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Flood's 'Dynamic value voting'

Merrill M. Flood, one of the early fathers of Operations Research and Management Sciences, has, during the past few years, devoted himself to the problems of voting, majority rule, and the redesigning of democracy. In this paper he brings his insights and experience into the area of *group decision making*.

Professor Flood presents his Dynamic Value Voting (DVV) procedure to the general *HSM* readership. He attempts its evaluation through a comparison with ordinary majority voting and related procedures. DVV has proven to be especially useful for large groups of persons, perhaps communicating and voting via computer conferencing. Such people are geographically dispersed, prefer to vote at different times at their individual convenience, and have significantly different attitudes toward the issues in question. They might prefer using a computer terminal to register their votes. In short, large, diversified businesses and multinational corporate executives might find DVV most appropriate.

Computer conferencing systems are becoming more widespread as computers invade the areas of communications and telecommunications. One of the obvious usages of computer conferencing is to be in voting: group decision making, regional politics, and ultimately national politics. The 'dynamic' feature of DVV makes it even more appealing to the groups required to make sequences of voting decisions over a period of time. The whole idea is as follows: different issues affect different members of the group differently – some issues more so, some less so. Those who are not to be affected or are to be only marginally affected by the decision are permitted to transfer their voting power to those who consider the issue to be of extreme personal importance to them. Each member gets a supply of 'flotes' or vouchers and is allowed to allocate them in any way he wishes among the issues to be voted upon. Each 'flote' then corresponds to one vote.

The DVV is certainly a useful and innovative procedure and the potential areas for its best application and utilization do deserve to be studied, evaluated and described. Flood presents two versions of DVV: dynamic *utility* value voting (DUVV) and dynamic *ranking* value voting (DRVV). Many other modifications are possible.

The point is that, in a democracy, each of us has one vote to cast about the use of a company swimming pool (whether we can swim or not) or on the access of wheel chairs (whether we are in one or not). Many people do not participate in democracy because they do not care about a particular issue – they lose their vote. By the time a real issue of interest (to them) comes, they have probably dropped out of the democratic process. They cannot 'accumulate' their votes and use them when they feel strongly about a particular issue. Yet, by not voting, they leave others to exercise their right and pursue their interests without interference – they should be entitled then to have more say on issues they do care about.

The whole question of 'flote' allocation and management is an intriguing one in that the voting power is decided by individuals themselves. One can put all 'flotes' behind one single issue and give up any voting power on all other issues, or one could spread the 'flotes' more or less evenly among all the issues to be voted upon.

At the end of the paper Flood provides a comparative evaluation of four decision-making procedures: his DUVV and DRVV as well as their nondynamic versions (no flote allocation procedure). He concludes, as one would expect, that DUVV would perform best over the largest variety of cases. Obviously, the dynamic procedures should be better than non-dynamic ones and the utility procedures better than the ranking ones. This is because one-man–one-vote is obviously too crude a rule, and the cardinal utilities more precise and more desirable than the ordinal ones.

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Gharajedaghi's 'On the nature of development'

Professor Gharajedaghi of the Wharton School has prepared a two-part article exploring the nature and management of social systems. In the first part he explores the nature of the *development* of such systems; in the second part he discusses some *obstructions* and obstacles to such a development.

In this paper Gharajedaghi attempts a rather comprehensive typology and taxonomy of various developmental theories.

This table-based typology ends up with a so-called *telosystemic* view of systems as the only one being characterized by *both* plurality of structure and plurality of function. The problem lies with viewing 'function' as 'the ends a social system pursues'. Such an anthropomorphic view of social systems, that is as a human-like entity pursuing goals and making decisions, has plagued social systems and organizational theories for most of their history. Of course, only individuals pursue goals and make decisions, either independently or in groups, sometimes *for* groups.

It is therefore correct to speak of goals *for* social systems, as attributed or ascribed to them by a human observer, rather than about goals *of* social systems. Development of social systems assumes certain dynamics and a state-dependent regularity which allows an external observer to state that a system behaves *as if* it would be 'trying' to reach a particular set of goals.

