

August 15, 1999

**WORKSHOP IN POLITICAL THEORY
AND POLICY ANALYSIS
513 NORTH PARK
INDIANA UNIVERSITY
BLOOMINGTON, IN 47406-3895 U.S.A.**

RF 6/14/05

THE THEORY OF MULTI-MODAL SOCIAL ACTION:

Reconceptualizing Interaction and Games[†]

(Paper in two parts)

Tom R. Burns[‡] and Anna Gomolinska[§]

[†] A version of this paper have been presented at a seminar at The Swedish Collegium for Advanced Study (SCASSS) in the Social Sciences, November 26, 1998. We are grateful to the participants at the SCASSS seminar and for their comments and suggestions. In addition, we want to particularly thank Craig Calhoun, Marcus Carson, Don Handelman, Jim Kemeny, Stephen Turner, and Bjorn Wittrock for their suggestions and advice regarding the formulation of this particular work. A number of others have played a significant role in the evolution of the general theory presented here, among others, Tom Baumgartner, Walter Buckley, Philippe DeVile, Tom Dietz, Ron Heiner, Jack High, Mark Jacobs, Don Katzner, David Meeker, Hannu Nurmi, Mancur Olson, Lars Udehn, and Hans Zetterberg. Part of the work for this paper was completed while Burns was a Fellow at SCASSS, Autumn, 1998.

[‡] Uppsala Theory Circle, Department of Sociology, University of Uppsala, Box 821, 75108 Uppsala, Sweden. e-mail: tom.burns@soc.uu.se

[§] Department of Mathematics, University of Bialystok, Akademicka 2, 15267 Bialystok, Poland. e-mail: anna.gom@math.uw.bialystok.pl

August 15, 1999

THE THEORY OF MULTI-MODAL SOCIAL ACTION:

Reconceptualizing Interaction and Games[†]

(Paper in two parts)

[†] A version of this paper have been presented at a seminar at The Swedish Collegium for Advanced Study (SCASSS) in the Social Sciences, November 26, 1998. We are grateful to the participants at the SCASSS seminar and for their comments and suggestions. In addition, we want to particularly thank Craig Calhoun, Marcus Carson, Don Handelman, Jim Kemeny, Stephen Turner, and Bjorn Wittrock for their suggestions and advice regarding the formulation of this particular work. A number of others have played a significant role in the evolution of the general theory presented here, among others, Tom Baumgartner, Walter Buckley, Philippe DeVillie, Tom Dietz, Ron Heiner, Jack High, Mark Jacobs, Don Katzner, David Meeker, Hannu Nurmi, Mancur Olson, Lars Udehn, and Hans Zetterberg. Part of the work for this paper was completed while I was a Fellow at SCASSS, Autumn, 1998.

ABSTRACT

Part One of this paper formulates a theory of social action and interaction (SIT), synthesizing a series of articles dating from the early 1970s.. It postulates that there are multiple bases and forms of cognition, judgment, and action. In a word, action is not one thing. It may be normative, rational instrumental, habitual, theatrical, or possibly all of these at the same time. SIT provides a language and conceptual apparatus with which to describe, model, and explain social action and interaction processes and patterns. The theory can be characterized as an institutional/role based approach to the conceptualization and analysis of social action and interaction. The paper introduces key concepts such as rule, rule complex, role, multi-modal social action, institution, and social equilibrium. Among other things, we conceptualize and model routine, habitual types of action and interaction as well as more deliberate forms, in particular instrumental and normative forms of rationality. The paper also formulates a concept of social equilibrium. Social equilibria are defined in SIT as normatively based equilibria: "objects" which are collectively defined and judged as good or right and proper. This means not only that actors in the community collectively orient and value (or feel compelled to orient to and value) these states but recognize that others are oriented in such ways. To the extent that people orient this way in practice and act on this basis (or act as if they are oriented in such a way), then an infrastructure of social equilibria obtains, patterning and ordering significant zones of social life. This makes for a degree of social order, certainty, predictability, and complex, higher order strategies and planning.

Part Two of the paper applies SIT to the analysis of selected classical games, with the aim of explaining patterns of interaction and equilibria, either social equilibria (commanding normative force) as well as pragmatic or situational equilibria (lacking common normative force). Some games in the context of particular relationships are found to lack equilibria altogether, either social or pragmatic types. Part Two also explores and defines the bounds or limits of interaction patterns and social equilibria based on particular social relationships. Such bounds are a function of loyalties, values and norms associated with extraneous social relationships or institutions, which enter into actors' value judgments, decisions and actions in the given interaction situation. They set bounds on and destabilize interaction patterns and social equilibria of the social relationship. A concluding section compares and contrasts on a few dimensions of action and interaction SIT to the rational choice (and game theoretic) approach to human action and interaction.

NOTE: The paper is divided into two parts that are intended as separate but interconnected articles.

Key words: social action, game, rule complex, modality, equilibrium, bounds

PART ONE. THEORETICAL FOUNDATIONS

1. Introduction and Overview

Action is not one thing. It may be normative, rational instrumental, habitual, theatrical, playful, or possibly all of these at the same time. This diversity and complexity calls for an appropriate theoretical language and conceptual apparatus.¹ In this paper, our basic point of departure is the conception that social action and interaction are socially embedded (Granavetter, 1985), normatively guided (Burns and Flam (1987); Merton, 1957; Parsons, 1937); and situationally constrained (Burns et al, 1985; Coleman, 1990; Merton, 1957; Stinchcombe, 1975). This paper synthesizes work appearing in earlier articles (Baumgartner et al, 1975, 1977; Buckley et al, 1974; Burns, 1990, 1994; Burns et al, 1985; Burns and Gomolinska, 1998, 1999; 2000; Burns and Meeker, 1974, 1977), formulating and applying a theory of social interaction (SIT). A basic premise is that there are multiple forms and modes of human action, thinking, evaluation, and judgment. Elsewhere (Burns et al, 1985; Burns, 1990, 1994), the theory is applied to different levels (macro- and micro-) and domains of interaction (e.g., market, political, and administrative) in describing and explaining complex interaction patterns and outcomes.

SIT is grounded on an elaborated theory of social rules and rule complexes: their characteristic features and interrelationships, their role in human action and interaction, and the ways in which, and the conditions under which, they are formed, reformed, and transformed. Most human social activity—in all of its extraordinary variety—is organized and regulated by socially produced and reproduced rules and complexes of rules.²³ Rules cannot be combined in purely ad hoc ways. They are organized into complexes or systems that are context specific, for instance, applying to particular institutional or relational domains (see later) (Burns et al, 1985; Burns and Flam, 1987; Burns and Gomolinska, 1998).

The making, interpretation, and implementation of social rules as well as their reformulation and transformation of rules are universal processes in human societies.⁴ Such processes are often accompanied by the mobilization and exercise of power, and social struggles. Individual and collective agents play an important part in the formation and evolution of social rule systems, although often not in the ways they intend or expect (Burns and Flam, 1987; Burns and Dietz, 1992). Social rules are not simply given, but are the products of human agency, and are subject to revision and reformulation through the interaction of participating actors (or through outside actors deciding or imposing rules and rule regimes).⁵ Social rules are, therefore, not transcendental abstractions but are embodied in groups and collectivities of people, their cultural forms, practices, and particular institutions: language, customs and codes of conduct, norms, laws, and the social institutions of family, community, economic organization, and government.

Many key sociological and social science concepts—norm, value, belief, role, social relationships and institutional arrangements—may be conceptualized as particular types of rule or

rule complexes⁶ socially shared by a group or population of actors and implemented or realized in their interaction processes. Actors use one or more shared rule complexes to constitute and regulate their interactions processes in a given situation or class of situations. Social rules and rule complexes are then a type of collective knowledge shared within a given **cultural population**. They are actors' bases:⁷ (1) to orient to one another and to organize and coordinate their activities, thereby patterning them and making them predictable to knowledgeable participants; (2) to organize in more or less similar ways the actors' perceptions of choices, activities, and events and to interpret and understand what is going on as well as to simulate and to predict in more or less common ways the behavior of those involved. Social rule complexes provide a basis for a certain degree of intersubjectivity; (3) to refer to in giving accounts, in justifying or criticizing activities and, in general, conducting normative discourse about their activities and interactions. Specific normative and evaluative rules are referred to in criticizing and justifying actions taken or not taken.

Socially acquired knowledge of rule complexes is a type of collective memory—shared by a group or population of actors. Social rules and organizing principles relating to particular social relationships and normative culture are used to generate specifications, descriptions, and perceptions of social situations as well as strategies and patterns of interaction. Actors use social rule complexes, their collective knowledge to constitute and regulate their relationships and the particular interaction processes prescribed or derivable from the relationship. Each type of social relationship or institutional arrangement has its rule based perceptual and judgment systems that enable participating actors to constitute, organize, and regulate their interactions. The rules for organizing and carrying out, for example, “market exchange” differ significantly from those of everyday “social exchange” between friends or relatives (Burns et al, 1985). The basis for interpreting and understanding what is going on and judging what ought to be going on will also differ. The exchange activities are produced and given meanings on the basis of the particular rule based social relationships. The language of normative discourse, the justification and criticism of action and the giving of accounts will also differ accordingly.

Roles and the rules of interaction are to a greater or lesser extent, incomplete.⁸ Social situations are often characterized by ambiguity and the underspecification of relevant facts, evaluations, and options. Specification is generated in the course of the interaction processes! Even though an interaction situation may be well-defined within a particular social structure such as a bureaucracy or administrative order, interaction regulation and processes typically have some degree of openness and variation. Deviance is not uncommon: Actors' knowledge of their roles and role relationships as well as of situational knowledge varies; actors may have a general knowledge of, for example, their socially defined roles, but lack practical, concrete interpersonal experience with one another or knowledge of the actor's particular conditions in which they interact; the actors make mistakes (even recognizable mistakes) that may or may not be correctable; finally, they may be motivated, or have good reasons, to breach a role, or to radically modify it.

Through their interactions, actors often come to “know” their roles and one another, in the process working out “local” rules in dealing with one another. In general, there is a considerable openness and creativity to human action and interaction (Baumgartner and Burns, 1984; Burns et al, 1985; Woodward et al, 1994; Joas, 1996). Actors interpret and perform the same or similar situations, roles, rules of the game, because of their differential experience and the diverse ways in which they have learned (or been socialized into) and developed rule knowledge, in part their personal histories.

Actors change social rule complexes in connection with learning about and dealing practically with concrete action settings in which they are engaged. They accumulate knowledge, develop new interpretations and models of their situation and of their possible options in the situation. Rules are thus created, adapted, and reformed through social interaction (Burns and Flam, 1987). These developments can lead to quite new activity rules, which the actors believe to be more effective, or more suitable or “right” in the situation. That is, complexes—and their articulation in institutions, social relationships, roles, and interaction orders—are **historical products of interactions among social agents** (Burns and Dietz, 1992). Actors cooperate, conflict, and engage in power struggles in the course of creating, interpreting, implementing, and reforming social rule complexes.

Concepts such as role, social relationship, interaction complex, and institution—and their various components – are defined and conceptualized in terms of rules and rule complexes. In most instances of interest to us, actors belong to a group, organization, community, institutional arrangement, or social network and share, to varying degrees, a **common culture** understood as a **collection of social rule complexes**.⁹ Culturally available concepts, relationships, and institutions filter and structure actors’ definitions, beliefs about, and conceptions of, interaction situations. Rule complexes also contribute to organizing, coordinating, guiding, and regulating the actors in their social action and interaction within any given situation. In this way, a cultural framework provides intersubjective modes of classification and conceptualization, evaluation, decision, and interaction among the members of a population sharing the culture. It provides norms, values, sanctioning potentialities, role conceptions, rights, and duties structuring and regulating their activities.

Actors operate on the basis of judgments about situations appropriate or right modalities and models in the situation. These provide bases of determining actions – and reasons for believing what they believe, doing what they do or should do, etc. The modalities of action (and complexes of modalities) depend on institutional and relational contexts. Particular contexts imply orienting to outcomes (possibly with a focus on “self-interest” and calculation of the costs and benefits of alternative courses of action, possibly trying to maximize net gain or benefit. Thus, some actions – or structuring of action – are largely instrumental in character. Among purely instrumental activities, some are egoistic (Boudon, 1998). In other contexts (for example, family, community, friendship networks), the actors’ orientations and roles depend on norms and beliefs stressing right and proper

action – and in the limit ignoring actual outcomes. Such norms may not be consequentially grounded – but grounded in a sense of community, conception of self (member of the community).

The meaning of action is typically embedded in social institutions and relationships. These provide direction (directives, pressures, attractors, meanings, and reasons). What are other forms? What context-dependent shifts are likely to emerge or occur? In SIT, meta- or higher order rules and values specify or direct the mode of action (see later) in a given interaction situation, or class of situations, which provides the “basis as well as “reasons” for a particular action determination. As Boudon states (1998:821), the “causes of action reside in the reasons the actor has of adopting the action... depending on the situation the actor is involved in, these reasons can take the form of cost-benefit calculations but also other forms.”

Such meta-analysis enables one to explain why an actor makes use of a particular modality, or shifts modalities. Adherence to a particular modality is a type of action. It may have non-instrumental as well as instrumental bases. Deliberate shifts of modality may take place on the basis of meta-judgments and related processes. That is, when an actor experiences – or judges—that a modality cannot be applied or results in contradictions (among others, contradictions with respect to its purposes), then she tends to enter a reflective mode and to consider other modalities, or a restructuring of the operating modality.

Non-instrumental bases of behavior have been empirically identified, particularly in connection with institutionalized relationships and normative orders (Boudon, 1998; Burns, 1973; Burns et al, 1985; Burns, 1990, 1994). Various forms of normative behavior, or behavior entailing the enactment of a particular self-image, cannot be explained satisfactorily by rational choice theory, for instance classes of phenomena such as normative action (Elster, 1989) including normatively regulated reciprocity, role behavior, and ritual and ceremonial forms of interaction. Actors committed to or bound up in particular social relationships may be deeply convinced that certain rules – and the reasons given for adhering to these rules – are right and proper, necessary (or possibly even unavoidable). An actor A does X not in order to achieve some particular outcome but because, through her actions, she realizes a norm or principle – or a self-image—to which she is committed or endorses. Such commitment explains the action, but also raises new questions. What is the underlying bases of such commitment, how is such commitment established and reproduced. Answers may be various: the commitment may be based on self- or collective- identity or on the belief that it is good and valuable in itself. Or there may be a complex of more or less convergent values, including rational instrumental ones, contributing to strong commitment.

Even given a rational choice mode of determining action, the bases of beliefs may not have a rational explanation. Of course, some theorists (Nietzsche, Pareto, Marx), as Boudon (1998) points out, argued that actors have certain beliefs because they serve their psychological, class, or other interests. But not all beliefs are generated by their psychological or social function. “Interests” cannot explain powerful convictions and commitments to certain beliefs. For instance, some beliefs are

based on meta-judgments that the beliefs are “true” or right and proper. People have experience of them or have good reasons to believe them. And given that an actor A believes Z, she does X. Z enters into a frame or model where Z implies doing X (see models of routine or habitual modality later) (Boudon, 1996, 1998b). And this may operate independently of the consequences of X. Boudon (1998b: 818) points out the role of variation in beliefs in divergent “rational decisions.”

.....the French authorities were, for many years, more reluctant than the Dutch to use methadone to curb drug addiction. Why? Because the Dutch thought methadone was an adequate means while the French thought it was not. But why had the French and the Dutch different beliefs on this point? RCT (rational choice theory) is of little help here.

Two of the most recognized classes of “non-rational” behavior are voting and normative responses to injustice or to certain forms of deviance (see Boudon’s (1998) discussion of death penalty; similarly, abortion is another such issue). In the case of voting, Boudon (1998:820,825) points out:

People vote, though any individual vote has a practically zero probability of having an effect on the outcome of an election. In this case, the anticipated consequences of individual action cannot easily be taken for the cause of the action. An enormous literature has been devoted to the problem: it tries to reconcile RCT with the hard facts of voting. Many other puzzles in the same style could be evoked. Why do people appear so easily upset by political corruption and so sensitive to it? This familiar observation cannot be easily explained by RCT, since political corruption has, in the case of Western democracies at least, a negligible and invisible effect on the well-being of citizens. In other words, the rejection here is implausibly the effect of the consideration by social actors of the consequences of corruption on themselves.....People vote, though. Why? Because they have strong reasons to believe that democracy is better than alternative regimes, they see that elections constitute a major institution of democracy, they understand the principle “one man, one vote,” they see that this principle is an expression of a basic value, and so forth. In other words, they vote because one should vote if one believes in the value of democracy. This explanation mobilizes what, following my interpretation, Weber called “axiological rationality.” I vote because I think I should vote. I think I should vote because I have strong reasons to believe in democracy.

In general, many beliefs, judgments, and social actions cannot be explained by rational choice theory. Attempts to explain such patterns through auxiliary assumptions and concepts such as “bias” or “frame,” or “interest on another level” appear ad hoc and complicate the elegant simplicity of rational choice theory. Boudon’s (1998:821) critique of rational choice theory rests in large part on its failure to provide answers to question of where the cognitive “biases” or “frames” come from.

In light of these and related arguments, rational choice theory should be treated as a special cases of a more general theory of action (Boudon, 1998; Burns, 1990; Burns, 1994). The theory of multi-modal social action outlined in the following sections readily and naturally incorporates instrumental rational action as a particular type of modality. Such a modality may be activated and applied in a particular institutional area (e.g., market) or role (seller, buyer, profit-oriented model), such that the patterns of action and interaction correspond to those predicted by rational choice theory. But the latter works less well in describing and explaining interactions in a bureaucracy or a collective (democratic) decision process (Burns and Gomolinska, 1999b). The assumption of a single, universal modality, that of instrumental rationality, as a basis on which to explain all patterns of social behavior, is arguably a dubious one. There is too much counter-evidence to make this feasible (Boudon, 1998, among others).

However, the theory of multi-modal social action allows the retention of many key features of rational choice theory, but extends and contextualizes (institutionally and culturally) the theory.

2. Social Roles, Multi-Modal Action and Interaction

2.1. Social Role and Role Based Action.

Social actors, as a rule, occupy positions and play roles vis-a-vis one another: for instance, in relations of superordination/subordination, solidaristic relations, adversary relationships, among others. **Each role is a rule complex associated with a position in a social relationship or institutional arrangement.** The complex consists of specific values and preferences, presuppositions, beliefs, norms, motives and decision principles, and strategies that are the actor’s basis for orienting, organizing, and regulating her perceptions, judgments, actions and interactions in relevant relationships.¹⁰ For instance, the role of “supervisor” in a work place consists of a number of relevant preference orderings, routines, algorithms, and simple action rules, norms, evaluative rules and judgment principles as well as a model of the actor herself, relevant others, and the interaction situation S. A role is not, however, rigidly closed complexes: some of the values, strategies, and judgments of an actor may come from outside her particular role in any given situation; some come from the actor’s adapting, reforming, and replacing role components as a function of experience, learning, and creative activity. These are important sources of variation among actors playing the “same role”—a source of innovation and deviance.

A more or less well-defined role is the effective “rules of the actor”, which she employs in conceptualizing, judging, and determining action in an interaction situation. From her particular role

perspective, an actor classifies, describes, makes distinctions, and conducts causal analyses of an interaction situation and of their actions and interactions in the situation; she identifies and assesses the options available to her, and determines one or more courses of action. In this process each actor operates, consciously or unconsciously, correctly or incorrectly, with profound concern for, or with mechanical acceptance of her particular role. In addition, there are typically meta-rules indicating, for instance, how seriously or strict the roles are to be implemented and possibly ways to adapt or to adjust the role complex to particular situations. This suggests that a rule complex can be elaborate. A rule complex is more than merely a set of rules. For instance, the simplest routines may be sets containing only one rule (instruction). But more generally, algorithms and routines can be complexes of rules, where some of the rules specify the order of execution or application of the others, i.e., some of the rules are in fact **meta-rules** with respect to the others.

An actor's role can be defined more precisely in terms of a few basic cognitive and normative components (which are formalized as mathematical objects in Burns and Gomolinska (1998a, 1998b, 1999a, 2000); Burns et al (1998)): (1) a value complex **VALUE**—the actor's values, goals, and commitments $VAL_1, VAL_2, \dots, VAL_k$ —consists of evaluative rules assigning value to things, states of the world, deeds, people and defining, among other things, what is “good”, “bad”, “right”, “wrong”, “acceptable”, “unacceptable.” She is motivated to realize them (in some cases, they are verbalized as intentional claims). The value complex is the ultimate source of motivation in action -- the basis of “will” or “drive”. It motivates action in part by orienting actors, articulating their commitments to “good” or “right and proper” states of the world, to other agents, to particular developments, relationships, institutional arrangements, etc; (2) a model or representation of reality, **MODEL**, the actor's “situational view”, providing the perspective on, and the basis for understanding, the reality of the interaction situation or class of situations *S* (a model includes beliefs and knowledge bases about self, others, and interaction conditions as well as causal relations or principles); (3) one or more particular action modes, that is, **MODALITY**, for generating or determining action. As we discuss later, there are several possible modalities. Among the important types of modality are those of instrumental rationality, normatively oriented action, ritual and communicative, play, and combinations of these. The concepts of **VALUE** and **MODALITY** are elaborated and applied in the remainder of the paper. Other key subcomplexes of roles are judgment and action complexes; consideration of these would take us beyond the scope of this paper.

2.2 Interaction as Structure and Process

A social relationship or interaction rule complex **R**, defines actors and is the basis on which they constitute their roles and apply normative and coordinating rules and meta-rules in their interactions. An **interaction process** entails to a significant degree actors' applying role complexes and rules in a particular situation or class of situations *S*. Such applications involve judgments concerning the relevance and applicability of the roles and rules.¹¹ There are further judgments about the state of the

situation as well as evaluative judgments and action judgments (or decisions). These contextualized judgments concern the state of affairs or problems in the situation *S*, what ought to be done in the situation, what possible action or actions to take, how to solve a particular problem, realize a value, or achieve a goal, etc.

Figure 1 General Social Action and Interaction Model



Any interaction situation involves a group of *m* actors who to a greater or lesser extent share common knowledge in the form of the interaction complex or relationship *R*. The specific interaction situation *S* satisfies certain criteria or conditions for activating and applying *R* to the situation *S*. *R* in turn contains rules and rule complexes for constituting the relevant actors (and their particular roles vis-à-vis one another, the rules of the game, and procedures for applying, interpreting, and adapting rules and rule complexes. Many if not most human interactions are to a greater or lesser extent open (while parlor games and most of the games of classical game theory are typically closed). Of particular interest are generative interaction frames with algorithms, heuristics, and meta-processes for adapting, interpreting, and transforming rules and rule complexes.

