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A SYSTEMIC VISION OF THE CRISES

From optimization to change strategy?

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workshop

**Systemic means holistic,
beyond the local and short-term criteria of benefit.**

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The International Academy for Systems & Cybernetic Sciences

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The Mission of the International Academy for Systems and Cybernetic Sciences: Some Recent Discoveries

Stuart UMPLEBY

President of the IASCYS Executive Committee

<http://iascys.org>

The International Academy for Systems and Cybernetic Sciences was created as an honor society for people who have made outstanding contributions to the fields of systems science or cybernetics. In addition to choosing people to be academicians, the members of the Academy work to aid the growth and development of these fields. Through conferences and publications we seek to learn what the various societies in the field are doing – what questions they are asking and what themes they are pursuing. We then share our discoveries with colleagues in associations in many countries. Probably more than scholars in traditional fields, people in systems and cybernetics work on three levels – practice, theory and philosophy. Work at each level is used to test, extend and enrich knowledge on other levels. In our discussions at conferences and through the exchange of papers we have learned that scientists in this field have identified three stages in the development of the field. At the level of observed systems, we work to improve engineered systems, management systems and human communication. At the level of cognition we develop analytic methods and simulation techniques and seek to understand the process of cognition and communication. At the level of social systems we search for reliable knowledge and invent and test institutions and procedures to aid innovation, coordination and consensus-building. However, we have found that these stages are described differently in China, Russia and the US and Europe taken together. So, we are now seeking to learn new theories and methods from each other. We have found that Americans evaluate theories through their practical utility while Europeans organize knowledge according to the history of philosophy. Combining these two approaches has significant advantages. Americans have tested theories of knowledge through neurophysiological experiments. This work has led to ideas about how to expand the conception of science in accord with basic principles from the philosophy of science. The Chinese have had a strong interest in systems engineering due to the large number of construction projects currently underway in China. They have developed a theory and methods of systems engineering that integrate engineering and management more closely than is done in the US and Europe. Russian scientists have developed a theory of reflexive control and they are increasingly using participatory methods at the community level. There are a variety of views of complexity and reflexivity, and current discussions are comparing the various points of view. As in the past people working in systems and cybernetics seek to learn from and integrate the knowledge in the traditional disciplines, striving for more general theories and more useful methods.

Stuart A. UMPLEBY https://en.wikipedia.org/wiki/Stuart_Umpleby

Stuart A. Umpleby is professor emeritus in the Department of Management at the George Washington University in Washington, DC. He received degrees in engineering, political science, and communications from the University of Illinois in Urbana-Champaign. Umpleby has published articles in Science, Policy Sciences, Population and Environment, Science Communication, Futures, World Futures, The Journal of Aesthetic Education, Simulation and Games, Business and Society Review, Telecommunications Policy, Journal of the Washington Academy of Sciences, Reflexive Control, Systems Practice, Kybernetes, Cybernetics and Human Knowing, Cybernetics and Systems and several foreign language journals. He is a past president of the American Society for Cybernetics. He is Associate Editor of the journal Cybernetics and Systems. Umpleby has received research grants from the National Science Foundation, the Charles F. Kettering Foundation, the Charles Stewart Mott Foundation, the Nathan Cummings Foundation, the U.S. Department of State's Bureau of Educational and Cultural Affairs and the Central Asia Research Initiative. He has consulted with the World Bank, with government agencies in the U.S. and Canada and with corporations in the U.S., Europe, Japan, and China. He has been a guest scholar at the Wharton School of the University of Pennsylvania, the International Institute for Applied Systems Analysis in Laxenburg, Austria, the University of Vienna, the Institute for Advanced Studies in Vienna and the University of St. Gallen in St. Gallen, Switzerland. In spring 2004 he was a Fulbright Scholar in the School of Economics and Business, University of Sarajevo, Sarajevo, Bosnia-Herzegovina. Between 1981 and 1988 Umpleby was the American coordinator of a series of meetings between American and Russian scientists to discuss the foundations of cybernetics and systems theory. These meetings were supported by the Russian Academy of Sciences and the American Council of Learned Societies. His interest in the transitions in the post-communist countries has resulted in his presenting lectures at various institutes of the Academies of Science of Russia, Ukraine, Poland, Hungary, and Bulgaria. He received the Norbert Wiener Award of the American Society for Cybernetics.

