

We Regulate to Coordinate: Human and Machine Joint Activity

Paul Feltovich Jeff Bradshaw Bill Clancey, et al.

"Man is born free, and everywhere he is in chains" (Rousseau)

Man is born too free, and hence, needs to devise for itself an amiable set of chains.

The Nature of Joint Activity

We regulate human activity in order to coordinate within some of the most important of human social affairs—joint activity (Clark). Joint activity is defined by interdependence of activity: that is, what party "A" does depends on what party "B" does, and vice versa (e.g., One if by land, two if by sea). Examples are two (slow) dancers, a conversation, a basketball game, a military action, or driving on a busy highway. As soon as there is interdependence, there is a need for coordination in time (e.g., timing a live phone conversation) and/or space (e.g., a drop off point), which in turn requires (degrees of) predictability and order.

Joint activity is important to human affairs, but it is even important to animals, with the same need for predictability. Animals accomplish coordination through a set of signals and displays. Animal biologist John Smith has identified ten signal types that he claims are nearly universal to (at least vertebrate) animals (although the specific manner of expression may vary across species). These are simple signals that are basic for coordination: e.g., "I am available to take part in joint activity," (or not, "I cannot be interrupted"), "I am going to move" (or not), "I am monitoring something important" (general alarm), "I am under attack." Such signals decouple action and intention to act and give opportunity for the other party to take part.

With our vastly greater behavioral repertory and the complexity of our joint activities, predictability and coordination are even more important in human society. Cultural anthropologist Geertz has argued that because of our underdetermination biologically, relative to other animals, and our large repertory, we are the animals most in need of coordination mechanisms. We need to learn and be taught how to live, interact, and control ourselves. In this view (see also Goffman, "guided doings", others), human culture, itself, is a vast fabrication of regulatory systems for guiding, constraining behavior, especially interdependent behavior. We must add that these systems are many and diverse, and go beyond what we normally construe as "law" or even "rules." The systems include law-like things, but also customs, traditions, workplace practices, standards, and even codes for acceptable every-day behavior (e.g., forms of etiquette—see section Categories of the Ontology of Regulation, below).

We are translating these observations from animal and human joint activity to the design of interdependent teams of software agents and mixed human-agent teams. We are doing this in two primary ways. First we are implementing regulatory systems governing the activities of human-Agent teams through the computer science concept of "policy." In a sense, we are modeling human-agent "culture." In this we utilize KAoS Policy Services, a software platform that can reliably and flexibility enforce policy structures (writ large) regulating the activities of the human/agent teammates. Applications include modeling a "point-of-view," such as in "adversarial modeling," in which we attempt to model actions and reactions to events by groups of people sharing a culture greatly different from our own. Another is CDIX, cross-domain information exchange, in which we attempt to model the sharing of information across many

different agencies, perhaps highly different in their rules, procedures, and "cultures," (e.g., agencies comprising the Dept. of Homeland Security).

A second direction we are taking is to enhance our understanding of the regulatory systems operative in human social behavior and to develop an "Ontology of Regulation" that can be implemented in our human-agent modeling systems. Our operating stance in this regard is that regulation is ubiquitous, and when everything is taken into account, we are much less free than is typically imagined. A listing of major categories from the ontology suggests this (this is a work in progress):

Categories of the Ontology of Regulation

Coercion

Precedents (guidance from past cases, decisions, events)

Face modulators

Plans (recipe-like things)

Standards/norms (benchmark kinds of things)

Fashion: The current style or mode of dress, speech, conduct, etc.

Exceptions (various kinds of suspensions of rules, e.g., zoning variances, waivers)

Commands (orders by an authority)

Folkways (including practices, customs, ceremonies, myths, rituals...)

Codified rules (things similar to laws)

Obligations (accrue from positions held or assumed)

Authorizations (means of granting authority)

Mimicry (dancing as a form of sex, plays, rehearsals)

Design of Affordances (by what we make *hard or easy to do* by design, even physical design, such as doorways, sidewalks, streets, bridges)

Incentives (which implicates *disincentives*, i.e., classes of enforcement and punishment)

Transactional utilitarian devices (fast acting, often fluid, regulatory devices that we set for ourselves in the process of conducting everyday affairs--e.g., making promises, agreements, appointments, pledges, gesture, expression...)

