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THE SOCIAL POWER PARADIGM:[1]

Causalities, Mechanisms, and Constructions in The Perspective of Systems Theory (Overcoming the limitations of Robert Dahl, Steven Lukes, Michael Mann, John Searle, and Max Weber)

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[1] This article draws on Burns and Hall (2012) and McGinty et al (2007).

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Abstract

The article outlines and illustrates a new social power paradigm based on an innovative approach to causation, action processes, and social construction. It aims to overcome several of the major limitations of the social science research of Robert Dahl, Steven Lukes, Stefano Guzzini, Michael Mann, John Searle, and Max Weber. The paradigm distinguishes agential, social structural, and material/ecological modalities of power. Moreover, neglected modalities such as meta-power (power over power, transformative power) and relational control are specified and exemplified.

Section I provides a brief introduction and background to the theoretical paradigm outlined in the article. The section focuses largely on a major contemporary social theorist of power, Stephen Lukes. The work of a number of other scholars is referred to as well. The limitations of the work of Lukes as well as others such as Robert Dahl, Stefano Guzzini, Michael Mann, John Searle and Max Weber are briefly outlined. Of particular importance is their failure to systematically specify and analyze meta-power, the fundamental powering in any society.

Section II briefly presents causal power theory, postulating multiple causalities and powering mechanisms based on concrete actions and algorithms. Three general modalities of power are identified and analyzed: material/ecological forces, social structural and agential influences – typically making up complexes of regulatory mechanisms. Intentionality/non-intentionality and agential/systemic are shown to be critical dimensions. Section III introduces the meta-power conceptualization (power over power, transformative power), distinguishing agential and systemic forms of meta-power.

Section IV takes up for discussion several of the key features of the power paradigm. Finally, there is a section of concluding remarks making five points:

(1) social power is based on multiple interdependent causal mechanisms that pervade all social life.

(2) social power systems (institutional arrangements, socio-technical systems, and infrastructures, are complexes of causality).

(3) Most power relations and systems are human constructions

(4) Major complex systems of power and meta-power are found in the forms of capitalism, state, socio-technical systems and built environments.

(5) The mechanisms (and therefore modalities) of power are being multiplied as new types of causal and control technologies and new socio-technical systems are constructed.

I. Introduction and Background

Power is one of the most commonly used notions in the social sciences, in policy analysis and in everyday interpersonal life.[2] Yet, there is little agreement about its meaning, and there have been relatively few attempts at systematizing conceptions of power and its applications.[3] Power notions are widely used but typically done so in discursive and metaphorical ways. Many early publications on conceptualizing power identified at least three types: for instance, force or coercion, remuneration, persuasion or normative influence (Etzioni (1975), Russell (1938), among others). Michael Mann (1986) in his major work of the 1980s proposed four types: ideological, military, economic, and political; these overlap to a certain extent with Etzioni's typology. Lukes (1974 (2005)) is arguably, one of the most important sociological theorists of power, breaking away from the "ordinary" dimensions with which Etzioni, Mann, Russell and others worked.[4] He also incorporated several of the power notions of Michel Foucault (1980), another important theorist.[5]

Lukes puts his conceptualization of power on a much more analytic level than many earlier efforts by distinguishing different modalities, *inter-personal or inter-agential domination, institutional controls and organizational bias*, and *diffuse cultural structuration* (these are our labels). These "dimensions" are briefly discussed below.

Dimension 1 "Interaction or inter-agential power" (the "one dimensional view"). Power in this perspective is a relation between agents. Such a relationship may take many forms: some are institutionalized and concrete, as in a family or group, or organization. Others are more diffuse and shifting as in networks. Lukes states that the "one-dimensional

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[2] As very rough indicators, Google scholar indicates ca 2 ½ million hits for "power," ca 2 million for "social power."

[3] This is unfortunate since power analyses have immense practical value: understanding power better is central to democracy and to movements trying to introduce or develop democracy in modern societies as well as globally.

[4] Others have tried to develop analytic typologies of power. For instance, Guzzini (1993) in his innovative scheme distinguishes between agency based power and structural power ("governance") without systematically identifying the diverse mechanisms of the two power modalities (on the other hand, his two modalities share conceptually in the distinction here between agential and social structural modalities of power causality). Barnett and Duvall (2005) proposed a four-fold typology where they distinguish "compulsory" (direct interaction of specific actors), "institutional" (indirect/diffuse interactions of specific actors); "structural" (direct relations under a rule regime or constitution), "productive" (indirect/diffuse relations under a than rule regime or constitution). Neither Guzzini nor Barnett and Duvall attained the widespread recognition of Lukes' work (see Clegg and Haugaard (2009)) at the same time that they suffer several of the same limitations, as discussed later.

[5] Clegg and Haugaard (2009) provides a comprehensive overview of power conceptualizations and applications with appropriate attention to Dahl, Foucault, Lukes, Mann, Talcott Parsons (1963) and Hannah Arendt (1970) as well as many others.

view of power involves a focus on behavior in the making of decisions on issues over which there is an observable conflict of (subjective) interests expressed as preferences. These would be revealed, for instance, in the process of political participation. The focus is then on relationships between more or less autonomous agents. A's power vis-à-vis B is understood as A being able to get B to do something she would otherwise not do (Dahl, 1961; Blau, 1964). Power in this perspective is not only highly visible and interpersonal in character but entails A producing intended effects in another person's or persons' behavior. Such control would be manifested in the outcomes -- indeed such power can be measured in the outcomes. Like Weber (1968), this conception views power as the production of intended effects in other persons. Dahl (1957), the major theorist of this perspective on power, distinguishes between influence and power, where power is considered to have a more coercive character than many influence processes.

While the Weber and Dahl conceptions are often grouped together, Berenskoetter (2007:4) points out that Weber recognized power as not only accomplishing one's will against others ("distributive power") but also *with* others, that is, power in a cooperative sense ("collective power") (see also Mann (1986)). Similarly, Arendt (1970:44) and Parsons (1963) envisioned power as a basis of collective problem-solving, productive, even creative in the context of more or less shared values or consensus (see later) (Berenskoetter, 2007:4-6).[6]

Dimension 2.   Social structural controls/"non-decision-making." Lukes' "second dimension of power" concerns indirect forms of power, in particular institutional forms that steer and regulate actors' behavior without much or obvious agential action. For instance, the way a social organization is structured influences who relates to whom, who has or does not have access to strategic power resources and decision-making opportunities, etc. Agenda setting and procedural rules of order and other organizing rules are relevant here as types of constraint and control as well as sources of empowerment.

Here Lukes and others (for instance, Bachrach and Baratz (1962, 1970)) emphasize institutional arrangements, procedures such as agenda setting, non-decision-making rituals and practices (certain "non-decisions" take place rather than the explicit decision-making of one or more agents; instead, structural power mechanisms operate). These enable elites or those at the top to avert potential issues or opposition from arising or achieving prominence.

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[6] Berenskoetter (2007:18) points out that this is in line with the Aristotelian sense of politics of "seeking the (common) good and happy life," or in Rousseau's notion of realizing *volonté générale*.

Non-decision-making is, in fact, a form of decision – and power is invested in those that have the authority or position to select (and to exclude) issues from consideration or deliberation. Lukes (1974) and Bachrach and Baratz (1970) emphasize in this perspective the powers of social structure. They shift attention to how the social structural environment (dis)advantages one group rather than another, controlling, for instance, access to power resources or the provision of public goods and services, thereby realizing "structural discrimination" on diverse dimensions (Berenskoetter, 2007: 9; Burns et al, 2007). Put another way, whereas dimension 1 focuses on the direct relationship between A and B (and where A's desired outcome or "victory" indicates who is the most powerful), dimension 2 power works more indirectly through A being positioned in an institutional setting with the capacity to operate 'against' B or B's interests (see later discussion on the concept of meta-power). Agenda-setting power is based on, for instance, the positional ability "to create or reinforce barriers to the public airing of policy conflicts" or issues (Bachrach and Baratz, 1970: 8).

Lukes and Bachrach and Baratz suggests that institutions not only make for "organizational bias", excluding certain interests from decision-making and particular advantages, but they play a role in empowering some agents to shape institutional arrangements and policies. Berenskoetter (2007:11) emphasizes this point in terms of the "meta-power" to make and change regimes (rules, norms, procedures), a matter to which we return below. State or corporate elites control agendas, channels of communication and flows of information and decide about membership as well as the form and reform institutional arrangements, thus enabling or preventing some groups rather than others from participation in, or gaining access to, positions of power and decision-making (Burns et al, 2007).

Dimension 3. Cultural powering. Lukes' third dimension of power concerns the diffuse influence of cultural ideas, forms, genre, myths, narratives, etc. on people, for instance, their definitions of reality, their ways to frame and interpret issues. They need not be directly relatable to particular powerful individuals or groups, although historically such agents introduced or established the cultural forms.

Here there is a focus on the processes which shape values, norms, and ideologies, and, contribute to fabricating consensus or a shared sense of consensus in a group, organization, or community. Underlying all social and political activity are ideas, cognitive frames, and

language.[7] Power in the sense of dimension 3 operates then in shaping apparent consensus. Lukes, drawing on Michel Foucault stressed the mechanisms giving and controlling the meaning of 'normality'. Powerful agents may be able to shape the interests of others, for instance in constituting agents and identities through concepts and discourses of normality. The power-knowledge nexus of such power mechanisms is established and (re)produced through, for instance, expert knowledge (Berenskoetter, 2007:12). Foucault emphasized historically entrenched mechanisms or 'techniques of subjectification' which circulate, in the words of Judith Butler (1997:6) "without voice or signature". This kind of "productive power" (also, see Barnett and Lovell, 2005) is not something that is (or can be) centrally controlled but works through diffuse "capillaries" contained in seemingly neutral practices of people working in institutions, such as hospitals or prisons as well as welfare agencies, universities, and non-governmental associations. Lukes maintained a much more agency-oriented interpretation of cultural powering than Foucault, emphasizing the distinction between 'powerful' and 'powerless' agents. Nevertheless, both Lukes and Foucault see such cultural power as having an oppressive/dominating (or "power over') effect, leaving open when, or to what extent, the process of shaping interests and identities has a supportive/enabling (or 'power to') effect (Berenskoetter, 2007:11-12).

Discussion.

