* blocking, handcuffing, bringing Y in prison? Perhaps Y is much bigger and stronger than X and X would never be able to block him and imprison him. X succeeds only because Y knows (believes) that she is a po-

liceman (this is why Y does not resist and obeys). To be recognized and entitled as a policeman *gives* X even the power to successfully perform the supporting/practical action. Thus there is in this case a *double* empowerment by the institution/role (compare Fig. 9 with Fig. 8),

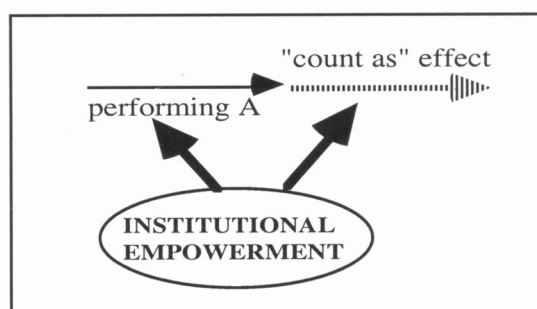


Fig. 9

and in some cases the required “personal” qualities and competence are close to disappear: the symbolic signs of the role do all the job.

Such an institutional over-shaping should not make us forget the fact that we stressed above: the institution exploits the personal powers of X (of its *agent*) and it is also the power of its agents that “gives power” to the institution. Let us consider this very interesting process, which historically is a fore-runner of the other.

### 9.1 Bottom Up Empowerment: From Agents to their Institution

Originally “policemen” were just thugs, bravos chosen for their personal strength, cruelty, and bravery. The repressive and enforcing power of a wicked squired was due to the personal powers of his thugs, that put their “*Power-of*” at his service; not very differently from Mafia.

The greater the recognized authority and the normative base of power, the less it is necessary to use the personal strength of agents.

But it is not accidental the fact that even in our modern mental “hospitals” male-nurses were selected for their size and strength!

However, this story – where authority gradually supplements and replaces strength – holds mainly for physical qualities, but not for others. For example, teachers continue to be selected for their *personal* culture, intelli-

gence, etc. that they use for the public institutional purposes, although when they “reject” a student they use their special conventional institutional powers.

*Institution acquires, buys the powers that its agents put at its disposal.*

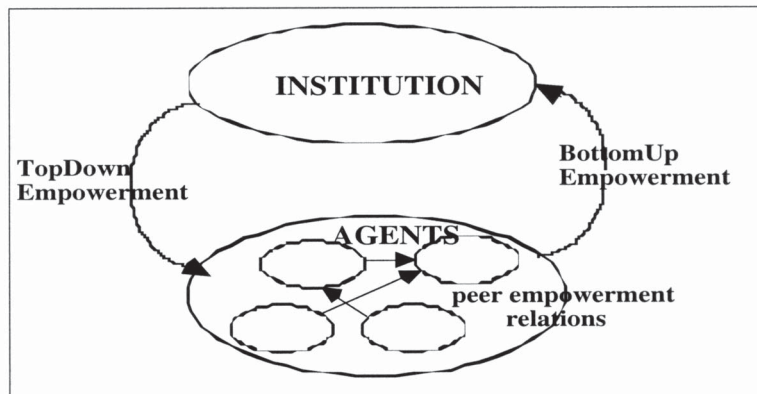


Fig. 10

Again we have a dialectic and circular relation in power dynamics. The case of policemen is the most clear and representative. For several occasions and functions the institution takes its force from the exercise of the individual power: in some circumstances, agents must be able to use their physical force, or their bravery, or their intelligence; and in such a way the institution succeeds in repressing, controlling, discovering, etc. For several occasions and functions the agents take their force from their institutional role. For example, because people know that if one escapes from or eliminates one single agent, there will be another, another and another who will exercise their institutional power (collective power). One does not surrender to the individual but to the institution, or better to its *representative*.