"Natural Law:" rights to life, liberty, property, ...rights to punish violations of natural law, etc. (Locke and the gang)

Physical Law

Habit

Ambitions?

Ideology/Belief/philosophy

[feel free to add (-:]

All of these have numerous, sometimes nuanced subcategories, too many to list here (see APPENDIX).

Coordination in Joint Activity

To coordinate our joint activity, we need to 1) know some things in common and, 2) use what we know in common to coordinate our interactions/moves. Put another way, we need to have some common understandings regarding our joint activity, and we need to utilize these common understandings to satisfy adequately the points of interdependence of our joint acts. The pertinent "what we know in common" is called "common ground" (Clark). Common ground consists of all the knowledge, beliefs, and assumptions/presuppositions that we have in common with respect to the joint activity. In itself, common ground makes no claim about quality. Our common ground may be well tuned to the joint activity, or poor. We need to have common ground that is good enough to at least keep the joint activity moving forward ("sufficient for current purposes," Clark).

A certain way of interacting serves to maintain and even improve common ground. This way involves what is called the "joint action ladder" (Clark). When one party sends a message/signal to another, the second party, in reply, should 1) acknowledge that he has seen the signal arrive (attention), 2) "read" the signal (perception), 3) provide his interpretation of what it means (understanding) and, 4) indicate what he is likely to do as a result (action). The latter two, in making understandings and intentions public, provide the opportunity for "repair" of common ground or common understanding between the parties.

Like animals, people also coordinate through signals of all sorts, from face-to-face language, expressions, posture, to signals mediated in many ways, e.g., mediated through machines such as telephones or computers, mediated through third parties. Hence, direct and indirect party-to-party communication is one form of a "coordination device," in this instance coordination by **agreement**. For example, in the case of a group working together on a grant proposal, they may simply agree through e-mail exchanges to set up a subsequent conference call at a specific date and time. There are three other major types of coordination devices that people commonly employ: convention, precedent, and situational salience (Clark, 19xx; Klein et al., 2004):

Convention: Often prescriptions of various types and degrees of authority apply to how parties should interact. These can range from rules and regulations, to less formal codes of appropriate conduct. These less formal codes include norms of practice in a particular

professional community as well as established practices in a workplace. Convention also often applies to activity devolving from more situationally emergent interactions in which we may engage, e.g., promises we make, agreements we enter into, debts and other kinds of obligations we take on. Coordination by convention depends on structures outside of a particular episode of joint activity.

All sorts of convention may apply to the group working together on a grant proposal. There are the instructions and prohibitions in the call for proposals. There are established policies about what parts of the proposal are to be handled by the scientists and which by the grants-and-contracts office. There are understandings about the rights and duties of the PIs versus lower level investigators.

Precedent: Coordination by precedent is like coordination by convention, except that it applies to norms and expectations developed within the ongoing experience of the joint activity. As the process unfolds, decisions are made about the naming and interpretation of things, standards of acceptable behavior and quality, who on the team tends to take the lead, particular roles, and so forth. As these arise and develop during the course of the activity, they tend to be adopted as devices (or norms) of coordination for the remainder of the activity.

In the grant-writing team, all the telephone conferences have been originated from the PI's office. Hence, this becomes the default expectation for how this will be carried out—unless there is some kind of explicitly expressed exception, for example, that the PI's office is incapable that day for whatever reason.

(Situational) Salience: Salience has to do with how the ongoing work arranges the workspace so that next move becomes apparent within the many moves that could conceivably be chosen. Coordination by salience is produced by the very conduct of the joint activity itself. It requires little overt communication and is likely to be the predominant mode of coordination among long-standing, highly practiced teams.

Relationships between Regulatory Systems and the Coordination Devices

We have argued that regulatory systems are created by society to increase inter-predictability and order necessary for coordination in joint activity. Hence it is not surprising that the main types of coordination devices that people use in the actual conduct of joint activity, in order to increase inter-predictability necessary for their coordination, bear a strong relationship to various categories involved in the Ontology of Regulation (see APPENDIX). Some of these relationships are clear, e.g., in the cases of agreement-like coordination devices, precedent-like devices, convention-like devices, and devices that are like "transient utilitarian devices/salience." It is an interesting challenge for further research to investigate more deeply these kinds of correspondences (e.g., identifying additional types of potential coordination devices, other than the four kinds proposed by Clark, by examining categories of the Ontology that do not match nicely to agreement, convention, precedent, or salience).