Lukes, among others, aimed to go beyond the Weber/Dahl interactionist model, recognizing/identifying social power built into institutional and cultural formations operating extensively in time and space (Hall and McGinty, 2002). He rightfully pointed out the limitations or incompleteness of the one-dimensional character of interactional power relationships, focusing attention on structural dimensions (institutional and cultural) of power. But Lukes' scheme (and also for many of the same reasons the works of Guzzini (1993), Barnett and Duvall (2005), Berenskoetter (2007), and Searle (2010)) are limited in a number of ways:[8]

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[7] Carson et al (2009) conceptualize the architecture of cognitive-normative frameworks – or paradigms—and demonstrate ways in which they can be identified through observation, interviews, and documentation (of decisions, arguments, etc) and which can be especially sharpened through a specification and analysis of the key universal components of policy discourses.

[8] Searle, in his book *Making the Social World (2010)*, addresses many issues of power, once again translating significant elements of sociology into his own vocabulary (see also his earlier book on the "Construction of Social Reality" (1997)), but as in the earlier work, there is much that is wrong and misleading. The failings of Lukes and others including Foucault in theorizing about power are repeated in Searle (2010) (but, of course,

(1) There is a lack of sufficient specification of particular forms or mechanisms of powering. It's all- too-abstract and not systematically relatable to specific and diverse power mechanisms and control processes in the widely varied concrete settings or arenas in modern society. Nevertheless, although sufficiently specified and analyzed mechanisms of power and control are lacking in his work, Lukes provides useful illustrations. But it is apparent that he failed to conceptualize power in terms of the distinctive mechanisms that are associated with diverse sources of power. Arguably, for scientific analysis they must be specified and investigated in particular contexts. This would have required case studies and another basis on which to describe and differentiate the variety and dynamics of powering.

(2) Social systems of power fall outside the scope of Lukes' scheme. Such power systems, which operate in capitalist, governmental, educational, religious and other institutions, are characterized by networks of interrelated power mechanisms, which underlie specific social orders (to the extent that such orders are established and maintained – we are not referring to failed or failing economies and states) (Burns and Hall, 2012).

(3) Missing Materiality. The material world is a key powering source affecting human behavior and development. Early work on meta-power (Baumgartner et al, 1976) identified the structuring mechanisms of material/ecological conditions and processes (see also Burns and Dietz, 1992). Of course, such powering is not driven by interests or intentionality. For Lukes, interest and intentionality are necessary features of his conception of power – but this is not the case with ours based on a spectrum of causalities including those of the "natural" world.

(4) Meta-power missing. Lukes' "structural" extension of power analysis missed one of the major structuring factors in social life, namely, the exercise of power to establish or change institutional arrangements, cultural forms, the "rules of the game," etc. This *meta-power dimension* might have been added as an additional dimension, his 4th dimension.[9] Meta-power is transformative with respect to agents, processes, and structures. Even social structural arrangements may transform rules and rule systems, but they operate through automatic types of mechanisms, as Lukes points out (in the case of Dimension 3). On the one

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expressed in Searle's own language). It is ironic that Searle recognized and applied so much sociology with minimum acknowledgement to the discipline. In any case, Searle's major achievement is to reproduce a number of sociological failings, but does it in perhaps a more elegant way than most sociologists manage to do.

[9] In a personal meeting, Steven Lukes told one of us (Burns) that he had considered including a discussion of the meta-power and relational control conceptualization in his book (2005), but decided against it. It would certainly have complicated his story, suggesting a multi-level model of power and bringing material/ecological forces into power analyses.

hand, these arrangements have a structural history; at one time, they were intentionally established. On the other hand, there are many normative orders and cultural forms that cannot be easily traced to intentional/structuring agents and their designs. They have emerged in "organic ways", but still with visible human agency (Burns and Hall, 2012).

In sum, Lukes fails to sufficiently focus on and specify the diverse causal mechanisms of power, that is, the concrete operating controls or influences. Moreover, the major powering in human groups and societies, namely meta-power and relational control, is missed entirely. The following outlines a conceptual strategy that overcomes several of the limitations of the works of Lukes (as well as others such as Dahl, Barnett and Duvall, Foucault, Guzzini, Mann, Searle, and Weber).

II. A Short Treatise on Causal Power Theory.

Power is universal in human societies, not only the powering between and among social actors, but the powers over and between social systems, structuring and transforming them.

1. Causality and Power/Control Mechanisms

A causal theory of power focuses on the actions, operations, mechanisms whereby power may be exercised, controls operate, steering achieved, change brought about, and social structuring and transformation realized.[10] Power is a potentiality or opportunity that may not be actualized. It might, for instance, be inherent in a position" which an agent has vis-à-vis others; it might or might not be deployed, and, *in this sense, is not strictly "behavioral"*.[11]

Many power mechanisms are built into institutional arrangements and infrastructures. Not only have humans developed diverse modalities of powers in relation to the natural environment, but that environment exerts powers over human beings and their socio-cultural populations and constructions (Baumgartner et al, 1976; Burns and Hall, 2012).

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[10] Some of Burns' work in the 1970s (Baumgartner et al, 1986; Burns et al, 1985) was closely related to cybernetic conceptions including multi-order cybernetics and socio-cybernetics, stressing processes, agency, and the construction of cybernetic systems.

[11] There are other features of our conception of power that are non-behavioral but relate to cognitive and symbolic factors (see later).

Our conception of power is grounded then in fundamental ideas about causality, control, and regulation.[12] Many power systems (typically with multiple control mechanisms) are established or constructed by human agents; such power systems are, for instance, particular institutional arrangements and cultural formations, infrastructures, and built environments as well as the typical government agencies, corporations, socio-technical systems, etc. The causal relationships embodied in institutions and other social structures (for instance, hierarchies and stratification systems) enable direct and indirect manipulation and control of large numbers of persons, resources, processes, and developments across space and time. An AB hierarchy, for instance, is a common regime – with particular mechanisms of control – found in almost all administrative bodies (encompassing military, police, business enterprise, government agency, and even NGOs and other associations) and backed up by laws, norms, and sanctions (Burns et al, 1985; Burns and Flam, 1987). Such hierarchy has been the subject of years of intensive research by organizational and other researchers. In an institutionalized power/authority hierarchy, A has "rights" of control (for instance, directing, monitoring, assessing, sanctioning, etc.) and B has obligations to accept and obey A's control initiatives – within some limits (Burns and Flam, 1987) (these regimes vary somewhat as shown in Burns et al (1985)).

In our conception, then, there are qualitatively very different modalities of power and powering processes, entailing diverse causalities. We use "causality" in an *operative sense*, drawing on the notion of causation as manipulability.[13] Methodologically, this implies that one is required to specify the "actions" or operations of a causal process or mechanism,[14]

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[12] But this is true, generally speaking, of Dahl (1957), Baldwin (2002), Nadel (1976, 1975), Searle (2010), Simon (1957), among others. Nadel (1975, 1976) constructed his theory of power on "causation by preferences", drawing on causal modeling in a highly original way, but of course more or less neglecting the specification of the mechanisms. Baldwin (2002) in his overview of power conceptualization in international relations puts "causality" at the very center. Our point of departure, however, is that there is not a single causality but multiple causalities, therefore many possible "powers" and "powering" mechanisms which must be specified in power theorizing and analyses (Burns et al, 1985).

[13] The theory of causation to which our formulation relates most closely is "manipulability causation". Manipulability theories of causation have been developed by philosophers such as von Wright (1971), Menziees and Price (1993), Collingwood (1940), Gasking (1955), Pearl (2000) and non-philosophers such as Cook and Campbell (1979) (Woodward, 2008). One variant of this conceptualization implies that an "intervention" brings about an effect, but the "intervention" need not have an essential connection with human action. It may be the result of natural forces (see later). Of course, some human actions and the operation of social structure qualify as interventions but they do so by virtue of their causal characteristics (the mechanisms and more generally the processes they activate), not simply because they are performed by human agents (Woodward, 2008: 3).

[14] There is a growing literature on "social mechanisms" to which Peter Hedstrom and Richard Swedberg (1998) have been major contributors. They have proved themselves invaluable in their critique of conventional survey techniques and "causal modeling". But they are generally weak at identifying those major mechanisms one should focus on such as power and control mechanisms. Certainly, the array of mechanisms relating to powering, control processes, regulation, governing, etc is an excellent candidate for their "analytic approach."

where, for instance, an A influences or controls B through a series of concrete actions or operations. It may also be that B in turn influences A through various acts or ploys of her own. Reciprocal causality and mutual causality fit naturally into this conception (such ideas can be traced to early work in the area of socio-cybernetics with Walter Buckley (1967) and others (Burns, 2006)).[15] *Manipulability notions of causation point to direct as well as indirect types of social causality operating over time and space. The key to power investigations and analysis according to our approach is the specification of the concrete mechanisms, whether agential, social structural, or material.*

Much of the uncertainty and confusion concerning the conceptualization and articulation of social power arises from attempts to apply natural science conceptions of "force" and "power" – and more generally "causality" – to the human sciences, for instance, the notion that there is a single universal mechanism such that "a cause" X is supposed to precede an effect Y or that some X produces or brings about Y. But in the social sciences, we observe many instances of what appears to be "meaning causality" or "self-generative causality", or "reverse causality", as discussed more fully below. There are mechanisms whereby norms, roles, relationships, and institutional arrangements operate without an apparent "external" causal agency, but in response to *the meanings of contexts, symbols or signals*. This type of "meaning causality" is largely alien to natural science, in that it entails cognitive, normative, and symbolic processes of interpretation and judgment on the part of socialized agents. Similarly, much of what is referred to as "causal modeling" in sociology and social science falls outside this conception of operative or manipulability causality, which requires identifying and specifying the actual causal mechanism operating, that is, the concrete actions or operations which show, for instance, precisely how A "influences" B, or how meaning causality operates.

One recent constructive presentation of the mechanism approach has been provided from a symbolic interactionist perspective (Gross, 2009:364): "…mechanisms can be said to consist of entities (with their properties) and the activities that these entities engage in, either by themselves or in concert with other entities. These activities bring about change, and the type of change brought about depends upon the properties and activities of the entities and the relations between them. A mechanism, thus defined, refers to a constellation of entities and activities that are organized such that they regularly bring about a particular type of outcome, and we explain an observed outcome by referring to the mechanism by which such outcomes are regularly brought about" (through actions or operations (our addition)) (see also Hedström and Ylikoski (2010)). Also, Gorski (2004:17) emphasizes the mechanism approach to modeling and explaining social phenomena: to explain something, then, is to represent, and thereby render more readily comprehensible the principle processes which produce it

[15] A's capacity to influence B may depend on A's capacity to control some mechanism X; B is induced through A's manipulation – or threats of manipulation -- of X to behave in ways which A directs. A's capacity to control some X can depend then on B(s) themselves; e.g., B (or several Bs) partially control X or some Y, which is important to A. In such cases, B has then countervailing power with respect to A.