“Representative” means precisely this:

- that X’s act “count as” the act of the institution,
- X’s act has special institutional effects, and
- X acts “on behalf of” the institution .<sup>40</sup>

<sup>40</sup> A clear definition of acting “on behalf of” is needed. We think that this requires the combination of our notion of delegation/reliance (in particular strong reliance based on adoption) plus Jones&Sergot’ “speaks for” notion.

*Normative base of institutional empowerment*

The Top Down, institutional empowerment is a “normative” or deontic empowerment; it is not only due to the number and the collective force of the group (threat beyond my personal forces). The empowerment consists in the fact that there is a *normative* “delegation” and a *normative* symbolic power.

- There is a norm that prescribes the addressees of the action of the agent to treat him as a representative of Ist (for example to obey him);
- there is a norm that entitles the agent and authorizes him to act on behalf of (i.e. his act counts as an act of Ist’s; and he acts for the delegated purposes and in the interest of Ist);
- there is a norm establishing the “artificial-performative” effects of its actions;
- there are norms establishing the right procedures and rituals for these special actions.

Thus X is normatively empowered (in terms of authorization, resources, signs, and special effects) by Ist.

*People Empowering the Institution (the Leviathan)*

Of course, the more the power of the institution is based on authority and norm obedience, the many indeed will be the people dominated by such an institution. It is the institution’s *subjects*, or its clients, or in general lay people – not its representatives – those who *give* it such a power; which has an “externality-based” and conventional nature. We mean that, on the one hand, it would be impossible to establish a large and stable dominion (like a state) only on violence and continuous control. On the other hand, the fact that one respects such authority, decides not to oppose and rebel to it, the fact that one surrenders to its symbolic force, etc. *makes* it an “authority”; the fact that one accepts the conventional and artificial effects of the institutional actions, *gives* them such an effect. And this behavior is spreading, and self-confirming: since one does A, others do the same, and vice versa.<sup>41</sup> The more

41 What is the relation between Collective Power (§ 5.1) and Institutional Power? Rather foundational. Institutional power is based on and is a form of Collective Power. In fact only a Collective can create it *by collective acceptance and acting*. It is a Collective power not because a great number of people is needed (we can have conventions between two agents), but because it is a *co-power*; only “together” we can create a conventional meaning, act, use; it is the outcomes of our *compliance* if not of our *we-intending* (Tuomela, 1988, 1998).

people acknowledge such an authority and follow the institutional prescriptions the more the institution becomes strong and has *Power-of*, *Power-over* and *Power of influencing* the individuals. In a sense, it is the arrested guy who – by surrendering not to the agent’s private strength but to his institutional force – gives to the policeman (by giving to the institution, and vice-versa) such a force. In a sense, he is surrendering to his own alienated force/power (Marx).

*From Institutional to Social and Personal Powers: The “Abuse of Authority”*

Like for social power, Institutional power can increase social and personal powers.

For example, the “Abuse of Authority” is precisely this:

*the institutional power used for private, personal ends and interests; thus for augmenting personal powers.*

It works through social power. Since people worry about my institutional power or are credulous about the institutional character of my request and are obedient, I can obtain from them some action that they would not do just for me as a lay person. I got – thanks to my institutional role – an influencing power and I use it for satisfying some goal of mine that I would not be able and in condition to realize. Thus I acquire new “*Power-of*” relative to my private goals.

## 10. Some Close Comparisons

The framework we presented is in disagreement with some important theoretical traditions about power in the social sciences.