Many interaction processes are more or less routine or automatic. Others are less automatic, because of the novelty of the situation or the problems of rule inapplicability or inconsistency. High levels of ambiguity and uncertainty result in confusions in, or blockage of, definitional and judgmental processes. Actors may have difficulties grasping various complex and dynamic features of the situation. In some cases, some interaction patterns (possibly quite normal or regular ones) are blocked in that participants disagree and struggle over the definition of the situation, or over the proper application or interpretation of a rule complex in the situation. Or, they disagree about how they ought to define it, or how they ought to deal with a particular problem, which strategy to utilize, for instance whether it should be solved individually or collectively. These conditions evoke reflective and transformative processes (Burns and Engdahl, 1998a, 1998b; Burns et al, 1998).

2.3 Ideal Typical Modalities and the Determination of Actions

SIT postulates that there are multiple modes or forms for determining action. A mode such as instrumental rationality is simply a particular way of determining action. Other types of mode or modality are normative, habitual or automatic, dramaturgical or communicative, play, and combinations of these. Actors in a given status-role or position typically utilize several action modalities, that is, engage in or generate multi-modal processes. It is then not a question of either/or, for instance instrumental rationality versus normative, or normative versus dramaturgical, but under

what conditions, one or another, or both. The particular mode utilized is a function of contextual factors, which activate or give cause to activate particular rule complexes including meta-rules. Meta-principles and judgments indicate which action modality is to apply under given circumstances.

An modality is a particular way in which make judgments, and generate or determine their actions. As a rule, an action modality is identified or characterized by a single over-riding basis for determining and generating action. It is characterized by a particular way of paying attention and organizing and selecting situational data (particular types of data, variety and complexity of data), applying particular values, norms, and routines, making judgments, and determining action. In any given modality, an actor focuses on particular pieces of information or data in situation S, activates particular rule complexes and orientations. The latter are applied in the course of organizing perceptions, making judgments, and determining or generating action. Typically, each modality has an overall purpose or aim as well as a particular form for determining and enacting activity. In general, the pre-occupation or overriding predisposition of a modality reflects a meta-evaluation or judgment about what features of an activity—whether norms, outcomes, expressions, feelings, etc, or some particular combination of these—are most important or essential in a given situation.

More precisely, a modality is a rule complex with at least one algorithm¹² and a meta-rule (meta-value) for forming, generating or determining action. One or more meta-values provide the organizing principle of a modality, defining a basis of higher order judgment and selectivity: what one focuses on, what rules, norms, values, and algorithms are most appropriate or right in the process. For example, in an institutionally defined role context, an actor might be particularly oriented to normative action, and focuses on, monitors, and stresses particular norms and their implementation or realization. This would be the actor's situational logic in acting in this context. **Each particular modality entails a logic of generating action. In other words, the different modalities entail diverse judgment "calculi" with differing information inputs and judgmental and action outputs** (Burns, 1990).¹³ There are, of course, combinations and families of variants. For our purposes, the modalities discussed here, including instrumental rationality, provide a wide but as of yet incomplete spectrum of action modes in social life.¹⁴

Modalities may also be distinguished by the degree of awareness and openness in which action is determined. Interaction rules, roles, or other rule complexes may be applied and performed in a purely **routine/habitual/mechanical/standard-operating-procedure way** as opposed to more **deliberative modalities**. In the case of routine modalities, the normative orientation and judgments are implicit, and enactment is more automatic than reflective or characterized by "choices". Of course, initial choices or selections may have been made in determining the rule complex of the modality. These impositions may come either from outside or inside the relationship. In the former case, the imposition may come from a superior authority or power; in the latter, the imposition is made by the actors themselves after initial deliberations. The modality of routine or habitual rule application can be analytically distinguished from deliberative—or decision type—modalities where

on-going judgments, evaluation, and the generation of preferences take place. These relate directly to the action itself (intrinsic qualities) and/or of outcomes, and to making a choice among alternative courses of action. Such normative or instrumental rationalities are examples of deliberative modalities. Below we specify and analyze a few simple modalities such as those of instrumental,¹⁵ normative, and habitual action.

2.4 Routine, Non-problematic Enactment of Roles and Routines in Institutionalized Relationships

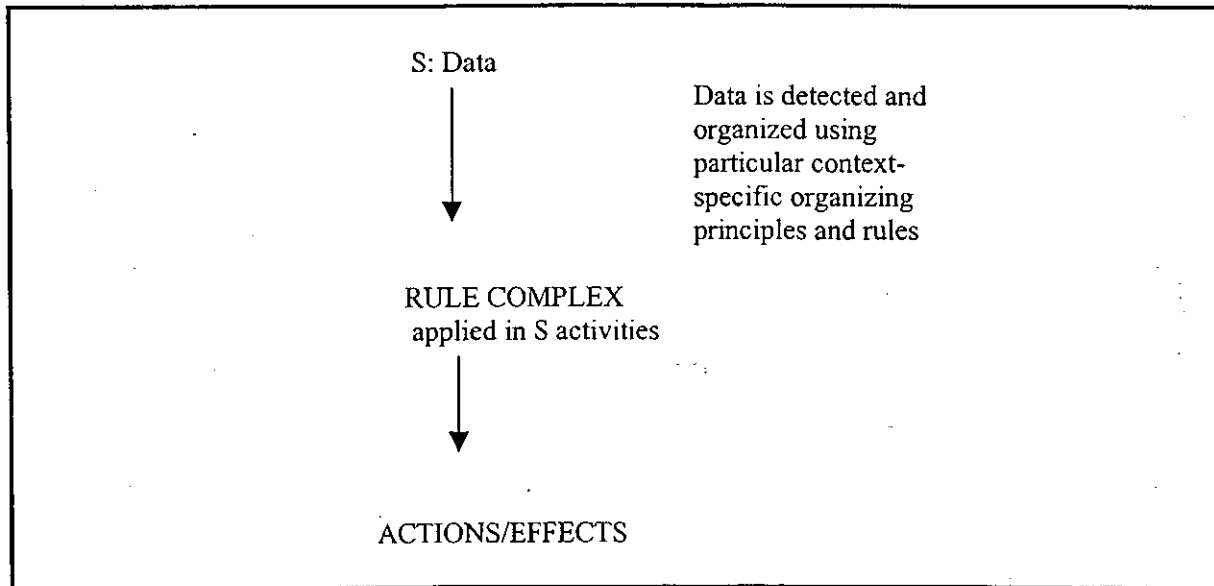
Many interaction processes are characterized by the automatic, non-problematic enactment of, for instance, prescribed roles and role relationships. The actors apply the rule complexes, believing them to result in right and proper values or states of affairs. Assume a well-defined interaction order, in particular where participants have coherent roles, which are activated and can be applied in relevant situations. Often, actors perform their roles vis-a-vis one another in routine or well-established, predictable ways.¹⁶ For instance, routine interactions in administrative or bureaucratic hierarchy entail the application of a relational rule complex, with each actor acting out her role in relation to others (see later). We find such patterns in the case of routine interactions in physician/patient or teacher/student role relationships (Burns, 1973; Burns et al, 1985): or in the case of buyer/seller exchange in a well-defined, organized market. In collective decision-making, a choice is often accomplished through following a procedure—or social algorithm. For instance, a democratic voting procedure is such an algorithm for aggregating the votes, collecting and counting them for each alternative in the vote. The algorithm takes the “votes” and combines them in a particular way (much as the Walrasian auctioneer makes use of an algorithm in collecting information on the offers and bids and aggregating and calculating the “winning”, that is, the equilibrium, price). There may be elaborate rules for making this calculation (for instance, one may take into account second place and even third place votes in cases of a tie for first place). Also, in some procedures the rules may require unanimity or 2/3rds majority, rather than simple majority or plurality. On this basis, the algorithm determines “the choice” of a group, organization, people, or particular population. In general, many institutional interactions or orders entail well-defined roles and rules of the game as well as predictable routines, for instance, administrative routines, market exchange routines, and voting procedures.

Routine modalities involve executing a standard operating procedure, a program, or script without deliberation or reflection. The application or implementation of such a rule complex is in response to a particular state of the world, particular data or conditions. The rule complex may have been motivated originally by the belief that it results in goal achievement, or realization of a norm. That is, the complex might have been rationally selected initially – for instance, in accordance with **deliberative modalities** (see below) -- but such judgments are no longer part of the determination process. A complex may have been institutionalized also on non-rational bases. (a) It is imposed by

other agents who may or may not utilize a rational modality; (b) the actors adopt it, as part of imitating others, for instance more authoritative or higher status agents, for reasons of expected gains, or in connection with identification processes; (c) the complex is associated with the actor in her role or with a collective, e.g. a profession, to which the actor belongs and where enacting the complex is a basis for defining and maintaining an identity or status (see Burns and Engdahl (1998)).

Models of Routinized or Habitual Modality. Data input from the situation S results in the activation of a particular rule complex, which is automatically performed (see Figure 2). Initial data input is filtered and classified and becomes the basis for the activation of one or more rule complexes which are “appropriate” or “fit” the situation. Each actor enacts the rule complex which shapes and regulates what she does. If a rule complex “fits” or is well-adapted to a situation, then its application results in outcomes or developments achieving goals or realizing values (or simply generating those “feelings” and experiences) for which it has been established.

Figure 2. Model of Routine Modality

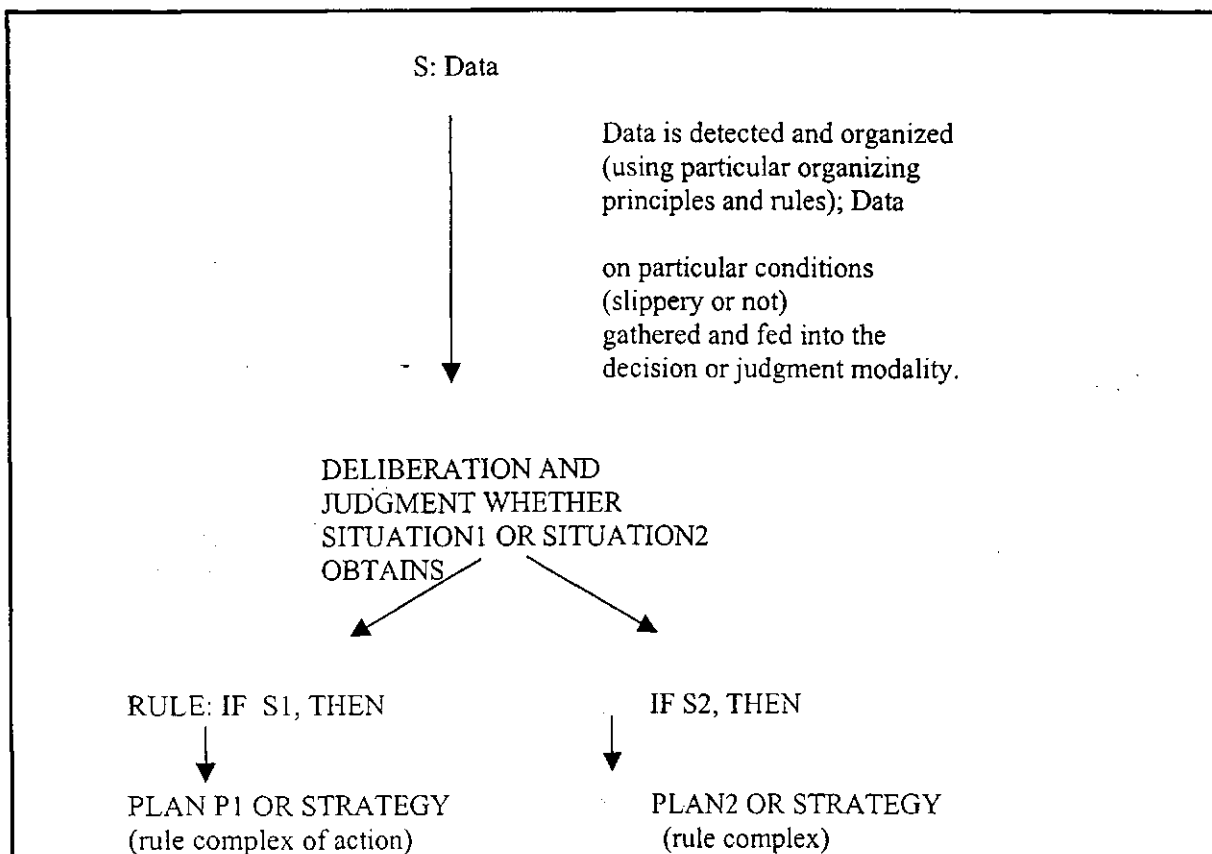


The usefulness or advantage of habituated action is that, typically, the response to inputs (signals, patterns) is quick and certain. The disadvantages are twofold: (1) The complex may be highly inappropriate or ineffective. It leads to unsatisfactory, even counter-productive effects; (2) It is highly inflexible, not designed or able to take into account varying or new inputs (see following model). Of course, one may shape complex algorithms taking into account various identifiable contingencies and constraints (see, for example, Figure 3). For instance, assume one has two or more routines that are applied in different situations or contexts. There are judgment or decision points (moments), where the actor selects or decides a course of action. Consider an actor who distinguishes situations between dangerous (high risk, threatening, etc.) and non-dangerous (low risk, non-threatening). The actor utilizes different strategies of action in these situations. For instance, in using

a car or bicycle, she would steer in a particular way, choose certain routes and not others in the case that she determines that the conditions are dangerously slippery. In non-slippery conditions, she would make other determinations. The modality makes use of particular data and criteria of judgments in making the determinations: dangerously slippery or not. The model would be as indicated in Figure 3. Each distinct plan of action or strategy organizes and regulates the actor's responses in the situation.

In sum, actors may enact their relationships in a routine (non-deliberative, non-reflective) manner. An equilibrium obtains as long as the rule complexes can be implemented and result in more or less predicted or expected patterns (see Table 2). Non-equilibrium conditions obtain if: (1) the rule complexes cannot be applied (see earlier note); (2) they can be applied but lead to unexpected, negative results that are considered problematic by one or both actors, or by third parties prepared to intervene;¹⁷ (3) particular rule complexes are parts of a larger complex that is subject to critique and transformation.

Figure 3. Model of Flexible, Routine Modality



The modality of routine or habitual rule application can be analytically distinguished from deliberative—or decision type—modalities where on-going judgments, evaluations, and the generation of preferences take place. An actor does more than simply respond automatically to a signal or complex of conditions, as in habitual modality. These may relate directly to the action itself

(intrinsic qualities) and/or to outcomes, or to a complex process choosing alternative courses of action. Such normative and instrumental rationalities, respectively, are examples of deliberative modalities, which will be examined in the following sections.

2.5 Deliberative or Decision Situations: Instrumental and Normative Rationalities

Many interaction situations are characterized by deliberation on the part of participants. The actors are either faced with choices, or they generate alternative strategies or solutions in pursuing their goals or trying to realize their values. For our purposes here, we distinguish two general types¹⁸ of deliberative modality, instrumental and normative, both of which are prevalent in social processes. Using a deliberative modalities, the actor judges or determines what to do in the situation. That is, judgments are made about the way(s) to realize a particular norm, goal, plan, procedure, or rule complex in that context. The action determination process, at least in the case of normative and instrumental modalities, is characterized by explicit judgments, the generation of preferences, and choices of action. In the ideal case, the actor aims to choose the “right” or “best” action in the situation.

The relationship(s) within which the actors operate is, let us assume, in a state of equilibrium. It is accepted, considered right and proper; or, if judged inappropriate, social power and control operate effectively to compel actors to abide by the interaction complex. Many patterns are, however, not fully specified. Choices are possible, and even necessary in the course of interaction. The actors expect, judge, select among alternatives in accordance with the norms and value characterizing their relationships and, in particular, their roles. Thus, we assume that: (1) they have a well-defined relationship (with defined roles) and (2) they are in situations where the relationships should apply.

A major type of deliberative modality is that of instrumental rationality. In one or another form – it is predicated on an actor focusing attention on action outcomes, assessing the extent to which they accomplish or realize a value or goal. The actor makes then evaluative and action judgments by articulating preferences over outcomes and choosing that preferred action, the one which best realizes or achieves her goal.¹⁹ She utilizes a well-defined, consistent algorithm to determine the best strategy or means to realize her value or goal.²⁰

More precisely, an actor checks to see if one or more states of the world are problematic or realize her particular value or value complex, VALUE. Observed or anticipated states (or outcomes) of S, STATES = {STATE0, STATE1, ..., STATEk} are compared to and assessed with respect to the value complex VALUE. **This leads to evaluative judgments:** VAL(STATE0), VAL(STATE1), ..., VAL(STATEk). These may be distinguished in simple terms such as “good” or “bad”, “satisfactory” or “unsatisfactory”, or they may be articulated in rank orderings or other forms of value assignments, possibly characterized by multi-dimensional ordinal or cardinal scales. In particular, these may take the form of a preference ordering or value (or “utility”) function. A complex of such evaluated states or “payoffs” is characteristic of classical decision or game models.

The various evaluated states are associated with different actions or interactions, where the action alternatives are assigned values on the basis of comparisons and judgments about the extent to which one or another course of action result in outcomes that realize an actor's value complex (see below).

In a given role an actor may find that she only should orient to a single goal and apply a simple modality, e.g. instrumental modality, in situation S. Her orientation may be to optimize the gain for "self" (or, alternatively, for "other" or for a larger "collective"). In the former case, we have the usual rational choice or game theoretic orientation (see below). If one or more actors are oriented to "other" (seeking "rewards" for the other, possibly as defined by the other, that is a type of altruism), the outcomes would differ. However, **the computational methods would not differ** (Burns and Meeker, 1977).

The models presented in Table 1 and Figure 4 below have parallels to those presented in Figures 2 and 3, except that the actor in the former in response to S generates evaluations and judgments in **the process of selecting** among alternatives, either according to an instrumental modality or a normative modality, respectively. Let us consider, as in the case of the model of flexible modality (Figure 3), a situation where the actor distinguishes between two classes of situation, S1 and S2. Instead of simply responding, as in Figure 3, with one routine for S1 and another routine for S2, she **considers** alternative responses (options) to each of the situations and makes value judgments with respect to the possible outcomes, for instance, as in Table 1 (in the payoff matrix, the cells represent the evaluated outcomes VAL[Oij]):

**Table 1. Model of Instrumental or "Rational" Modality
Situational States**

Action Alternatives	S1	S2
Option 1	VAL(STATE11)	VAL(STATE12)
Option 2	VAL(STATE21)	VAL(STATE22)

Let us assume further that the actors consistently apply a particular instrumental algorithm for making choices. A common type of algorithm is that of maximizing expected value. Given a complex of evaluated outcomes, as in the matrix above, assume that the actor can assign probabilities to each of the outcomes Oij in the set of outcomes: Pij for outcome Oij, where $P_{ij} \geq 0$ for all i and j.²¹ The expected value for alternative 1 and alternative 2 can then be computed in the usual manner. The expected values for options 1 and 2 are as follows, respectively:

$$E[\text{VAL}(1)] = P_{11}\text{VAL}_{11} + P_{12}\text{VAL}_{12}$$

$$E[\text{VAL}(2)] = P_{21}\text{VAL}_{21} + P_{22}\text{VAL}_{22}$$

The actor chooses that option which is of greater expected value or preferred. (This can be formulated as maximizing expected value of the outcomes):

$$\text{Max}[E[\text{VAL}(1)], E[\text{VAL}(2)]]^{22}$$

This determination is based on a comparative assessment, that is, the action or "experiment" associated with action j is compared and evaluated with respect to that associated with k to determine if, for instance, $E[\text{VAL}(j)] > E[\text{VAL}(k)]$. The assessment of (and preferences over) action alternatives derives entirely from evaluations of outcomes (that is, according to the principle of consequentialism).

Let us now examine another type of deliberative modality, namely normative. One of the major motivating forces behind human action is that of striving to realize a norm or value in, or intrinsic to, the action itself. When actors apply a modality of a norm or role pattern – as opposed to orienting to instrumental outcomes—not only does the character of the process change, but, the outcome(s) also. Attention is focused on the act, its intrinsic values or its exemplary character. This may involve performing or enacting properly, for instance a role such as trying to be a "good teacher" or an "effective administrator" or a "holy person." Proper performance often entails a conscious or systematic disregard of outcomes and focusing judgmental processes on defining and executing a right and proper activity or procedure. Indeed, under a range of conditions, the actors do not need to know about or concern themselves in the purest case with data on outcomes (and on the likely linkages between actions and outcomes). A key consideration are actors' definitions and classification of actions. "Non-cooperation" in, for instance, the prisoners's dilemma, may not simply be "defection" in the case the actors are friends or relatives in a solidary relationship. It is a form of "disloyalty" or "betrayal" and carries heavy normative overtones. On the other hand, rivals or enemies would never define "non-cooperation" as "betrayal" or "disloyalty" but as right and proper rejecting or "screwing" the other. This relational perspective on interaction processes and games enables us to identify and analyze in a systematic way the meanings of actions and interactions – including their symbolic and moral aspects.

Many role relationships are characterized by normatively prescribed giving and exchange. Thus, doctors, teachers, public servants, parents, etc. are normatively obligated to orient toward and to care for those defined in complementary roles such as patients, students, citizens, children, etc. In a simplified version, actors A and B occupy roles in a social structure, specifying their rights and obligations vis-a-vis one another and giving them access to certain resources and positions. The

particular goods and services they are to provide one another may be specified to a greater or lesser extent.

Many modern social relationships in defined institutional complexes such as family, educational and professional organizations, and public service organizations entail roles obligating incumbents to carry out particular activities toward incumbents of other roles. These transactions include activities of caring, helping, and giving, and other "altruistic" expressions. Actors are socially constrained to orient to one another and to transact according to socially prescribed forms. Thus, although an 'exchange' may appear to be instigated by the actors themselves, it often derives from their obligation to enact certain social norms or role obligations from the outset, for instance, doctors and nurses vis-a-vis their patients, teachers vis-a-vis their students, parents vis-a-vis their children. That is, certain statuses of actors are normatively obligated to pursue the interests of, and to serve, patients, students, citizens, and children, respectively. Social as well as internal controls maintain and reinforce such orientations and related service behavior. A's role grammar defines A's value orientations and obligations vis-a-vis B, even when B is not in a position to sanction A or to reciprocate. The obligations may be of a specific nature such as to provide a particular service or good or to carry out certain rituals ("producing and giving some valuable") in relation to B, possibly specified by time, place, and occasion; or they may be of a more abstract and general nature, entailing directives to be prepared to care for and generally help B in a variety of situations of apparent need or whenever B asks for assistance.

Thus, A's behavior in relation to B or the class of Bs would reflect a social rule complex prescribed, valued, and enforced by the group of which A and B are a part (as contrasted to pure mutual 'enforcement' by A and B directly involved in interpersonal reciprocation). A's orientation toward B, his display of caring or respect, and his provision of services and gifts is grounded in the institutional framework and may not depend to any great extent on the behavior of B, the recipient herself (for example, whether or not the latter reciprocates, although B's behavior or responses are likely, of course, to affect the precise way in which A plays out his role). Rather, A's role behavior depends either on an internalized ideology of action as well as on group or collective sanctions. For instance in the latter case, he enacts his role because doing so gives him meaning, self-esteem, and identity.