Of course, natural science conceptions of causality still have an important role to play, even in the social sciences, for instance in the case of "selective mechanisms" in socio-cultural evolutionary theory (Burns and Dietz, 1992, 2001). But the social sciences need much more. *Our general concern is with the nexus of multiple causalities in social life, the qualitatively very different modalities, which can be distinguished, and which provide foundations for social science power-theorizing and analyses.* A great number and variety of causal mechanisms affect human behavior. The diverse powers and their contexts are distinguished for analytic purposes; in much social life, multiple powers (causal mechanisms) are activated and operate at any given place or time (see below). Typically, *there are complexes of causes operating in relation to any given social process, interaction, organization, or sector.* For instance, in the case of a nuclear power or airplane accident (or an oil tanker partially breaking up in collision with a shore) – with material damage and possibly loss of life -- there may be material failure (which might be traceable to design, particular weather or geological conditions, failure in a key part of the system, etc.), social structural and agential failures (for instance, maintenance or refitting delays or operator error, respectively). These many causal mechanisms and factors – differing qualitatively – are combined in varying ways in any given time or place. Usually – except in the simplest cases – there is no single "cause" but a nexus of multiple qualitatively different factors that play themselves out in the "production" of, for instance, an event, accident, or a development. In general, our work illustrates how multiple powers and their manifestations in concrete control processes operate in relation to each other. They combine in different ways to generate patterned and often enduring relations of control and performance (and distribution of advantages and disadvantages) – or, on the other hand, the breakdown of relations of regulation and control and performance failings and "accidents" (Burns and Hall, 2012).

Any given nexus of powers and controls – many of them human constructions such as social organizations, infrastructures, built environments – consist of partially bounded clusters of power mechanisms. While people may try to maintain cognitive, normative, and social boundaries around any given cluster, often there are breaches, spinoffs and spillovers. The interdependencies in a cluster become linked to interdependencies of other clusters with their own particular powers and causal mechanisms.

2. General Categories in the Causal Mechanism Theory of Power

The theory distinguishes three qualitatively different powering modalities (families of causal mechanisms), distinguished in terms of whether and in what ways they entail human agency and intentionality:[16] material/ecological, social structural, and agential forces (see Figure 1). The three different modalities of power "operate" (shaping, selecting, constructing) but do not do so in the same way. *In other words, their causal logics differ*.[17] Agential and social structural powers – the latter observable in institutional and cultural arrangements – are qualitatively different than material/ecological mechanisms, although human constructions such as socio-technical systems and built environments make use of material and ecological mechanisms. The qualitative differences concern intentionality, design, and the application of knowledge, etc (see Table 1).[18]

Powering processes take place in institutional, cultural, and ecological/material contexts in which natural forces, social structural influences, and agents interact and compose causal complexes and developments. The social structural features are defined by one or more rule regimes which specify appropriate participants, their roles, and relationships – and, therefore, their authority or access to resources and the rights to perform particular powering acts with respect to the material environment (X) and to other agents (Bs) and to produce particular outcomes and developments.

A rule regime defines:

- the appropriate or legitimate purposes and goals for exercising power,

- the time(s), place(s) (situations, places (territorial domains),

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[16] These three types of power were articulated in Baumgartner et al (1976), Burns and Dietz (1992), and most recently in Burns (2007) and Burns and Hall (2012).

[17] Their *causal logics* differ in that they consist of different kinds of mechanisms, as shown below. Agential power is exercised typically (but not only) in interaction. Agents operate with means of control in relation to individuals as well as populations – but may also operate on contextual and situational conditions. Typically, agency is combined with social structural conditions. In the case of material/ecological causal logic of power, there is no human design or intention in the pure case. (If there is, then we are dealing with a humanly constructed technical system). People may be involved in the mechanism, but not controlling it, rather simply responding or adapting to it. Ecologies do not work with purposes, designs, or efforts to integrate different kinds of knowledge – nonetheless, information flows take place. For instance, a volcano or earthquake is obviously not a social mechanism, but it is a power impacting on individuals, populations, communities, and social organizations. In general, in any given development, multiple logics/mechanisms operate. Our models of these enable us to understand and analyze – and in some cases predict developments.

[18] Social institutions and cultural forms have intentions built into them; agents also operate with intentions, but many actions and operations have *unintended effects*. This is characteristic of any humanly constructed complex system. In other words, many effects on the courses of action and capacities of actors and social structures (including socio-technical systems) are unintentionally produced through agential actions as well as humanly constructed social structures (Burns et al, 1985; Barnett and Duvall, 2005).

- the aspects of behavior,

- powering processes,

- developments which may, must (or must not) be controlled (that is, the appropriate objects of power exercise and control),

- the technologies, techniques, symbols and means which may, must (must not) be used (economic, coercive, persuasive, etc.).

Figure 1. Model of Multiple Power Causalities Impacting on Social Systems and their Behavior and Development.
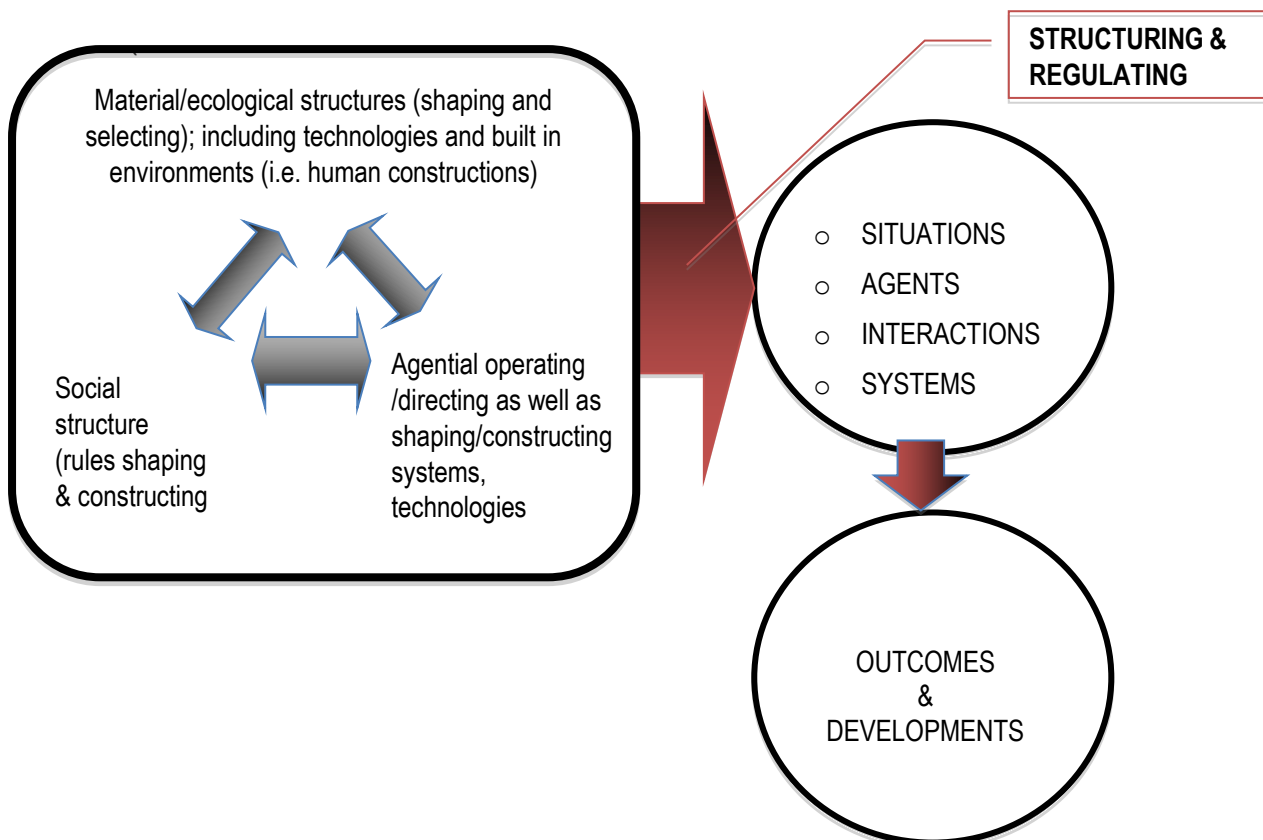
Table 1. Three Causal Modalities Operating on Social Behavior Components

CAUSAL FORCES	Agential Causality	Social structural (institutions and cultural) causality mechanisms[19]	Material/ecological structures impact and cause change (without intention or design)
MECHANISM PROPERTIES			
Intentionality/purpose/ Goal driving mechanism	Yes	Yes	No
Designs & Constructions	Yes	Yes	No
Applications of special knowledge	Yes	Yes	No
SCOPE: Mechanism operates and impacts potentially on these social action and behavioral dimensions			
Interaction Situations; opportunities, constraints, facilitators	Yes	Yes	Yes
Resources	Yes	Yes (directly & indirectly)	Yes
ACT: action sets, programs	Yes	Yes	Yes
MODELS, beliefs	Yes	Yes	No[20]
VALUES	Yes	Yes	No (see note 20)
Judgment Principles, algorithms	Yes	Yes	No (see note 20)
Roles, Relationships, Institutional arrangements	Yes	Yes	No (see note 20)
Unintended consequences because of design, ignorance, misinformation	Yes	Yes	No (see note 20)

While we distinguish analytically three qualitatively different types of drivers or powering mechanisms, they are typically intertwined in concrete social action and interaction situations. Thus, on the one hand, humans through their technical constructions and other types of actions establish and change material/ecological mechanisms and their impacts on human behavior. On the other hand, material factors impact the conditions of human action as

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[19] Particular categories, programs of action, problem conceptions and solutions typically play an essential role in an institutional order

[20] "Nature" affects areas on which humans depend for life and, therefore, affect their patterns of thinking, judgment, and action. But there is no intention behind these effects; and there may also be indirect effects.

well as the operation of social structures.[21] Within each category there are diverse causal or powering mechanisms, as discussed in more detail below.

A. Model(s) of agential powering and control. Agential powers operate to a large extent *with* intentionality and designs (although there may be, of course, unintentional causations) and apply knowledge in the performance of exercising power or performing control operations over others. Control mechanisms corresponding to different domains of human behavior are indicated in Table 2. *Agential power is potential causality or capability. A's power over B is typically based on the capability of A to act or operate on one or more mechanisms (complexes of actions or operations) and to produce effects in B or to channel or change B's behaviour.*[22]

Communication is one of the core activities of many "social causal mechanisms" that operate over time and space. A powerful nation may want to demonstrate that it is a credible military and political threat – so, its control over resources and their potential effects must be communicated through "demonstrations," for instance, President Teddy Roosevelt's "gunboat diplomacy", Soviet military parades with their rockets and exhibition of threatening new weapons, or Soviet, US, and China "testing" of new weapons (Berenskoetter, 2007:8).