Crise: quelques réflexions systémiques sur l'anthropocène

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Mots clés : croissance, crise sociétale, développement durable, écologie, globalisation, humanité, idéologie, rétro-action

Résumé : Avant la globalisation les crises résultaient d'abus écologiques locaux ou régionaux, de conflits de leadership, de catastrophes climatiques locales ou régionales, de grandes épidémies ou pandémies. L'humanité du début du 21^{ème} siècle est confrontée pour la première fois à une situation de changement global à l'échelle planétaire. L'origine de ce changement est endogène à l'espèce humaine. L'évolution scientifique et technique a doté l'humanité de puissants moyens d'action qui l'ont transformée en un acteur de poids dans l'écologie planétaire. Cette transformation est une conséquence de facteurs fondamentaux qui se sont renforcés réciproquement. L'utilisation des énergies fossiles retourne à l'environnement des quantités gigantesques d'énergie solaire fossilisée sous forme végétale durant les milliards d'années des ères géologiques primaire, secondaire et tertiaire. La conséquence inévitable est et sera de plus en plus, le réchauffement du climat planétaire. Ce changement profond pourrait sûrement causer de profonds troubles adaptatifs dans toutes les sociétés humaines. C'est en ce sens que le mot « crise » acquiert son sens plein et sinistre. Une crise financière n'est rien d'autre que la répétition d'un épisode psychosociologique, récurrent dans l'évolution de l'économie. Une conséquence peu remarquée est que l'homme (biologique, psychosocial) est devenu une « pièce » d'une immense machine, à l'échelle planétaire, ses activités étant de plus en plus conditionnées par cette machine créée par lui-même. Le concept d'avantage concurrentiel domine généralement la pensée économique. Cette façon de voir reflète la situation historique de l'humanité. Jusqu'à nos jours, l'espèce humaine pouvait progresser sans limites vers la plus grande utilisation de son environnement planétaire. Les déchets n'avaient pas une signification écologique négative. Le but le plus sensé et le plus approprié n'est certainement pas de conduire l'humanité entière à partager les déchets qui caractérisent pour l'instant les sociétés considérées comme développées. Un objectif rationnel serait de garantir à l'humanité tout entière un niveau de vie le plus satisfaisant possible, basé sur des ressources planétaires réellement renouvelables assumant la nécessité de garder la planète habitable.

Crisis: algunas reflexiones sistémicas sobre el antropoceno

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Palabras clave: crecimiento, crisis social, desarrollo sostenible, ecología, globalización, humanidad, ideología, retroacción

Resumen: Antes de la globalización, las crisis se debían a abusos medioambientales locales o regionales, conflictos de liderazgo, desastres climáticos locales o regionales, grandes epidemias o pandemias. La humanidad de comienzos del siglo 21 se enfrenta por primera vez con una situación de cambio global a escala planetaria. El origen de este cambio es endógeno a la especie humana. La evolución científica y tecnológica ha dotado a la humanidad de poderosos medios de acción que la han transformado en un actor importante en la ecología planetaria. Esta transformación es una consecuencia de factores fundamentales que se han reforzado mutuamente. El uso de energías fósiles devuelve al medio ambiente cantidades gigantescas de energía solar fosilizada en forma vegetal durante los miles de millones de años de las eras geológicas primarias, secundarias y terciarias. La consecuencia inevitable es y será cada vez más, el calentamiento global del clima. Este cambio profundo podría seguramente causar serios desórdenes de adaptación en todas las sociedades humanas. Es en este sentido que la palabra "crisis" adquiere su significado pleno y siniestro. Una crisis financiera no es más que la repetición de un episodio psicossociológico también recurrente en la evolución de la economía. Una consecuencia notable es que el hombre (biológico, psicossocial) se ha convertido en una "pieza" de una máquina enorme, a escala planetaria, y sus actividades están cada vez más condicionadas por esta máquina creada por él mismo. El concepto de ventaja competitiva generalmente domina el pensamiento económico. Esta forma de pensar refleja la situación histórica de la humanidad. Hasta hoy, la especie humana podría progresar sin límites hacia un mayor uso de su entorno planetario. Los residuos no tuvieron un significado ecológico negativo. El objetivo más sensato y apropiado, ciertamente, no es llevar a toda la humanidad a compartir los desechos que por hiper consumo caracterizan por el momento a las sociedades consideradas como desarrolladas. Un objetivo racional sería garantizar a toda la humanidad un nivel de vida lo más satisfactorio posible, basado en recursos planetarios verdaderamente renovables, asumiendo la necesidad de mantener al planeta habitable.