The formulation sketched above applies also to the case where A and B are both normatively constrained to 'exchange' with one another, for instance in relationships among family members on the occasion of family holidays such as Christmas. The enactment of certain obligations or functions with respect to one another gives the appearance of 'exchange' between A and B. Of course, the transfer of goods and services typically serves to reinforce the participants' commitments to the role relationship and its realization (as well as commitment to the group which carries it). In general, while reciprocity patterns and common interests that emerge out of the interactions often reinforce the role relationship, the action logic and rationality of such highly institutionalized forms of

exchange, with well-specified and elaborate roles, can be analytically distinguished from the forms of interpersonal reciprocity to be analyzed (see also Burns, 1973; Burns et al, 1985). In pure mutual reciprocation, the participating actors establish and maintain the exchange as a common enterprise. The actors' personal interests or concerns are largely the basis for the degree and quality of the transactions. This is voluntaristic reciprocity.

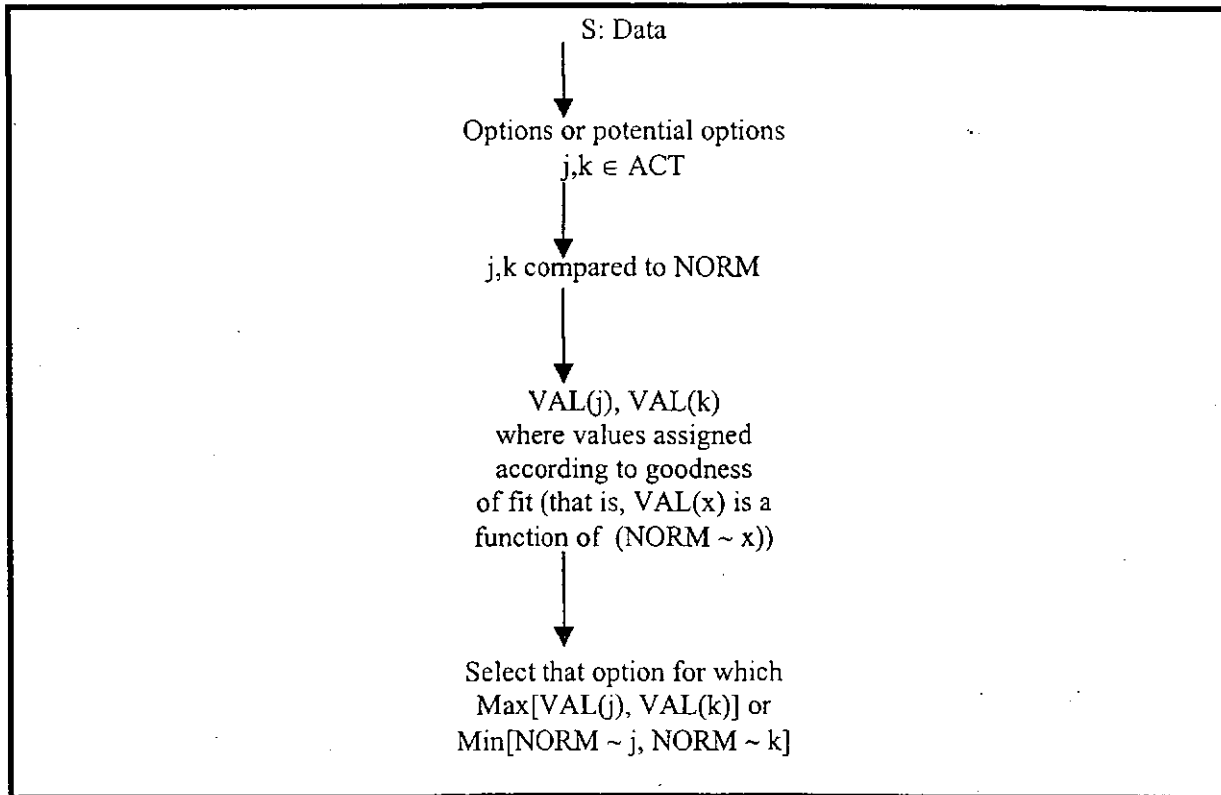
Role sets in a social institution specify to a greater or lesser extent actors' orientations toward one another and the goods and services they are to provide one another. The actors also have certain rights and resources that are to be mobilized in performing their roles. Normative action—prescribed roles and social norms—in any social group derive their initial as well as continuing force from a variety of sources: socialization and habituation, identification and social conscience, explicit and implicit social controls as well as interpersonal reciprocity.²³ Moreover, adherence at some minimum level to role definitions and grammars, codes of conduct, and established procedures is essential to the maintenance of certain ongoing institutionalized relationships, or even being accepted or recognized as a genuine participant in the institutional domain.

Rule and role following activities are symbolic expressions and affirmations of a social relationship or order. Often, it is not possible for members to calculate and to determine if membership or compliance with role obligations “pays off” in some immediate cost-benefit sense. Indeed, rarely is it possible to identify or to know all of the outcomes which result from an important norm or institutional arrangement. Moreover, the terms of exchange in role relationships such as those discussed above need not ‘balance’ one another out—even assuming the possibility of such calculations. For instance, persons in roles A and B may have certain obligations vis-a-vis one another, yet their ‘exchanges’ are ‘imbalanced’ or unequal, working systematically to the advantage of one actor, say A, as in many family exchange relationships. In some contexts, exchange imbalances incite disadvantaged actors or subordinates to deviance or rebellion.

In operating according to a normative modality, for instance in performing a role or following a norm, an actor assigns value to actions in her repertoire of feasible, relevant actions, ACT, on the basis of a judgment of the extent to which any given action fits or corresponds to a normative ideal. For instance, consider a situation S where an actor two action possibilities or alternatives in ACT, j and k and makes a determination of their relative appropriateness or rightness. Given an activated norm NORM, the actor applies it, assigning value on the basis of “goodness of fit,” that is the extent to which each fits or is consonant with the particular norm or normative pattern.²⁴ The actor ultimately chooses or generates an alternative which she judges best fits the norm under the circumstances of S (or conversely, she tries to minimize the dissonance or discrepancy between action and norm, the gap or misfit between a particular action to be performed and an ideal form. In this judgment process, the actions are compared to the relevant normative rule, NORM: that is, $NORM \sim j$ and $NORM \sim k$, where \sim represents here the comparison and determination of goodness of fit between the norm and potential actions. The actor assigns values to the actions j and k

and chooses between them on the basis of their degree of goodness of fit, that is the minimum: $\text{Min}[\text{NORM} \sim j, \text{NORM} \sim k]$. This process is represented in Figure 4.²⁵ Formulated in preference terms, the actor will prefer an option that is closest to or most fits her normative ideal. This is also the basis of judgments of fairness and justice, analyzed later in the paper. Of course, all of the immediately available or imaginable options in the situation S may be judged to be excessively deviant, motivating the actor to reject them. Or she may revise her standard or norm, setting it at a lower level. The manner of resolution will be a function of meta-principles and judgments.

Figure 4. Algorithm of Normative Deliberation



To summarize: in both instrumental and normative deliberations (represented in Table 1 and Figure 4), the actors generate role based evaluative judgments and preferences as well as action judgments or choices. These generative processes distinguish deliberative modalities from routine or habitual modality of action (Figures 2 and 3).

3. The Meta-Patterning of Interaction

The patterning or structuring of interaction can be understood as follows. In a given situation S, relevant rule complexes are activated and applied by the participating actors. The complexes define social relationships, roles, norms. In the context of specific situational data, particular meta-rules are activated. Some of these specify actors' modalities, which play a key role in the patterning of action and interaction. For example, a meta-rule indicates that the actors are expected to perform certain

routines, or that they enact particular norms vis-à-vis one another. Or the actors are expected to carry out certain routines. Or the situation may be such that they are expected to play strategically, to employ an instrumental modality. Or combinations of these may be defined as right and proper.

The meta-rules associated with actors' roles in a given relationship may be symmetric or asymmetric. In classical games, they are **symmetric**. In an administrative hierarchy, they are **asymmetric**: a subordinate B is supposed to act normatively, obeying what A directs and accepting (at least publicly) A's evaluations and sanctions. A also adheres to the normative frame by communicating directives, evaluations, and carrying out sanctions. In addition, A might be expected to utilize instrumental or strategic modalities to determine her own actions and also B's actions (B can also do this, but here we are concerned with a formal, public role where B is to act compliantly).

In such ways, one can identify patterns of interaction and explain some of the underlying generative mechanisms. Several general patterns are identified in Table 2: (1) **Routinized interactions** (see row 1 in Table 2). Everyday patterns of meeting and greeting one another are often carried out automatically, without deliberation or reflection. Similarly, an algorithm for a collective choice may be conducted routinely. The specific outcome will depend, of course, on the composition of the voting population, the issue(s) at stake; and the voters' positions on the issue(s). Or, similarly, market exchange is often organized routinely, generating patterns of exchange. The actual outcomes in terms of price levels, price dispersion, and volume of trade will depend on the particular commodity, the size of buyer and seller populations (and rules of participation and exclusion), their budgets, and values, factors which play a role in the shaping of supply and demand of the commodity); (2) **Normatively constructed interaction** (row 2, Table 2). The exchanges between actors in particular role relationships are to a greater or lesser extent normatively specified as, for example, status relationships with patterns of domination and deference. (3) **Classical games** (row 3, Table 2). The actors operate according to instrumental modality with orientations to outcomes for self. (4) **Interpersonal and network reciprocity relations** (row 4, Table 2). Levels of reciprocity are largely up to the actors, who determine to what extent, and how, they will generate exchange as long as it is consistent with the norm of reciprocity—up to the reciprocity level that the actors mutually determine for their relationship. For instance, the concrete reciprocity patterns in good neighbor or friendship relationships, where the actors work out or “negotiate” precisely what is provided or exchanged, when, and how often. The actors' orientations in the relationship may be instrumental or normative in character (or both, see (2) and (5)). (5) **Hierarchical asymmetry relationship** (row 5, Table 2). In an administrative or bureaucratic setup, a superior and a subordinate operate normatively within the frame of the asymmetrical relationship. The superior may also operate instrumentally in determining specific actions for herself and also for her subordinates to follow.

While interaction patterns depend on the particular rule complexes applying, situational constraints (and opportunities) also play a role in shaping interaction processes and outcomes. In the case of habitual and normative action and interaction, the situation plays a minimum role, since the

actors are to a high degree inwardly oriented. Of course, the actual implementation of rules and norms depend on the concrete situational conditions (see endnote 11 on the principle of application). Situational conditions play a major role in instrumental modality where the perception and assessment of concrete outcomes is decisive in the choice of action.²⁶

Table 2: Types of Interaction Patterns and Equilibria

	ENACTMENT OF PRESCRIBED RELATIONSHIPS AND ROLES	CONDITIONS OF EQUILIBRIA: INTERACTIONS AND OUTCOMES DERIVABLE FROM, CONGRUENT WITH; OR NOT INCONGRUENT WITH, RULE COMPLEX APPLYING)
INT _{ROUTINE}	Rule complex applicability possible in situation S. Many everyday patterns and institutional routines in administrative systems, formal democracy, and organized markets	Rule complex applicability possible in situation S
INT _{NORMATIVE}	Rule complex applicability possible in situation S; actors enact norms, institutional relationships, and roles. This type of modality differs from INT _{ROUTINE} .	Actors find or generate actions (or select actions in case of choice situation) which derive from an authoritative rule complex, or at least do not contradict it.
INT _{INSTRUMENTAL}	Classical games. Actors' act according to the modality of instrumental rationality (obtain information and assess action alternatives on the basis of their expected outcomes).	Nash equilibrium (provided actors can obtain necessary information and conduct calculations)
INT _{RECIPROCITY}	Actors generate actions vis-à-vis one another in correspondence with reciprocity norm (up to the level of the relationship's reciprocity value). This is a type of open-ended normative modality.	The actors are able to generate patterns either derived from, or congruent with (or not incongruent with) the relationship, in particular the reciprocity norm (up to the reciprocity value of their relationship).
INT _{ASYMMETRY}	Actors behave in accordance with the normative principle of the asymmetry role relationship, for example, actors A and B in a bureaucratic relation.	The actors find new action possibilities and outcomes in the interaction situation consistent with (or at least not inconsistent with) role obligations and rights.

4. Social Equilibria

4.1 The Institutional and Cultural Foundations of Social Equilibria

The basic idea of a social equilibrium is a relatively simple one. In a given collectivity it is a particular identifiable object or state which actors in the collective maintain (or accept the maintenance of); because they judge the state as right and proper. Their judgment is grounded on a common norm or normative principle. The object or state may be, for instance, a technology, a resource distribution, pattern of interaction, their relationships or roles, an institutional arrangement, or, more generally, a rule complex. In the purest case, each and every actor would judge it right and proper. When conflicting judgments, or underlying norms or values, cannot be reconciled,

compromise agreements are sought and sometimes achieved through collective deliberative modes such as democratic procedures or multi-lateral negotiation processes (as discussed below).

In our approach social equilibria are normatively based: they are states or “entities” which are collectively defined and to which members (or at least key members) in a community are oriented and judge as good or right and proper. This means not only that actors in a population orient to and value (or feel compelled to value) these states but recognize that others are oriented in the same or similar way. To the extent that members actually orient this way (or act as if they are normatively oriented), then an **infrastructure of social equilibria** obtains. Under a range of situations, this makes for social order, predictability, certainty, planning, ;and the possibility of complex, collective strategies.

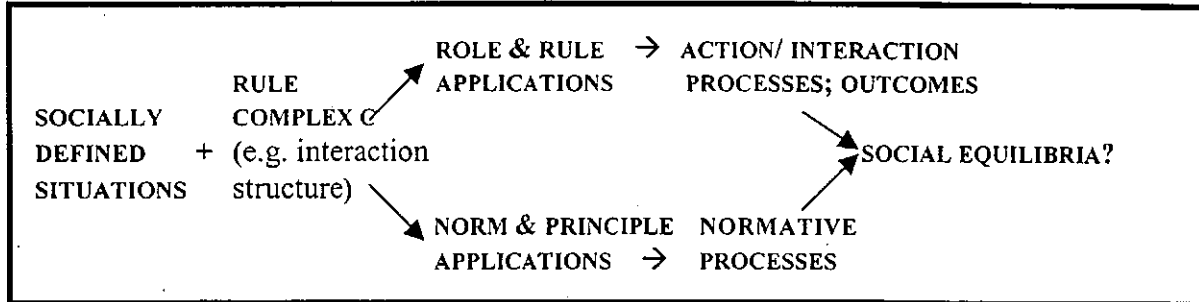
The construction of social equilibria can be conceptualized as a **dual interaction process**, where, on the one hand, actors in a community through their institutions and practices influence or produce interaction patterns, events, states of affairs, technologies, procedures, social relationships, institutional arrangements, etc. and, on the other hand, they judge these objects as good, or right and proper, and worth preserving and reproducing on the basis of particular values and norms. Not only are people inclined to accept or even show commitment to objects that are social equilibria, but react to those who deviate or wish to move away from them. The model in Figure 2 suggests the **parallel social processes of shaping and influencing the world, on the one hand, and judging these processes, their inputs and their outcomes, on the other hand**. Those objects and states in the stream of activity that are collectively judged as good, or right and proper, may become social equilibria; other objects may be subject to critical judgments and attempts to transform them. In making their judgments, actors apply particular (relevant) norms and values. There is often a variety of judgment bases. Thus, in general, a population of actors in a community, participate in constructing a particular social order both in practical terms and in judgmental terms.

In generating or constructing activities, interactions, and outcomes including new or modified rule complexes, actors use certain values, norms, and standards, in making their production and ultimate judgment determinations. The normative rule complexes used in collectively judging candidates—rule complexes, applications or procedures, and states of affairs—for social equilibria may or may not be fully consistent with those used in the actual production or construction process. Ideally, of course, there would be complete coherence and consistency. However, in a differentiated societies with a complex division of labor and function, the possibilities of incoherence and inconsistency are numerous. For instance, those engaged in one or another form of production (for example, workers, students, citizens, political leaders, and parties) are often not the same as those (managers, teachers, administrators or police, and citizens, respectively) engaged in authoritatively judging whether the objects of judgmental attention—the candidates for social equilibria—are acceptable or not. Unless the production process is effectively coordinated (or controlled in relation

to) the ultimate judgment process, the achievement or maintenance of social equilibria will be problematic (see later).

(1) Equilibria, in general, are stable moments or positions in the flux and flow of activities, events, etc. The equilibria may be rules and rule complexes; the activities and procedures of applying rules; and states and developments of the world. One of the major stabilizing factors (forces) in social life are values and norms articulated in, or manifested through, social equilibria. In short, these are the normative underpinnings of social stability and stabilization processes.

Figure 2 Dual Process of Acting/Interacting and Judging



(2) Social equilibria are then, in the SIT conception, equilibria with a normative force: collectively defined or understood anchoring zones to which actors are oriented and judge as good or right and proper. This means not only that actors collectively orient and value (or feel compelled to value) these states but recognize that others are oriented in the same or similar way. To the extent that people actually orient this way (or act as if they are normatively oriented in this way), then an infrastructure of social equilibria obtains. This makes for social order, predictability, "certainty," and the possibility of planning, and arranging complex, collective strategies.

(3) A social rule complex is itself a social equilibrium in a community where members are committed to it, for instance judging it right and proper. In other words, it has a normative status in the community. In some cases, as discussed later, the proper application of a rule complex constitutes a social equilibrium. Its application may also lead – or is believed to lead—to an outcome which is defined as a social equilibrium. It is something to which actors assign positive value and commit themselves.

(4) A rule complex, application, or outcome which is judged as good or ideal in one context may be judged differently in another context.

(5) If the world were completely neat and orderly, there would be a relatively fixed and stable infrastructure of social equilibria. While such infrastructures obtain under some conditions, they are typically not fixed, but changing over time, both through processes of local change as well as global change. In such a way, a stream of future, partially anticipated (or predictable) equilibria is generated.

Actors take into account, and interact in relation to, the infrastructure of social equilibria. It both constrains them and provides them opportunities. For instance, a role may be enacted, and its

particular patterns are experienced and judged by the actor herself (and by others) as right and appropriate, as social equilibria. Similarly, actors enacting a norm or ritual in an appropriate context, experience the pattern as a social equilibrium. In general, norms, institutionalized relationships, social contracts, and constitutions provide the basis for many social equilibria – or the foundations for deriving such equilibria in given interaction contexts. Thus, the application of **norms, values, roles, and institutions generate as well as condition many social equilibria in relevant interaction contexts.**

Social equilibria are a function of a configuration of the particular relationship(s) among actors but and concrete interaction situation in which they find themselves. An equilibrium in a particular situation fits cognitively in that it makes sense, has meaning, is derivable—and justifiable—within the actors' cognitive and normative frames. It fits interactionally in that it is the common pattern to which all the actors can orient and, from the perspective of their respective judgment complexes, judge to be right and proper. This explains why actors in status or authority relationships may be comfortable with a wide range of **asymmetric** interaction and outcomes, but would be uncomfortable or disturbed in situations with symmetrical interactions and outcomes, other things being equal. Or, actors in a hostile relationship find non-cooperation, for instance in the prisoners' dilemma game (entailing losses), as not at all alien, but natural and right. Mutual cooperation would appear improper and irrational from their perspective (see later). In contrast, actors in solidary relationships find mutual cooperation right and proper, that is socially “natural.” In all of these cases, social equilibria are then a function of the normative prescriptions, rights and obligations of the actors in their relationship(s) which can be realized in concrete interaction situations.

A given social relationship or the institutional arrangement not only specifies but allows the derivation of one or more social equilibria. The latter consist of **compatible realizations or “solutions”** for the various participating actors with particular roles and role relationships. In general, the derived equilibrium interaction pattern or outcome in S is consistent with (or, at least, not inconsistent with) the norms and roles governing the actors in a socially embedded interaction process. Outcomes or states of the world (resulting from actions or implementation of rule complex in a situation S) may also be social equilibria, because they realize an ideal or “good.” For example, an outcome (or development) satisfies or realizes a principle of distributive justice; it is judged consistent with or fits a normative principle or value.

Social equilibria are an integral part of the social landscape. In general, social equilibria are such patterns consistent or fitting with the normative order – for instance, the actors' social relationships and the institutional arrangements—in situation S (provided there are such patterns available). Explaining them from the theoretical perspective outlined here is rather straightforward and closely associated with the institutionalization and legitimation of rule complexes. A further challenge is to explain the **lack of social equilibria** in some interaction settings or the **erosion or dissolution of**

social equilibria, for instance, in connection with de-institutionalization. Actors, even in a well-defined institutional context, work out and implement many patterns which are not immediately specified by a normative social order. In part, this is because rule complexes are never complete, and require considerable filling in or complementation. Also, situations vary and change, so a rule regime that may have been applicable in situation S_i may not be immediately applicable in another situation S_j . Certain adaptations or even transformations may have to be made. The actors try to reason, argue, and legitimate one course of action rather than another as right and proper in the new circumstances. The working out of new patterns and outcomes may not be immediately obvious in terms of the relevant established cultural and institutional frames. This makes for blockage or stalemate in a context of changing circumstances and transformation.

In sum, a social equilibrium is (a) an object to which participating actors are oriented—this means it is collectively defined, classified, distinguished from other objects, and judged; (b) the actors are drawn to, possibly are committed to it, or pressured to accept it. In such ways, they are motivated to maintain the object, and, other things being equal, not to change it; (c) they know (or believe) that others accept or are committed to the object. All of this makes for a “social reality” (or a complex of social facts) that has the character of objectivity. It is predictable, and provides spaces for planning and the development of complex, collective strategies. On this basis, actors can know about, anticipate, predict and plan for social equilibria under a range of conditions (see later). Many of their predictions and plans are based on their knowledge of core rule complexes and their application in concrete situations. The actual results obtained are also a function of the degree of knowledge, skill, situational conditions, commitment and trustworthiness of actors.

In the SIT conception, social equilibria in any given interaction situation are functionally and judgmentally dependent on the relationships, or the institutional arrangements and normative context, in which the interaction is embedded. Different social relationships – with their particular normative orders—generate different, particular equilibrium states, also specific to each situation or set of conditions in which they are enacted (Burns and Gomolinska, 2000; Burns et al, 1998). The SIT conception of social equilibrium is relationally or institutionally based (Burns et al, 1998; Burns (1990,1994)).

4.2 Non-Normative Equilibria.

There may be stable states, equilibria, that are not social equilibria in the sense formulated here. That is, they lack moral or normative force or necessary legitimacy. Actors accept them opportunistically, because they appear to be the best possible options under the circumstances, but they are not judged as right and proper, that is, as having legitimacy based on realizations or reflections of community norms and values. Thus, actors may agree to an outcome (or pattern of interaction), but remain dissatisfied with it, because it does not realize their goals or expectations or satisfy key community norms of justice. Therefore, there may be a temporary stability, a “solution” (in the immediate

situation), but at the same time it is not considered “normatively appropriate,” “legitimate”, or “natural” (at least to key actors). It would not be, therefore, a social equilibrium to which actors are oriented and committed – and have a certain degree of confidence in.