The coordination devices are the operationalization mechanisms, within actual conduct, of the more abstracted regulatory systems) (this brings up the abstractions vs. instances

issue we have talked about before, "fast" and "slow" regulation, "blunt-end" "sharp-end," (David) among other things I guess)

Fast and Slow Regulation

(relation to Davids Woods's "sharp" and "blunt" ends?)

We take the "speed" of a regulatory device to have three main dimensions: how fast it can be enacted and gain authority, how fast it can be changed (modified), and how fast it can be enforced. This is important because human activity happens at many different speeds, and we need to coordinate regulation devices to these different paces. We would not want to have to engage the mechanisms of changing constitutional law for guidance and reprieve when someone has a gun to our face, for instance.

As a first attempt at addressing the speed of regulation, we (with Bill Clancey) have divided the major classes of regulatory devices (see above) into three types:

1) **Systemic Schemas**; including things such as (many of the) folkways and elements of "natural law." These are deeply engrained pervasive guidance systems of a people, perhaps largely implicit, slow to develop, and slow to change. Interestingly, these types of regulation may be quick to enforce. It seems that in these kinds of matters people are inclined and feel authorized to "take matters into their own hands;" that is, deal with enforcement personally, and on-the-spot (as we are seeing daily around the world).

2) **Organizational Constraints and Allowances**; including such things as authorizations, commands, obligations, and codified rules (e.g., laws). These are more special purpose devices that are deliberately enacted and enforced by different configurations of people, within different socially constructed bodies (e.g., a club, agency, nation) to promote predicable and orderly activity. While they can generally be enacted and modified more quickly than the Systemic Schemas, they are still relatively slow (compared to the next group) and in some instances can be very slow and involve complicated processes (e.g., changing the U.S. constitution).

We tend to put enforcement in this category into the hands of some "authority." Speed of enforcement varies by the degree of closeness/access of such an authority to the pertinent (regulated) activity. On the highway, for instance, for the *law* to be engaged as regulation requires spotting of the incident by a law enforcement officer and may subsequently involve courts and procedures and judgments by designated individuals. (As an aside, technology is now affecting speed of enforcement in many ways, For instance, cameras and sensors are now enabling on-the-spot detection of traffic violations. This technology can document the violation, gain the driver's identity and address from the license plate, and stuff and mail an envelope for delivery of the ticket and fine.) In contrast, good and bad "manners" on the highway can and often are enforced by the individual participants—who have "authority" in this venue.

3) **Action Guides**; including both Regulation by Design of Affordances and Transactional Utilitarian Devices. Design of Affordances involves what we make *hard or easy to do* by design, even physical design, such as doorways, sidewalks, streets, bridges. Transactional Utilitarian Devices are fast acting, often fluid, regulatory devices that we set for ourselves in the process of conducting everyday affairs--e.g., making promises, agreements, appointments, pledges, gestures, expression. Creation (or dismantling) of affordances can be slow or fast

(putting up a roadblock or building a road). The key is that once they are in place, they have nearly immediate regulatory efficacy. Almost by definition, Transactional Utilitarian Devices can be quickly created, dismantled, or enforced at the point of activity.

The Special Role of Norms

The Basic Compact and its Role in Joint Activity

We propose that joint activity requires a "Basic Compact" that constitutes a level of commitment for all parties to support the process of coordination. When taken together with "Common Ground" we may say that to coordinate effectively, parties also must have the basic resources, including sufficient common knowledge, (ability) to coordinate, i.e., Common Ground, but must also have the willingness to coordinate (will), the Basic Compact. The Basic Compact is an agreement (often tacit) to participate in the joint activity and to carry out the required coordination responsibilities ("quit the principles of human nature," Locke, page 8). We represent as the ideal of the basic compact to be that parties want to be involved in the joint activity, and they want it to work. An example of this ideal may be relay racers on a track team. Many influences can degrade these ideal conditions. One has to do with the voluntariness of the participation; for example, the track members chose to be part of the team. However, there are many other routes to participation, e.g., a team dictated by a boss to work together on a project. Such variations can affect members' dedication to the Basic Compact. So also can member operational "state," in terms of having adequate resources, being overloaded or fatigued, being distracted, and so forth. In short, members of a relay team enter into a Basic Compact by virtue of their wanting to be on the team; but there are many other ways that work teams form, and all these can affect degree of adherence to the Basic Compact.