At a certain stage of systems theory development there was great interest in this anthropomorphic view of systems as *purposeful* entities, moving towards preset ideals, 'creating a better future'. These views even lead to ascribing desires, abilities and wishes to social systems. Gharajedaghi provides a clear, comprehensive review of this stage of systems theories.

Central to this systemic notion is the *distinction of development from growth.* Growth refers to size or number and may or may not be accompanied by development. One can grow without developing and develop without growing. The only question is by whom and how it is going to be determined that development has taken place. Is a given system developing if you, as an observer, do not like the apparent goals and ends toward which the system seems to be moving? If the development is 'for the satisfaction of desires', and if 'desires' differ between different systems and even among people comprising a given system, then what is growth for some could constitute a development for others. If some group 'desires' growth in size and number, and achieves it, is that development?

The dilemmas are obvious. Ascribing value judgments and purposes to social systems, using the ephemeral 'quality of life' as a criterion (a single one), and thus attempting to *design* societies as one would design machines, must misfire sooner or later. It is the individuals who pursue individual goals and through their interaction cause the system to move (unwillingly and unintentionally) in a certain direction. Perceiving the new framework, they adjust their goals and the means of attaining them, further influencing (unintentionally) the actual movement of the system. Individual goals encompass striving towards set goals *for* the system as well. (It could be my individual pursuit and desire to steer a system toward collectivism and planned co-operation if it is perceived that that is what people want or *should* want.)

Gharajedaghi concludes with the discussion of *multifinality,* the extension of the simplistic and unworking concept of 'equifinality'. Equifinality, reaching the same final state by different paths, resulted from the misinterpretation of developmental systems exposed to organization-preserving external perturbations. Multifinality now says that if the perturbation can affect the organization itself, without actually 'killing' it, different 'final' states could result.

Gharajedaghi's 'Obstructions to development'

Professor Gharajedaghi, having defined development as 'purposeful transformation' in the first part of his paper, now attempts to list and discuss possible obstacles and interferences with either the purposes or the process of transformation.

What is the 'desire' of a given system and is there such a thing? Can systems have desires? Or do only individuals have desires? Why is it that different observers, describing the same system, would credit such a system with different desires? Is the 'desire of a system' actually a *desire ascribed* to it by an observer? Obviously, professor Gharajedaghi is tackling an enormously complex and philosophically demanding task.

For example, corruption, underground activities, black market and passive sabotage could be

considered 'obstructions' to development. Yet, many social systems are obviously increasing their vitality precisely because these obstructions are allowed to function more or less 'without obstruction'. Thus, the question: 'Is underground economy good or bad for the people?' is not a trivial question. 'Is underground economy good or bad for governmental employees?' is a question of less complex nature. To say that underground economy is simply an obstruction, a 'social pathology' is a value-laden expression of a particular point of view. The term 'social pathology' itself is value-laden and thus cannot be applied in an objective, scientific manner.

Gharajedaghi defines 'social pathology' (a term probably originated by Stafford Beer after failures in Allende's Chile) as the *inability to remove a persistent obstruction to a system's development.* General Jaruzelski has been able to remove a persistent obstruction (Solidarity) to his view of system development, thus his police-based form of government cannot (or should not) be characterized as pathological in the proposed framework. Hitler succeeded in getting rid of most of Germany's Jews (thus removing his 'obstruction') while the Americans have not managed to remove one of their 'obstructions' – poor, blacks and criminals – and thus participate in 'social pathology'.

These are vexing issues requiring considerable philosophical skills. Professor Gharajedaghi is ready to deal with them in a straightforward, unambiguous manner. He explores alienation, polarization, and corruption as major obstacles to development.