Interaction or game “solutions” need not be social equilibria. Even though a “game solution” may be produced, such as the non-cooperative pattern in the prisoners’ dilemma game, participants may judge it improper, or even feel that it is unfair. Or, an outcome may be satisfactory in some respects, but fails to qualify as a normatively grounded social equilibrium.. It is then only a “solution” in the sense of solving an immediate problem, or carrying on a particular interaction process. But it would lack the validation and consolidation of legitimizing judgments, which are essential to “robust solutions”. On the other hand, outcomes of a social order may be judged as ineffective or as highly risky mistakes, although they have been produced through a right and proper institutional arrangement or procedure. Thus, one may follow a democratic procedure (e.g., in voting), which results in an outcome that is judged by some (many or most) as totally wrongheaded or ineffective and to be rejected. In such a way, a procedure or “solution” may fail to validate “itself”. It is unable to produce a social equilibrium (with compelling normative force, that is, a stable, long-term solution)..

In general, a particular equilibrium, which is an immediate or pragmatic “solution,” may lack legitimacy. Thus, it is vulnerable or risky as compared to a genuine “social equilibrium,” in which participants can collectively trust and to which they all orient themselves and their actions and calculations (and are conscious of this social fact). Social equilibria provide for typically **robust solutions**, other things being equal.

One can observe in any on-going collectivity the working-out of patterns and outcomes that may not be obviously or clearly implied by the relevant cultural and institutional frames: (1) concrete reciprocity patterns in good neighbor or good friend relationships, where precisely what is to be provided or exchanged, when, and how often, is worked out among the actors in terms which are believed to be more or less compatible with their relationships; (2) the specific price and terms of trade in a market context are such that norms of contract apply but the actors are still free to negotiate participate prices and terms; (3) the outcome or “vote” from collective decision-making (through the application of a democratic procedure), where the agenda, the options, and the concrete implementation of such a procedure are worked out in practice.

Such cases arise because actors, although engaged in a well-defined institutional and normative context, must work out and implement particular patterns which are not normatively specified by the normative order. In part, this is because “rule complexes” are never complete. Also, situations vary and change, so a rule regime that may have been applicable in situation S_i may not be immediately applicable in a different situation S_j . Certain adaptations or even transformations may have to be made. The actors try to reason, argue and legitimate one innovation rather than another as right and proper in the circumstances. Through such processes new social equilibria may be

generated, or fail to be generated (but consideration of such developments would take us beyond the scope of this paper).

4.3 Contexts without social equilibria

Interaction contexts without social equilibria are characterized by actors with opposing values or goals (and no established procedures or institutional strategies to overcome differences). In the absence of social equilibrium, actors will typically try to restructure the interaction situation and/or the relationship in order to find satisfactory solutions (either individual ones or, under some conditions, collective ones). More generally, any factor which blocks or undermines the realization of norms and institutionalized relations, would *ipso facto* preclude particular social equilibria, possibly providing openings for new or different social equilibria or leaving the possibility of intractable *disequilibrium states*.

Several instances of the conditions and factors underlying potential disequilibrium states are indicated below.

- (1) Key normative or institutional complexes cannot be applied in the situation or they fail to fit the situation, because of situational constraints or internal inconsistency in rule complexes.
- (2) Implementation cannot be accomplished because of situational constraints, as in (1) above, at the same time that the actors are unable to make the necessary adaptations and adjustments in rule complexes. For instance, there is blockage or constraints on the meta- or transformative-level (which mediators or third parties may help overcome).
- (3) The actors experience contradiction and incoherence in the situation, for instance, the value complex ("goals") does not fit the norms or institutionalized strategies ("means"). Or a moral clash arises between actors who operate with one normative orientation (for example, "market") and others who operate with another orientation ("democratic"). Or the clashes may be of an ethnic or religious character. In general, the actors have differing conceptions of their interaction situations or of the principles of adapting, reforming and transforming the relevant rule complex in response to problems of non-applicability, contradiction, or ineffectiveness.²⁷ In all of these situations, the achievement of social equilibria might be difficult, if not excluded, at least in the short run.
- (4) Although norms, relationships, institutionalized arrangements may be applicable in the situations where they are right and appropriate, they fail to accomplish or realize what many expect or intend: For instance, a voting system results in non-decidability (stalemate), a common problem in systems of proportional representation (as opposed to winner-take-all systems). Or, an administrative organization or procedure fails to accomplish the level of control and coordination that is expected or demanded. Rational actors in games such as the prisoners' dilemma game, arrive at the non-optimal result (Nash equilibrium), but are inclined to refuse to accept this irrational outcome and, therefore, to try to transform the game so that a more optimal outcomes are achievable.

(5) Actors lose their confidence in or commitment to the rule complex(es), or they have different conceptions, interpretations, and judgments of them and their implementation: whether a norm, role, relationship, or encompassing institutional arrangement. Some (many, all) of the actors fail to implement certain rules, and an institutional decay or possibly collapse takes place. Or some agents launch or join a movement intent on transforming the rule complex.

(6) Other institutions, relationships, and roles effectively impinge on the given relationship, blocking or undermining patterns or states in the domain, which could otherwise be social equilibria. In general, more encompassing structures (institutional arrangements) or environments may collapse or become unstable, blocking or derailing the activation of key rules or rule complexes.

(7) Material resources essential to implementing or realizing a rule complex are unavailable or insufficient under the circumstances.

Social settings without equilibria appropriate for a given social relationship or institutional arrangement imply not only that participants will not know what to expect. This implies unstable and unpredictable interactions and outcomes. Under such conditions, the actors are motivated to restructure these situations – or, if at all possible, to avoid them.

In sum, we expect some social settings to lack one or more genuine social equilibria, although pragmatic equilibria of sorts may obtain. As indicated above, an equilibrium may be obtained, through the application of an established procedure, but such an outcome may fail to command normative or moral force. Hence, it is not a social equilibrium. Participants find it unacceptable or recognize it as sub-optimal. A more complex situation would concern issues such as what social contract (or constitution) could be constructed as a social equilibrium for Walloons and Flemish, in the context of amplifying ethnic conflict. Rewriting the constitution would open up Pandora's box, hence the reluctance to make any change. Most changes would entail unpredictable outcomes, and excessive risks. Such collective judgment processes make for institutional inertia.²⁸

PART TWO: APPLICATIONS AND IMPLICATIONS

In Part One of the paper, we outlined a theory with which to describe and analyze social action and interaction (SIT) and to explain interaction patterns and social equilibria. SIT states that actors in a defined social relationship – constituted and regulated by social rule complexes – are predisposed to generate particular patterns of interaction and outcomes in situations defined as relevant to their relationship. The patterns and outcomes generated (as indicated in Figure 5, Part One) are also judged to a greater or lesser extent (but not necessarily only) on the basis of norms and values inherent to the relationship. These judgments concern whether the patterns are normatively right and proper. Such judgments make for – or prevent (or erode) – the construction of social equilibria.

In this part of the paper, we apply SIT to the analysis of selected classical games, focusing on explaining patterns of interaction, whether or not social equilibria (as well as pragmatic or situational equilibria lacking normative force) obtain, and the bounds or limits of these equilibria. We illustrate how certain patterns constitute social equilibria (having normative force). Other, possibly contradictory judgments – based on relationships, commitments, and normative principles outside the given relationship – contribute to setting bounds on, and destabilizing, interaction patterns and social equilibria of the given relationship.

Section 1 introduces a few classical games defined in the conventional manner. In section 2 the social equilibria for the games—as a function of actors' social relationship—are identified and analyzed. The analysis identifies those configurations of social relationships and game situations that may result in either social equilibria or situational equilibria (that is, equilibria lacking in normative force). Some games in the context of particular relationships are shown to lack either social or situational equilibria. The section concludes with a table summarizing the equilibria patterns resulting from particular configurations of relationships and game situations. Section 3 explores the bounds of social equilibria, explaining that such limits are a function of scarce resources, extraneous loyalties, values and norms which enter into actors' judgments and actions in the given interaction situation. Section 4 compares and contrasts SIT to rational choice and game theory on a few key dimensions of action and interaction.

1. Selected Classical Games

SIT can be applied fruitfully to several classical simple one-shot two-by-two classical games to predict and explain diverse patterns of interaction as well as social equilibria for each type of game or family of games as a function of the type of social relationship obtaining. We focus on games of coordination,²⁹ “chicken” or confrontation,³⁰ distributional or “battle of the sexes,”³¹ and prisoners’

dilemma.³² Table 3 presents the basic action-outcome matrix of the various games we will consider (see earlier Table 1). Each actor has a choice between two families of strategy: “cooperative type action” and “non-cooperative type action.” As indicated in Table 3, the choice of one strategy by each actor leads to a jointly determined outcome, with a particular value, which may be a common shared value or may be differentiated into distinct evaluations by the two actors involved.

Table 3: Outcome Matrix for 2-Actor Game

	ACTOR 2	
	Cooperate(C)	Not Cooperate(-C)
Cooperate(C)	VAL[Occ]	VAL[O-cc]
ACTOR 1		
Not Cooperate(-C)	VAL{O-cc}	VAL{O-c-c}

The matrix in Table 3 is a highly simplified, decontextualization representation of a game. It will serve our purposes of illustration, including the contextualization or embedding of social interaction in relational and normative structures. The action of cooperation (C) may entail taking the wishes of the other into account, compromising, showing civility, coordinating with the other, sticking to established rules or contracts, and so forth. Non-cooperation (-C) encompasses, for example, refusal to coordinate, unwillingness to compromise, acting contrary to the wishes of the other, trying to gain ahead of the other, breaking a rule or contract, causing harm to the other, etc. CC means that both actors cooperate, -C-C that they do not, while C-C and -CC are mixed patterns. These interactions have outcomes represented by Occ, O-c-c, etc. The actors evaluations or value judgments of an outcome Occ are represented by VAL [Occ] (and so forth on for each and all of the outcomes in the matrix).

In the column of rational egoists, Table 4, the evaluations of outcomes (preference orderings) represent the value judgments of actors abstracted from a social space (that is, with considerations of or orient to “other”).³³ Such evaluations are generated as if outside the game or interaction situation with particular “self” and “other” actors; or, alternatively, the actors, although aware of each other, are totally indifferent to one another in normative terms (a relationship of mutual egoism). Thus, in the prisoners dilemma game, the rational egoists assess the outcomes as follows:

Actor 1: VAL[O-cc]>VAL[Occ]>VAL[O-c-c]>VAL{Oc-c};

Actor 2: VAL{Oc-c}>VAL[Occ]>VAL[O-c-c]>VAL[O-cc].

Note that in Table 4 we let $VAL[O_{ij}] = O_{ij}$ for purposes of simplification, so the rank orderings are value or preference orderings. In more conventional terms, using the symbols, R("reward"), P("punishment"), T("temptation payoff", that is, the payoff achieved by an act of cheating or defecting when the other tries to cooperate), and S ("sucker payoff") which results when one cooperates and is cheated by the other, one can specify the value structures in terms of components for actor 1 and actor 2: $VAL[O_{cc}] = R_1, R_2$; $VAL[O_{-cc}] = T_1, S_2$; $VAL[O_{c-c}] = S_1, T_2$; $VAL[O_{-c-c}] = P_1, P_2$ (see Scharpf, 1997; Tsebelis, 1990). Subscripts 1 and 2 indicate these payoffs for actor 1 and 2, respectively. For instance, the reward payoffs of cooperation (CC) are R_1 and R_2 for actor 1 and actor 2, respectively, or the punishment payoffs for non-cooperation (-C-C) are P_1 and P_2 for actors 1 and 2, respectively. And the rank ordering of the value components for both actors is: $T > R > P > S$, which correspond to the orderings for rational egoists in the prisoners' dilemma game indicated in Table IV. While the payoffs for the actors in all games might be symbolized by the same letters, what differs, of course, is the order of these payoffs in each game for each of the two actors. In such terms, the classical games presented in Table 4 are defined in the conventional way (see endnotes 32-35) and exhibit the common preference orderings for rational egoists (Column V).

In several contexts considered below, the actors are assumed to have defined social relationships which influence or shape their value judgments of actions or outcomes, thereby transforming or replacing the value structures represented in Table 4. For instance, friends will experience and judge differently a prisoners' dilemma situation than actors indifferent to one another or actors in a status or authority relationship (see later). Each game can be assumed to be initially given or structured by outside agents (or circumstances) but interpreted and responded to by the participants in terms consistent with their role relationships. In this way, it becomes normatively and socially contextualized. The actors re-assess and transform their evaluations of actions and outcomes in terms of their particular social relationships.

The most significant contextualization of any interaction situation or game derives from the particular social relationship obtaining between the actors. In making final assessments of actions and outcomes, actors are assumed to do so largely from the perspective of their roles and role relationship, that is, the value complex of the role take precedence over other value complexes (there are limits to this, discussed in the following section). Interactions and outcomes may be defined and classified in terms of particular aspects and the ways in which, and the extent to which, these relate to self, other, or a collective as a whole (thus, participants may engage in complex cognitive and modelling activities). In solidary relationships (kinship, friendship), the actors are motivated, other things being equal, by a value or norm to strive for positive gains for both, in particular minimizing differences. In the case of actors hostile to one another, each is normatively oriented to causing harm or negative outcomes to the other. Actors in hierarchical (status and authority) relationships are oriented to differential or asymmetric payoffs, favoring the person of higher status or authority. A

relationship between rivals is characterized by each trying to maximize differences between self and other.

In general, the values and valuations associated with a given role or role relationship transform a decontextualized, personal preference ordering, e.g. those given in the Column of rational egoists in Table 4. The result is a re-assessment of actions and interactions as well as outcomes as a function of the activation of role based norms and values. Thus, non-cooperation in a prisoners' dilemma (PD) or other interaction situation would be defined as "betrayal" by friends and judged harshly. In the case of enemies, it would be expected and considered "natural." – neither shameful nor contemptible. Or, in the case of an hierarchical relation (status/authority), the dominant actor is disposed to getting the subordinate to do something she may not want to do, for example to perform certain tasks, possibly loathsome ones, or to make other sacrifices (within some limits of course; see later). Cooperation for the subordinate actor means then compliance with the superordinate's decisions and acceptance of the asymmetric properties of their interactions and outcomes. On the other hand, the superior's actions would not be determined to any great extent by the desires of the subordinate, and, in this sense, they would be "non-cooperative." Giving in to, or going along with, whatever the subordinate's wishes would be dereliction of duty.

In general, the rule complex of any social relationship has meta-values and norms which either exclude or mediate with other relationships and extraneous values and norms. Thus, a value structure, or preference ordering, that actors would make in the absence of other actors (or at actors toward whom one does not feel indifference) – namely the preference orderings indicated in the column of rational egoists in Table 4 which provide a normalized base to compare with other orderings -- would in the context of concrete, meaningful social relationships be transformed into other structures, as suggested by comparing this normalized column with other column. In the case of actors in solidary and status/authority relationships, the value or preference orderings would be those indicated in Columns I and II (to be compared to the orderings in Column V). Also note that in Table 4 the orderings for actors 1 and 2 are collapsed into a single ordering, that is, value judgments and preference orders are convergent. This is a first approximation (as discussed in section 3, there are bounds to such orderings, partly arising from the game payoffs). In contrast to solidary and status relations, those of rivalry and enmity are characterized by divergent evaluative judgments and rank orderings. For instance, rivals are predisposed to evaluate outcomes in terms of the degree of difference (or inequality) between their own gains and the other's gains. In this way, a particular value or payoff structure, e.g. that of a decontextualized situation or actors indifferent to one another in a particular interaction situation, is transformed into one based on the assessment of differences between the "payoffs" of self and other. Similarly, enemies would typically evaluate outcomes in terms of damage or harm to the other (possibly holding constant loss to self). Through this contextualization, the indifferent or socially decontextualized payoff structure (the column of rational egoists) is transformed into that indicated in column IV of Table 4.

2. Social Equilibrium Analyses

A number of expected as well as unexpected social equilibrium patterns in the diverse classical games introduced above are predictable (differing substantially from the equilibria derivable from classical game theory). In the context of a game of pure coordination, there are incentives for the participants to maximize their respective payoffs by agreeing on a common rule, strategy, or policy, that is mutual cooperation (CC): $CC > -C-C > \{C-C, -CC\}$. Outcomes are all symmetrical. Such a game is unproblematic for actors purely neutral to one another, for instance rational egoists. Nor is it a problem for egalitarians in a solidary relationship. The game is problematic, however, for actors in a status or authority relation because the optimal interaction possibility, namely coordination and its outcomes, are symmetric. This type of egalitarian coordination pattern does not fit the normative imperatives of such a relationship. All the interaction opportunities in the game result in outcomes identical for each of the actors. Only **coordination games with asymmetrical outcomes** favoring the superior actor would provide the conditions for social equilibrium in the case of such a status or authority (hierarchical) relationship. In the context of the configuration of this social relationship and particular interaction situation, no interaction pattern or outcome is satisfactory, that is normatively right and proper according to the social relationship. The actors would be predisposed to transforming the interaction situation into a type of situation which has appropriate asymmetric interaction possibilities and outcomes, for instance a PD game. This and other games offer possibilities to achieve social equilibria manifesting or realizing the norms and role imperatives of the status/authority relationship. Actors in a competitive relationship, for instance in an institutional context such as a market or sports event where they are expected to compete or struggle with one another, would each orient to differences in payoffs, that is differences between their own gains and the gains of the other. In this way, the payoff structure is transformed into a type of zero-sum game where no mutually satisfactory outcome is possible.³⁴

Actors in a coordination type game whose relationship is hostile have potential interaction patterns and outcomes which are compatible with or fits their relationship, namely the non-cooperative interaction -C-C. Thus, both would tend to refuse to coordinate and suffer the losses stoically (but presumably proudly). This situational equilibrium (without normative force) is suboptimal from each individual's decontextualized perspective (that is, if each were alone or isolated in such a way as to be unaware with whom she is interacting). Although they could each do better in realizing some of their values by cooperating with one another, this would conflict with the imperatives of their relationship, the mutual predispositions to harm the other. Under some limiting conditions, the actors might be prepared to coordinate for the sake of major gains. However, such coordination tends to be unstable, since it is incompatible with their relationship (or the value orientations and patterns inherent in it), a matter to which we return in the next section on "limits". Ultimately, the actors tend either to fall back on their established and expected patterns, that is equilibria consistent with their relationship; or to transform their relationship into a mutually positive

one, more fitting to practices of coordination (arising in the context of incentives and opportunities such as the coordination game. Mixtures are difficult to articulate and to establish and maintain over an extended time.

In the game of **confrontation or chicken** (where there are strong incentives for actors push their claims in an attempt to get ahead of one another), solidary egalitarians would have little problem with the game: there is a natural, that is inherently right and proper, interaction and outcome, namely CC. This is a social equilibrium for them. The game of chicken provides a context for a substantially different social equilibrium in the case of actors in a hierarchical relationship, namely -CC, where the subordinate actor is inclined – would be expected to – accept the imbalanced or disadvantageous exchange. The status relationship provides a basis for an obvious and determinant choice between the two potential equilibria (-CC and C-C). The actor with high status or authority leads and the other acquiesces (within certain limits, as discussed later). Hostile actors, on the other hand, would find mutual harm or even destruction, namely -C-C, compatible with their relationship. The outcome is, of course, suboptimal in a decontextualized assessment. They would experience the dilemma between acting in a manner consistent with their relationship (causing maximum harm to one another) or “cooperating” and avoiding the risk of major losses. Similarly, for rivals, the likely interaction is -C-C, as they race to beat one another. But none of the possible outcomes is satisfactory to both actors, hence there are no situational equilibria in the context of the particular configuration of their relationship and the concrete game situations. However, there is a dilemma between choosing to beat the other, and placing oneself in considerable risk in trying to accomplish this, a matter discussed later in terms of the limits of value or role realization. For rational egoists, there is situational competition and two situational equilibria for rational egoists, namely -CC and C-C. -C-C produces the worst possible outcome, a substantial loss for both. Fear of mutual harm or destruction provides an incentive to cooperate, but cooperation would be purely situational, and, therefore, of a different character than the cooperation of solidary actors (or even actors in a status relationships where there is an asymmetric form of cooperation in the interaction). There is no **social** equilibrium. Actor 1 might choose -C, in which case actor 2 is better off choosing C; or vice versa. Once actors determine in some way one or the other the combination, they would have no unilateral incentive to deviate. But how to make such a determination? Each is vulnerable to a threat and preemptive move of an eager counterpart.

The **battle of the sexes** is a game of coordination but with potential conflict over the distribution of the gains from coordination. Rational egoists engaged in this coordination/distribution game would presumably like to participate together in an activity (the coordination part) but each has a strong preference for her own particular plan or agenda (the distributional dimension of the game): in particular, (-CC) and (C-C) are preferred by actors 1 and 2 respectively. However, collectively, they have no basis to select between these “equilibria.” Using one or another rational decision algorithm, they would not arrive at a decision, thus risking that they do nothing and end with the least

preferred outcome (-C-C). For actors in a status relationship, there is a normatively right and proper interaction pattern and outcome, thus a social equilibrium, namely the pattern (-CC) which favors the dominant actor. On the other hand, hostile actors would be predisposed to choose not to cooperate, -C-C, which would be a situational equilibrium. Rivals, as in the confrontation game, would be predisposed not to give in to one another, hence the expected (-C-C) interaction pattern and outcome. Of course, each rival would only be satisfied with the asymmetric outcome which favors her (-CC for actor 1, C-C for 2), but neither of these make for even a situational or pragmatic equilibrium. Thus, actors would be inclined to try to transform the game into an entirely different game, namely one advantageous for self. This tendency would make for a dynamic situational equilibrium as each strives for shaping a game arrangement with outcomes characterized by appropriate differences between self's and other's payoffs. Egalitarian, solidary actors, on the other hand, share a common commitment to strive for mutually beneficial outcomes and are predisposed, therefore, to coordinating their choices in order to obtain mutually benefit outcomes, either -CC or C-C. Of course, if each of the actors tries to submit or sacrifice to the other (CC), which is not an uncommon pattern among solidary actors in situations without a defining norm or institutionalized strategy, they end in a sort of stalemate, doing nothing but endlessly negotiating (this makes for a dilemma for solidary actors in such a game or interaction situation). This is because both asymmetric outcomes would be preferred. However, there is no obvious choice between these two equilibria. This could be settled by a normative rule or a negotiated agreement. Actors in egalitarian solidary relationships typically operate with a variety of rules and procedures which resolve such dilemmas, for instance turn-taking and other institutional devices. These have an advantage of reducing time-consuming negotiation and transaction costs (high transaction costs, possibly together with highly meaningful activities) is a common pattern in many modern, egalitarian relationships).