One aspect of the Basic Compact is the commitment to some degree of goal alignment—typically this entails one or more participants relaxing some shorter-term local goals in order to permit more global and long-term goals to be addressed. These longer-term goals might be shared goals (e.g., a relay team) or individual goals (e.g., drivers wanting to ensure safe journeys). A second aspect of the Basic Compact is a commitment to try to detect and correct any loss of common ground that might disrupt the joint activity.

We do not view the Basic Compact as a once-and-for-all prerequisite to be satisfied, but rather as a continuously reinforced or renewed agreement. Part of achieving coordination is investing in those things that promote the compact as well as being sensitive to and counteracting those factors that could degrade it.

All parties have to be reasonably confident that they and the others will carry out their responsibilities in the Basic Compact. In addition to repairing common ground, these responsibilities include such elements as acknowledging the receipt of signals, transmitting some construal of the meaning of the signal back to the sender, and indicating preparation for consequent acts. The Basic Compact is also a commitment to ensure a reasonable level of interpredictability; that is, agents acting, to the extent they can, so as to be *mutually predictable/understandable and mutually directable by others*.

What is the primary role of a "Basic Compact" in joint activity? *We submit that a critical role has to do with trust and predictability in the operation of the whole interactive system.* When the Basic Compact is strongly in force, we can trust that other people are working on their

assignments, are telling the truth about important matters, are going to send an item to another party if they say they will, and so forth. As another example, the Basic Compact requires that if one party intends to drop out of the joint activity, he or she must inform the other parties. Regarding our proposal writers, if a party is sloughing his assignment (which *you* need so you can continue on *your* assignment) and keeps saying he has most of it finished and promising it tomorrow—after tomorrow, after tomorrow—when in fact he has hardly even started, this team member is violating the Basic Compact necessary for effective team functioning.

Hence, the Basic Compact "washes over" the entire enterprise of the joint activity, largely conferring a trust level in the operations of all the components necessary for conducting the joint activity. When it is functioning at its best, the Basic Compact contributes to the predictability of events within the joint activity, what we have argued is a primary role for regulation in the first place. We would predict that the weaker the adherence to the Basic Compact, the less the trust, and the worse the quality of the joint activity.

Different Types of Joint Activity—Variations on the Basic Compact

Addressing Don's Major Issues

(to be continued)

We believe that the basic approach of modeling social behavior with more attention to operative regulatory structures than to individual behavior and cognition is an unusual approach and may constitute an improvement. For example, much of a peoples' culture may well be more stable than individual behavior and cognition, and may well be representable in advance, when, for example, there is need to quickly ramp-up a model of a brand-new hostile social group.

The Bureaucrat's Dilemma (to be expanded, with Andy Feltovich)

- * Every further specification entails either yet another specification or a human judgment
- * Further specifications are economic as well as political matters
- * The special role of norms, revisited
- * Final interpretations necessarily rest with humans
- * Intermediacy and its role in authority (Wohlmuth)

CG&C as the Upper Bound for Effective Interactive Human-Agent "Teamwork"

APPENDIX

Toward an Ontology of Regulation Feltovich et al...

General regulatory terms:

Regulation: A rule, ordinance, or law by which conduct etc. is regulated

Policy: Any governing principle, plan, or course of action

Principle: A rule of conduct, especially of right conduct. E.g., the principle of racial equality

Rule: An established guide or regulation for action, conduct, method, arrangement, etc.

Code: Any set of principles or rules of conduct; as in a moral code

Compilations of rule-like things

Code: Any set of principles or rules of conduct; as a moral code

Ethics: The system or code of morals of a particular philosophy, religion, group, profession, etc.

Law: All the rules of conduct established and enforced by the authority

Canon: A law or body of law established by a church

Corpus: A complete or comprehensive collection, as of laws or writings of a particular type.

History: What has happened in the life or development of a people, country, institution, etc.