Multiple factors are involved in agential power and control processes over others: that is, A (or As) in relation to B (or Bs). An actor with power or control over strategic resources must have, for instance, the will to use them; "will" becomes a power resource in itself (Berenskoetter, 2007:4). Thus, there are multiple causal factors essential to powering, which are qualitatively different. Together they enable powering activity, e.g. there are technologies and resources essential to performance of the operations; rights or freedoms to perform the operations; necessary support or contributions from others toward the operations; also, important here are agents' capacities or powers to countervail/block or eliminate those agents (including third parties) who resist or oppose the operations and/or their outcomes; necessary capacities or powers to overcome institutional and cultural constraints; and also agents'

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[21] That is, agential and social structural powers are qualitatively different than material/ecological mechanisms, although human constructions often make use of natural and ecological mechanisms as in technical systems, built environments.

[22] Some social causal factors (as bases of power) are conceptualized as universal in human groups: harm, punishment, coercion; remunerations (rewards) of diverse sorts: material; social/ symbolic; persuasion (through defining "facts" or "reality"); persuasion by appealing to established norms and values. Also, the operations for carrying out these different forms of influence have developed and evolved substantially, especially with the innovations in communication and IT technologies (see Burns and Hall (2012)).

capacities or powers to countervail or overcome material and ecological forces which interfere with, block or undermine the effective performance of the operations to control B (Bs).[23]

Table 2: Illustrations of Agential Power and Control Mechanisms

MECHANISMS AND CONDITIONS	A performs powering actions in relation to B (Bs) -- by virtue of A's action capabilities, position, resource control and her motivation/goals in relation to B's actions & outcomes	B (Or Bs) Lack Countering Powers Or Ploys[24]
Constraint mechanism	A sets up situational constraints: for example barriers, or infrastructures	B (Bs) is confined, blocked by constraints and unable to avoid or overcome
Sanctioning mechanisms (coercion, remuneration, both; other inducements)	A communicates directives and norms and monitors, assesses, and applies contingent sanctions in order to induce B to follow the directives or norms	B (Bs) is oriented to A's sanctioning and likely to comply with A's directives or expectations. B (Bs) has no immediate value priority outweighing the sanctions inherent in the sanctioning, nor does she have viable alternatives (actions or action situations) behavior effectively regulated through sanctioning
Cognitive mechanism	A is able to manipulate data and framing problems & solutions in order to orient B's behavior toward certain patterns or ends	B's behavior effectively regulated through information control and influence over cognitive processes. B accepts A's data and problem-definitions and solutions and is likely to behave accordingly
Normative mechanism	A communicates to B referring to or appealing to particular norms in order to induce appropriate action on B's part	B follows the specified norms (the likelihood depending on the level of socialization and commitment to the norms).
Socialization mechanism (relates to social structural powering (see section below)	A communicates or enacts a role model for B to follow, appealing to particular norms or symbols. A may make use of several powering mechanisms in the course of socialization	B learns the model and performs it to a greater or lesser extent
Self-generating mechanism	A activates in response to particular signals, situations, and symbols internalized norms, roles, situational rules, visions, plans, and emotions I. Internalized cognitive-normative elements are socially (shared) constructions II. Internalized elements are self ("own") constructions[25]	A executes/enacts rules, roles, plans whether socially constructed or self-constructed

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[23] The conception of an agent as potentially enjoying autonomy and capable of initiating action relates in this theory to power over self or self-generating control. Of course, this may be based on internalized rules, as discussed in the next section. But even when an agent follows norms and plays out roles, he or she may intervene, modify the internalized rules, and, in general, exhibit agential powers toward self.

[24] Under conditions where B's have resources or possibilities to countervail A's control initiatives, a game or mutual power process obtains, which of course alters the patterns and outcomes (Burns and Hall, 2012).

B. Models of Social Structural Powering and its Causal Mechanisms

The previous section focused on agential powering, in particular on one or more agent(s) A exercising power over another agent B (or several Bs). In the conceptualization, here of social structural powering, agents may still play a key part. Many instances of such powering entail agents enacting or performing particular rules (norms, roles, rituals, procedures) in socially defined "appropriate situations." This variant of power and control is a well-established conception in sociology and the other social sciences in terms of the influence on human behavior of learned rules, roles, symbols, plans, designs, etc. Learned cognitive-normative elements and structures shape and "drive" human action and interaction: they orient, motivate, and activate agents to attend to particular issues and problems and to act in particular ways.

Such social structural powering occurs through a variety of causal mechanisms. Here we focus attention on two:

-- Rule and symbol causality ("meaning causality") operates among socialized agents.

-- Extended structural powering (causality involved in the impacts of the structured actions of agents).

Operations of structural procedures in legal, administrative, socio-technical and infrastructure systems shaping and regulating social situations, constraining and regulating human behavior, in part, through allocating resources and gate-keeping.

The causal mechanisms (traceable back to socialization) are the learned rules specifying situations, symbols, agents to which to attend to and to consequently activate learned norms and roles which regulate action. Of course, the quality and effectiveness of these rule and symbol causal mechanisms depends on the degree of socialization and commitment of the agents. *Thus, rules are provisionally or probabilistically causal (it is a question of likelihood since many factors including agents "personal" factors may affect the process).* Agency and contingencies always come into play, so there is variation in enactment/performance or application of rules and roles, thus producing distributions of

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[25] A social construction might be: I am (he is) male, or I am (he is) a holy or sacred person, I am (he is) the supervisor of this group. A self-construction might agree with the social definitions or not. Hence, my personal axioms that I am female; I am Jesus Christ, I am ruler of the world might not be widely shared with most others.

applications. Social rules have then causal potentialities but are not deterministic but conditioning, regulating (Burns and Flam, 1987; Guzzini, 2005).[26]

While institutional and cultural forms operate in direct and interpersonal relations, they are also characterized by their *capacity to operate extensively in time and space, affecting the behavior of numerous individuals and groups*, as, for example, in people's responses to traffic laws, signs, lights, etc. but also many other forms of legal and institutional regimes.
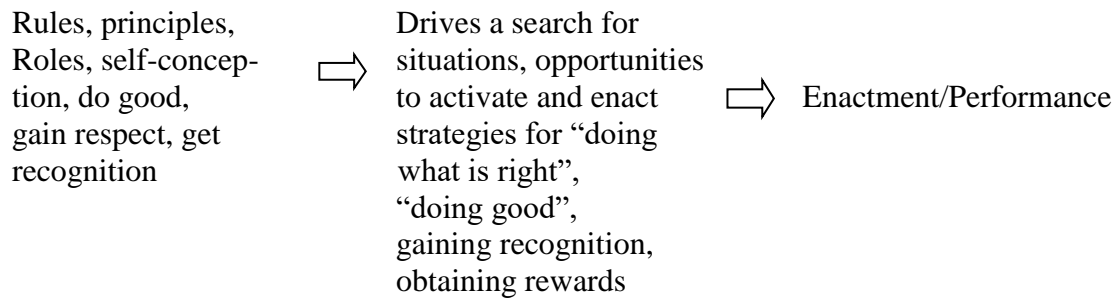
(1)   Rule and symbol causality ("meaning causality")[27]

The social structural causal mechanisms may not entail *concrete or observable agential causal actions or "operations"*, although these may be at play as well. Socialized human agents (that is, members of an established culture who have learned key rule complexes and symbols) typically respond in particular ways to contexts with situation defining rules, symbols and signals; so the instigator or causal driver of action is often the self-generative agent responding to signals and cues in a given situation and enacting appropriate rules and rule complexes. Several mechanisms of such rule and symbol causality – which should be identified and investigated – are identified below:[28]
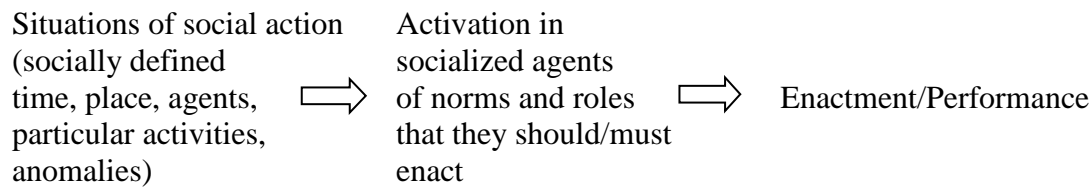
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[26] And to the extent that actors automatically, routinely habitually enact the rules (assuming they have the means to do so), the causal mechanism is close to "determining". At the other pole, actors may reflect on whether to enact rules, or the rules are fuzzy or ambiguous, call for adaptation or heuristics in the situation. The rules are, in general, not determining. Such conditions give rise to uncertainty, to which others (as well as self) may react.

[27] Normative order (moral rules, sacrality, etc.) has a structuring effect on individuals, groups, communities. Particular norms and other types of rules are activated under given conditions (situations such as meeting friends, relatives, encountering a helpless child, or person asking for help, etc.). There is, of course, individual variation reflecting differences in socialization, conflicting norms and rules, situational conditions (This relates to Ulf Hannerz's notion of distributional culture or, in this case, distributional morality). Although norms are potentially causal forces, they are not determining but conditioning/ regulating.
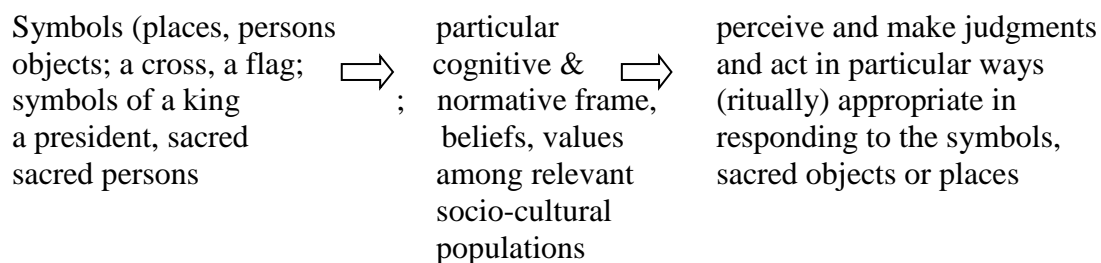
[28] Agency enters in as actors interpret (and misinterpret) values, norms, situations, actions and interactions.