Both in social and political theory the dominant tradition provides a basic notion of power which is immediately relational and influence-based. Such a “basic” notion is what we call “influencing” power (that we in great part found upon and derive from, the social “incentive power” (dependence), in its turn derived from the individual *Power-of* in a multi-agent environment). Since the classical Weber’s definition (1922), power is conceived only within a social relation and as the possibility (based on whatever base) of imposing – even against an opposition – our own will; that is in terms of deliberated influence. Basically, power is conceived as *the capacity of Ego of obtaining from Alter a given behavior/action that Alter would not perform/choose without Ego’s intervention* (Dahl, 1957; Crozier, 1964, 1971). This definition is correct

<sup>42</sup>, but it is not the basic notion of power, even at the interactional social layer. It should not be mixed up for example with Alter's dependence on Ego for goal G and Ego's consequent *Power-over* Alter's goal i.e. Ego's *Power-of rewarding* (or not) Alter by making him achieve G. Using this for inducing Alter to do something is just *one* use of it.

### *Friedberg*

Friedberg founds the social, relational power upon the inter-dependence relationships (Friedberg, 1993). We do agree about this foundation, but we are able to derive inter-dependence relationships, to let them "emerge" from personal features of interfering agents! Moreover, we do not see power *only* in bilateral dependence relationships and in possible "lack of 'exchange' balance". We do not accept to put any dependence based interaction (help, cooperation, exploitation, etc.) under the category of 'exchange' <sup>43</sup>. This is misleading and economically biased. Here social power is identified with "negotiation power".

To be sure, both those criticisms are addressed in fact to all the important Social Networks tradition (Miller, 1992a,b): how and from what the dependence relationships (network) come, is not clear enough; and in fact they reduce dependence to exchange and power to negotiation power.

It is also arbitrary to propose as the primitive and foundational 'atom' what in fact already is a complex 'molecule': *inter-dependence* is crucial, but it is the outcome of X's dependence on Y that not necessarily is combined with Y's dependence on X, and makes its own important predictions. It is false that only the unbalance of inter-dependence gives power on Y to X; Y's dependence provides X power in any case: she is fact able and in condition to harm or favor Y, and she might (although inferior) use this power for example because of her ignorance of Y's *Power-over* him. <sup>44</sup>

<sup>42</sup> Except that the purposive aspect should be explicit; Ego's influence cannot be merely accidental; Ego must be able to obtain on purpose Alter's behavior.

<sup>43</sup> Friedberg even claims that "there is no relation without exchange" that for us is a meaningless *petitio principii* either merely tautological (due to a too vague, abstract and counterintuitive notion of "exchange") or clearly false (what about spontaneous help, assistance of a completely helpless person just for pity, pityful actions towards a dead body, etc.).

<sup>44</sup> One might introduce an argument about the intrinsic unbalanced-dependence nature of power only at the subjective level (what the agent believes) and by carefully developing the theory of goal-balance lack of power. If the agent either ignores Y's *Power-over* her or does not care of this (lower value of the goal), in both cases it is necessarily true that (subjectively) Y's *Power-over* her is unbalanced and inferior. If X were aware of Y's

Moreover, all this reasoning and argument are just based on a *negative, restrictive view of power as the capability to harm Y*, to frustrate Y's goals, as *Power-of* threatening and coerce. This is a very partial, biased, arbitrary view of power. Dependence provides the power for both: either blocking, harming Y, or favoring him, by letting or making him realize his goal. For sure X can exercise this *beneficial* power towards Y rather independently of any consideration about Y's *Power-over* her.

### Emerson

Emerson (Emerson, 1962) defines power as follows: "The power of an actor A over an actor B is the amount of resistance on the part of B which can be potentially overcome by A" (p.32). Also he remains very close to Weber's notion<sup>45</sup>, and the definition clearly refers to inducing B to do (or not to do) something, to force him, influencing or commanding. However, Emerson also provides a theory of Power-Dependence relations. Our theory of dependence relationships and of their link with power is in part developed on the basis of the social psychological literature of the '60s, in particular Thibault and Kelly (1959), Homans, Blau, and a rather strong convergence can be noticed with Emerson's view. Both our notion of Dependence and how we derive power from dependence are very close to Emerson's theory. However, it is important to understand major and quite relevant differences.