Knowledge-base:

Law-like things (have the power of the "State"/authority behind them—i.e., one could go to jail, get hanged, etc., all "within the law")

Law: All the rules of conduct established and enforced by the authority

Statute: A law passed by a legislative body and set forth in a formal document

Bill: A draft of a law proposed to a lawmaking body

Ordinance: A custom or practice established by usage or authority

Canon: A law or body of law established by a church

Order: A command, direction, or instruction, usually backed by an authority

Command: An order, direction, mandate given by a commander

Demand: A strong or authoritative request

Mandate: An authoritative order or command, especially a written one

Edict: An official public proclamation or order issued by an authority; Decree

Decree: An official order, edict, or decision, as of a church or government.

Proclamation-like things (“instant law”)

Commandment: A command, order, mandate, percept, law

Edict: An official public proclamation or order issued by an authority; Decree

Decree: An official order, edict, or decision , as of a church or government.

Proclamation (Proclaim): To outlaw, ban, or otherwise restrict by proclamation

Order: A command, direction, or instruction, usually backed by an authority

Injunction: A legal order from the court prohibiting a person or group from carrying out a particular action, or ordering a particular action to be done.

Right-like things

Right: That to which a person has a claim to; power, privilege, etc. by law, nature, or tradition. The power or privilege to which one is justly entitled

Privilege: A right, advantage, favor, or immunity granted to some person, group of persons, or class, not enjoyed by others and sometimes times detrimental to them

Entitlement: A right to benefits specified especially by law or contract

Title: An alleged or recognized right

Natural Law: Rights to life, property, rights to punish violations of natural law

Incentive-Like Things (Suri, Boy)

Incentive: Something that influences to action: stimulus, encouragement

Encouragement: Something that encourages

Support: Giving of active aid or merely approving or sanctioning

Aid: help, assist

Schedule-like things

Schedule: A list of times of recurring events, projected operations; a timed plan for a procedure or project.

Plan: A method for achieving an end

Appointment: An arrangement to meet a person or be in a certain place at a set time.

Itinerary: A plan or outline of a journey or route

Obligation-like things (accrue from one's position, state)

Obligation: Duty imposed legally or socially. Thing that one is bound to as a result of a contract, promise, moral responsibility, position.

Duty: Any action necessary in or appropriate to one's occupation or position. Includes duties to groups of people, e.g., one's elders, one's children.

Responsibility: Condition, quality, fact or instance of being responsible; obligation.

Requirement: Something obligatory or demanded as a condition

Prohibition-like things

Prohibition: An order or law forbidding something to be done.

Interdiction: A forbidding, usually in a formal or authoritative manner

Forbance: The act of forbidding. A command against something

Injunction: An authoritative order to do or not do something

Ban: To prohibit, especially by legal means or social pressure

Permission-like things

Permission: The act of permitting; formal consent; leave; license. Sanction to act or do something granted by one in authority.

Leave: Permission to do something.

Consent: Compliance in or approval of what is done or proposed by another.

Assent: Acquiescence, agreement

Accidence: A giving of consent, an agreeing.

Precedent-like things

Precedent: An act, statement, legal decision, case, etc. that may serve as an example, reason, or justification for a later one.

History: What has happened in the life or development of a people, country, institution, etc

Tradition: A long-established custom or practice that has the effect of unwritten law--handed down by the generations and generally observed

Benchmark: something that serves as a standard by which others may be measured or judged

Exemplar: A person or thing regarded as worthy of imitation: model, pattern, archetype.

Agreement-like things

Contract: An agreement between two or more people to do or not do something; compact, covenant, usually enforceable by law

Treaty: A formal agreement between two or more nations relating to peace, alliance, trade, etc.

Pact: A compact, covenant, agreement

Covenant: A binding and solemn agreement made by two or more individuals, parties, etc., to do or keep from doing a specified thing; a compact

Compact: An agreement between two or more individuals or states, etc.; a covenant

Norm: A standard, model or pattern of a group

Standard: A level or grade of excellence, attainment (often used in agreements to judge acceptability of outcome to the parties)

Convention: General agreement on the usages and practices of social life

Plan-like things

Plan: A method for achieving an end

Design: A mental project or scheme in which means to an end are laid out.

Script: The written text of a play, screenplay, or production. A plan of action.