For example, one of the factors of alienation is 'rolelessness'. One can be denied a desired role (in the family or in society) or one can be incapable of carrying out an assigned role. Both could be characterized as 'rolelessness'. The lack of a role to play could be as damaging as the inability to play an imparted role. In both cases, one can become alienated. The opposite of 'rolelessness' seems to be the availability of a role and the ability to play it. Humans are multidimensional beings, capable of playing many different roles in the course of their lives. Many dictatorial systems recognize this and give their subjects many different roles to play (bureaucrats, aparatchiks, informers, policemen, people's militia, soldiers, activists, and many others), yet the alienation is not necessarily receding.

Professor Gharajedaghi concludes with a more extensive discussion of 'social pathology': *the inability of a social system to change itself.* This sensitive definition is amended by referring to "the inability in a *government / management* of a social system to remove a persistent obstruction". Thus, necessarily, Gharajedaghi concludes that bureaucracy, technocracy, theocracy, aristocracy, each represent a pathological mode of organization. Here minorities attempt to maintain obstructions which benefit them but not the majority. In some systems, a majority attempts to maintain obstructions in the path of the development of minorities. Is democracy then the highest form of social pathology?

Delacroix's 'Metasystems in pollution control'

With this paper, Thierry Delacroix won the Student Competition at the 27th Annual Meeting of the Society for General Systems Research (SGSR) in Detroit in 1983. He is applying the metasystem approach to the problem of identifying and diagnosing a system's malfunctions and failures, using a Japanese pollution problem as an example.

It is interesting to investigate how Japanese, so successful in managing production and productivity, cope with the complex socio-political problem of controlling and regulating environmental pollution.

The metasystem approach or model is based on a hierarchical control view of organizational decision making. Its basic idea is explicit recognition of the second level of recursion: a *metacontroller* controlling a system composed of the controller and the controlled system. Infinitely many recursion levels can, at least theoretically, be defined. A complex feedback system, reminding one of the diagrams of Beer, is then postulated and described.

Successful decision making is defined as achieving postulated goals, that is, not failing. A taxonomy of system's failures is also presented: failures of rationality, translation, behavior and evolution. Among them, improper variety matching, i.e. not respecting the Law of Requisite Variety, is listed as a failure of the system. "Only variety absorbs variety" quotes Delacroix. Yet we know how limited-variety controllers can effectively control

quite large-variety systems: a dictator who can either lift or not lift martial law, a soldier with a gun who controls large crowds only by firing or not firing his gun, a Pope quieting millions of people by raising his finger, and so on. There seem to be aspects of "absorbing variety" which are more powerful and much more effective than simply matching the variety – which is often ineffective and doomed to failure.

The second part of Delacroix's paper is less ambiguous and citational, and more problem-oriented. An interesting structural analysis of the Japanese pollution control system is presented. Actually, four levels of recursion are defined; the controllers ranging from district government and prefectural government to ministries and the Prime Minister. This is a hierarchical decision-making model for which information flows are defined.

The four types of failures (rationality, translation, behavior and evolution) are then analyzed and discussed for the current system of pollution control. Delacroix lists a large number of existing failures (including the variety matching) which the current system exhibits. It appears that the current Japanese system of environmental pollution control is failing with respect to all or most previously defined possibilities of failure. The Japanese designed their system at variance with and in contradiction to principles of systems and metasystems sciences. Delacroix predicts the system to encounter serious problems, failures and disasters, as well as inability to withstand environmental changes.

The problem would arise if the Japanese, boldly and efficiently, achieve a substantial control and management proficiency with respect to their environmental pollution problem. Japanese have convinced the world of their being efficient and creative organizers, designers, managers and decision makers. In making their management system work they have violated or ignored most of the principles of 'sound' management: they ignore the quality–costs trade-off and achieve higher quality at lower costs; they ignore inventory buffering of production systems and work efficiently with close-to-zero inventories; they ignore technology impacts on unemployment and robotize their factories while keeping employment unchanged; they have dismantled decision-making hierarchies, and did well. Are they going to repeat their successes in the areas of socio-economic control?