Crisis: some systemic reflexions on the anthropocene

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Keywords: growth, social crisis, sustainable development, ecology, globalization, humanity, ideology, feedback

Summary: *Prior to globalization, crises were due to local or regional environmental abuses, leadership conflicts, local or regional climatic disasters, major epidemics or pandemics. The humanity of the beginning of the 21st century is facing for the first time a situation of global change on a planetary scale. The origin of this change is endogenous to the human species. Scientific and technological evolution has endowed humanity with powerful means of action that have transformed it into an important actor in the planetary ecology. This transformation is a consequence of fundamental factors that have reinforced each other. The use of fossil fuels returns to the environment gigantic amounts of solar energy fossilized in vegetable form during the billions of years of the primary, secondary and tertiary geological ages. The inevitable consequence is and will be more and more, global climate warming. This profound change could it surely causes serious adjustment disorders in all human societies. It is in this sense that the word "crisis" acquires its full and sinister meaning. A financial crisis is nothing more than the repetition of a psychosociological episode also recurrent in the evolution of the economy. A remarkable consequence is that man (biological, psychosocial) has become a "piece" of a huge machine, on a planetary scale, and his activities are increasingly conditioned by this machine created by himself. The concept of competitive advantage generally dominates economic thinking. This way of thinking reflects the historical situation of humanity. Until today, the human species could progress without limits towards greater use of its planetary environment. The waste did not have a negative ecological significance. The most sensible and appropriate objective, certainly, is not to lead all of humanity to share the waste that, by hyper-consumption, characterizes, for the moment, the societies considered as developed. A rational objective would be to guarantee to all humanity a level of life as satisfactory as possible, based on truly renewable planetary resources, assuming the need to keep the planet habitable.*

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**A systems thinking approach to crises:
non-systemic interactions need to be overcome by interactions with requisite variety**

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Keynote address: *This contribution is focused on interactions between corporate management and divisional management in an organisational system. These interactions are responsible for managers responsibility and accountability to achieve desirable performance over time. The issue is that of crises within an organisational system, where black swans (Taleb, 2007) emerge from weak negotiations and agreements within the organisational system; unexpected crises may emerge. For instance, it can be argued that the financial crisis of 2008 was the outcome of a financial system with inadequate regulatory capabilities which led to the unexpected defaulting of local financial institutions; the sub-prime crisis. This was an instance of interactions between banks and regulators taking place de facto but dominated by non-systemic interactions. These interactions were characterised by rampant financial institutions operating as fragmented institutions, and regulators with no systemic understanding of the exceedingly complex situation they were accountable for. These regulators lacked requisite variety (Ashby, 1964) to exercise responsibility to maintain global financial stability and lacked capacity to make accountable the defaulting institutions. This crisis epitomised weak interactions between regulators and banks. The former did not understand that being responsible for the stability of the financial system implied much more than issuing regulations or asking for regular performance reports or making occasional audits. The latter found out, to the cost of those who lost their houses and money, that they could get away with products and services that appeared very profitable but were not properly understood either by them or by the regulators, which lacked capacity to anticipate black swans and to make banks accountable. These non-systemic interactions lacked the necessary mutual stretching between regulators and bank managers to achieve requisite variety at an acceptable level of performance ((Beer, 1979), (Espejo, 2017). To achieve requisite variety regulators had to detect systemic weakness in the system, make necessary changes to the organisational system and avoid the exploitation of the people by those who were more concerned with making quick money than with providing a socially acceptable social service. Mutual stretching is a demanding requirement that requires communications with capacity for building up collaboration and trust among the systemic actors (Benkler, 2011). This contribution explores how to achieve requisite variety among systemic actors and it is focused on discussing requirements to build up trust and genuine collaboration among them.*