Recipe: A list of materials and directions for achieving a desired result

Guide: A person or thing that guides. A showing of the way by one who is thoroughly familiar

Ritual: A set form or system of rites, religious or other wise

Genre: A kind; sort; type; as said of works of literature, art, etc.

Promise-like things

Pledge: A promise or agreement

Vow: A solemn promise or pledge, especially one made to God or a god.

Promise: An oral or written agreement to do or not do something; vow

Oath: A ritualistic declaration based on an appeal to God or to some revered person or object to keep a promise, remain faithful, etc.

Demand-like things

Order: A command, direction, or instruction, usually backed by an authority

Command: An order, direction, mandate given by a commander

Demand: A strong or authoritative request

Mandate: An authoritative order or command, especially a written one

Edict: An official public proclamation or order issued by an authority; Decree

Decree: An official order, edict, or decision , as of a church or government.

Proclamation (Proclaim): To outlaw, ban, or otherwise restrict by proclamation

Obligation-type things

Obligation:

Coercion-like things:

Standards-like things

Standard: A level or grade of excellence, attainment (often used in agreements to judge acceptability of outcome to the parties)

Norm: A standard, model or pattern of a group

Benchmark: something that serves as a standard by which others may be measured or judged

Exemplar: A person or thing regarded as worthy of imitation: model, pattern, archetype.

Ethics: The system or code of morals of a particular philosophy, religion, group, profession, etc. (Even clowns and executioners have codes of ethics...)

Etiquette: The forms, manners, or ceremonies established by convention as acceptable or required in society, in a profession, or in official life

Criterion:

Principle-like things

Principle: A rule of conduct, especially of right conduct. E.g., the principle of racial equality

Doctrine: Something taught as the principles or creed of a religion, political party etc.

Tenet: A principle, doctrine, or opinion maintained, as by an organization or school of thought

Dogma: A doctrine, tenet, or belief (conveying an element of positiveness or arrogance)

Belief: Anything believed or accepted as true

Creed:

Folkways:

Convention: General agreement on the usages and practices of social life

Tradition: A long-established custom or practice that has the effect of unwritten law--handed down by the generations and generally observed

Custom: Established usage; social conventions carried on by tradition and enforced by social disapproval of violations

Myth: A traditional story serving to explain some phenomenon of nature, or the customs, institutions, religious rites, etc. of a people.

History: What has happened in the life or development of a people, country, institution, etc.

Mores: Folkways that are considered conducive to the welfare of a society

Ritual: A set form or system of rites, religious or otherwise.

Rite: A ceremonial or formal, solemn act, observance, or procedure in accordance with prescribed rule or custom

Face modulator-like things (Santos):

Face-enhancers:

Face-degraders:

Face-savers:

Taboo-like things:

Etiquette: The forms, manners, or ceremonies established by convention as acceptable or required in society, in a profession, or in official life.

Maxim: A concisely expressed principle or rule of conduct or a statement of a general truth; percept

Practice: To do, exercise, or perform frequently or usually; make a habit or custom of.

Fashion-like things

Fashion: The current style or mode of dress, speech, conduct, etc. (Donath)

Style:

Vogue:

Fad:

Taste:

Trend:

Cool:

Genre-like things

Genre: A kind; sort; type; as said of works of literature, art, etc.

Habit-like things

Habit:

Addiction:

Routine:

Exception-like things: (Clancey)

Exception: A formal objection or reservation to court action or opinion in the course of a trial.

Amendment: A revision or change proposed or made in a bill, law etc.

Variance: A license to do some act contrary to a usual rule (e.g., zoning variance)

Waiver: The action or an act of waiving or relinquishing a right, claim, privilege, etc.

Impunity: Freedom from punishment

Immunity: Exemption or release from taxes, military service, prosecution, or other (disagreeable) condition

Exemption: Freedom or release from a liability, obligation, legal requirement.

Release: A written discharge, as from an obligation, prison, etc.

Discharge: Legal order for release, a certificate for dismissal, from military service etc.

Loophole:

Work-around:

Enabling-like things (Positioning-like things, Posturing-like things, Authorizing-like things—having trouble finding the right descriptor) (Clancey, Joan Feltovich))

Credentialing: Entitling to credit, confidence, a certain position, or authority

Entitling: To give a right, claim, or legal title to; to qualify

Ritual: The observance of set forms or rites

Rite: A ceremonial or formal , solemn act, observance or procedure in accordance with prescribed rule or custom

Licensing: Giving formal permission to do something; especially authorization by law to do some specific thing

Privileging: Accruing a right, advantage, favor, or immunity, to some person, group of persons, or class, not enjoyed by others and often detrimental to them.