Graham's 'Management lessons'

Businessmen, economists, policy makers – all are willing to learn, positively or negatively, from Adam Smith. Yet, in the area of *innovation,* one of the most burning problem areas of this decade, we are turning to current or even future thinkers who, it seems, have very little to say. Professor Graham is taking us back to the Industrial Revolution exploring the lessons to be learned by the managers of modern corporations. The lessons are there. In the history of business and economics – forgotten but noble pursuits of few.

HSM is proud to publish such high-quality historical studies like the one presented by Graham. It has more to say to high-technology managers than the generation of practitioners just passing. Just compare the battle cries of 'Bottom Line, Bottom Line', usually meaning short-term, penny-wise, unimaginative administration of 'gun-shy' people and projects, with the forceful, admirable entrepreneurship and innovation of the past and, mercifully, of the future, it seems.

It seems that managers and management practices of the sixties and seventies will end up as a strange aberration in the history of management: short-term, bottom-line oriented financial legalcracy, with very little interest in or understanding of entrepreneurship, innovation, originality and leadership.

Professor Graham is one of those few researchers who were lucky and privileged to study the history, to reflect on it, and to draw lessons from it. All other areas of human endeavor suffer from the lack of historical outlook, but management/business suffers most. (Historical outlook does not mean listing Fayol, Gilbreth, Taylor, Ford, etc. as 'precursors'.)

We are now at the stage when our society strongly 'feels' the need for innovation: thus it creates the innovation itself, it creates, spontaneously and without *any* governmental help or support (though not without interference), the 'Silicon Valleys' of our age. One lesson to be learned: forget any governmental or Thurowian *policy* for promoting innovation – learn from history, watch the spontaneous trends unfolding, and either join or drop out. Do not meddle. That is, do not 'plan' for innovation: much stronger forces are at play. Do not hope for being able to bring it about or suppress it – try to *understand* it. One

cannot promote or manage innovation without understanding how and why it comes about, what are the processes fueling it or retarding it, why was it so and not different in history. Yet there are many 'policy makers' who are willing to advise and take measures, to suggest what should be, without any understanding of what is or was – and there are even more of those who would listen.

One has to develop an *organizational culture that favors innovation in general,* an art based on insight, sense of history, and sense of future, rather than developing 'techniques' for managing particular innovation processes. Yet, how much do we know about *organizational culture*? How little do we know about its spontaneous underlying processes and detours from the frozen 'spider-web' of the organizational chart?

We still have managers who reward 'bottom line', short-term performance, compliance with the 'rules', conformity (playing the team), intellectual blandness (not rocking the boat), and risk aversion (being gun-shy). If you keep rewarding that for too long, then you are bound to lose. Add to it your dampening of the spirit of individualism and competition, all of your across-the-board raises, countless rules and policies to be followed, and authority cult, and you have just about had it.

Graham's article is very useful, although not elaborate, on the issue of decision making: do not make decisions for others, do not bring in tools that would make decisions for you – but supply correct and proper information so that the people in the organization (including you) can make *their own decisions.* We could add: and if you have to manipulate anything, manipulate that information, not those people.

Mackenzie's 'Strategy for organizational design'

Professor Mackenzie, President of Organizational Systems Incorporated (OSI) consulting group, is presenting a series of papers on organizational design not only from a theoretical viewpoint but also as a distillate of practical experience. It is becoming obvious that organizational theories are mostly inadequate, the field is characterized by an extremely large variety of conflicting views, the 'anything goes' syndrome seems to be settling in.

Yet, in practice, some organizations do work and anything does not necessarily go. Our theories are generally incapable of an explanation of phenomena even though they lend themselves to descriptions of organizations. Without explaining certain phenomena, organizational theories will continue to perform poorly in terms of applications and actual organizational design.

Organizational design is not an act of fixing a different structure of the organization; it is a continuing process of creating a proper environment for proper relationships to form. Mackenzie calls it "the continuing cycle of adapting goals and strategies, arranging and maintaining the organizational technology to implement them, and producing desired results in the face of a changing environment while the organization continues to function".