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Gerard de Zeeuw is currently a visiting Professor of Architectural Design Research at the Catholic University of Leuven and an Emeritus Professor of **mathematical modeling of complex social systems** at the **University of Amsterdam**. He is a founding member of the Board of the International Federation for Systems Research and the Board of the **Systeemgroep Nederland**. De Zeeuw serves on the Editorial Board or is an Associate Editor or Editor of several journals including Systems Research and Behavioural Science, Systemica, Tijdschrift Sociale Interventie, Systemexico, and the Journal of Research Practice. De Zeeuw's current project is Project Mathesis, a **Dutch national computer system to support teaching in mathematics** and other topics. His research has focused on social competence and second order organizational research. De Zeeuw has authored 12 books and more than 150 other publications.

The Notion of Ecology of Action in the Context of Social Constructivism

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Keywords: Complexity, Ecology, Ecology of Action, Ecosystems, Freedom, Human Mind, Social Action, Social Constructivism.

Abstract: *It is shown in the paper that ecology can be considered not only its strict sense as co-existence and co-evolution of man and nature, but also as ecology of human action in the social world. Social constructivism, based on the ideas of M. Weber, E. Durkheim, A. Schütz, A. Giddens, J. Searle and others thinkers, has become in recent decades the prevailing theoretical position in the social sciences. People as social actors do create social reality, by creating symbols, social institutions, and social structures. But the emerging social reality, the social environment also imposes restrictions on the actions of people. In this case, there arises the problem of the origin of the relationship of determination, which is decisive, where the boundaries of human freedom are, whether everything can be constructed. The modern concept of the ecology of human action is largely based on the conception of enactivism in the philosophy of mind and cognitive science (F. Varela, E. Thompson et al.) In the interaction of man and the social environment, there is no primary or leading instance: they mutually determine each other. People as social actors actively construct a local and more distant social environment, their social home, in which they want to live, and the environment, in turn, creates them, actively influences them, and spurs their personal growth. The concept of ecology of action (E. Morin) contains other meanings as well. We are forced to abandon the usual linear scheme: the action taken → the result obtained, and recognize the nonlinearity of any social action, more precisely, the nonlinearity of the connection of this action and its result (consequences). Uncertainty is immanently inscribed in the very notion of complexity of the social world. Uncertainty means incompleteness, unpredictability, openness and non-linearity of an outcome of any social action. Every action taken by an individual is determined by conditions of the social environment and it may turn out that it will deviate from the direction that was originally assigned to it. Therefore, it is necessary to acquire the ability to adjust the direction of action depending on the changing social environment situations and to develop the strategic vision of the desired and attainable future.*

La notion d'écologie de l'action dans le contexte du constructivisme social

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Mots-clés : Action sociale, Complexité, Constructivisme social, Écologie, Écologie de l'Action, Écosystèmes, Esprit humain, Liberté