Rules, principles,
Roles, self-concep-
tion, do good,
gain respect, get
recognition

⟹

Drives a search for
situations, opportunities
to activate and enact
strategies for "doing
what is right",
"doing good",
gaining recognition,
obtaining rewards

⟹

Enactment/Performance

In enacting norms and roles – in pursuing values and ideals – actors externalize those rules they have internalized (Berger and Luckman, 1967).[29]

Situations of social action
(socially defined
time, place, agents,
particular activities,
anomalies)

⟹

Activation in
socialized agents
of norms and roles
that they should/must
enact

⟹

Enactment/Performance

As elaborated in our model (see page 21), rules are applied in framing and defining a situation (Burns and Flam, 1987). Once a situation is appropriately defined, actors activate particular rule regimes to apply and perform (social structures, roles, norms). The reasons may be many and diverse that agents attend to established symbols and follow/enact appropriate rules (Burns and Flam, 1987): doing so brings status, identity, ideal and material rewards, or simply makes sense cognitively, or feels good. These rules provide models of the situation, goals and standards, beliefs, directives, and algorithms. Out of this, in many instance, emerge patterned and expected behavior, desired outputs and impacts.

Symbols (places, persons
objects; a cross, a flag;
symbols of a king
a president, sacred
sacred persons

⟹ ;

particular
cognitive &
normative frame,
beliefs, values
among relevant
socio-cultural
populations

⟹

perceive and make judgments
and act in particular ways
(ritually) appropriate in
responding to the symbols,
sacred objects or places

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[29] Note that this model differs radically from a "stimulus-response" model, although there are superficial similarities. In this perspective, a stimulus must be framed, categorized, interpreted. There is a cognitive-normative process prior to action ("response"), and the response may be habitual, routine, or automatic, or may entail judgment, strategic choice, dealing with issues of ambiguity, or ambivalence.

People/subjects respond to signals/symbols as in following traffic signals and symbols (of course, there is the potentiality of agential intervention (police action) which reinforces attention to and compliance with the system of symbols and signals and the appropriate rules of behavior.

The symbol of the pope, king or national president evokes responses of awe, obsequiousness, ritualized behavior, etc. In general, agents "read" signals or observe symbols of power and authority and anticipate what would be appropriate behavior in the given situation.

Examples of typical rules and symbol causality in social structuring and powering are presented in Table 3.

TABLE 3: Normative-Cultural Knowledge and its Processes of Regulation (institutional arrangements, role relationships, roles, norms, symbols, discourses, metaphors) in the case of socialized, disciplined agents

CONSTRUCTED MEANING OBJECTS	COGNITIVE-NORMATIVE PROCESS	ACTION PROCESS	OUTCOME AND DEVELOPMENT
I. Institution, norms, laws, ethical codes, values[30]	Agents orient to symbols, persons, places, signals, feelings Recognition and interpretation of meanings (as socialized "disciplined" agents)	Searching for, responding in particular ways (appropriate, prescribed, suggested ways) Activation and performance of learned modalities of action, programs, algorithms, heuristics of responding appropriately	I. Compliant behavior, appropriate behavior
II. Symbols (objects, persons, places)			II. Emotional mobilization and action vis-à-vis symbol
III. Metaphors, exemplars, "role models" (e.g. heroes, saints)			III. Incorporation & mobilization of social representations, action and acting on them
IV. Feelings, Emotions, "Drives"[31]			

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[30] Institutionalized values and symbols orient and activate agents (Merton, 1957).

[31] In the "mix" (and distortions, eccentric psyches and neuroses) some actors are driven by tremendous energies and extraordinary stamina – which may contribute to individual powers. "The devil drives" also often result in personal problems as well as problems in social relations with others.

Social structural powering is identified with those mechanisms that affect, regulate, control human systems, individuals, groups, organizations, socio-cultural populations, etc. with or without engagement of authoritative, controlling agents. In general, collectively shared rules, symbols, frames are *causal operating factors* in the behavior of actors who have been socialized into a given institutional-cultural framework.[32] Such actors orient, attend, and respond to particular situations, symbol displays, and rule enactments or performance. In other words, much of this is internalized in actors as rules and symbols, images and metaphors (charged with emotions), drivers or motives such as "do good" or "get attention or recognition", seek companionship or "to be loved", get rich in "appropriate" situations (which are socially defined, although definitions may be fuzzy and shifting).

(2) Institutionalized operating procedures and systems

In general, the theory identifies *social structural powers* with those mechanisms that with or without engagement of controlling agents shape, regulate, control human systems, individuals, groups, organizations, socio-cultural or properly socialized populations, etc.

Social structural powers inhere in procedures, social relationships, and institutional arrangements (rule systems), established collective frameworks and discourses that are not immediately possessed or controlled by any single actor – although the structures may have been shaped initially by one or more agents, "the founders".

Institutional and cultural arrangements are social structures which to a greater or lesser extent have had "intentionality" guiding or determining their construction at one time (when they emerged or were established). They tend to operate to a certain extent "automatically" although with human agents interpreting and adapting them to local and situational conditions. Many social structural mechanisms are then procedures, bureaucratic

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[32] In other words, socialized agents carry with themselves social structures, including particular action structures such as roles (and associated emotional regimes) and produce their own interpretation, plans, operational values, norms, images. And enact them under conditions which are rule specified (e.g., in response to particular situations, symbols, signs, behavior of others). That is, much agential action is self-generating (self-causality or intrinsic causality) which relates to human agents as rule and symbol users as well as emotional beings (Of course, this type of causality is traceable back to socialization – power and authority, rhetoric). They are moral beings who express values, norms, plans, designs in their actions. For instance, actors are driven to "achieve good" "exhibit good", to behave in a way consisting with the way one wants to be perceived, defined and understood.

algorithms, socio-technical systems which are intended and designed to produce certain desired effects (at least for those constructing and operating these systems).

There are numerous forms of social structural powering which do not require obvious exercise of agential power:

- Some structured systems with which agents deal are automated. One logs on and follows preordained procedures. Deviance in interaction leads to failure – for instance sanctions are inherent in the actual situations as in natural/ecological "controls" over human behavior. Or sanctions are part of the design, the standard operating procedures.

- Designed or constructed materialities – tools, technologies essential to many human activities; built environments, infrastructures, buildings which have inherent "causal powers" or capabilities.

- Technologies, built environments, and socio-technical systems operate in ways similar to social structures in general having diverse structuring consequences. Intention/goals and designs have guided their construction.

C. Models of material/ecological forces (Baumgartner et al, 1976; Burns, 2007; Burns and Dietz, 1992; Mann, 1986). A major class of powers that affect human beings, their relationships, and their constructed systems are material/ecological conditions and forces. There are multiple, qualitatively differing causal mechanisms, for example, in geography (mountains, waters, forests, vast open spaces) in shaping and regulating human behavior, the distribution of useful and/or valuable metals); geology (earthquakes, volcanos); biology (species dangerous to humans: powerful carnivores, those carrying and spreading diseases, insects, bacteria, viruses; many kinds of diseases; species useful to human production and survival: animals that have been domesticatable, animals which tend to protect human life and survival; these mechanisms impact on situations, action conditions, populations, (re-)allocate resources, operate selectively on individuals and populations, advantaging some, disadvantaging others. Of course, material power factors operate without intention (unless one is considering human constructions of material systems, socio-technical systems, infrastructures, built environments with designs, plans, and goals built into these).

Nature's powers are coercive in many cases, but also empowering (production and distribution of necessary and valuable resources):

(1) Indicators of the "powers" of nature in many cases have been established by scientists and engineers and are used as measures of particular forces (see Table 4).[33]

Table 4: Measures of "natural powers"

STRENGTH OF HURRICANES AND TORNADOES	Power measured as **damage capacity**: the **Fujita Scale** (also known as the F-Scale),[34] six ratings from F0 (light) to F5 (very high), and F6 category, the "inconceivable tornado.[35]	
EARTHQUAKE POWER MEASUREMENT	The *magnitude* of an earthquake, usually expressed by the *Richter Scale*, is a	

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[33] Also, measurements are made of the impacts of these forces, for instance, in terms of economic damage, injuries, deaths, etc.

[34] The **Enhanced Fujita Scale** (**EF Scale**) replaced the **Fujita scale** in, 2007. The scale has the same basic design as the original Fujita scale: six categories from zero to five representing increasing degrees of potential damage. It was revised to reflect better examinations of tornado damage surveys, so as to align **wind speeds** more closely with associated storm damage. Better standardizing and elucidating what was previously highly subjective and ambiguous, it also adds more types of structures, vegetation, expands degrees of damage, and better accounts for variables such as differences in construction quality.

[35] he levels relate wind speed to likely damage. Thus F0=Gale specifies wind less than 73 miles per hour (116 kph) and would cause some damage to chimneys, damage to sign boards, and break branches off of trees and topple shallow-rooted trees. In the middle, F3=Severe winds from 158-206 mph (254-332 kph); these are "severe tornadoes" that can tear the roofs and walls off of well-constructed houses, uproot trees in a forest, overturn entire trains, and throw cars. F5=Incredible winds from 261-318mph (417-509kph) that lift and move strong houses, debark trees, cause car-sized objects to fly through the air and cause incredible damage and phenomena to occur. F6=Inconceivable with winds above 318mph (509kph). No F6 tornado has ever been recorded.

	measure of the amplitude of the seismic waves.[36] The scale is logarithmic so that a recording of 7, for example, indicates a disturbance with ground motion 10 times as large as a recording of 6. Earthquakes with a Richter value of 6 or more are commonly considered major; great earthquakes have magnitude of 8 or more on the Richter scale.	
VOLCANIC EXPLOSIVITY INDEX	Eruptions can be assigned a VEI number on a scale of 0 to 8, using particularly the following two criteria: *Volume of ejecta and height of the eruptive column*.[37]	
WAVE POWER (TSUNAMI)	Tsunami are distinguished by levels of intensity (from 1 to 4) associated with the height (from 2 to 16 meters) of the waves.[38]	
VIRULENCE OF BACTERIA OR VIRUS ATTACK	**Virulence has been given** quantitative measures of the power of an infectious microbe to cause disease . Virulence can be measured by LD50 (Lethal Dose 50) and ID50 (Infectious Dose 50), which is the dose required *to kill* or *infect* 50% of the test population, [39] respectively.	