First of all, Emerson does not account for the relationship between social power and other more basic and general notions of power, like personal power based on skills and resources.<sup>46</sup> On the contrary – following Hobbes and others – we start from individual power (*Power-of*), derive dependence social relationships and power from it, and model a feedback loop from social power again to *Power-of*. We search for a real micro-foundation, and our theory of power seems more general and complete.

As for *the social Dependence theory* Emerson's definition of Dependence is very good ("A depends upon B if he aspires to goals or gratifications whose

*Power-over* her and care about it, she would not exercise her power but she would have it; or better, she would have part of the conditions for a full *Power-over* Y, but not all of them, since she would not be in condition to prefer and intend to do the action (lack of power due to goal-balance).

45 Emerson is right in remarking how "Weber... constructs a typology rather than an organized theory of power" (note 4). However, Emerson remains victim of Weber's rather restrictive and very sociological view of power as influence, command and control.

46 He even claims that "Personal traits, skills or possessions ... have no place in a general theory" (p.32)

achievement is facilitated by appropriate actions on B's part." p. 32), but it is not derived from a more basic theory of *interference*, of individual power and lack of power, and of agents' goals, action repertoire, conditions, etc.

Moreover, we do not claim that those relationships are necessarily mutual (or better bilateral)<sup>47</sup>. More importantly, we believe in a theory of "objective" dependence relationships as distinct from what the agents understand or intend. This theory is only implicit in Emerson, while such an objective basis looks rather important for a theory of unconscious constraints on social behaviors, of "interests" as distinguished from goals, etc. (Conte and Castelfranchi, 1994).

As for *Power* Emerson's definition and understanding of dependence in terms "to grant or deny, to facilitate or hinder, the other's gratification" (p.32) is very important; and his reference to "reward power" (French and Raven, 1959) too; but it is a pity that he does not realize that this form of social power (what we call *Power over* or *reward power*) is different from the other kind of social power that we call *power of influencing*.

The former view of power (to overcome resistance) is not the same as the latter (power of facilitating or hindering B's gratification). This power (reward power) can be (and usually is) used for overcoming B's resistance and inducing B to do something; and vice versa usually the power of influencing the other is based upon and exploits his dependence and our reward power over him. But neither this relationship is necessary, nor are these two forms of social power just one and unique form.

On the one hand -as we saw- reward power can be used not only for influencing or forcing B to do something, but also in any form of help and goal adoption where A takes into account B's dependence and uses his *Power-over* the goals of the other.

On the other hand, we have claimed that not all our power of influencing is based on our power of rewarding (threats and promises). A can induce B to do something by exploiting contagion or imitation, or by activating a new goal, etc.<sup>48</sup>

47 Of course, from a formal point of view one can always postulate a dependence relation of zero value or strength. But from a substantial point of view it is false that dependence relations are necessarily mutual.

Moreover, Emerson does not distinguish qualitatively between mutual and reciprocal dependence relations; which for us is a fundamental distinction.

48 Only if one adopts a much broader view of Dependence (with a different definition) and of autonomy - see (Falcone and Castelfranchi, 2003) - one can also consider this form of influencing power as exploiting some dependence of the other agent, but in a different way.



Another very important difference with Emerson's theory is that we do not believe that a "tendency to balance" or "balancing operation" exists. Agents do not attempt to "balance" their relationships. This is only the emergent result of the indefatigable activity of individuals and groups aimed not at balancing relationships but at not being subject and possibly having more negotiation and influencing power than another. When an agent is inferior in a power relationship s/he generally acts in order to improve her/his position, but not in order to equate their positions. If this happens it is just a (very unstable and dynamic) balance resulting from such a reciprocal activity. This 'equilibrium' is simply apparent, is just an illusion (the picture taken by the observer in special instants, just because s/he is interested in noticing such a balance). Balance is not even a 'tendency'. The real tendency is to continuously "prevail", having the best possible position. When an agent is in a balanced dependence and power relation s/he is not necessarily satisfied and quiet. S/he searches more negotiation power (for getting to a better deal) or a greater influencing power (for inducing the other to do whatever s/he needs the other does). What really could be observed is a permanent instability and competition (remember Hobbes' sentence).