Mackenzie's emphasis is obvious: there is a number of theories, some of them interesting and ingenious, but what about *actually* putting one of them to work? What has the real executive in need of organizational design to do? The author attempts to develop a number of normative strategic steps, desiderata, that could be used for judging the theory and technology from the viewpoint of the client organization.

For example, in real-life design there are high emotional, financial, power, and professional stakes. These stakes are high and very real for the client although not perhaps so for the theorist. The solutions proposed must therefore be specific, consistent, persuasive and operational – otherwise they are likely to fail.

Mackenzie prefers organizational designs that are as objective as possible, swift, involving a minimum of required position changes, simple, specific and implementable. He argues for a compromise between theoretical 'purity' and practical implementability: one cannot ignore families of employees and owners, health problems of some of the people involved, longevity of their service, the union, the creditors, the stock owners, etc. – they are usually not taken into account in theory but they *must* be taken into account in practice.

In the Appendix, Mackenzie deals with some of the underpinnings and the conceptual framework for the stragegies and desiderata presented. This is mostly based on his own extensions and interpretations of the theory of group structures. A structure is conceived as a need satisfying an interaction pattern among the group members. In this sense, structures are not static snapshots (organi-

zational charts) but continually changing and evolving interaction patterns in response to internal and external perturbations, need priority changes, and self-generated processes of development and maturation (possibly ossification).

The above is to be distinguished from the *form* or Organizational Architecture: the allocation of task processes to positions and members within the organization. (The reader familiar with autopoiesis will notice that the correspondence of labels is roughly organization = structure and structure = form.)

Mackenzie uses three overlays of systems in studying any organization: task roles, official roles and authority roles, capturing the actual, prescribed or supposed, and legal aspects of organizational functioning and role distribution. Inconsistencies between these three systems continually arise and are continually resolved through behavioral treaties, committees, and organizational productivity.

Tropman's 'Value conflicts'

Tropman deals with the vexing problem facing policy makers everywere: *multiple conflicting values*. These issues are rarely addressed by economists or policy theorists: the conflicts involved are usually defined away by assuming some convenient aggregate such as a utility function. There is, of course, a theory of Multiple Criteria Decision Making (MCDM) dealing rather successfully with multicriterion conflict resolution in decision making. Tropman does not refer to MCDM literature but approaches the problem at the higher, value rather than criterion level (persons sharing similar value systems could still employ different criteria in their otherwise comparable decision-making efforts).

Policy analysis in particular is mostly involved with clashing but strongly held beliefs, convictions and commitments: values. The values involved are usually so fundamental to the worldviews of the parties involved that there is little or no chance that they would be abandoned or modified. One can of course choose to compromise, not to 'push', to give up for the sake of agreement – all of us do it sometimes. That does *not* mean that the actual value system is abandoned. It is always there, intact, smoldering underneath and waiting to burst out at the first opportunity. Conflict has not been removed but only temporarily 'diffused', made dormant, abandoned. One of the fundamental errors of policy makers everywhere has been the non-recognition and non-understanding of the fact that fundamental human values are not and cannot be changed easily by political decrees or democratic voting – simply because they *are* fundamental.

Tropman lists *seven basic dilemmas* or value conflicts recurring in policy analysis: work–leisure, struggle–entitlement, equity–adequacy, independence–dependence, personal–family, religious–secular, and public–private. He then analyzes each of these categories in more detail and provides sets of characteristic statements describing each.

Tropman recognizes the impossibility of long-term conflict resolution via compromise: 'policy decay' begins right after policy implementation: disappointments, unfulfilled desires and needs develop around the 'solution'. The values keep ascertaining their viability, durability, and essentially non-compromising existence. But he does go ahead and provides a policy maker with a list of techniques and approaches which the practitioner of the policy-making 'art' could find useful from time to time.

What are these recommendations? Essentially they are all the least-resistance roads towards compromise: targeting (talk about children), blending (something for everybody), averaging (split the money), weighted averaging (split the money but not fifty-fifty), value hierarchy (more to those who count more), sectoring (call it differently at different places), sequencing (do it at night if necessary), adjudicating (let the courts decide), decision rule (it *should* be this way), and pragmatism (forget the values).