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[36] The earthquake *intensity,* as expressed by the *Modified Mercalli Scale*, is an experiential measure that describes how strong a shock was felt or experienced at a particular location. The *Scale* expresses the intensity of an earthquake's effects in a given locality in values ranging from 1 to 12. The most commonly used adaptation covers the range of intensity from the condition of "1-- Not felt except by a very few under especially favorable conditions," to "12 -- Lines of sight and level are distorted, objects thrown upward into the air, damage total.

[37] A VEI number of 0 refers to plume height less than 100m and a volume of ejecta of 1000s m3; VEI 4 has plume height up to 10-25km and entails 100,000,000s m3; and a VEI 8 has plume height over 25km and 1000s km3 ejecta. The VEI is similar to the Richter scale for measuring magnitude, in that each interval on the VEI represents an increase in magnitude of about 10 (i.e., it is logarithmic).

[38] An intensity level of 1 correspond to 2 meters (with flooding of gently sloping coasts and relatively slight damage to infrastructure) and a level of 4 corresponds to 16 meter waves (with almost complete destruction of structures encountered)

[39] Virulence can also be quantified as: (1) Mean time to death; (2) Mean time to appearance of symptoms; (3) Measurements of fever, weight loss; (4) Measurement of pathological lesions (poliovirus); reduction in blood CD4+ lymphocytes (HIV1). In general, disease processes are highly complex and differentiated (with varying mechanisms). A number of factors can affect the ability of a microbe to cause disease, including a person's genetic makeup, as well as the genetic makeup of the microbes themselves, exposure (amount of dose), route of infection, age and gender as well as lifestyle of the host. In addition, differences in the susceptibility of hosts (for instance, differences between individual immune responses (i.e., because of past exposure or vaccinations)) can also alter the virulence of a microbe.

(2) Earlier research (Baumgartner et al, 1976; Mann, 1986) shows the various ways that geography and ecology have played in the development of early human communities, states and empires.

(3) There is substantial evidence of climate change cycles affecting agricultural production (shortages or abundance), evoking social conflict over land and food, and resulting in increased levels of mobility and warfare.

(4) Natural selection and its responses and impacts on populations and communities (Burns and Dietz, 1992) is a type of mechanism which contemporary social scientists have tended to ignore until recently. In some cases, physical or materialistic selection will be absolute in that a group cannot sustain itself in a particular physical environment using a given set of institutional arrangements and technologies. In other cases, the response of the material environment generates selection that favors productive or efficient rules and selects against unproductive or inefficient rules or institutional arrangements.

Physical infrastructure, geography, climate, natural resource distributions and social ecology are key selective environments that shape action opportunity structures as well as allocative or payoff structures. Certain patterns of action -- within environmental constraints and possibilities -- lead to greater payoffs than others per unit of input activity; that is, they obtain more or better quality resources for a given strategy or resource expenditure. Of particular importance are gains and losses in such strategic variables as material production, resource acquisition, population, and rule enforcement and diffusion. We can think of environmental response in terms of a function that describes what will occur when people take a particular action in a specific social and physical environment. This *allocative function* is usually stochastic. As the environment changes, the allocative function changes, producing different responses to the same actions or outputs. Its variance, and thus degree of predictability, changes over time. The allocative function drives selection acting on rules that are implemented or realized in concrete social activities and established, stable practices.

Through the development of technical skills, technologies, and knowledge about their environment, human groups exploit gains to be made in relation to allocative functions; in this they may overcome particular social as well as material constraints (Baumgartner and Burns, 1984; Andersen and Burns, 1992; Woodward et al, 1994). They are enabled to act in ways that they could not act previously and increase both the overall amount of production in that environment and the efficiency of that production. Such developments also result in

changes in the environment which in turn alters action possibilities and payoff conditions. Ultimately, these changes may preclude the reproducibility of a community, for instance, by undermining a critical resource base such as water, arable land, forests, or fossil fuels. The theory distinguishes between structural powers (material structures, social structures) and agential powers (as, for example, in interpersonal relationships). On the one hand, social structural and agential powering entail the factor of design or plan; goals and commitments are factors of causality in contrast to the operations of pure materialistic/ecological powering, which entails no operative goals and commitments.

The social power theory distinguishes diverse contexts of powering operations: The institutional, cultural, and ecological/material context in which agents, social structural powers, and natural forces interact and compose causal complexes with particular operative patterns and performances. Typically then multiple causal factors operate in the production of "patterned interactions" and particular outcomes and developments.

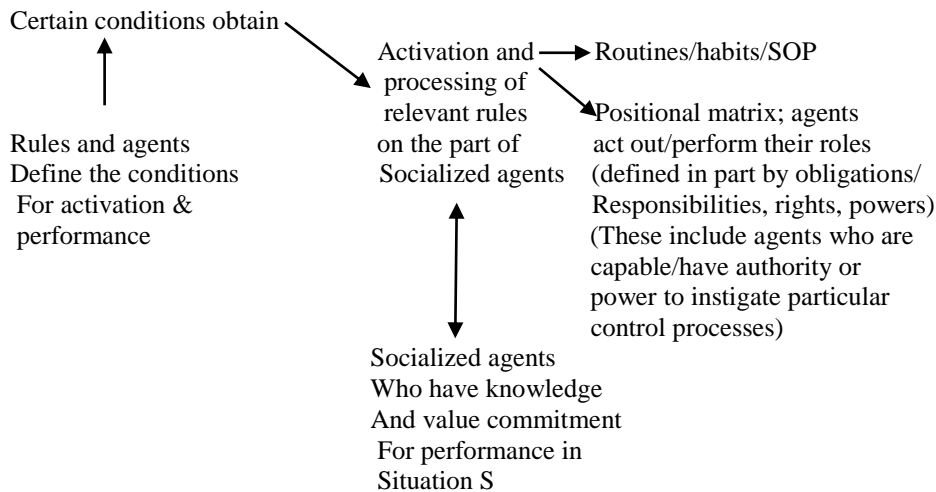Table 5 summarizes the agential, social structural, and material causal mechanisms.

Table 5: Modalities of power causation

Agential mechanisms: The logic of agential powering is the execution of particular control activity in relation to some agent B (or several Bs).

Agent A → execution of particular → B(Bs) comply with some
   Control acts   degree of likelihood

The logic of agential powering often occurs in conjunctioin with social structural mechanisms (although there are "open situations" where A encounters a B (Bs) outside of well-defined social structures). Through a series of concrete actions, operations, production activities, A has some likelihood of influencing B (that is, A has some probability of causing B to do X rather than Y which B might prefer to do). In other words, B changes his behavior to do something he would not otherwise do. In the more common cases, A in his position/role is expected/required/responsible to control B (Bs) and has certain rights to perform particular control activities vis-à-vis B (Bs); that is, B (Bs) is part of this arrangement. Case 1: B (Bs) is obligated in her position to comply to A. Case 2: B (Bs) is in a position to avoid or to countervail A's power. Case 3: B(Bs) is not obligated but is, in any case, subject to A's exercise of power and has no countervailing powers or possibilities to avoid A's control acts. Case 4: B has countervailing power(s) and can avoid or countervail A's power. Typically, multiple causal factors are involved in A's efforts to control B (Bs), and B (Bs) respond compliantly with some likelihood (or not) to A's control attempts (see p. 22).

Social structural mechanisms:

Certain conditions obtain

                      Activation and ⟶ Routines/habits/SOP
                      processing of
                      relevant rules   Positional matrix; agents

Rules and agents   on the part of   act out/perform their roles
Define the conditions   Socialized agents   (defined in part by obligations/
 For activation &   Responsibilities, rights, powers)
 performance   (These include agents who are
                                   capable/have authority or
                                   power to instigate particular
                                   control processes)

                      Socialized agents
                      Who have knowledge
                      And value commitment
                       For performance in
                       Situation S

Observe: multiple social structural mechanisms: operation of norms, roles, rule regime through socialized/committed agents (as a function of the degree of socialization and commitment).

Material/ecological mechanisms: context, mechanisms, forces and impact: earthquakes, volcanoes, hurricanes, flooding, heat waves, draught, disease. Complex, typically multiple causal factors – natural "forces" interact with built environments, socially constructed patterns of behavior, and actions (possible innovative) of social agents.

X* power vector influences   Y   → Z
                                           Z*
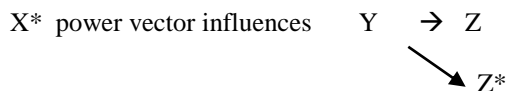
As pointed out earlier, the theory stresses the multiple qualitatively different causalities (causal mechanisms). The causal distinctions in powering modalities are analytic. In practice, most human processes and developments entail varying mixtures of the agential,

social structural and materialistic/ecological power and control mechanisms.[40] Consider the case of the personal transport sector in the USA (as well as many other Western countries), which is heavily dependent on the automobile (Burns and Dietz, 1992). In many regions, the physical infrastructure, especially the dispersed pattern of residence and of employment presents a major material obstacle to realizing an increased use of mass transit. In other words, this represents physical or material powering (selection mechanism) against mass transit in that proposals to shift away from the automobile and its high fossil fuel consumption toward mass transit schemes, bicycles or walking are difficult to implement because of the substantial distances and residential dispersion (built environments already established over relatively long periods of time).[41] In addition to an established physical infrastructure, the day to day rules (lifestyles and worklife rules) organizing the activities of most Americans assume the use of autos rather than mass transit. In particular, there are evaluative rules that associate the use of the auto with individual freedom and mobility. These rules provide a form of social structural-powering (and selection mechanisms) against increased use of mass transit or decreased use of autos. While these two forms of selection operate autonomously of the conscious strategy of particular agents, mass transit is subject also to selection on the basis of the exercise of agential social power and authority. Powerful actors associated with the automobile, oil and highway interests (the "highway trust") actively oppose policies that would discourage or substitute for auto use. They can legitimate their opposition by labeling mass transit impractical (due to material conditions and material selection) or contrary to values of liberty or freedom of mobility (due to social structural conditions and selection). In general, socio-technical systems associated with institutional arrangements play a key role in powering processes (Burns and Hall, 2012). As systems of organized activity, they limit what actors can and cannot do. At the same time, they define and constrain the elements that more encompassing selective environments have to operate upon.

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[40] A whole class of examples involve *cybernetic control systems,* that is, a major proportion of regulatory systems (Buckley, 1967, Burns et al, 1985)

[41] Environments "select" only imperfectly and not always directly or immediately. The material environment -- including technologies -- determine which rule systems can be realized, or what changes in rule systems can be introduced with some likelihood of realizability. Human agents cannot enact rules which violate the laws of physics and biology, although technologies enable them to alter the ways and the extent to which such laws constrain and steer activities. Rule systems enacted in a given selective environment may be more or less "efficient" or "effective" in directing human and material resources in production and reproduction activities. Effectiveness and efficiency must be understood in specific spatial and temporal contexts. What may appear to be highly effective and efficient in one context may be unsustainable over a relatively long period (such as several hundred or even a thousand years). One aspect of this unsustainability is the increased risk of a gradual decline (e.g. atmospheric deterioration) or catastrophe (such as nuclear destruction).