*Power can be accumulated and stored*

Contrary to Friedberg's claim, power can be accumulated and stored; this issue deserves a special point. Even if power were merely relational, relations can be maintained without being currently exploited, and accumulated for future possible uses. Moreover, this merely relational view of power makes its source mysterious. On the contrary social power derives from objective dependence relationships, and those relations emerge from personal powers of agents in "a common world", i.e. in potential interference conditions (Castelfranchi, 1998). Power is like "position energy" (there is not only "energy" in action, kinetic). For example, people in debt, people I can, at a given moment, induce to do something for me just to discharge their debt, is a potential power, is an accumulation of power. In this sense a Mafia boss can be more or less powerful; in this sense good relationships are a "capital" that can be invested or not. Analogously, the *Power-of* threats is a power that you do not need to spend. I have the force for harming you (for example, I have my army, missiles, etc.) but I do not attack you; I just threaten you to do so, and this is enough for inducing you to do what I want. I don't spend my resources, and my threatening capital remains untouched; it can be even augmented, since I can induce you to aggress or to threaten somebody else on my behalf.

Power is a relational but also a *potential* notion. *X can do A*, it is not actually doing A.

In the perspective of a theory of power accumulation a very important issue is: *when X uses its power will she lose it?* It depends.

As for the basic pre-social power:

- a) Is this power basically based on a consumable resource *r*, so that if X uses it X wastes it and has less power?
- b) Or is this “resource” increased in quantity or value by its use? (like skills, competence, etc.)?
- c) Or does *r* remain untouched (like a given piece of information, say a telephone number)?<sup>49</sup>

As for social, relational, power, in particular the “*Power-over*” or “incentive power” which is based upon Dependence:

If X adopts and satisfies Y’s goal, is her *Power-over* Y finished or augmented?

It depends:

- if Y had just an occasional goal G, he is no longer dependent on X, and X loses her power over Y (as for G);
- the same holds if *r* is finished, or
- if X passes to Y *r* that can be used by him alone (this time or several times): Y becomes “autonomous” as for *r*.

If G’s satisfaction reproduces Y’s goal G (even with greater value) X consolidates her *Power-over* Y. The same holds if Y trusts X more or reduced his alternatives for the previous choice (market specialization, loyalty).

### *Barnes*

Also Barnes’ view is intrinsically “social” (although with a different, knowledge-based approach). He claims that power is a social phenomenon only relative to “sets of interacting individuals”. Moreover, *there cannot be more power than is known/assumed to exist*. (Barnes, 1988).

On the one hand, it is rather strange that he does not realize that his (good) notion of *power* as generalized action capacity, and of *possession of power* as

49 This is in fact one of the components of power and dependence “dynamics”, in addition to agents changing their desires and intentions, and agents acquiring or losing skills, competence, knowledge; and in addition to agents’ leaving or joining a given population or context.

discretion about the use of the former capacity, equally applies to individuals, collectives, organizations, institutions, etc., and there is no intrinsic reason for restricting it to “sets of interacting individuals”.

On the other hand, we disagree about the exclusive foundation of social power on knowledge sharing and distribution. Power seems just ascribed, given by the others’ beliefs, in a sense merely “conventional”. It is not clear what is the role of objective capacities beyond reputation; it is true that the others’ attitude gives power, but not all the power, not even all the social power.