Authorizing: giving of power or right to act, ranging in application from a specific legal power to discretionary powers in dealings of any kind.

Commission: To authorize, as well as instruct, a person to perform a certain duty, or to promote him to a certain rank or office

Canonization: The giving of church sanction or authorization to.

Election: A choosing for office by vote

Coronation: The act or ceremony of crowning a sovereign

Appointment: A naming or selecting for an office, position, etc.

Confirmation: Made valid by formal approval; ratification

Ordination: An appointment, decree, order, establishment, enactment

Induction: installation, initiation

Initiation: The ceremonies or rites by which a person is initiated into a fraternity, etc.

Testing: An event, set of circumstances, etc., that proves or tries a person's qualities, stances, etc,

Investiture:

Accreditation: A giving of authorization, credentialing

Sanction: An act of a recognized authority confirming or ratifying an action, authorization, authoritative permission

Creation-like things, Construction-Like things, Structuring-like things, Origination-like things (Clancey)

Emergence:

Design:

Legislation:

Natural Law:

Affordance-like things

Rationing:

Programs:

Building codes:

Designs:

Right of way:

Control-like things

Legitimacy-like things

Punishment-Like things

Discipline-like things

Structuring-like things

Model-like things

World-view like things (metaphorical)

Design-like things

Regulation by what we make hard or easy to do

Doors, porches, streets, benches....

Other

Natural Law: e.g., right to property, life etc. (clancey)

Theory: A systematic statement of the principles involved in a situation

Practice: The exercise of a profession or occupation, as the practice of law. A usual method, custom, or convention.

Ideology:

There should be a category: "Mechanisms for the Constitution of Authority"

"Constitution of Authority" refers roughly to "how things come to have regulatory power over us humans." (Paul Wohlmuth)—

This category would have two main subtypes: (Bill Clancey for both)

1. Origins and derivations of Regulatory Systems and Devices

These are ways that regulatory systems come into existence. It would include things like:

Agreement (intermediacy)

Force:

Contract:

Activity-based Precedent (within activity):

Social Emergence:

Societal Precedent:

Design:

Legislation:

Edict/decreed:

Court Order:

Divine Intervention:

This would, in turn, contain two subcategories:

a. Divine

"myth" is sometimes defined as any recurrent telling or utilization of past events in which either superhuman powers or superhuman processes were involved, i.e., usually involving gods and the divine.

E.g., Moses and the Ten Commandments, Devine Right of Kings, Natural Law

b. Profane (the ancient meaning of something like "not of gods or the divine, secular.")

2. Origins and derivations of Officiation: Processes and devices by which people are initiated into positions of authority. This involves a class we have fleshed out somewhat better (also Joan Feltovich):

Power/might:

Credentialing: Entitling to credit, confidence, a certain position, or authority

Entitling: To give a right, claim, or legal title to; to qualify

Ritual: The observance of set forms or rites

Rite: A ceremonial or formal , solemn act, observance or procedure in accordance with prescribed rule or custom

Licensing: Giving formal permission to do something; especially authorization by law to do some specific thing

Privileging: Accruing a right, advantage, favor, or immunity, to some person, group of persons, or class, not enjoyed by others and often detrimental to them.

Authorizing: giving of power or right to act, ranging in application from a specific legal power to discretionary powers in dealings of any kind.

Commissioning: To authorize, as well as instruct, a person to perform a certain duty, or to promote him to a certain rank or office

Canonization: The giving of church sanction or authorization to.

Election: A choosing for office by vote

Coronation: The act or ceremony of crowning a sovereign

Appointment: A naming or selecting for an office, position, etc.

Confirmation: Made valid by formal approval; ratification

Ordination: An appointment, decree, order, establishment, enactment

Induction: installation, initiation

Initiation: The ceremonies or rites by which a person is initiated into a fraternity, etc.

Testing: An event, set of circumstances, etc., that proves or tries a person's qualities, stances, etc,

Investiture:

Accreditation: A giving of authorization, credentialing