Because most power systems consist of complexes of mechanisms, there are often uniqueness features, that is, powering mixtures are to some extent unique – although there are a limited number of relatively common modalities in the contemporary world. The particularities of the complex and the relationships among the mechanisms depend to a certain extent on the context and the concrete action or production processes in which agents participate. For instance, in agriculture, natural powers are combined with and manipulated by human agents' operations to produce crops and animal products. The production of hydro-power or nuclear energy also combines the operation of natural powers with agential actions and social structural powering. Human agents interpret, complement, and regulate social structural processes in such a way as to generate particular material, agential, and social structural performances (those desired, if the efforts are successful).

(i) An administrative rule complex, among other things, organizes, among other things, an A-B administrative relationship. A by virtue of being "the employer" (or representative of the employer) has rights to direct, monitor, evaluate, sanction (possibly "fire") a subordinate, B, or subordinates, Bs. These powers are capabilities or potentialities of A vis-à-vis Bs.[42] The rights are specified by rules. The rule complex of the institution may give complete supervisory power to A over B, or only partial, circumscribed powers. Power may have to be shared with other agents such as labor unions or professional associations. In general, there are multiple rule regimes and mechanisms, in part complementary, in part contradictory with any given A-B rem of citizen rights vis-à-vis the state provides an action basis for agents to initiate claims and counter-actions in relation to the state.

(iv) Property rights – specified in the laws and regulations concerning ownership – provide causal powers to "owners". They may decide what happens to the property, whether or not it is utilized and how it is to be utilized – within some limits. They may decide to assign or sell the ownership to someone else, either out of an act of charity or expectation of financial gain through its salee. Again, such social structural power is combined with agential power to determine how and for what purpose to use the rights, conducting particular powering processes in doing so.

(v) Patent rights – specified by a system of rules – give the patent holder power(s) to decide over the use of the patented object or process, and the power to require compensation for its use by another. Typically, these rights extend over certain times and domains (spaces).

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[42] Note that in the A-B process in relation to X, B is the immediate, material "cause" of X. But A has directed or forced B to do it. This is Dahl's and to a lesser extent Weber's conception of social power.

III. Meta-power[43] defined in terms of structuring and transformative powers.

In the social sciences, power and control have been typically conceptualized in terms of the capacity or right of one agent (individual or collective) to get another agent to act in some specified way and even to act against her own will (Max Weber (1968)).[44] In various ways, the most prominent contemporary analyses [for instance, Peter Blau (1964) and Robert Dahl (1957), among others] view power as principally one actor's control of the behavior of another actor. This approach to power captures only a limited part of the phenomena. In reaction, Talcott Parsons (1963), redefined power as mobilization of resources to achieve collective goals, and broadened the concept to include cooperative efforts and larger institutional venues. While this revision was an improvement, it too missed key aspects involving groups, organizations, and states in particular structural and related powering.

A larger, and historically more important part of social power concerns the shaping and transformation of the social and cultural matrix -- within which interpersonal power activities and collective enterprises -- are played out. This we refer to as meta-power, the capacity to construct the conditions, rules, and institutional formations under which individual and collective actors mobilize and apply resources to accomplish their intentions (Burns and Hall, 2012; Baumgartner et al, 1975; Baumgartner et al, 1976). Such structuring may involve the manipulation of institutional arrangements as well as norms and values. A given socio-cultural structure may be viewed then as, in part, the macroscopic resultant of the application of meta-powering that determines permissible or acceptable activities and relationships of individuals and groups to one another and to resources or forms of property and authority. Thus, the meta-power conceptualization breaks with the past by extending our perspective to encompass   power and control over social structures across time and space.

Sociological meta-power researchers utilize the concept of meta-power to explain stability and change of institutional arrangements – for instance, the transformations of a social system -- across time and space. Hall and McGinty (1997) show how some agents shape particular structural conditions and institutional arrangements for other actors, set agendas for organizations, change institutional arrangements and institutional forms, and alter

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[43] The concept was presented and published in early 1970s by the author along with a number of collaborators. And these ideas were adopted applied early by Himmelstrand et al (1981) in Sociology and Caporaso (1978) and Krasner (1981; 2011), among others, in Political Science and International Relations.

[44] This section draws on McGinty et al (2007).

the form and quality of social relationships and future possibilities for types of interaction. Thus, legislators and bureaucrats try to induce the behavior of teachers dispersed among thousands of classrooms across a territory. Hall (1997) conceives of organizations to be structurations of meta-power and specifies five processes that sustain the organization. They are a) acquiring jurisdiction to discipline other agents; b) constructing rules; c) structuring the contexts of interpersonal relationships; d) culturing the organization; and e) enrolling subordinates as delegates for relational control.

Along similar lines, Carson et al (2009) see agents exercising meta-power in relation to maintaining or changing major public policy paradigms such as those in the European Union relating to climate change, energy, food, and gender, among others. This may manifest itself in several different ways: (1) elite actors in positions of meta-power may undergo a cognitive shift, which results in their adoption and institutionalization of a new public policy paradigm(s); (2) or, one elite replaces another through democratic election, negotiation, or violence, bringing with it a new public policy paradigm; (3) elite groups negotiate a new paradigm and its institutionalization. In all cases, an institutional -- or possibly a more encompassing societal -- crisis may set off one or another of the three mechanisms. Of course, the changes may be driven by purely competitive or power-seeking considerations.

The research programs referred to above have been generally associated with qualitative structural analyses of multi-level, multi-site phenomena. This has involved the effective use of case studies, sociologically informed historical or ethnographic methods that produce not only a chronological timeline of events, but can place them in a relevant institutional and cultural context and demonstrate their relationship to multiple phases of development or varying discursive, situational and institutional contexts.[45]

For the purpose of investigating of structural control in human groups -- pertaining to the maintenance, restructuring, and transformation of social relationships and institutional arrangements – there exist at least three dimensions of structural control with respect to social systems: control over action opportunities, control over differential payoffs or outcomes of interaction, and control over actors' cultural orientations and ideology. These three systemic properties are mutually interrelated and can usually be separated only analytically. Such

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[45] Another major conceptual stream drawing on the earlier sociological formulation has been developed by political scientists, particularly those in international relations (Caporaso, 1978; Krasner, 1981, among others). Ulrich Beck (2011) also makes use of the concept of meta-power in the sense of the transformation of rules of national and international powers. For instance, in his view the new global economy stands in relation to the state as a kind of meta-power; it operates to change the national and international rules of power.

structural power, as suggested earlier, *shapes and sets the conditions for lower order forms of powering.*

In investigations of the exercise of meta-power, as in power studies generally, there is interest in differences among actors in resource control, skills, and strategies; the main focus is on capacities to mobilize power resources with which to manipulate the matrix of rules, conditions of interaction, and distribution of resources as well as normative and ideological orientations. Clearly, although an actor may have social power within an interaction situation (or "game"), she may or may not have power to structure or restructure the interaction situation, the social relationships, to alter the "type or rules of game" the actors play, or, in general, to change the rules and institutions governing exchanges among the actors involved. The capacity to establish, maintain, and transform social relationships and institutional relationships is precisely what is meant by meta-power.

Agential and Systemic Types of Meta-Power

Much of the attention above in introducing the concept of meta-power has concerned agents exercising meta-power and relational control, that is, the agential form. But institutional arrangements, socio-technical systems, and cultural formations also operate as types of structural power, that is, exhibit a form of meta-power.

Agential meta-power

Agential meta-power is observable whenever an elite or powerful group of agents shape particular structural conditions and institutional arrangements for other actors: to establish a constitution; to carry out substantial institutional reforms, to restructure an industry, to manipulate or transform interaction opportunities in key societal areas. For instance, the state launches major infrastructure projects, regulates and protects workers vis-à-vis their employers (or the opposite), and, in general, regulates social interactions in, for instance, the economy, the polity, or community and professional life. The processes in which meta-power researchers are most interested, concern powerful agents, such as capitalists or political/administrative leaders, using their positions of structural power to mobilize resources in order to develop new systems of production, new products and lifestyles, new institutional arrangements, for instance, in the formation of globalization

conditions. Structuring initiatives may come also from state agents, for example, to establish an infrastructure (airport, highway system, water system, electricity networks) or a regulatory agency; or, the initiative may come from a dominant political leader or party with a mandate to reform or transform social conditions. Such projects may define new social relations, action opportunities, and cognitive and normative frames

This meta-power agenda has also encompassed Simmelian themes of "third parties" regulating relationships so as to foster cooperation, competition, or conflict was well as particular power and control relationships; this form of powering has been conceptualized in meta-power terms as relational control (Baumgartner et al, 1975; Baumgartner et al, 1976; Burns and Hall, 2012). Meta-power was seen to be employed, on the one hand, to encourage cooperative interactions, or, on the other hand, to produce competition or conflict among actors (for instance through promoting or managing resources so as to shape a perception of resource scarcity).

The exercise of meta-power as an attempt to structure social relationships – the idea of relational control – may be used by social agents to ensure the effective functioning of institutional arrangements, socio-technical systems, or other social systems as well as to promote or stabilize their advantages or dominance over social systems and their populations. This duality of meta-power utilization – the exercise of power in the interests of the group or community and/or in the interests of the power-wielders themselves points up one of the dilemmas in reforming meta-power relations and mechanisms in contemporary society.

Structural meta-power

Structural forms of meta-power shape and constrain social agents' relationships, their opportunity and incentive structures, their interactions and payoffs. That is, the normal operation or functioning of institutions and institutional arrangements such as those of capitalism, state agencies, and civil society associations entail *organizational biases* that shape and reshape interaction opportunities, careers, income, status, limited power over others as well as constrain certain activities and developments in more or less predictable ways. In other words, rules, procedures, and programs generate and regulate patterns of social activities, their effects and developments. Institutional selectivity may operate, for instance, to change the frequency of certain activity patterns or to alter the distribution of resources (concentration and centralization, e.g. through ratchet effects), to determine the parameters of

power, the forms and types of games actors play. A system like capitalism entails generative processes of meta-power (based on accumulative processes which provide and distribute resource bases (materials, knowledge, social and political arrangements) combined with knowledge development to set in motion innovative developments – whether economic, socio-technical, and governance -- that impact on other institutions and people's lives. For instance, major new socio-technical systems, once established, operate as quasi-legislative bodies shaping and reshaping human conditions and activities.