### *Pörn*

Dealing with Pörn’s approach to power would require a much longer and careful discussion. He distinguishes between two principal forms of power: *influence* and *normative power*. *Influence* is analyzed in terms of “control” (see below), while *normative power* in terms of “the power of making the action punishable”.<sup>50</sup> We are not interested here in his notion of “normative power”<sup>51</sup> that is not our notion of “institutional power”. Let us see the other kind of power. As for what we call “interpersonal power relations” he proposes a much more sophisticated and systematic analysis of all possible “influence” positions/relations by combining simple influence types (production, counter-production, toleration, counter-toleration, prevention, counter-prevention, leave, counter-leave). All this construction should be retrieved and expanded into a larger theory. The problem – in my limited view – is that he builds too much – while following a formal reasoning – upon basic notions and operators that are not so conceptually clear and expressive. In general, since he and his milieu were mainly interested in normative theory, the cognitive foundations are rather weak or unclear (implicit). For example, (like in all the logic of action of the “bringing it about that” “to see to it”) the teleonomic, intentional nature of the action is non explicit; in such a way a lot of relevant points are put aside (for example, the real notion of “successful action” and the distinction between the intended and motivating results and any other (expected or accidental) outcome of the action). Without an explicit theory of goals we cannot understand for what and about what the power is; also the social one.

Our notions are far from being formal and systematic (exploring all possible positions and their logical relationships), but we believe that they are

50 He studies also some relations between the two: how influence relations can be subject to norms; how normative relations can be subject to influence.

more cognitively grounded and more fine-grained at the level of the theory of individual action and of social interaction. For example, it seems too simplistic to derive a notion of ‘control’ and of ‘exercising control’ as a form of ‘influence relation’ just from the combination of action operators not so clearly defined:  $DiDjp =$  “*i* exercises control over *j*’s doing *p*” (p.17). Given the interpretation of  $Diip$ <sup>52</sup>, we even ignore whether this influence on *j* is accidental or not. Apart from this, since the basic model of action is too poor  $DiDjp$  might represent very different things: that *i* provokes *j*’s action, or that *i* simply acts in such a way that *j*’s independent action be successful (produces a give result).<sup>53</sup> But while the latter represents a case of *i*’s (accidental?) help and of *j*’s dependence on *i*; the former represents a real influencing the other to do, a real induction. We characterized these as two very different (although related) forms of social power.

Moreover, exercising control presupposes having control; however, having control over *j* does not mean only being able to provoke his behavior but also being able to block or prevent it. Thus  $DiDjp$  is not enough for representing the exercise of *i* control (power) over *j*’s doing *p*, since *i* induces *j* to do but perhaps would not be able to prevent an autonomous  $Djp$ .

The lack of any theory of the mental representations of the agents may be crucial for power; for example we cannot say that: “*X can* bring it about that *p*’ if and only if either *X* brings it about that *p* or *X* forbears to bring it about that *p*”<sup>54</sup>. This seems to presuppose not only opportunity but *awareness* of them which has not been explicitly included in the notions of ‘opportunity’ and of ‘can’.<sup>55</sup> More generally, no theory of social influence can be made without an explicit theory of acting on the decision and intentions of the subject and of his possible understanding and adopting the goal of the influencer. For example, without this it is impossible to distinguish between “ma-

51 Which looks in fact just like the other side of our “deontic power” (from the point of view of the other agent) but more oriented towards legal theory.

52  $Diip =$  “It follows from what *i* does that *p*”; “*i* sees to it *p*”; “*i* brings it about that *p*”; “*i* acts in such a way that *p*”; “it is a thing done by *i* that *p*”; “*i* does *p*”. (p.2).

53 Balzer (1992) for example gives a similar definition of ‘exerting power over a person’, but not ambiguous under this respect (and involving beliefs and intentions).

54 While it is correct to us that “to forbear” presupposes that *X* can.

55 I also disagree with Pörn’s paraphrasing “*X can* bring it about that *p*” with “*It can be* (the case) *that X* brings about that *p*”. *X*’s power of doing is much more that “it can be that *X* does”, the former implies the latter but contains the idea that “*thanks to internal features* (skills, information, strength, decision ability) (that Pörn in fact takes into account) including discretion and willingness, and external conditions it can *happen* that...”; that is also different from “it can be...” which is an assertion about what is credible.

nipulation” and general influence (Balzer, 1992; Parisi and Castelfranchi, 1978).