In the prisoners' dilemma (PD) game, actors with a solidary egalitarian relationship would experience no dilemma, in a wide range of situations. CC is a right and proper interaction, that is a social equilibrium. It is also Pareto optimal.³⁵ Of course, as we shall discuss later, there may be limits to their solidarity (that is, solidarity need not be an absolute or sacred principle in all solidary relationships). The PD game poses no dilemma either for agents whose relationship is one of enmity. Each can effectively punish the other, by refusing to cooperate with one another (-C-C). The -C-C pattern is an equilibrium consistent with their relationship. Again, there may be limits on how far they are willing to go with mutual harm as in the game of chicken. In the case of actors with a status or authority relation, the asymmetric interaction (and outcome) -CC is a normatively right and proper pattern, that is, a social equilibrium. For actors with such a relationship, the PD is not then a dilemma, other things being equal. Once again, of course, the question of the limits of this interaction pattern is relevant. How much is a subordinate willing to submit or sacrifice in acting consistent with the norms and values of the role relationship, at the expense of missed opportunities for realizing other values (including that of taking revenge for humiliation against a superior who may be

resented) (Rational egoists having no mutual concern with one another experience a genuine dilemma in the PD game. They are each predisposed to choose -C, but the resulting pattern -C-C is sub-optimal, which is a problem for highly instrumentally oriented agents. They would, if at all possible, try to transform the game, other things being equal. Hence, the -C-C “equilibrium,” which is a non-optimal Nash equilibrium in the PD game, is neither a social equilibrium (with normative force) nor a situational or pragmatic equilibrium in SIT. For rational egoists, it is an unstable state.³⁶ For instance, through repeated play or through direct negotiation and norm transformation – or other ways in which games/relationship configurations may be restructured or transformed -- they would guarantee the mutual beneficial interaction CC³⁷ (and success at this would contribute to building trust and the normative basis of solidary relationships).

SIT identifies three general types of equilibrium conditions, in addition to non-equilibrium situations (see Table 4): (1) Genuine social equilibrium grounded in a common normative order, namely the value complexes including norms that underlie many social relationships and institutional arrangements. (2) Partial social equilibrium, which only partially satisfies the normative criteria, as in the game, “battle of the sexes,” under conditions of a solidary equalitarian relationship. (3) Pragmatic or situational equilibrium, lacking in normative force; this was illustrated in the case of actors with egoistic orientations who accomplish equilibria in coordination and confrontation games; or the equilibria which adversaries, who are mutually oriented to causing harm to one another generate in coordination, confrontation, prisoners’ dilemma, or battle of the sexes games. (4) Interaction situations without equilibria. For instance, rational egoists in the PD situation are likely to find the non-optimal outcome (the “Nash equilibrium”) as irrational and unacceptable, and would, therefore, be disposed to try to transform the game. This is also the case of actors in a status relationship in the context of a fully symmetric coordination game, or rivals in all of their interaction situations, since there no outcome which satisfies both. Each is driven, therefore, to transform the game into one making for a satisfactory state for self, ideally a game with asymmetric outcomes favoring ego (that is, a no lose situation).

In sum, we expect some interaction configurations combining particular social relationships and interaction settings to lack a genuine social equilibrium, although pragmatic equilibria may obtain. All relational-game configurations where actors have a well-defined role relationship which predisposes them to generate similar value orders or preference structures – for example, solidary and status relationships – will contain at least one social equilibrium if and only if there is at least one interaction pattern or outcome which realizes or satisfies their value complexes. That is, it is consistent with or realizes the normative imperatives of the relationship in the particular situation. Hence, the outcome would be a social equilibrium with normative force (this presupposes that the force of competing or contradictory relationships, normative orders or loyalties in the situation is excluded or weaker or less effect in the situation). Actors in relationships with more or less divergent value orientations such as those involved in hostile relations typically do not find social equilibria in

interaction situations; however, they may find pragmatic or situational equilibria which, for instance, entail mutual harm or damage. Such patterns are consistent or compatible with their orientations to one another. As pointed out earlier, rivals would in the purest case find no pragmatic or situational equilibria in a wide range of interaction situations (since there would be no outcomes for which their evaluations converge). Their common tendency to try to transform a game into one with outcomes advantaging self make for a dynamic equilibrium, although without normative force.

One might claim that configurations involving solidary relationships in interaction situations without social equilibria are transient and that the actors are likely to engage in search processes, possibly ending in the discovery or construction of one or more social equilibria. However, such engagement in search rests on a *belief* among the participants (or third parties) that the process will probably succeed. The construction or reconstruction of social equilibria depends then on a belief-action complex, for example that one can reach a normatively grounded as well as negotiated equilibrium that will satisfy the value and norm complexes of the actors involved. Stable non-equilibrium situations rest also on a belief that the situation cannot be changed or, if changed, will result in further negative non-equilibria.³⁸ This belief contributes to blocking the formation of solidary relationships and to the erosion of already established solidary relationships.

Table 4: Social Relationships, Types of Games, Interaction Patterns and Social Equilibria

Social Relationship					
Type of Game	Status/ Domination	Solidarity	Competitive	Adversary	Egoistical
Coordination Game	<p>$-CC > \{C-C, CC, -C-C\}$</p> <p>Actors 1 and 2 normatively inclined to $-CC$. It would be ranked over other interaction patterns, since it satisfies the standard of asymmetry. But no outcome of the game would satisfy this standard since the payoffs are all equal. Thus, no Social Equilibrium. Actors are hence predisposed to try to transform the game in order to realize the normative imperatives of the relationship. Or to respond pragmatically so as to realize the gains from CC (and to bracket their relation), which would be a situational or pragmatic equilibrium.</p>	<p>$Occ > \{O-c-c, O-cc, Oc-c\}$</p> <p>Actors 1 and 2 normatively inclined to make the same cooperative choice. Social Equilibrium = CC.</p>	<p>1: $O-cc > \{O-c-c, Oc-c, Occ\}$</p> <p>2: $Oc-c > \{Occ, O-cc, O-c-c\}$</p> <p>1 and 2 are predisposed to aim for unequal outcome favorable to self. The result would be $-C-C$. Neither a Social equilibrium nor a situational equilibrium.</p> <p>If CC payoff is large enough, the actors may be tempted to switch to cooperative mode; CC then becomes a situational or pragmatic equilibrium. This defines the limits or scope of the relationship.</p>	<p>1: $O-cc > O-c-c > Oc-c > Occ$</p> <p>2: $Oc-c > O-c-c > O-cc > Occ$</p> <p>1 and 2 predisposed to generate $-C-C$ with mutual punishment, which is a situational equilibrium (except if CC payoffs attractive enough; actors then may be tempted to switch pragmatically to cooperative mode with CC becoming a limiting situational equilibrium). No Social Equilibrium.</p>	<p>$Occ > O-c-c > \{O-cc, Oc-c\}$ for both actors 1 and 2</p> <p>1 and 2 situationally inclined to make the same cooperative choice.</p> <p>Situational or pragmatic equilibrium = CC.</p> <p>No Social Equilibrium.</p>
Confrontation Game or Chicken	<p>1: $O-cc > \{O-c-c, Occ\} > Oc-c$</p> <p>2: $O-cc > \{O-c-c, Occ\} > Oc-c$</p> <p>Actors 1 and 2 normatively predisposed to the pattern where 1 determines or decides and 2 yields. Social Equilibrium = $-CC$. There are potential limits to actor 2's willingness to</p>	<p>$Occ > \{O-cc, Oc-c\} > O-c-c$</p> <p>Actors 1 and 2 normatively inclined to make the same cooperative choice.</p> <p>Social Equilibrium = CC. There are limits to the actors' readiness to sacrifice or compromise for the sake of the</p>	<p>1: $O-cc > \{O-c-c, Occ\} > Oc-c$</p> <p>2: $Oc-c > \{O-c-c, Occ\} > O-cc$</p> <p>1 and 2 are predisposed to aim for unequal outcome favorable to self, thus generating $-C-C$. Neither Social Equilibrium nor situational equilibrium (In the limit they may decide to play CC because of risks.</p>	<p>1: $O-cc > O-c-c > \{Occ, Oc-c\}$</p> <p>2: $Oc-c > O-c-c > \{O-cc, Occ\}$</p> <p>1 and 2 predisposed to choose non-cooperation with mutual punishment. Situational equilibrium = $-C-C$ (unless mutual punishment so great that refuse to act according</p>	<p>1: $O-cc > Occ > Oc-c > O-c-c$</p> <p>2: $Oc-c > Occ > O-cc > O-c-c$</p> <p>The actors are situationally inclined to make divergent choices. If either one gets to move first, selecting $-C$, the other would be better off choosing C. Hence, two situational equilibrium. CC would also be a pragmatic or situational equilibrium in the case neither has the advantage of initiative or wishes to</p>

	accept whatever from 1, that is, defining the scope of the relationship. Any opposition from 2 about the unequal outcome threatens a restructuring of the relation.	relationship.	involved in -C-C outcome. CC would be a limiting situational or pragmatic equilibrium).	to their relationship). No Social Equilibrium. CC a potential limiting situational equilibrium	take the risk of -C-C. No Social Equilibrium.
Battle of the Sexes	1: O-cc > {O-c-c, Occ} > O-c-c 2: O-cc > {O-c-c, Occ} > O-c-c Actors 1 and 2 are normatively predisposed to the pattern where Actor 1 decides, 2 accedes. Social Equilibrium = -CC Again, there are potential limits to 2's compliance defining the scope of the relationship.	{O-cc, O-c-c} > Occ > O-c-c [-CC] and [C-C] are partial social equilibria, not fully satisfactory or fair in themselves. Actors likely to try to transform the game creating new action possibilities, e.g. introducing turntaking or other norms of fairness, which would be the basis of social equilibrium in such games.	1: O-cc > {O-c-c, Occ} > O-c-c 2: O-c-c > {O-c-c, Occ} > O-cc 1 and 2 are predisposed to aim for an unequal outcome favorable to self, thus generating -C-C. Neither Social Equilibrium nor situational equilibrium. CC a possible limiting pragmatic equilibrium.	1: O-cc > O-c-c > {Occ, O-c-c} 2: O-c-c > O-c-c > {Occ, O-cc} 1 and 2 predisposed to choose non-cooperation. Situational equilibrium = -C-C with mutual punishment. (except if punishment so great that refuse to play or to act according to their relationship) No Social Equilibrium.	1: O-cc > Occ > O-c-c > O-c-c 2: O-c-c > O-cc > Occ > O-c-c Neither Social Equilibrium nor pragmatic equilibrium. Actors likely to try to transform the game to try to obtain a pragmatic or situational equilibrium.
Prisoner's Dilemma Game	1: O-cc > {O-c-c, Occ} > O-c-c 2: O-cc > {O-c-c, Occ} > O-c-c Actors 1 and 2 are normatively predisposed to the pattern where Actor 1 defects, and 2 cooperates or accedes Social Equilibrium = -CC There are potential limits or scope of this pattern and equilibrium.	Occ > {O-cc, O-c-c} > O-c-c Actors 1 and 2 normatively inclined to make the same cooperative choice. Social Equilibrium = CC There are limits to the actors' readiness to sacrifice or compromise for the sake of the relationship.	1: O-cc > {O-c-c, Occ} > O-c-c 2: O-c-c > {O-c-c, Occ} > O-cc 1 and 2 are predisposed to aim for unequal outcome favorable to self, thus generating -C-C. Neither Social Equilibrium nor situational equilibrium. CC possibly becomes a limiting pragmatic equilibrium	1: O-cc > O-c-c > {Occ, O-c-c} 2: O-c-c > O-c-c > {Occ, O-cc} 1 and 2 predisposed to choose non-cooperation, generating -C-C, which is a situational equilibrium (except if punishment so great that refuse to play or act according to their relationship). No Social Equilibrium	1: O-cc > Occ > O-c-c > O-c-c 2: O-c-c > Occ > O-c-c > O-cc No social equilibrium, nor given situational equilibrium. Actors are likely try to transform the game in order realize their goals, for instance, agreeing to choose together CC with mutual gains, which would be a pragmatic or situational equilibrium.

3. Value Limits, Dilemmas and Predicaments in Social Interaction and Social Equilibria

Given their social relationships and particular norms, there are more or less rough limits to, that is the scope of, patterns of interaction and outcomes—and social equilibria. Extraneous values and norms may enter in, and compete with and set bounds on, the evaluations and commitments to the action alternatives or outcomes of a particular interaction process or game (and the social relationship(s) or institutional arrangements underlying the game). In such ways, a game, or its underlying relationship, may also be transformed into another type of game (Burns et al, 1974; Burns et al, 1985). These bounds are related to the dilemmas and predicaments that actors may experience in particular interaction situations. The scope of practical activation (or relevance) of a value or value complex are functionally dependent on lack of resources, existential constraints, and meta-rules or meta-values defining limits and inter-relationships among values.

The value complex VALUE consists of one or more values, evaluative judgments and other evaluative components that are to be applied in the action situation S and determine the particular preferences of each actor. Value dilemmas or clashes are a natural part of the SIT approach to action. For instance, a major type of dilemma arises from considerations of the values of outcomes as opposed to intrinsic or normative values assigned to properties of actions. Or the dilemma arises in connection with efforts to realize, for instance, the values of family as opposed to those of profession or religion or a social movement in which one is engaged. One of the ways that actors generate evaluations and preferences—particularly in highly “open interaction settings”—is that they pursue the “good” searching for ways or for heuristics to achieve or to come nearer the good or the right.

What are the limits associated with the realization of a value or value complex, performance of a role, compliance with the “rules of the game” (which apply to all the participants) or adherence to an institutional arrangement. Any given values, commitments, and loyalties are thus generally bounded, but the bounds are situationally or contextually specific. One major source of limits are “external” values, commitments, and engagements that under some conditions enter in and impose constraints—or confront an actor with particular dilemmas and predicaments. Thus, commitments to other social relationships, roles, and institutions, and values (including one’s own personal ambitions and needs) make for constraints on the pursuit or realization of a particular institutionally specific value complex. Such extra-relational (or extra-role) considerations make not only for bounds (or scope of validity) but for dilemmas and predicaments and disequilibria.³⁹

Example: There are limits to submission or sacrifice on the part of a subordinate in a status or authority relationship, where the interactions and outcomes are expected to be asymmetric. The limits are defined by a meta-rule defining (usually in a rough way) the extent to which the subordinate ought to submit, comply with, and make sacrifices consistent with the imperatives of the A-B relationship. In general, there is a complex of meta-rules and understandings of what A can expect or

has the right to request of B—or complementarily, what B should or can be expected to do vis-a-vis A (these may not be consistent, which of course sets the stage for misunderstandings and conflicts).

Example: In the case actors are rivals or hostile to one another, and participate in confrontational interactions (for example, chicken, or PD games), there are typically limits to their commitment “to outdo the other” in relationships of rivalry, or “to harm the other” in relationships of enmity. The strength of the desire to survive or to avoid “excessive” loss or suffering plays a significant role here.

Example: In a PD situation, an actor in a solidary relationship with another feels obligated or committed to cooperate, making sacrifices, show loyalty or trustworthiness. But another value(s) (social relationship or loyalty), to which the actor is also committed, enters in and constrains how far the actor will go in cooperating or sacrificing. Obviously, **if such competing or conflicting values do not enter in, then there are no dilemmas, predicaments, or obvious constraints** (as is often the case when someone becomes obsessively engaged in a relationship, group, organization, or movement). Usually, however, other loyalties or commitments enter into consideration in any given interaction situation such as the PD game and make for dilemmas and predicaments: for instance, in the case of a solidary relationship, the dilemma of being loyal to another, on the one hand, or “betraying the other,” by choosing non-cooperation, on the other hand. Similarly, for the subordinate in a status relationship in the context of the PD game. She may experience a dilemma between being consistent with (or loyal to) the normative imperatives of the status relationship, on the one hand, and, deviating because of particular gains to be made by such action, on the other hand. Or the superior in a status relationship in the context of a pure coordination game may be torn between enacting the symmetric outcome which is optimal but inconsistent with her position in the domination relationship (that prescribes asymmetric interaction and outcome patterns). In both cases, the actors experience a dilemma: each could achieve an advantageous outcome by acting as equals. Such deviation might be considered **ad hoc** or an exceptional pattern. Ultimately, the actors tend either to fall back into patterns of interaction appropriate for their relationship, or to transform their relationship into a different relationship, for instance a more egalitarian one.

Actors in such dilemmas may, under certain conditions indicated by particular meta-rules and -evaluations, choose to behave in ways **inconsistent** with the prescribed orientations and role imperatives of their relationship. But these “exceptions” are problematic (because they are misfits and ultimately destabilizing). Actors who are in non-solidary relations (either rivals or enemies) find the -C-C interaction in the PD game an equilibrium, while CC would be a non-equilibrium pattern (even if advantageous for both, if decontextualized from their co-presence). Typically, rational egoists are better off with mutual cooperation than with non-cooperation in PD type games. They would prefer mutual cooperation over non-cooperation, other things being equal. The challenge is to establish a social relationship with a normative base and, therefore, particular appropriate social equilibria.

Actors in a hierarchical relationship would find asymmetric interaction patterns, namely – CC, and outcomes compatible social equilibria. But there is a certain instability inherent in such equilibrium patterns, namely that the subordinate actor might gain considerably in some situations by deviating, refusing to cooperate, or even rebelling. This is a potential source of interaction instability. Indeed, the risk in any hierarchical relation is resentment (Scharpf, 1997), which may emerge under conditions where, for instance, the inequality goes too far or the subordinate(s) change their conception of limits and rebels, translating the relation into one of conflict or competition (Baumgartner et al, 1977). Typically, clever dominant actors preempt this by transforming the game into one more inherently stable, for instance a PD or chicken game structure where the incentives for defection are less. Meta-rules define relationships and ultimately maximum values or the bounds of a commitment to a value (in relation to other values and commitments). The greater the value of a social relationship to the participants, the higher the limit or maximum, and the higher the level of self-sacrifice and resistance to disloyalty or cheating. Hence, if A and B (as well as possibly other persons) consider their relationship as a “close friendship,” this implies a readiness to make more substantial sacrifices than in the case of a relationship of mere “acquaintances” (see below, on initiatives to alter the value of the relationships). They would be predisposed to make such sacrifices up to the value of the relationship, the **reciprocity value of the relationship** (Burns, 1990; Burns et al, 1998). Failure to live up to these implicit mutual obligations tends to undermine the relationship.

As the value gains associated with unilateral defection in the PD situation becomes “equivalent with” or “compete with” the value of the solidary relationship, the likelihood increases of one or another form of betrayal, or “defection.” This deviance and instability may even be anticipated or recognized as a potentiality in many instances by the participants themselves. Neither participant could be expected—or trusted—to sacrifice an opportunity much greater in value than that of their relationship, **unless there was a mutual desire or commitment to establish or demonstrate increased commitment to—and value of—the relationship.** Resisting the temptation of betrayal or defection strengthens or reinforces the reciprocity value of the relationship.

Demonstrations or signs of betrayal erode, of course, the value and stability of the relationship.

Example (Burns, 1990; Burns et al, 1998, Chapter XX): Consider a reciprocity relationship where both actors agree to a particular level of reciprocity value, which then operates as a limit or constraint on their exchanges. For instance, neighbors lend one another tools including such equipment as lawn mowers and leaf mulchers. However, they are not thereby predisposed to lend their automobiles or houses to one another. There are definite limits to their reciprocation of goods and services, roughly defined or understood within that particular relationship and its maximum level of exchange. A meta-rule defines such limits, the reciprocity value level. This expresses a maximum value of exchange in the relationship: namely, the extent or degree of service or sacrifice, roughly equivalent to the value the actors assign to their social relationship.⁴⁰ This value may shift as the actors increase their commitment to and trust of one another, in that they demonstrate their willingness and ability to do

more substantial favors, or to make significant sacrifices, for one another (see below). However, the value would be reduced, or eliminated by, for example, betrayal, or erratic, unpredictable behavior.

In general, shared knowledge of the meta-rules in the value complex defining limits and the scope of commitment to a value complex makes actors more predictable and understandable to one another. Thus, **actors can take into account the scope of what they can request or expect and what can be requested or expected of them.** Of course, there often is a dynamics to these relationships, as actors intentionally try to extend or to test the limits. For instance, (1) Persons involved in—or seeking to establish—a social relationship will demonstrate, and indeed seek to demonstrate, the value of the relationship by making sacrifices, resisting temptations, and showing that they are trustworthy, reliable, and responsible participants, at least to the degree implied by the value they seek to place on the relationship; (2) Given a relationship of solidarity with an established reciprocity value, one or both actors may decide to try to increase the level or quality of services or goods provided in order to raise the value of the relationship, and the commitment of the other actor (such value enhancement is also an emergent and natural result of providing higher valued goods and services to one another, unless these are bracketed in one way or another). They invest in the relationship to strengthen one another's mutual commitments and obligations to the relationship. If successful, the value level or maximum may be increased, subject to the constraints of other social relationships and values, as argued earlier.

Particular meta-rules define the relationships among values, their ordering and relative commitment to them. These rules set certain maxima, or bounds to how far one may or ought to go in trying to realize a particular value or value complex (of course, the scope could be "without limit"; as in the case of an absolute or uncompromising commitment). Other values and considerations are to be ignored: the particular value or goal should be pursued "at all costs", in this perspective, "the end justifies all means."

Some meta-rules in an actor's value complex define the relationships among values, that is, **the ordering of values**, the relative commitment to them, and their scope.⁴¹ In particular, they designate or imply equivalences and orderings.⁴² There is typically no precise calculation of these limits or maxima. However, there are social rules in any culture categorizing and assigning values to things, deeds, and persons, and also designating or implying equivalences. In a fully monetarized society, market price serves as one key basis of social evaluation and determination of orderings and equivalences. Moreover, the scope of relevance or activation of a value complex is often not fully specified; the ordering may not be a precise one. And the actor may have no immediate response or resolution of conflicting values (dilemmas or situational conflicts and predicaments). She must engage in reflective and transformative processes (Burns and Engdahl, 1998; Burns et al, 1998).