The social structural concept of meta-power demonstrates how institutional arrangements based on social rules and algorithms of control which organize attention, provide definition, encourage and/or limit sensitivity to rules or practices that either in real or perceived ways change the form of the institution and its relationship to its environment. Altheide (1995) provides a structural analysis of meta-power in the media. Beginning with an analysis of the media as a form and format of social control, Altheide develops the idea that relational control of institutional forms has the capacity to generate or limit resistance and dissent, subdue criticism, legitimate existing unequal power and exchange relationships, and change the manner in which human social life is acted out and experienced. Thus, meta-power analysis demonstrates that once developed and legitimated, systems of control have the capacity to shape and regulate human awareness, interactions including inter-relational power, and, in general, the conditions and opportunities as well as constraints of human social life. The stress here is, of course, not on the interpersonal or direct relationships.

In a similar vein, Hall and McGinty (2002) note how an existing policy context structures the policy process through a policy regime, the inclusion/exclusion of actors and the distribution of resources among them; a policy paradigm, its basic ideas and values are legitimized for policy consideration, and a policy style is defined as the accepted way to develop policy form and content. Thus, policies are not created in a vacuum but rather in *a context that conditions policy processes*. While initially formulated as agentic meta-power the meso-level analysis has a built-in dialectic between conditions, action, and consequences. Since there is an ongoing temporal and spatial orientation, analysts can begin at any point but must always be cognizant of the triumvirate.

Those subordinated to meta-power in both its agential and social structural forms are not without some ability to deviate, negotiate, and/or resist. In this sense, *control is never total* because super-ordinates and institutions depend upon the readiness of weaker agents to

accept structural conditions and to implement established norms and social relationships. There are always varying degrees of discretion and opportunity structures for deviation and resistance.

In sum, the power paradigm distinguishes two general kinds of social power processes and effects: (1) those operating *within* institutional and cultural arrangements, that is, regulatory or modus operandi control of behavior, processes, interaction, material and social conditions; (2) those meta-powers operating on social and material structures, shaping, restructuring, and transforming them as well as the "internal structures" of agents and entire populations (socio-cultural populations). Meta-power operations may make use of the same power mechanisms as regulatory forms of power but the motivations and authorization typically differ, since intentional change in structure is involved in the exercise of meta-power here. Moreover, such meta-power invariably entails the use of designs, reform models, or new paradigms, since an alternative structure is to be produced and established (Carson et al, 2009).

What makes meta-power analytically useful is not simply the unique perspective that it provides on power relationships and the manner in which they are defined; other social theorists – most notably the post-structuralist thinkers and feminist scholars – seem to make similar arguments about the nature of social power: using "power" to accomplish *desirable institutional change and structural impacts of established power structures rather than stressing one actor's power over another.* Where our conceptualization of meta-power differs is in its assumptions about the formation and reformation of social structure and social agents' dialectical relationship to these structural conditions. The earliest formulations of the meta-power concept were related to social system stability (morphostasis) and system transformation (morphogenesis) (Baumgartner et al, 1975, 1976). This highlighted the significance of meta-power as a capacity to influence and shape long-term historical forces and to exercise control over institutional and cultural conditions which constrain as well as enable cultural and ideological productions and the emergence of new institutional forms.

The meta-power conceptualization encompasses an appreciation not only of elite control (agential) of institutional arrangements as well as normative regimes but also institutional arrangements operating as structuring mechanisms: control over the organizing of social relationships as well as the situational conditions of interaction; the establishment as well as the destruction of opportunity structures; and the shaping of definitions, motivations,

and even beliefs and values that social actors embed in their interaction situations (Baumgartner et al, 1975; Hall,1997).

IV. Concluding Remarks

The theory of causal power mechanism focuses attention on concrete activities, controlling acts, cognitive and normative activities of identifying and responding to meanings of codes, symbols, and discourses as well as particular institutional arrangements. Social power has its interaction and control dimensions (e.g., in groups and organizations) but also its social psychological and symbolic interactional dimensions when socialized and disciplined members of groups and communities control and regulate themselves. Also, material and ecological forces and mechanisms enter into the equation regulating and powering human affairs.

The conceptualization of power presented here has several immediate advantages:[46]

- All human power and control systems are made more comparable

- The causal mechanisms of control differ substantially between the operation of social, technical, and natural systems. In other words, in the theory, the actual powering mechanisms or processes need to be identified and specified in action/or operational terms, i.e., the concrete mechanisms, whether agential control activities, social structural constraining and/or enabling operations, or material/ecological constraints and forces as well as selective mechanisms.

- The comparability enables us to explore and develop a much richer and systematic conception of the multiple modalities and mechanisms of "causality" relating to powering than those developed thus far in the natural and social sciences.

- The approach identifies the substantial differences between operating regulatory systems of power, on the one hand, and the exercise of meta-power – designing, constructing and establishing new structures and systems, on the other hand.

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[46]Methodological implications of the theory are several (see Burns and Hall, 2012): In particular, (1) case studies of mechanisms, qualitative (structural) and quantitative data; (2) quantitative studies measuring the effects of power, or indications of the degree of power. (3) Accumulation of societal powers in multiple systems of power and complex networks.

- Different types and levels of knowledge are required, skills are different, power conditions differ usually, although the actual types of social power mobilized may be similar.

- The approach recognizes human agency, including that among those subject to power and control operations (direct as well as indirect). There are, therefore, "game" and interaction processes, struggles, negotiations, negotiated outcomes and orders among those wielding powers but also between those with great power and those with limited or modest powers.

- The approach focuses attention on types of power modality and the exercise of power which play a decisive role in societal development and evolution: (i) the structuring and development of institutions and cultural formations, (ii) the formation and restructuring of built environments and infrastructures as well as socio-technical systems.

- Societal development can be understood in terms of the capacities to organize and control people, resources, systems, infrastructures, territories, time – and the development of these multiple capacities over time (Burns and DeVille, 2007; Burns and Hall, 2012; Mann, 1986).

The development of societies can be modeled and understood in terms of the inter-relationships of different power modalities in time and space (Baumgartner et al, 1976). The mechanisms in the three modalities typically differ but there is overlap since humans have managed to harness for human purposes and design many material-ecological forces for their own use, as in the control of water flows, or in the exploitation of electricity and magnetism, fossil fuels, or nuclear power.

In closing we want to stress.

(1) Social power systems (institutional arrangements, infrastructures, socio-technical systems) as complexes of causality are typically characterized by mechanisms which entail "control", "influence", "power over," "power to," etc. However, there is no simple typology in the sense that Etzioni, Mann, Russell and others have suggested (see

earlier). Agential powering involves actions/operations which influence/control; different types of actions vis-à-vis others are labeled as types of power, each activity (or potential activity) is identified by its main causal operations or mechanisms.

Some instances of agential powering do not depend on one agent operating in relation to another (controlling, manipulating, persuading) regulating performance or only to a very limited extent, but rather they *depend on "social action" initiatives of the controlee*; in other words, there may not be any obvious or immediate "controller" in the interaction situation. Causality operates inside the (socialized & committed) agent who responds to socially meaningful signals, symbols, and situations and who follows or implements a norm, ritual, procedure, or role (along with other agents). Of course, some or many of these powers were introduced and sanctioned by teachers, authorities, or self-learning mechanism sometime in the past. And, in some cases, there are agents who serve to reinforce adherence to the rules.

We have identified a number of social structural powering mechanisms that do not ostensibly require agential power engagements:

- People/subjects respond to signals/symbols as in following traffic signals and symbols

- Some structured systems with which agents deal are automated. One "logs on" and follows pre-established procedures. Deviance leads to failure – in other words, sanctions are inherent in the actual situations as in natural/ecological "controls" over human behavior. Or sanctions are part of the design of standard operating procedures

- Rule and symbol causality: Agents attend to established symbols and follow/adhere to rules for many reasons (Burns and Flam, 1987): doing so brings identity, status, ideal and material rewards, or simply makes sense cognitively

Forms of material or natural powering over humans and their social and material structures entail many distinct causal mechanisms: biological, geological, meteorological, etc. (see earlier discussion). Many "natural" powering vectors are the result of human actions on the natural world (climate change, changes in water courses, water levels, pollution, soil and atmosphere degradation, etc.

Social systems can be considered, under a variety of conditions, *as complexes of causal mechanisms manifested* in social action and interaction processes and their outcomes.

These complexes of causal factors are associated with social power and power relationships, which are potentialities in action and interaction and related impacts and developments.

(2) Power relations and power systems are social constructions. That is, most *of the power relations or power systems in social life are constructed by human agents*. This is apparent in the case of many institutional arrangements and organizations as well as infrastructures and socio-technical systems: such as factories, air traffic control systems, railroads, nuclear power plants, IT networks. Included in this array of constructions are regulatory arrangements and institutions. These systems consist not only of social mechanisms of regulation and control but natural and technical mechanisms (electric, mechanical, nuclear energy, etc.).

(3) Complex systems of power and meta-power can be identified and analyzed as such: capitalism, the state, socio-technical systems and infrastructures (Burns, 2007; Burns and Hall, 2012).

(4) The mechanisms (and therefore types) of power can be multiplied – as new types of technologies and new socio-technical systems are constructed. New powers are constructed by controlling or harnessing new causal mechanisms or operations. For examples of new "types of power" consider: (i) "Genetic engineering" based on the use of natural mechanisms. Utilizing the knowledge of the life sciences (genetics), there is increasing power to manipulate, change, reconstruct life processes of plants, animals, and humans. (ii) Using knowledge of psychology, new powers have been developed to influence thinking including forms of brainwashing and utilization of the "Stockholm Syndrome". (iii) The WWW and other social network technologies enable individuals and groups to reach large populations. Thus, there are new forms for mass persuasion, mobilizing people and resources in order to influence politics and policies. NGOs are very active in all of this.

In sum, modern society is characterized by a vast array of different power mechanisms, which, as we have suggested, can be usefully conceptualized and analyzed using the power theoretical framework outlined here. A major type of power in our perspective (and also historically and cross-sectionally) is meta-power, namely the capacity to change or transform relationships, institutions, cultural formations (cultural-cognitive frameworks). There are several key professions which play key roles in modern society in this regard: engineering, management, architecture and law are particularly important in the

exercise of meta-power in the construction, reconstruction, and transformation of social and technical systems in modern society.

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