This is enough for giving an idea of the kind of divergences and of the needed for an analytical work of comparison.

## II Conclusions

Let us stress just a few points. We (in part) found social power on non-social, personal power (resources, capabilities, etc. ), and in this perspective we strongly anchor the notion of power to a goal-directed view of action and agenthood. There is power (or not) only relative to some goal – personal at the personal layer, collective or institutional at the other layers.

We are not claiming that the “individualistic” approach is *sufficient* for the theory of power. We are just claiming that it is *necessary*. Having a theory of personal power, partially deriving from it the theory of interpersonal powers (comparative, rewarding, and influencing), and connecting it with the theory of institutional power, increases our theoretical understanding and predictions. Our micro-macro cognitive-based approach to social phenomena (Conte and Castelfranchi, 1994) is not aimed at reduction. We simply claim that the attempt to found sociological concepts in a completely autonomous way, without any explicit relationship with the micro-level notions, and refusing to look at the obvious links between the individual and the sociological level, is not a heuristic move<sup>56</sup>. It does not make sociological theory stronger. The problem is not that of reducing sociology to psychology, or unilaterally founding sociological constructs on psychological ones, the problem is accounting for the bilateral grounding and the bilateral influence between the micro and the macro layers.

Moreover, it is important to consider that what appears as a (partially) individualistic (psychological) foundation is in fact an abstract, “agent” based foundation. If collective entities (like groups, team, organizations) can be conceived as abstract, complex or high level agents, all the theory that we have just exposed for individuals can be abstracted and applied both to individual agents and to abstract agents. In other words, among groups, organizations, nations we find “*Power-of*”, dependence relations, “Power-of rewarding”, “Power of influencing” and all the form of social power that we have already called “interpersonal” but that are in fact “inter-agents”. The

<sup>56</sup> How and why many languages use the same word “power”?

same – abstract – theory applies to different layers of organization of action and sociality.

The real topic of this paper has been “how power produces power”, and, more precisely, how one form of power founds another form of it, and how one kind of power transforms into another one. This is the Proteus-like nature of power. This is also one of the reasons why power does not at all tend to balance (except for the incessant human competition and ambition) but – per se – tends to *concentration* and inequality.<sup>57</sup>

We also applied this dialectic view of transforming power into power and of empowering to the relationship between individuals and institutions. Even the magic, “count as”, performative power of institutional acts is given from the institution to the lay-agent, but hidden is given to the institution by the acceptance and conformity of the mass of people. This mutual (unaware) empowering is far from being fully and explicitly modeled.

Let us also remark how not all social (and societal) reality is “acceptance”-based, a collective construction; the conventional result of some explicit and organizational, or diffused and tacit agreement and pact. Part of social reality is merely emerging and self-organizing in an “objective” way; it is *given*, independent of human awareness, decision and even acceptance. (Conte and Castelfranchi, 1994; Castelfranchi, 2001). This is also the reason why we spent enough time on the notion of Dependence and on the Dependence network. Obviously, when agents realize that they are dependent on others, when – in general – they realize their objective interference, interests, etc. relationships (*Cognitive Emergence*; Castelfranchi, 1998b) consequences are important, as we just saw for example about the *Power-over* and the *Power of Influencing*.

A lot of points remain to be clarified, a lot of relationships between the different forms and layers of power must be explored. We just wish to have persuaded the reader that:

- i) a micro-foundation of the social theory is useful and necessary, also because it is not individualistic but applies recursively at different level of organization;
- ii) that mental ingredients are much needed in this foundation at the individual, social, and institutional level: many forms of powers just depend on or are due to what people believe or accept.

57 This is conversely and unfortunately true also for serious lacks of power like sickness, stupidity, ignorance, emargination, poorness, that tend to reproduce and maintain themselves, and to increment each other reciprocally.

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