4. Comparisons and Contrasts with Rational Choice and Game Theories.

SIT can be characterized as an **institutional/relational/role based approach** to the conceptualization and analysis of social action and interaction (Baumgartner et al, 1975; Burns and Buckley, 1974; Burns et al, 1985; Burns, 1990; Burns, 1994; also see Ostrom, 1990; Ostrom et al, 1994; Scharpf, 1997).⁴³ It articulates and elaborates several principles useful for interaction analysis, among others: (1) The **common knowledge** of a community of actors concerns, above all, their shared knowledge of rule complexes. SIT stresses the substantial institutional, role, and norm knowledge generally that they possess. Knowledgeable agents bring their knowledge to bear in analyzing and interpreting particular interaction situations. They engage individually and collectively in a process of defining and labeling the situation, also defining relevant social relationships and roles. (2) Actors **contextualize action and interaction** in terms of their cultural and institutional knowledge. abstract (de-contextualized) (3) **The common cultural elements and complexes applied to a given interaction situation are not fixed or exact.**⁴⁴ Actors may have varying structures of perceptions, different socially based knowledge systems, different ways of conceptualizing and evaluating their interaction situations and also their social relationships, whether relations of kinship, friendship, rivalry, enmity, market, or bureaucracy. These differences play a significant role in their perceptual and judgment processes and interactions patterns.⁴⁵ (4) **Actors' evaluations and preference orderings in interaction situations are to a greater or lesser extent endogenous to their roles, social relationships, and the cultural frame(s) within which social relationships are conceptualized** (that is, preferences should not in the first analysis be treated as exogenous). The ways in which actors tend to play the "same" game or interaction situation will depend on their social relationship and their conception of the situation. Friends will have a perceptual organization and preference ordering diverging from those of rivals in the "same" (structurally the same) or similar interaction situation. Superiors do not perceive the situation in the same way as subordinates. In general, actors in different positions and relationships will tend to categorize, interpret, and judge conditions, actions, motives, events, and developments differently. Along the same lines, actors from different cultures tend to conceptualize an interaction situation differently, generate different preference orders, and utilize different strategies and decision principles. (5) The SIT conception of human agency – rule oriented but creative/destructive—stresses **the multiple bases or motivations of action**, thus extending the motivational basis of classical game theory (and rational choice theory). Instrumental rationality is simply one particular modality of social action (with its own underlying normative orientation). Any modality – or multi-modal process—is socially and culturally contextualized. One is able to explore precisely in what ways cultural, social relational, and normative factors enter into actors' judgment processes, decisions, and actions. (6) **Choice principles and norms of action vary systematically as a function of actors' particular roles and social relations.** Maximizing individual payoffs, utility, or some other value cannot be considered as

a universal decision principle or ultimate rationality.⁴⁶ This type of principle applies in particular social relationships and interaction settings such as market exchange among actors unfettered by other social relationships. Other values and goals can be assumed to be suspended while rational, egoistic judgment processes become the actual, even the proper, mode for determining action. Individual decision-making as distinct from collective decision-making (joint or democratic, authoritarian, normative) would not be universal.⁴⁷ (7) Actors' values, models, strategies, and modalities generally vary over time.⁴⁸ External factors or the actors themselves, whether intentionally or unintentionally, change key components. For instance, actions on the physical environment have consequences—such as pollution of the atmosphere or erosion of the soil, which change the conditions of action. Also, there may be collective choice and legislation concerning action opportunities—the establishment of liberties and constraints—or the structuring of particular outcome functions (in the form of distributive rules or policies).

The SIT generalization or extension of the equilibrium concept that incorporates matters of fairness and legitimacy about procedures and outcomes seems to us a promising theoretical and empirical line of research. In any given interaction setting—social equilibria, as stable interaction patterns, processes and outcomes—vary with the actors' social relationships and normative contexts. That is, **different social relationships—or normative orders with their value complexes and norms—generate different equilibria.** The set of possible social equilibria are **particular realizations or derivations** of the actors' value and norm complexes. These include patterns that are consistent or fit with the actors' social relationships and orientations—the normative order—in a given situation (provided such patterns are feasible).

A social equilibrium is a process or outcome (or other pattern) which is judged to satisfy the norms, cultural values, and institutional arrangements governing the actors. This conception stresses explicitly the normative, relational, or institutional bases of social equilibria. A normative order or institutional arrangement specifies (or enables the actors to derive such specifications of) one or more social equilibrium. An equilibrium fits cognitively in that it makes sense, has meaning, is derivable and justifiable within the actors' respective judgment complexes, which are based on a shared normative or institutional order, for instance a "constitution." It fits socially in that it is the common pattern which all the actors, from the perspective of their respective judgment complexes, orient toward, expect others to orient toward, and believe or trust that others judge it to be just, right and proper. It "fits" or appears "natural".

Social equilibria are commonplace. The reason is that they are closely associated with the institutionalization of rule complexes (constitutions, institutions, procedures) that makes complex social life possible, if not just under some conditions. What makes those institutions, procedures and outcomes constitutive of a social equilibrium is their perceived or judged legitimacy and fairness. However, this may be illusory. There are many forces in our societies that block ways to open deliberative processes about fairness and legitimacy both of procedures and outcomes. Given the

predisposition of human groups to produce non-normatively grounded equilibria, a much greater challenge to economic and social science theory is to explain the **lack of social equilibria or their erosion or dissolution** in some interaction settings

The theory of social action and interaction outlined in this paper generalizes a number of other approaches. This is achieved through the elaboration of the concepts of social rule, multi-modal social action, and social equilibrium: Thus, (1) The modality of instrumental rationality corresponds to rational choice (and game theory approaches) (Coleman, 1990; Hardin, 1982; Hechter, 1987; Olson, 1968; von Neuman and Morgenstern, 1953); (2) The routine or habitual modality corresponds to notions such as “standard operating procedures,” “programs,” or “habitus” (Bourdieu, 1977); (3) The rule-following or normative modality corresponds to approaches such as Parsons (1937), Harre (1979); Harre and Secord (1972); or to role conceptions of action (Goffman, 1959, 1961). Additional modalities of action such as “play” and “communicative/dramaturgy, can be taken into account with the SIT approach (Burns et al, 1998). We stress the multi-modal character of social action, and the contextual factors and meta-rules that select and regulate the particular modalities utilized in any given context.

While SIT can be compared and contrasted with several action and interaction theories, it would be most appropriate, in concluding this paper, to compare and contrast it to the theory that has arguably achieved the broadest acceptance in the social sciences, namely rational choice theory along with game theory. Although the latter have been subject to sustained critique from philosophers, ethicists, psychologists, and social scientists, they show resiliency, in part because they capture some important features of social reality. SIT’s point of departure, while critical, explores fruitful ways to extend and develop game theory (and, in general, rational choice theory) in natural ways.⁴⁹ In concluding this theoretical introduction to SIT, we point out several parallels as well as extensions of rational choice and classical game theory based on the SIT approach. The concept in SIT of value complex, VALUE, has parallels to, but also replaces, utility functions, providing sociological explanation of context-dependent preferences.⁵⁰ Utility is an unidimensional value simply satisfying rules of rationality such as consistency and complete ordering of preferences. The concept of a value complex makes no such claim of universal consistency and well-orderedness in human affairs. A value complex may entail inconsistencies, fuzziness, gaps. Nonetheless, it is the basis for making evaluative judgments and generating preferences. In general, it provides a generative concept of value. A given value complex is typically socially contextualized. It is often closely associated with particular roles, social relationships, and institutional arrangements. In some cases, it contains a meta-principle or rule orienting actors to maximize a utility function or expected utility. SIT contrasts, in a certain sense, with game and rational choice theories in its emphasis on belief structures and cognitive frames (see Boudon, 1996, 1998). In classical game theory, all game players are assumed to have the same representation—or in our terms MODEL—of the situation. Moreover, this representation is identical to that of the game theorist. In SIT, MODEL, corresponds to the rational

choice notion of “information” (perfect or less than perfect), describes and theorizes about an actor’s bounded, possibly distorted or even false beliefs, information, etc. The concept offer a point of departure for describing and explaining the diversity of models and belief structures with which actors operate and adapt in the course of their interactions. Modality is a third critical dimension on which the two theoretical approaches differ concerning the basic mechanisms(s) for determining action. In game theory – or rational choice theory generally—it is assumed that the actors operate with a common MODALITY, namely that of instrumental rationality (for instance, maximizing expected gain or utility). In SIT, a variety of judgment rules and algorithms replace a given fixed algorithm such as maximization, maxmin and others (these are not considered universal but highly context dependent, special cases which are representable and applicable within SIT).⁵¹ Decision and choice, as major social science concepts, are viewed from our perspective, as far too narrow and constraining. The “determination” of action, a concept introduced in this paper, is more general. It may entail, of course, processes of “choice” or “decision” but also involves determination processes devoid of choice and decision.

In the elaborated formulation of SIT (Burns et al, 1998), the concept of judgment is presented as a fundamental and far reaching concept, more basic than those of decision or choice (Burns et al, 1998; Burns and Gomolinska, 2000). Actors make judgments about “facts”, beliefs, “values”, and “acts”. Typically, judgment processes entail interactive, non-linear processes as different—even contradictory – action alternatives, values, conceptions of reality, and, in general, rule complexes enter into cognitive and evaluative processes and are dealt with, sometimes in routine ways, other times in deliberative ways.⁵²

Table 7 singles out and presents on several key dimensions of social action and interaction distinctions between rational choice theory and game theory, on the one hand, and SIT, on the other. While sharing a number of common elements, SIT and game or rational choice theory exhibit substantial differences in approaching action and interaction, among others: (1) **the socio-cultural character of human action**. SIT provides analytical tools with which to show precisely the ways in which the rule complexes of cultural formations and institutional arrangements come into play in action and interaction processes. While the theory readily and systematically incorporates the principle that human actors have bounded factual knowledge and computational capability (Simon, 1957; 1977), it emphasizes their extraordinary cultural knowledgeability: in particular, actors’ knowledge of diverse cultural forms and institutions such as family, market, government, business or work organization, and hospitals, among others, and the variety of different roles which they play in modern life. (2) SIT takes into account and provides conceptual tools and models for the analysis of **contradictory beliefs, values, norms, roles, and games and of actors’ response to such contradictions**. Actors may operate with multiple realities—and multiple action modalities and rationalities. These may be contradictory or incompatible: different principles of framing and models of reality, diverse conceptions of good and bad, varying definitions of problems; and ways to solve

problems (for instance, particular institutionalized strategies and algorithms). In general, the consistency (or inconsistency) and coherence (incoherence) of rules and rule complexes are key factors in interaction dynamics and transformations (Burns et al, 1998); and (3) SIT recognizes and takes into account the **creative/destructive capability of human agents**, in a word agency (Baumgartner, 1994; Burns, 1994). That is, the two approaches are very much distinguished in terms of their assumptions about the human capacity for self-reflection and self-structuring. This aspect is closely associated with human transformative capabilities and processes (Burns and Engdahl, 1998). Transformations may be analyzed in game or interaction terms (Burns and Gomolinska, 2000; Burns et al, 1998). For instance, transformative interactions may be carried out by actors in a solidary/reciprocity relationship cooperate in applying and adapting their relationships in accordance with its normative basis. The identity or core of the relationship may be maintained. under such conditions, making for a dynamic social equilibrium. That is, the actors find new interaction- and outcome equilibria compatible with, or indeed expressions of, their relationship. The identity of the relationship is developed or “unfolds” through such transformative interactions. Transformations may also be mediated by third parties. A mediator assists the actors in adapting, or transforming the relationship (negotiated orders) but consistent with the core identity. The probability of finding interaction patterns and outcomes compatible with the relationship – and hence maintaining social equilibrium – depends on the character of the relationship: the motives, relational powers, and skills of the mediator as well as the situational conditions and the character of the relationship. the relationship. Transformative interactions may also take place under competitive or antagonistic conditions: The actors generate new interactions and outcomes, as they strive to outdo or defeat one another. While the interaction complex undergoes transformation, the competitive or antagonistic character (or identity) of the relationship is sustained. This is a type of dynamic equilibrium.

Table 7: A Comparative Overview

	SIT	CLASSICAL
Rules	Game Rule Complex plus physical and ecological constraints	Game constraints ("rules")
Actors	Role or actor complex; different types of roles	Universal, super-rational Agent
Agency	Actors as creative/interpretative/transformational beings; they have bounded capabilities of cognition, judgment, and choice.	Capability of super deliberation and choice according to fixed axioms of rationality
Value	Value complex and evaluative processes that result in contextualized preference orderings	Preferences given
Decision/judgment	Action determination modalities including instrumental rationality	Rational decision principle or algorithm
Morality	Core values and norms (grounded in identity, status, social commitments and social controls)	Morality acceptable if and only if consistent with individual self interest
Consistency/Inconsistency	Contradiction incoherence, dilemmas; constructed consistency	Consistency, coherence assumed
Rationality	Multiple modes of action and rationalities (including consequentialism)	Consistency and Consequentialism

Elsewhere (Burns and Gomolinska, 1998, 1999; Burns et al, 1998) SIT is shown to be a basis for a new formal theory of games and human interaction. Classical game theory is extended and generalized on the basis of a mathematical theory of rules, rule complexes, multi-modal social action, and transformation.⁵³ The mathematics is based on contemporary developments at the interface of mathematics, logic, and computer science. The theory is used to define formally different types of rules, games, social relationships, roles, and actors (as social beings who embody rule complexes, in part in their roles), and the institutional and cultural arrangements in which human agents, games, and

interaction processes are embedded. The general theory of games formulates models that can be used to represent, analyze, and explain diverse interaction processes (exchange, collective choice, conflict, power, and transformation). New distinctions are introduced such as open and closed games, games with and without equilibria, multi-level games, and configurations or systems of interrelated games. The work provides a theory of game transformation, a conceptualization of the finite ways in which games (and their agents) -- or the rule complexes constituting them—are restructured, and the conditions under which such transformations take place. It provides the basis for a systematic reconceptualization of such key game theory concepts as "action alternative", "choice", "strategy", "game", "solution", "equilibrium", and "rationality". Our generalization of classical game theory implies that there are **many game theories or models reflecting or referring to different social relationships and corresponding rationalities or action logics**. Classical game theory is, therefore, a particular model applicable to a certain type of social relationship: namely that between anomic or unrelated agents acting and interacting with rationality rules and modalities: The actors have no sentiments (either for or against) one another; they are neutral and egoistical in relation to one another. A given game is closed: The actors may not change the rules such as the number and qualities of participants, or the particular action alternatives and outcomes or the particular social relationships obtaining between actors. Obviously, this is only one of several possible social relations, among the myriad of potential as well as institutionalized relationships.

The rational choice approach, including game theory, is constructed on a single modal conception of social action and interaction. It views people as opportunists and competitors in a struggle for survival (which is true all-too-often) but ignores, among other things, the powerful human sentiments of sociability and self-sacrifice. The approach has been exploited to normalize (and even justify) rapacious behavior in business, politics, and the relations among nations. In the final analysis, it ignores at best, degrades at worst, the moral agency of human beings, and the deep normative underpinnings of much social behavior (Burns, 1994).

The formulation of more integrative approaches to the conceptualization and analysis of human action and interaction is a major challenge to contemporary social science, given its fragmentation. A common, foundational language for the social sciences would contribute to overcoming the "babble of two hundred voices" (Joseph Conrad) that characterize contemporary social science as well as the humanities and moral philosophy. The babble not only blocks communication and collaborative work among academic communities but impedes serious, systematic treatment of many of the formidable problems confronting us today. Concrete problems confronting human agents rarely fit neatly into academic divisions.

The problems of interdisciplinary communication and collaboration would be no more than academic, if there was not a growing demand in democratic societies for systematic knowledge about how the economy interacts with politics, or about how social institutions such as the family, community; and state agencies are affected by technological, economic and environmental

developments. Increasingly complex or new interdependencies arise which fall outside the domain of knowledge or competence of any single social science discipline. SIT theory – if it can contribute to a common theoretical language with which to describe, analyze, and understand human interaction – would facilitate communication and collaboration among social scientists from different disciplines.

REFERENCES

- Aberg, P. 1994 "Some Simulations of Contextual Games." U.U.D.M. Project Report 1994 P1. Uppsala: Sweden: Department of Mathematics, Uppsala University.
- Aldrich, H. E. 1979 *Organizations and Environments*. Englewood Cliffs, N.J. Prentice-Hall.
- Alker, H.R., Jr. 1996 *Rediscoveries and Reformulations: Humanistic Methodologies for International Studies*. Cambridge: Cambridge University Press.
- Arnsperger, Ch., (1997), "Consumers, Consumerism and the Others", *IRES Discussion Paper*.
- Baumgartner, T., W. Buckley, and T.R. Burns 1975 "Relational Control: The Human Structuring of Cooperation and Conflict." *J. of Conflict Resolution*, Vol. 19:417-440.
- Baumgartner, T. and T.R. Burns 1984 *Transitions to Alternative Energy Systems: Entrepreneurs, New Technologies, and Social Change*. Boulder, Colorado & London: Westview Press.
- Baumgartner, T., T.R. Burns, and P. DeVille 1977 "Conflict Resolution and Conflict Development: The Structuring and Restructuring of Games." In: Louis Kriesberg (ed.) *Research in Social Movements, Conflicts, and Change*. Greenwich, Conn.: JAI Press.
- Baumgartner, T., T.R. Burns, and P. DeVille 1979 "Acteurs, jeux, et systèmes: Essai sur la dialectique de la structuration des systèmes sociaux." In: *Actes du Congrès de L'AFCEP, Petits Groupes et Grande Systèmes*, Paris, France.
- Baumgartner, T., T.R. Burns, and P. DeVille 1986 *The Shaping of Socio-Economic Systems*. London/New York: Gordon and Breach.
- Berger, P. and T. Luckmann 1967 *The Social Construction of Reality*. Harmondsworth: Penguin.
- Blau, P. 1964 *Exchange and Power in Social Life*. New York: Wiley
- Boudon, R. 1998a "Social Mechanisms without Black Boxes." In: P. Hedstrom and R. Swedberg (eds), *Social Mechanisms: An Analytic Approach to Social Theory*. Cambridge: Cambridge University Press.
- Boudon, R. 1998b "Limitations of Rational Choice Theory." *American Journal of Sociology*, vol. 104 (3): 817-828.
- 1996 "The Cognitivist Model: A Generalized 'Rational-Choice Model.'" *Rationality and Society*, Vol. 8 (2): 123-150.
- Bourdieu, P. 1977 *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.
- Buckley, W., T.R. Burns, and D. Meeker 1974 "Structural Resolutions of Collective Action Problems." *Behavioral Science*, Vol. 19: 277-297.
- Burns, T.R. 1990 "Models of Social and Market Exchange: Toward a Sociological Theory of Games and Human Interaction." In: C. Calhoun, M.W. Meyer, and W. R. Scott (eds.), *Structures of Power and Constraint: Essays in Honor of Peter M. Blau*. New York: Cambridge University Press.
- Burns, T.R. 1994 "Two Conceptions of Human Agency: Rational Choice Theory and the Social Theory of Action." In: P. Sztompka (ed), *Human Agency and the Reorientation of Social Theory*. Amsterdam: Gordon and Breach.
- Burns, T.R., Baumgartner, T. and DeVillé, P., (1985) *Man, Decisions, Society*, London/New York, Gordon and Breach
- Burns, T.R. and W. Buckley 1974 "The Prisoners' Dilemma Game as a System of Social Domination." *J. of Peace Research*, Vol. 11:221-228.

- Burns, T. R. and P. DeVille 1999 "On Social Equilibria." Paper prepared for presentation at the International Economic Association's World Congress, Buenos Aires, Argentina, August, 1999.
- Burns, T.R. and T. Dietz 1992 "Cultural Evolution: Social Rule Systems, Selection, and Human Agency." *International Sociology*, Vol. 7:259-283.
- Burns, T.R. and E. Engdahl 1998 "The Social Construction of Consciousness: Collective Consciousness and its Socio-Cultural Foundations"; "Individual Selves. Self-Awareness, and Reflectivity." Parts I and II. *J. of Consciousness Studies*, Vol 5, Numbers 1 and 2. Pp 67-85;
- Burns, T.R. and H. Flam 1987 *The Shaping of Social Organization: Social Rule System Theory with Applications*. Sage Publications (1987, reprinted 1990)
- Burns, T. R. and A. Gomolinska 2000 "Generalized Game Theory: Rule Complexes, Multi-Modal Social Action, and Social Equilibria." Parts I and II. Quality and Quantity: International Journal of Methodology.
- Burns, T. R. and A. Gomolinska 1999 "A Uniform Framework for Representing Social Actions and their Interactions." Presented at the Session of the Polish Society of Logic and Philosophy of Sciences, 11th International Congress of Logic, Methodology, and Philosophy of Sciences, Cracow, Poland, August 20-26, 1999.
- Burns, T.R. and A. Gomolinska 1998 "Modeling Social Game Systems by Rule Complexes." In: L. Polkowski and A. Skowron (eds.), *Rough Sets and Current Trends in Computing*. Berlin/Heidelberg, Springer-V
- Burns, T.R., Gomolinska, A., Meeker, D., and DeVille, P. (1998) *The General Theory of Games: Rule Complexes, Action Modalities, and Transformations*. Uppsala, Sweden:Uppsala Theory Circle Report.
- Burns, T.R. and D. Meeker 1992 "Supply/Demand Analysis from an Institutional Perspective: A Comparative, Mathematical Model of Price Formation, Price Dispersion, and Volume of Trade in Auctioneered and Brokered Markets." *Paper presented at the Xth World Congress of Economics*, Moscow, Russia.
- Burns, T.R. and D. Meeker 1977 "Conflict and Structure in Multi-Level, Multiple Objective Decision-making Systems." In: C.A. Hooker (ed.), *Foundations and Applications of Decision Theory*. Dordrecht, Holland: Reidel.
- Burns, T.R. and D. Meeker 1975 "A Multi-level, Structural Model of Social Behavior." *Quality and Quantity*, Vol. 9:51-89.
- Burns, T.R. and D. Meeker 1974 "Structural Properties and Resolutions of the Prisoners'Dilemma Game." In: A. Rapoport (ed), *Game Theory as a theory of Conflict Resolution*. Dordrecht, Holland: Reidel
- Cavell, S. 1979 *The Claim of Reason*. New York: Oxford University Press.
- Chandler, A.D., Jr. 1962 *Strategy and Structure*. New York: Doubleday.
- Chomsky, N. 1986 *Knowledge of Language: Its Nature, Origins, and Use*. New York: Praeger.
- Chomsky, N. 1980 *Rules and Representation*. New York: Columbia University Press.
- Coleman, J.S. 1990 *Foundations of Social Theory*. Cambridge, Mass.: Belknap Press.
- Collins, R. 1988 *Theoretical Sociology*. New York: Harcourt Brace Jovanovich.
- DeVillé, P., (1988), "Marché et concurrence comme fondements de l'ordre social", *Revue Européenne des Sciences Sociales*;
- DeVillé, P., (1991), "Comportements concurrentiels et équilibre général : de la nécessité des institutions", *Economie Appliquée*,

- DeVillé, P., (1992), "Equilibrium versus Reproduction : Some Queries into the Dynamics of Social Systems", in Geyer, F. and Vanderzouwen, H., (ed),
- Dietz, T., T. R. Burns, and F.H. Buttel 1990 "Evolutionary Theory in Sociology: An Examination of Current Thinking." *Sociological Forum*, Vol. 5: 155-171.
- Engelhardt, H.T., Jr. (1991) *Bioethics and Secular Humanism: The Search for a Common Morality*. London: SCM Press
- Etzioni, A., (1988), *The Moral Dimension. Toward a New Economics*, New York, The Free Press.
- Garfinkel, H. (1967) *Studies in Ethnomethodology*. Englewood Cliffs, N.J.: Prentice-Hall.
- Giddens, A. 1984 *The Constitution of Society*. Cambridge: Polity.
- Goffman, E. 1959 *Presentation of Self in Everyday Life*. Garden City, NY: Doubleday, Anchor Books.
- Goffman, E. 1961 *Encounters*. Indianapolis: Bobbs-Merrill.
- Granovetter, M. 1985 "Economic Action and Social Structure: The Problem of Embeddedness" *American J. of Sociology* 91: 481-510.
- Granovetter, M., (1985), "Economic Action and Social Structure : The Problem of Embeddedness", *American Journal of Sociology*, 91, 481-510.
- Granovetter, M., (1992), "Economic Institutions as Social Constructions : A Framework for Analysis", *Acta Sociologica*, 35, 3-11.
- Greenberg, J., (1990), *The Theory of Social Situations, An Alternative Game-Theoretic Approach*, Cambridge, Cambridge Univ. Press.
- Griffor, E. and T.R. Burns "On the Existence of C-equilibria in an Extended Theory of Games." Uppsala, Sweden: Department of Mathematics: U.U.D.M. Report 1993:1.
- Hannan, M.T. and J.H. Freeman 1977 "The Population Ecology of Organizations." *American J. of Sociology*, Vol. 82:929-964.
- Hannertz, Hannertz, U. 1992 *Cultural Complexity: Studies in the Social Organization of Meaning*. New York: Columbia University Press.
- Hardin, R. 1982 *Collective Action*. Baltimore: John Hopkins University Press.
- Harre, H. 1979 *Social Being*. Oxford: Blackwell.
- Harre, H. and P.F. Secord 1972 *The Explanation of Social Behavior*. Oxford: Blackwell
- Hayek, F., (1976), *Law, Legislation, and Liberty, The Mirage of Social Justice*, Chicago, Chicago Univ. Press
- Hechter, M. 1987 *Principles of Group Solidarity*. Berkeley: U. of California Press.
- Held, D., (1989), *Political Theory and the Modern State*, London, Polity Press.
- Hicks, J., (1965), *Capital and Growth*, Oxford, Oxford Univ. Press.
- Hirsch, F., (1977), *Social Limits to Growth*, London, Routledge.
- Hirschman, A., (1982), "Rival Interpretations of Market Society : Civilizing, Destructive or Feeble ?", *Journal of Economic Literature*, 20, 1463-1484.
- Joas, H. 1996 *Creative Action*. Cambridge: Polity Press.
- Komorowski, J. Z. Pawlak, L. Polkowski, and A. Skowron 1999 "A Rough Set Perspective on Data and Knowledge." In: W. Klosgen and J. Zytkow (eds), *Handbook of Data Mining and Knowledge Discovery*. Oxford: Oxford University Press.