Most policy makers do use the above listed 'strategies' because they are fast, expedient, providing quick fixes. This is why conflicts are seldom 'resolved' and usually return, with greater force and urgency, the next year. This is not necessarily bad because then they must be solved again and thus policy makers are in greater and greater demand. Busing of school children, a policy blatantly ignoring human values and interests, will have to be 'solved' forever, on a continuing basis. All things that have to be enforced vigorously and periodically can be suspected of not reflecting underlying conflicts in human values. These are

examples of 'conflict resolution' by adjudication (one of the techniques in Tropman's repertoire).

Thus, one has to search for alternatives and for solutions which are capable of accommodating both (or more) 'conflicting' value sytems. Such solutions are hard to ferret out, they require thought, reflection, creativity and understanding of what conflict means (is it helpful to say that there is a conflict when there are conflicting values?).

Van Gigch's 'The meaning of truth'

Professor van Gigch has undertaken to explore the evolution of the meaning of truth as a scientific category. Tracing the progression from absolute truth, probable truth to fuzzy truth, he witnesses the continuing dilution and diffusion of the originally clear, unambiguous and one-dimensional concept. Now we have many different truths to cope with, a tribute to and reflection of the age of relativity. It seems that the concept of relative, context-dependent truth is, however, the only one not explicitly explored.

The shooting down of a KAL airliner by the Soviets, and the subsequent explanations and submissions of different 'truths' by the parties involved, brings the notion of relativity vividly into focus and shows how heavily the truth is dependent on the language in which it is presented and on the circumstances in which such a description is generated. This newly rediscovered power of language and its relationship to the meaning of truth must be explicitly studied and dealt with. We now live in an age when stating the direct opposite of a proposition appears to be as truthful as the proposition itself. This was not always so and it is a characteristic of our age. More and more we experience the dissociation between *said truth* and *meant truth*: This is not what I mean, This is not what I said, You misinterpreted the meaning, and so on, are the statements appearing in unusual abundance.

Van Gigch introduces the metasystem paradigm, a hierarchy of levels in which a higher system can decide and arbiter the 'truth' at lower levels. The only point of interest is the meaning of truth at the highest of levels, the meaning of metatruth (the absolute truth of the Rationalists). yet, this 'truth' must be accepted on its own terms. Metatruths are undecidable, they are subject to faith.

We may ask: "Which metamodel offers the most promising methodology to obtain the truth?" and – depending on the particular 'truth' we want to establish – our answers will differ. Such a 'metaquestion' has obviously no answer within human context and circumstance. The Ortega's "I am myself and my circumstance" is still one of the most potent insights into human condition we have – and have conveniently forgotten.

Knowledge, wisdom and truth are not the privileges of the experts, and neither are they privileges of systems scientists, nor of philosophers. If we ask: "Who holds the best truth?", we have to further ask: "The best, for whom? Under what circumstances?"

Van Gigch emphasizes that nothing could be more erroneous than the belief that truth is analytical and can only result from articulated, well structured thinking. Such 'quantitative' truths take no precedence to 'qualitative' truths. His emphasis on the aesthetic, beautiful, good and true is equally inadequate: there is nothing more beautiful and more aesthetic than Man and Earth being the Center of the Universe. They are not – yet we can make them so and both positions would be truthful.

At the conclusion of his discourse, Van Gigch presents nine important and unresolved issues about truth. It is obvious that the issue is *not* the truth, in any of its multiple forms and modifications, but the *process of search* and quest for truth, in any of its forms and modifications. The Systems Approach cannot and does not claim to know where the truth lies: it is a fad of a particular circumstance, of a particular era, it knows nothing of truth except *its own* particular truth, in all of its forms and modifications. What it can do, although it does not do it well enough, is to emphasize the process of truth-searching, describe it, and provide an understanding of it. As with many other things, it is not so much the kind of truth you search for, as the way you go about it. The end should not justify the means – especially here where the means is all we can agree upon.