- Lawrence, P and J.W. Lorsch 1967 *Organizations and Environment*. Boston, Mass: Harvard Graduate School of Business Administration.
- Leibenstein, H., (1976), *Beyond Economic Man*, Cambridge, US, Harvard Univ. Press
- Locke, D., (1990), "Markets and Morals : a Response" in Smith, G.D. and Locke, D., (ed.), *Philosophy and Politics*, Cambridge, Cambridge Univ. Press.
- Long, N. 1961 *The Polity*. Chicago: Rand McNally.
- Luce, R. D. and H. Raiffa 1957 *Games and Decisions*. New York: Wiley
- Machado, N. and T. R. Burns 1998 "Complex Social Organization: Multiple Organizing Modes, Structural Incongruence, and Mechanisms of Integration." *Public Administration*. Vol. 76:355-386.
- March, J. G. 1997 "The Technology of Foolishness." In: Derek S. Pugh (ed), *Organization Theory: Selected Readings*. London: Penguin, pp.339-352.
- March, J.R. and J.P. Olsen 1989 *Rediscovering Institutions: The Organizational Basis of Politics*. New York: Free Press.
- Merton, R. 1957 *Social Theory and Social Structure*. Glencoe: The Free Press.
- Miles, R.E. and C.C. Snow 1978 *Organizational Strategy, Structure, and Process*. New York:McGraw-Hill.
- Miles, R.E. and C.C. Snow 1997 "Organizational Fit." In: Derek S. Pugh (ed), *Organization Theory: Selected Readings*. London: Penguin, pp.162-183.
- Morgenstern, O. 1972 "Thirteen Critical Points in Contemporary Economic Theory: An Interpretation." *J. of Economic Literature*. Vol. 10:1163-1189.
- Muldrew, C. "Interpreting the Market: The Ethics of Credit and Community Relations in Early Modern England." *Social History*, Vol. 18: 163-193.
- Nash, J.F. Jr., 1951 "Non-cooperative Games." *Annals of Mathematics*, LIV, pp.286-295.
- North, N.C. 1990 *Institutions, Institutional Change, and Economic Performance*. Cambridge: Cambridge University Press.
- Olson, M. 1968 *The Logic of Collective Action*. New York: Schocken.
- Ostrom, E. 1990 *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Ostrom, E. R. Gardner, and J. Walker 1984 *Rules, Games, and Common-Pool Resources*. Ann Arbor: University of Michigan Press.
- Parsons, T. 1968 [1937] *The Structure of Social Action*. New York: Free Press.
- Pawlak, Z. 1991 *Rough Sets. Theoretical Aspects of Reasoning about Data*. Kluwer Academic Publishers.
- Pawlak, Z. and Sowinski, R. 1994 "Rough Set Approach to Multi-attribute Decision Analysis." *European J. of Operational Research* 72, 443-459.
- Pinker, S. 1991 "Rules of Language." *Science* 253: 530-534.
- Powell, W.W. and P.J. DiMaggio (eds.) 1991 *The New Institutionalism in Organizational Analysis*. Chicago: University Press.
- Przeworski, A., (1998), "Reforming the State : Political Accountability and Economic Intervention", in Solimano, A. (ed.), *Social Inequality : Values, Growth and the State*, Ann Arbor, The Univ. of Michigan Press, 208-232.
- Rawls, J., (1993), *Political Liberalism*, New York, Columbia Univ. Press.
- Reiter, R.: *A logic for default reasoning. Artificial Intelligence* (1980) 81--132

- Scharpf, F.W. 1997 *Games Real Actors Play: Actor-Centered Institutionalism in Policy Research*. Boulder, Colorado: Westview Press.
- Schmid, M. and F.M. Wuketits (eds) 1987 *Evolutionary Theory in the Social Sciences*. Dordrecht: Reidel.
- Schutz, A. 1962 *The Problem of Social Reality*. The Hague: Martinus Nijhoff.
- Scitovsky, T., (1976), *The Joyless Economy*, Oxford, Oxford Univ. Press
- Scott, W.R. 1981 *Organizations: Rational, Natural, and Open Systems*. Englewood Cliffs, N.J.: Prentice-Hall.
- Scott, W. R. 1995 *Institutions and Organizations*. London: Sage Publications.
- Sen, A (1993), "Markets and Freedom: Achievements and Limitations of the Market Mechanism in Promoting Individual Freedoms", *Oxford Economic Papers*, 45, 519-541.
- Sen, A. (1998) "Social Choice and Freedom." Nobel Prize Lecture, University of Uppsala, Uppsala, Sweden, December 13, 1998.
- Solimano, A., (1998), "Alternative Theories of Distributive Justice and Social Inequality", in Solimano, A. (ed.), *Social Inequality: Values, Growth and the State*, Ann Arbor, The Univ. of Michigan Press, 15-27.
- Stinchcombe, A. 1975 "Merton's Theory of Social Structure." In L. Coser (ed), *The Idea of Social Structure: Papers in Honor of Robert K. Merton*. New York: Harcourt Bruce Jovanovich.
- Tsebelis, G. 1990 *Nested Games: Rational Choice in Comparative Politics*. Berkeley: University of California Press.
- Van Parijs, Ph., (1992), *Le modèle économique et ses rivaux*, Le Seuil.
- Weick, K. E." Enacted Sensemaking in Crisis Situations." In: In: Derek S. Pugh (ed), *Organization Theory: Selected Readings*. London: Penguin, pp.399-415.
- Willer, D. and B. Andersson 1981 *Networks, Exchange, and Coercion*. New York: Elsevier
- von Neumann, J. and O. Morgenstern 1972 *Theory of Games and Economic Behaviour*. Princeton: Princeton University Press.
- Wittgenstein, L. 1953 *Philosophical Investigations*. Oxford: Blackwell.
- Woodward, A. , J. Ellig, and T. R. Burns 1994 *Municipal Entrepreneurship and Energy Policy: A Five Nation Study of Politics, Innovation, and Social Change*. New York: Gordon and Breach.

ENDNOTES

¹ The formulation of more integrative approaches to the conceptualization and analysis of human action and interaction is a major challenge to contemporary social science, given its considerable fragmentation. A common, foundational language for the social sciences would contribute to overcoming the "babble of two hundred voices" (Joseph Conrad) that characterize contemporary social science as well as the humanities and moral philosophy. The difficulties of interdisciplinary communication and collaboration would be no more than academic, if there was not a growing demand in democratic societies for systematic knowledge about how the economy interacts with politics, or about how social institutions such as the family, community, and state agencies are affected by technological, economic and environmental developments. Increasingly complex or new interdependencies arise which fall outside the domain of knowledge or competence of any single social science discipline. The development of social action theory including rational choice and game theories – if they contribute to a common theoretical language with which to describe, analyze, and explain human interaction – would facilitate greater communication and collaboration among social scientists from different disciplines.

² Rules and rule systems are key concepts in the new institutionalism (Burns and Flam, 1987; March and Olsen, 1984; North, 1990; Ostrom, 1990; Powell and DiMaggio, 1991; Scott, 1995), evolutionary sociology (Aldrich, 1979; Dietz, Burns, and Buttel, 1990; Burns and Dietz, 1992; Schmid and Wuketits, 1987), and ethnomethodology (Garfinkel, 1967; Suchman, 1987) and are closely related to important work in philosophy on "language games" (Wittgenstein, 1953) as well as work in linguistics (Chomsky, 1980, 1986; Pinker, 1991). Much contemporary social science research points up that social rule systems – as constituting cultural formations, normative frames, and institutional arrangements -- are ubiquitous and partially determinant of social action and interaction. There are cognitive, instrumental, social, aesthetic, and other reasons that human agents introduce, utilize, adhere to, and enforce rules (see later). Of course, some rules are more ephemeral and symbolic than others. Actors may fail to follow (or enforce) some of the rules.

³ Rules cannot be combined in purely ad hoc ways (see later discussion). They are organized into rule complexes or systems that are context-specific (Burns et al, 1985; Burns and Flam, 1987; Burns and Gomolinska, 1998). A "rule complex" is a set of rules and/or other rule complexes (Burns and Gomolinska, 1998; Burns et al, 1998). More formally, a **rule complex** is obtained according to the following formation rules: (1) Any finite set of rules is a rule complex; (2) If C_1, C_2 are rule complexes, then $C_1 \cup C_2, C_1 \cap C_2, C_1 - C_2$, and $P(C_1)$ are rule complexes; (3) If $C_1 \subseteq C_2$ and C_2 is a rule complex, then C_1 is a rule complex. Thus, a rule complex C is a set $C = \{r_1, \dots, r_m, C_1, \dots, C_n\}$, where $m, n \in \mathbb{N}$, r_1, \dots, r_m are some rules and C_1, \dots, C_n are some rule complexes. In this conception then, a rule complex may be more than merely a set of rules. Of course, the simplest routines may be sets containing only one rule (an instruction). But more generally, algorithms and routines can be complexes of rules, where some of the rules determine the order of execution or application of the others, i.e., some of the rules are in fact **meta-rules** with respect to the others.

The idea behind the concept of a rule complex is to view repertoires of rules in all their complexity and not merely as sets of rules with simple interdependencies among the rules. The organization of rules in rule complexes provides a powerful tool to investigate and describe various sorts of rules (norms, values, laws, etc.) as well as more complex objects made up of rules such as roles, procedures and algorithms, action modalities, social relationships, games, and institutions (Burns and Gomolinska, 1998, 1999, 2000; Burns et al, 1998).

⁴ The concepts of social rule and rule system cover a spectrum whose elements can be distinguished and analyzed in terms of their cognitive, behavioral and institutional status: values, beliefs, norms, laws, moral principles, codes of conduct, rules of the game, administrative regulations and procedures, recipes or programs of action, technical rules, conventions, customs, and traditions. Prescriptive rules including norms are, then, only one type of social rule. Social actors also utilize categorization and representational rules as well as evaluative rules in their judgments and determinations of action. Moreover, there are norms of various types, as suggested by everyday distinctions between moral principles, constitutional laws, statutes, administrative rules and informal norms.

⁵ Since some might confuse the approach of Talcott Parsons with the theory presented here – in part because both refer to rules, norms, and equilibria – we should point out that SIT stresses human agency, the processes of structuring and transforming rules, conflict and struggle over rules and rule complexes, that is, the politics of rule processes in social life. Parsons' approach is predicated to a great extent on consensus and articulates a much more static view of social life than we envision.

⁶ Some reject a rule-oriented social science. Among sociologists, Pierre Bourdieu (1977) is perhaps the most prominent critic of the concept of rules, counterpoising habitus to rule. Of course, many rules consist of tacit knowledge beyond immediate attention or consciousness, but this does not minimize the sociological importance -- and the need to investigate and analyze -- explicit rules and complexes of rules in modern

societies. Also, our model of habitual, routinized social action encompasses arguably some of what Bourdieu may mean by "habitus."

⁷ One can distinguish analytically between social rules and private or personal rules. Of course, a particular change agent, entrepreneur, or charismatic leader may convince others to adopt what is initially a mere private rule or rule complex. Religious and political leaders as well as social movements have played such roles in human history.

⁸ Social rules only partially shape and regulate action and interaction. Ecological and physical factors as well as human agency always play a role in the concrete implementation and realization processes (Burns and Dietz, 1992). To begin with, specific material conditions can constrain actors from implementing formal rules in a given situation; the actors may be forced to adapt rules, to make significant adjustments, and in some instances replace them. Actors engage in situational analyses and make complex, in some cases, innovative judgments; this leads to alterations and reformulations of rules, or their interpretations of them.

⁹ A community of actors sharing a rule complex recognize as a family of resemblances, or "the same thing," a wide variety of performances of a given rule. Mathematically, these are "rough sets" or collections of "approximations" (Komorowski et al, 1999; Pawlak, 1991; Pawlak and Sowinski, 1994). Both in this sense – and in the sense that social rules are never learned identically and undergo different rates of adaptation and change over time – our concepts of rule, rule complex, social relationship, role, institution, and culture are **distributive** (Hannerz, 1990).

¹⁰ A rule complex is more than merely a set of rules (see endnote 3). For instance, consider the role of "supervisor" in a work place. It consists of a number of relevant action rules and techniques, routines, algorithms, evaluative rules and standards, judgment rules, and a belief complex or model of the actor herself, relevant others, and relevant interaction situations..

¹¹ The notion of **application of a rule or rule complex** is fundamental to SIT (Burns and Gomolinska, 2000; Burns et al, 1998). Actors interact or play a game by applying relevant rule complexes, in part enacting their roles. They orient to and strive for role specific values and, in particular, goals through the application of appropriate rule complexes. Actors do not apply all the rules of a complex at once. Some are applied before others. Application of a rule (rule complex) is related to a particular situation S. To apply a rule or rule complex, one has to know (1) the conditions under which the rule or rule complex is activated and possible to apply; (2) the order of application of rules and/or rule complexes. In rule applications, the conditions may be such that one or more actors lack the resources or powers to make the application of the rules possible. In particular, in the course of applying a rule complex in a given situation, actors may discover that some rules cannot be applied, but nonetheless, they are essential to the application of remaining rules. They provide the conditions (symbolic, logical, material) for activating or realizing the remaining rules. Thus, application of a rule or rule complex may be viewed as a partial operation on situations.

The application of rules, roles, relationships, or institutional arrangements is not then simply a straightforward matter of "following" and implementing them: the conditions of execution may be problematic; the situation (or situational data) may not fit or be fully coherent with respect to the rule complexes; actors may reject or refuse to seriously implement a rule or rule complex; rule complexes may be inconsistent or incompatible. For example, actors having more than one role in a situation, may experience ambiguity, contradiction, dilemmas, and predicaments. The same proposition applies to an actor subject to more than a single normative order.

¹² **Algorithms** are collections of instructions, a particular type of rule complex. A program, i.e. an algorithm written in a programming language, is a prototype of a rule complex. Program instructions can be viewed as special rules or rule complexes while subprograms, e.g. procedures, are subcomplexes. Algorithms are typically special rule complexes for problem solving or organizing actions for some purpose or goal. A **rule complex** is a more general concept than an **algorithm**. An algorithm is designed, in general, to solve a class of problems or, in particular, a single problem. Thus, a fundamental demand is that it should give correct solutions (answers). It is desirable the algorithm be also complete with respect to the class of problems. That is, it should solve any problem belonging to the class in question. Obviously, no algorithm can solve every problem or, in other words, **no algorithm is universally complete**. Rule complexes may play other roles than problem solving. In particular, they can be: (i) complexes defining and generating actors' roles; (ii) judgment complexes for judgment and, in particular, decision making; (iii) models (i.e. belief/knowledge bases) of the reality, an actor herself and others containing the actor's beliefs and knowledge about the reality, herself and other actors. (Such models provide contexts for interaction and reflection; they represent actors' understanding what is going on). (iv) value complexes defining goals; (v) norm complexes defining constraints to be obeyed in course of action/game/interaction; (vi) action/game/interaction complexes, e.g. action complexes for realization of value complexes, problem solving.

¹³ The modalities are not necessarily mutually exclusive and, therefore, do not make up a typology. Rather, they represent several empirically relevant ideal types (Burns et al, 1998). Among the significant modalities not

considered here are the communicative or dramaturgical modality and the modality of play (see Burns et al, 1998). The former is a modality to communicate a particular message to others, e.g. adherence to or involvement with a particular norm or value, or a feeling (typically, there is a grammar to such expressions as those of anger, affection, intimacy, etc.). Actors in their roles often enact particular rule complexes or norms in order to express certain established conceptions of self. This is an identity enacting -- and communicating -- action. The modality of play allows a high degree of openness and freedom of discretion and experimentation. The rules or rule complexes which an actor introduces into deliberation and determination processes may range widely, may be drawn from irrelevant or non-obvious complexes. In this type of activity, actors may discover new values and norms, or the deeper meaning of some of their values and values. March (1997) appeals for such a form of action: deliberate, temporary relaxation of rules in order to explore the possibilities of new or alternative forms of roles and relationships. Implicit here is the value of play or foolishness in experience, learning, and discovery. In a certain sense, it is a **modality of discovery**. March (1997:347) writes that when we are playful, we challenge the necessity of consistency. In effect, we announce -- in advance -- our rejection of the usual objections to behavior that does not fit the standard model of our role (e.g. adult intelligence). Playfulness allows for exploration and experimentation in a heuristic or discursive way. March (1997:348) points out that play relaxes the insistence or expectation [concerning purpose, consistency, and rationality] to allow us to act "unintelligently" or "irrationally" or "foolishly" to explore alternative ideas of possible purposes, alternative concepts of action and behavioral consistency, and, in general, alternative rule complexes.

¹⁴ Modalities are distinguishable by their particular identifying meta-rule(s) and algorithm(s). For example, "serious" modalities can be distinguished from "playful" modalities by at least one meta-rule (see footnote 12). That is, the rule indicates how compliant -- or how liberal or free -- one may be in application/implementation of a value, norm, subcomplex, or role. Or modalities may be distinguished by a meta-rule indicating whether one should focus on **outcomes** (instrumental rationality = the family of rational choice models) or on the **qualities of actions or procedures** (normative and procedural rationalities).

¹⁵ Instrumental rationality may be grounded in different "selves", the individual herself, or particular groups or organizations to which she belongs and with which she identifies, making for different value orientations and action logics. That is, she may be oriented to a particular personal interest or someone else's, whether individual or collective, which may contradict her own personal interests. This latter relates to Adam Smith's idea that human beings are social beings and take an interest in the fortune and happiness of others, individuals or collectives. In general, he was aware of individual relational and interrelational ethics of emotions and virtues (Muldrew, 1993:104).

In a given role an actor may find that she only should orient to a single goal and apply a simple modality, e.g. instrumental modality, in situation S. Her orientation may be to optimize the gain for "self" (or, alternatively, for "other" or for a larger "collective"). In the former case, we have the usual rational choice or game theoretic orientation (see below). If one or more actors are oriented to "other" (seeking "rewards" for the other, possibly as defined by the other, that is a type of altruism), the outcomes would differ, although the **computational methods would be similar** (Burns and Meeker, 1977).

¹⁶ Even in more or less institutionalized and routinized games -- giving little or no cause for strategic thinking -- social rules and roles are not realized through action in purely mechanical ways, since rules never fully specify action. Interpretation and adjustment are essential to all rule implementation and is especially noticeable -- and problematic -- whenever rules or rule complexes entail ambiguities or contradict one another, as they often do. Actors may interpret them in different ways, and some in entirely new ways. Under some conditions, as we discuss later, actors are disposed to modify or replace them with new rules or rule complexes. Through such actions and interactions, actors transform their situations and relationships.

¹⁷ In some cases, the interactions may be closed, that is, participants have no possibility to initiate change in the rule complex(es), in particular their roles vis-à-vis one another; only third parties, for instance, a higher administrator or a professional group may initiate rule change. This makes in the short to medium run for a stable rule complex and for predictable, routine enactment of roles and other rule complexes. This rigidity (and predictability) may, however, be at the expense of adaptability and long-term effectiveness.

¹⁸ These types do not make up a typology, but represent several, empirically relevant ideal types.

¹⁹ The conventional **rational choice model** entails given preferences and given, fixed alternatives among which an actor chooses so as to maximize expected utility, applying a rational decision algorithm. In doing so (a number of social scientists have made substantial contributions to the development of such a model and to its application in social science research, among others, Coleman, 1990; Hardin, 1982; Hechter, 1987; Luce and Raiffa, 1957; Olsen, 1968; Ostrom, 1990; Scharpf, 1997; Tsebelis, 1990; and, of course, von Neumann and Morgenstern, 1972). This is one type of a general modality characterized, in general, by the assumption that actors are goal-oriented and choose the optimal means to achieve their goals. The modality (at least in its weak form satisfies the following requirements or rules) (Tsebelis, 1990, chapter 2): (1) Contradictory beliefs or preferences are not allowed; (2) intransitive preferences are not allowed; (3) the modality should contain a

decision rule or algorithm for determining the action(s) maximizing expected utility (or preferences); (4) the modality conforms to the axioms of probability calculus (this defines or regulates a rational actor's behavior under risk while (1) and (2) refer to such conditions under certainty).

Note that other decision rules, which in a certain sense might be considered rational, can be introduced: maxmin, maxmin regret, mixed or multiple stage criteria, satisfying, seeking out expertise or authority (Burns and Meeker, 1977; Tsebelis, 1990). However, the large majority of rational choice studies assume that rational actors maximize their expected utility (Tsebelis, 1990:26).

²⁰ One of the major insights of game theory is that no one of the actors engaged in interaction completely controls the outcome. In their transactions, the result for each actor (and the collective as a whole) depends, in general, not merely upon his or her own actions but on those of others as well. Thus, a seller may not maximize his price, nor can the buyer minimize the price, since two separate wills or decision-makers confront one another. Morgenstern (1972:1166) stressed: "This is certainly no maximum problem, but a peculiar and disconcerting mixture of several conflicting maximum problems. Every actor is guided by another principle and neither determines all variables which affects his interest."

²¹ Of course, many assumptions are made in constructing such a decision modality. For instance, that there is a finite set of action alternatives. That each action has particular, definable outcomes with certain known probabilities. That one and only one outcome will occur and the probability that it will be V_j is P_j .

²² If there is a transitive preference relation \geq over a set of actions ("experiments" with different outcomes depending on the situation), and if to each action j there can be assigned a number $VAL(j)$ such that the magnitudes of the numbers reflect the preferences, that is, $VAL(j) \geq VAL(k)$ if and only if $j \geq k$, then one can say that there exists a **utility function** V over the actions. If, in addition, the value function V has the property that $V[jP, (1-P)k] = P V(j) + (1-P)V(k)$, for all probabilities P and options j and k , then one says the value (or utility) function is linear. (Sometimes this property is referred to as the **expected utility hypothesis** since it asserts that the value of an option is equal to the expected value of its component outcomes (Luce and Raiffa, 1957). The utility function has the important property that a person will prefer one option to another if and only if the expected utility of the former is larger than the expected utility of the latter. In this way, the assumed individual desire for the preferred outcomes becomes a problem in rational choice theory and game theory of maximizing expected utility.

²³ Some social rules are enforced, others not: indeed, rules can be distinguished on the basis of the degree to which, and the circumstances under which, they are socially enforceable. Of course, regardless of the degree of enforceability, they may be complied with because of a sense of belonging and identity, desire for order, internal sanctions, or external social sanctions. Norms are followed because of sanctions as well as commitment to them as a part of self-identity and image. They are prescriptive in an authoritative sense: If condition "a" obtains, then one must do X (or in the case the norm is proscriptive, then one may not carry out X). Many rules that actors rigorously adhere to are not socially enforceable, but nevertheless they play an important role in organizing social activities and in shaping social order. In general, rule systems include both norms, that are socially sanctioned, and rules or guidelines for effective action (this is, of course, an analytic distinction (see Cavell, 1979)). Many normative rules such as those relating to formal democracy are believed not only to be right and proper but also effective in organizing collective decision-making). Rules of effectiveness are adhered to because they work -- we have learned through experience that they usually lead to good results, or an authority has told us they do so, as in the case of many technical guidelines. These advisory or "should" rules (Cavell, 1979) indicate to us that we can perform successfully if we follow these rules, whether in our professional careers, in everyday social interactions, or in parlor games like chess. Although utilization of them assures a certain satisfactory performance, a creative, competent actor may develop a new set of strategic rules in striving for higher levels of performance, choosing to deviate from the conventional or established rules and principles. This type of deviance differs from breaches of normative rules, although the two may go together, and in times of great social change and revolution typically do so).

Compliance with prescribed orientations, norms, and role imperatives are more likely, the more authority and power the group or its representatives exercise over individual members. Group power over a member is greater: (1) the greater the sanctioning power of the group, for instance the more she depends on the group for the satisfaction of important values and needs including the realization of identity and status; (2) the more the member lacks alternative groups or means with which to satisfy his or her values and needs, including realizing identity; (3) the more the member's relationship to the group is an enduring one; and (4) the more the member depends on group authority to provide moral guidelines and consolation in a world of ignorance, uncertainty, and accidents. Behavior contrary to prescribed roles and rules in integrated, strong groups leads to experiences of shame or guilt, actors attempt to conceal their behavior or to redefine it for the group so as to appear either to have abided by the norms or to justify oneself in deviating from them.

²⁴ That is, the actor compares and matches “patterns”, judging the congruence or incongruence of patterns (see Burns et al, 1998). There are parallels to the process in control theory of comparing the state of a system with the goal for that system.

²⁵ As in the case of instrumental modality, the actor may distinguish situations S1 and S2, assigning significantly different values to enacting the norm in each of them. Under conditions of certainty (that is, full knowledge of which situation obtains), the actors may select one pattern of action in situation S1 and another in S2 based on the goodness-of-fit criterion.

²⁶ They are also important for communicative or dramaturgical action, where the actor’s beliefs or expectations about the reactions of others is decisive in the choice of action (see endnote 12).

²⁷ The experience of contradiction (which may be situational) often -- but not invariably -- motivates attempts to resolve or deal with the contradiction. Actors develop meta-rules controlling or regulating applications as well as rules with exceptions (default provisions), so that incompatible rule-complexes (at least if locally incompatible) are applied separately. This type of control protects actors as in the principle, “do not mix personal and business affairs.” Or a rule of the thumb advises, “if they are mixed, mix them in particular ways,” and under particular conditions. In our approach, rules and rule complexes are dynamic, subject to actors’ multiple interpretations, revisions, and adaptations as well as transformations (Machado and Burns, 1998).

²⁸ Complex social equilibria are a function of particular institutional arrangements (including role relationships, roles, norms, etc.) as well as situational conditions. Of particular importance are underlying belief structures and commitments that stabilize institutional arrangements. Belief structures and commitments operate in two ways: (i) they contribute to defining what are right and proper social equilibria, (ii) they contribute to maintaining the foundations for a framework within which particular social equilibria are typically generated. That is, there is a *belief-commitment complex* that may be robust (and resistant to disruption). Under some conditions, it becomes vulnerable to erosion – and previously expected social equilibria are abandoned; established constraints in the interaction situation are no more or are weak, and interactions become unpredictable. For instance, once people lose confidence in an institution such as the banking system, or its currency, they tend to scramble to get their money out of the system, or to get rid of doubtful currency, thus contributing to making the system less attractive and more risky. Such examples point up the key role that loss of belief or confidence in, and commitment to, a given order plays in its stabilization (or destabilization).

²⁹ In these collaborative type games, the participants have the opportunity to make real gains – in money, property, material or human resources, or political power. Coordination or collaboration offers the greatest gains in real terms in the context of the game. There are no options such as defection or cheating as in the prisoners’ dilemma game, which offers opportunities for a participant to gain more through defection.

³⁰ “Chicken” and “racing games” belong to a class of games characterized by potential confrontation. Interaction entails high-risk stakes in the case participants pursue competitive or confrontation strategies to gain scarce resources ahead of the other. The resource might be winning a Formula 1 race, gaining the last space in a parking lot, or achieving dominance over a newly available territory. In instances where participating actors push their claims to the limit, for example, in an international confrontation, the outcome can be very costly to the players, all-out war. In the case of nuclear confrontation, all-out war may mean mutual extinction.

³¹ These games are characterized by two attractive outcomes, each offering, however, different results (and advantages) for each of the actors. The game has been epitomized by a couple who want to do something together for an evening but have different ideas about what to do or where to go, e.g., whether to go to a movie, since one very much likes film, or to a baseball game, since the other likes sports. The outcomes are doing what one or the other wants, or not doing an activity together at all (in that one insists on doing it and the other refuses).

³² The standard story is that the two actors are in the custody of the police and are suspected of a crime. The prosecutor is convinced that they are guilty but does not have enough evidence for a conviction. The prosecutor gives the two prisoners the alternatives of confessing or not. If neither confesses he threatens to convict them both of a minor charge in any case. If they both confess, they will both be prosecuted but he will recommend a lighter than usual prison sentence. However, if one confesses and the other does not, the one that confesses will get off with a sentence less than that of the minor charge, while the one that refuses will receive the longest possible sentence. The family of prisoner dilemma games are characterized by interaction conditions where a certain level of cooperation and self-sacrifice lead to substantial gains but where there are incentives for individual actors to make greater gains by defecting or “free-riding” rather than cooperate and make some contribution or sacrifice. The rationality of immediate pursuit of individual self-interest results in suboptimal outcomes.

³³ This is one way of normalizing evaluations, providing a standard to which to relate other evaluations.

³⁴ Solidaristic actors might find themselves in an interaction situation with zero-sum characteristics. They would, of course, be predisposed also to transform the game, but they would try to coordinate their efforts in

the transformation process. If such a possibility would block, they would go about assessing the payoff structure very differently than rivals or actors in other types of social relationships. They would be oriented to minimizing differences between self and other. Thus, they would tend to end up interacting in the same pattern as rational egoists but for different reasons. Enemies would look for the outcome causing the most harm or damage to the other. If they used a rational strategy in pursuing this end, such as minimax, they would end up with choices corresponding to those of rational actors in such a game.

³⁵ Pareto optimal points are stable against universal coalitions, because it is not possible to deviate in such points without hurting some players. Thus, this acts as a constraint on collective shifts (Scharpf, 1997; Tsebelis, 1990). The PD game has an equilibrium for rational egoists, namely -C-C, which is not Pareto optimal. An outcome that is not Pareto optimal is one where the actors, if they cooperate in restructuring their pattern -- or underlying rules -- can improve the payoffs for some (or all) of them without reducing the payoffs for others, namely through movement to the CC interaction.

³⁶ This prediction contrasts to the results of classical game theory, which indicates the non-cooperative outcome as an equilibrium. SIT stresses the motivation of actors to realize their goals or values, experience frustration when they fail to do so. There is nothing inherent in the social relationship between rational egoists proscribing or inhibiting them from effectively exploiting opportunities to communicate and reach agreements in the pursuit of mutual gain, provided, of course, that institutional rules or ecological conditions permit. Hostile agents, on the other hand, have difficulties inherent in the relationship in using opportunities for communication, making and adhering to agreements, and pursuing opportunities for mutual gain.

³⁷ The one-shot prisoners' dilemma game played by two purely self-interested actors, each operating with an instrumental modality, would result in the selection of the mutual defect outcome, a sub-optimal outcome (but a Nash equilibrium). In the case the interaction is iterated (or the actors are able to bargain beforehand and make their actions contingent or correlated), the likelihood of cooperation (the optimal result) in the PD game increases, particularly when the payoffs for the cooperative alternative increase. The likelihood decreases when the payoffs for non-cooperation increase. This is all fairly straightforward from an instrumental rational perspective

Tsebelis stresses that game iterations allow for the development of contingency or correlated or contingent strategies (that is, transformation of the repertoire of action ACT). For instance, an actor can threaten an opponent such that if she deviates from a cooperative pattern (which they may agree on), she will suffer the maximum possible punishment. Such a proposition is an effective threat only if the opponent will lose more in subsequent interaction than she stands to gain by the deviation in one immediate interaction. Thus, if the number of subsequent rounds is "sufficiently large," the promise of punishment is an effective threat (Tsebelis, 1990:77).

The "folk theorem" in the case of iterated games suggests that options are transformed, in that action complexes include possibilities to reward or punish past behavior of others. If this sanctioning capacity is employed in tit-for-tat strategies, rewarding cooperation with cooperation and punishing non-cooperation or defection, then rational self-interested actors are able to achieve stable cooperation in the iterated 2-person PD game. More generally, the "folk theorem" states that in all indefinitely iterated non-cooperative games, any outcome that is better for all players than the single-shot equilibrium may become an equilibrium solution -- given a sufficiently low rate of discounting the future (Scharpf, 1997:76; among others).

In general, iterated games make for experiential conditions that allow for the formation of specific social relationships (organized and regulated by a common rule complex), with particular decision rules (coordination or cooperation, tacit or not) as well as distributive rules. This is not only because the iterated interactions allow for "tacit communication" (Hardin, 1982) -- in itself important -- but because it enables rule formation as a basis eventual normatively governed interactions, which is the *sine qua non* of a social relationship and eventual social equilibria (Burns and Flam, 1987; see also, Alker, 1996).

³⁸ Complex social equilibria are a function of particular institutional arrangements (including role relationships, roles, norms, etc.) as well as situational conditions. Of particular importance are underlying belief structures and commitments that stabilize institutionalized relationships. Belief structures and value commitments operate in two ways: (I) They contribute to defining what are right and proper social equilibria. (II) They contribute to maintaining the social foundations for a framework within which particular social equilibria are generated. That is, there is a **belief-commitment complex**, typically associated with identity and status, which may be in general robust (and resistant to disruption). Under some conditions, it may become vulnerable to erosion -- and previously expected social equilibria are abandoned; established constraints in the interaction situation are no more or are weak, and interactions become unpredictable. For instance, once people lose confidence in a banking system, or its currency, they tend to scramble to get their money out of the system, or to get rid of doubtful currency, thus contributing to making the system less attractive and more risky. A vicious circle of decline and ultimate collapse may be set in motion. Such examples point up the key role that loss of belief or confidence in, and commitment to, a given institutional order play in its stabilization (or destabilization).

³⁹ For instance, businessmen who are ethically oriented may be confronted with such dilemmas and predicaments. To be a good businessman may require breaking religious rules or family role demands. Besides the rules which indicate what is the morally right thing to do, there are other rules related to success in the market such as effectivity rules which indicate what is practical, advantageous, or necessary (in some instances, possibly for the sake even of the moral rules that are otherwise compromised). Actors experience predicaments in these situations. These give rise not only to rationalizations, particular discourses, and rituals which minimize the sense of contradiction (Machado and Burns, 1998) but also reflection and the development of new strategies and relationships to deal with these problems.

⁴⁰ In the case of more or less similar social actors without a division of labor or authority between them (as indicated by the resources they control and their action capabilities), A and B's reciprocating goods and services would be similar, or, indeed, the very same types of goods and services. They would simply be produced or provided at different times and in different settings. In the case where A and B have substantially different resources and action capabilities, the equivalence function would concern qualitatively different goods and services, for instance, A provides various economic goods and services provided and B reciprocates with political goods and services. Reciprocity or balanced exchange is assured by socially or culturally defined equivalence relations (Burns, 1990).

Relationships with potential equivalences can be distinguished from imbalanced relationships, that is one where actor B cannot provide any good or service equivalent in value, even approximately, to what A is capable of providing, that is, $V_B (\text{any } \alpha \in \text{ACT}_A) \gg V_A (\text{any } \beta \in \text{ACT}_B)$. Such imbalances are expected or natural in the case of relationships of responsibility and caring as in parent/child, teacher/student, medical professional/patient relations where asymmetry is expected. Imbalances in other relationships are dealt with in one of two ways (Blau, 1964; Burns, 1990). (1) Either A limits what he does for B and/or B refuses to ask for or to accept favors from A which he cannot reciprocate. That is, at most A performs only minor favors. Thus, an equivalence or reciprocity function is maintained by limiting the favors or services A provide. The maximum value of reciprocity is then defined by the lowest maxima either participant in the relationship can or is willing to provide. This is also the **value limit of the relationship**. (2) A and B may both choose to participate in non-equivalent reciprocation, implying status differentiation and a hierarchical relationship (Blau, 1964: 108ff; 118ff). That is, although A's goods and services are considerably more valuable than any particular action on B's part, B compensates for this -- or is expected to compensate -- by subordinating herself to A. B shows deference and a readiness to obey A in areas which A herself may define or specify (there is an openness to ACT_B , into which A may unilaterally insert or specify options with the expectation that B accept these). Thus, A, as a dominant figure, is in a position to determine the content not only ACT_A but to exercise considerable influence over the content of ACT_B . Of course, the institutionalization of such relations entails the formulation of social conceptions and rules of what A is reasonably allowed to request (and complementarily, what B could reasonably be prepared to offer in compliance).

⁴¹ The meta-rule (or meta-rule complex) may have a non-instrumental basis of acceptance or commitment (normative).

⁴² A meta-rule operates as a moral imperative. For instance, if a person is in a role of responsibility (presumed responsibility) and can **attain a good state of affairs** with respect to one value or value sub-complex by sacrificing things defined to be of lesser significance, then one ought to be so oriented: She should do it. Such a meta-rule may refer also to things of **comparable** value, indicating how to balance these out with respect to one another (as in a reciprocity relationship). Similarly, if one is in a role of responsibility (presumed responsibility) and can **prevent a bad state of affairs** by sacrificing things defined to be of less significance, then one ought to be so oriented. The meta-rule (or derived meta-rule) may refer to things of comparable significance, indicating how to balance these out with respect to the value or value sub-complex in question.

⁴³ The theory addresses the agency-structure problematique (Sztompka (1994), among others) in a particular way. Rule and rule complex is the link between social structure and human agency, including subjective agency. Rules and rule complexes on one level are programs, grammars, tool kits for actors, orienting them, guiding, constraining, and enabling them. They are involved in interpreting, deliberating on, and reflecting upon rules and rule complexes. On another level, they are social relationships, institutional arrangements, rule regimes organizing and coordinating actors (Burns and Flam, 1987; Scott, 1981).

⁴⁴ The principal knowledge applied in human interaction is social knowledge belonging to a particular group, organization, or society, namely culture. In the pursuit of their purposes and values, social actors make use of **common knowledge** -- the social stock of knowledge (Berger and Luckman, 1965)-- about how to act, with what means, where, and when. A core part of this knowledge are the social rule systems for constituting and regulating social action and interaction. This proposition applies generally to human interaction whether the activities concern politics, economic production and exchange, science, art, sports, or loving and caring. Particular rule systems apply to specific social contexts. The logic or 'rationality' of social action and interaction in a given setting is generated by the system of social rules applying to actors in the setting. The complex of

social rule systems found in any group, community, organization, or nation contribute to making up the culture of that collectivity.

On the basis of common knowledge of social rule systems, a group of actors are predisposed to define a particular interaction situation in a given way -- that is, within a specific category system. Moreover, they have a common basis to organize, coordinate, regulate, and talk about (give accounts of, justify, and criticize) their interactions. Evaluative rules applying to the situation indicate what "goods" should be pursued and what "bads" are to be avoided. Normative rules, including decision procedures, provided a basis for structuring and regulating specific actions and interactions in the situation.

A cultural frame, including social relationships defined and conceptualized within a cultural frame, provide common "filters" and "operators" for actors' representation, discrimination, evaluation, choice, and social action and interaction. The frame ensures a certain degree of inter-subjectivity among actors sharing the frame. Typically, the frame tends to vary among actors, in part because they differ somewhat in conceptualizing, interpreting, and applying the frame, due to variation in socialization, personal history, and social embeddedness. Indeed, individuals or groups may systematically deviate from the culturally standard frame. In this sense, culture should be viewed as a distributional concept, that is distributed over populations (Hannerz, 1989).

⁴⁵ SIT emphasizes that even in the case that actors have a common cultural frame, with a defined social relationship between them, they often participate in a interaction situation with its own particular or unique features at the same time that the actors have varying conceptions of cultural concepts, social relationships, roles, and rules vary to a greater or lesser extent. Thus, judgements can vary in ways that make a significant difference in actors' decisions and interactions and, in particular, their capacity to find compatible solutions and equilibria, particularly social equilibria possessing normative force. In general, mutual awareness, knowledge of the setting, perceived influence over outcomes in the setting typically vary among the actors involved. Variation, inequality, and asymmetry are the most common characteristics of human interaction situations.

⁴⁶ Profit or utility maximization, universalized principles so central to rational choice models are seen in the SIT perspective as **rule governed social action and interaction where the rules are human products, formed and reformed through social interaction, constrained and facilitated in selective environments** (Burns and Dietz, 1992).

If the social grammars (Burns and Flam, 1987) applying to their roles in a given institutional context call for 'maximizing', for instance profits, then they are predisposed to do so within their bounded knowledge and possibilities. The socially constrained profit maximizing entrepreneur may thus be seen to adhere to the norm or logic of market capitalism. 'Market man' judges all things according to market standards and goals, and will be no more loyal, solidary, or self-sacrificing than the market dictates. This is not only legitimate but expected, or even socially required behavior, in many instances.

Thus, one may pursue 'profit' as an entrepreneur on a market, at the same time that such pursuits are substantially constrained by prevailing laws and norms. That is, certain strategies and forms of behavior are excluded. Market action then is a rational expression within the constraints of social rules and physical and social ecological settings

On the other hand, social roles and prevailing social norms in another context such as family, friendship, or religious settings may call for norm-following or procedurally oriented behavior, giving little or no systematic consideration to outcomes, economic or otherwise at least in ideal typical situations. It would be considered entirely inappropriate or wrong to behave according to pure 'capitalist logic' in family, friendship, or other solidary relations. (Of course, the logic of self-interested money-making may penetrate solidary social spaces such as family, friendship networks, religious settings, but typically in concealed forms, and invariably subject to social control attempts to eliminate or limit such penetration (Burns and Dietz, 1992)). In general, there are norms prescribing sharing as opposed to exclusion, or norms against offering -- or demanding -- money for many of the services and things people do for one another in family, friendship, religious or other solidary relationships.

⁴⁷ Social actors may be individuals or collective agents, in the latter case organized groups, enterprises, government agencies, parliamentary bodies, political parties, and nation-states. These engage in information gathering; evaluation, collective decision-making and action, and they mobilize and allocate resources. Collective agents have, of course, internal social structures organizing the formulation and enforcement of rules, the making of collective decisions and the execution of purposeful collective action. Such internal structures are constituted by social rule systems (Burns and Engdahl, 1998; Burns and Flam, 1987).

⁴⁸ SIT states that the abstract concepts of VALUE, MODEL, and MODALITY apply universally at the same time that they are applied in situationally specific ways, that is, they are context dependent. For instance, in some cultures, magical practices are considered real alternatives and these practices are believed or expected to result in real changes; in other cultures, such practices (and their underlying conceptions) would be considered irrational. Thus, **means-end frames vary among cultures and institutional arrangements.**

⁴⁹ SIT diverges in another respect from the initial thrust of von Neumann and Morgenstern's work: It does not theorize about parlor games and contests, although the sociological foundations of SIT should allow it to be extended to such games and contests as special types of human interaction situations, with particular definitions of the situation and social rule complexes applying.

⁵⁰ The usual utility function is far too restrictive. It should refer not only to non-material or non-economic interests but to the multiple valued character of human action and interaction.

⁵¹ There have been a number of developments, of course, to overcome the limitations of a simple maximization by introducing the maxmin rule or satisfying rules, or multi-objective decision-making.

⁵² Even the conceptions of action differ somewhat in SIT and in game and rational choice approaches. The set of feasible options ACT in a decision or game situation is, of course, found in the SIT approach, but it would include routines, programs, habits with which to respond to -- or deal with -- problems in a situation S. It also includes acts that relate to stopping (or pausing) in a program or routine as well as acts making up the reflexive operations on rule complexes (Burns and Engdahl, 1998). ACT is subject to attempts by the actors themselves to manipulate and control the set -- that is, ACT may be made a policy variable or object of constraint or transformation. And, obviously, particular social, institutional and other factors always constrain the set of options, limiting the extent it can be manipulated or altered by the participants. Also, the number of range of alternatives that the actor(s) can imagine is strictly limited. That is, culture limits -- through cognitive and judgment processes -- consideration of alternatives. And the actors' positions in a social structure -- their roles - - and the norms and values applying to their interaction situations constrain as well as enable certain action possibilities.

⁵³ In their classic work, Von-Neumann and Morgenstern defined a game as simply the totality of the rules which describe it. They did not, however, elaborate a theory of rules, or deal with rules as mathematical objects. Such considerations lead to defining and distinguishing major types of rules, specifying the principles or algebra for combining rules, identifying certain rule configurations or complexes as contradictory, and theorizing on the processes of revising, replacing, and, in general transforming rules and rule complexes (Burns and Gomolinka, 1998, 1999, 2000; Burns et al, 1998).