Résumé : *On montre dans la présentation que l'écologie peut être considérée non seulement au sens strict comme une coexistence et une coévolution de l'homme et de la nature, mais aussi comme l'écologie de l'action humaine dans le monde social. Le constructivisme social, basé sur les idées de Weber, Durkheim, Schütz, Giddens, Searle et d'autres penseurs, est devenu ces dernières décennies la position théorique dominante dans les sciences sociales. Les individus en tant qu'acteurs sociaux font la réalité sociale en créant des symboles, des institutions et des structures sociales. Mais la réalité sociale émergente, l'environnement social (Umwelt social) impose également des restrictions sur les actions des personnes. Ce qui pose le problème de l'origine de la relation de détermination, ce qui est décisif, où se trouvent des limites de la liberté humaine, et si tout peut être construit. Le concept moderne de l'écologie de l'action humaine est basé sur le concept d'enactivisme dans la philosophie de l'esprit et les sciences cognitives (Varela, Thompson et al.) Dans l'interaction de l'homme et de l'environnement social, il n'y a pas d'instance primaire ou principale: ils se déterminent mutuellement. Les gens en tant qu'acteurs sociaux construisent activement un environnement social local et plus éloigné, leur foyer social, dans lequel ils veulent vivre, et l'environnement, à leur tour, les crée, les influence activement et stimule leur croissance personnelle. Le concept d'écologie de l'action (E. Morin) contient également d'autres significations. Nous devons abandonner le schéma linéaire habituel: l'action entreprise → le résultat obtenu, et reconnaître la non-linéarité de toute action sociale, plus précisément, la non-linéarité de la connexion de cette action et de son résultat (conséquences). L'incertitude s'inscrit immanemment dans la notion même de complexité du monde social. L'incertitude signifie l'incomplétude, l'imprévisibilité, l'ouverture et la non-linéarité de tout résultat de chaque action sociale. Chaque action prise par un individu, est déterminée par des conditions de l'environnement social; il se peut que cela dévie de la direction qui lui a été initialement assignée. Par conséquent, il est nécessaire d'acquérir la capacité d'ajuster la direction de l'action en fonction du changement de l'environnement social et développer la vision stratégique du futur désiré et réalisable.*

Der Begriff der Handlungsökologie im Kontext des Sozialen Konstruktivismus

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Schlüsselwörter: Freiheit, menschlicher Geist, soziales Handeln, Handlungsökologie, Komplexität, Konstruktivismus, Ökologie, Umwelt

Zusammenfassung: *In der Präsentation wird gezeigt, dass Ökologie nicht nur in ihrem strengen Sinn als Koexistenz und Koevolution von Mensch und Natur, sondern auch als Ökologie menschlichen Handelns in der sozialen Welt betrachtet werden kann. Der soziale Konstruktivismus, der auf den Ideen von M. Weber, E. Durkheim, A. Schütz, A. Giddens, J. Searle und anderen Denkern beruht, ist in den letzten Jahrzehnten zur vorherrschenden theoretischen Position in den Sozialwissenschaften geworden. Menschen als soziale Akteure schaffen soziale Realität, indem sie Symbole, soziale Institutionen und soziale Strukturen entwickeln. Aber die entstehende soziale Realität, die soziale Umwelt, schränkt auch die Aktionen von Menschen ein. In diesem Fall entsteht das Problem des Ursprungs des Bestimmungsverhältnisses, das entscheidend ist, wo die Grenzen der menschlichen Freiheit liegen, ob alles konstruiert werden kann. Das moderne Konzept der Ökologie menschlichen Handelns basiert weitgehend auf der Konzeption des Enaktivismus in der Philosophie des Geistes und der Kognitionswissenschaft (F. Varela, E. Thompson et al.). In der Interaktion von Mensch und sozialer Umwelt gibt es keine primäre oder führende Instanz: sie bestimmen sich gegenseitig. Menschen als sozialen Akteuren konstruieren aktiv eine lokale und entferntere soziale Umwelt, ihr soziales Zuhause, in dem sie leben wollen, und die Umwelt wiederum schafft sie, beeinflusst sie aktiv und fördert ihr persönliches Wachstum. Das Konzept der Ökologie der Handlung (E. Morin) enthält auch andere Bedeutungen. Wir sind gezwungen, das übliche lineare Schema „die Handlung → das erzielte Ergebnis“ aufzugeben und die Nichtlinearität jeder sozialen Handlung, genauer die Nichtlinearität der Verbindung dieser Handlung und ihres Ergebnisses (Folgen) zu erkennen. Unsicherheit ist im Begriff der Komplexität der sozialen Welt immanent eingeschrieben. Unsicherheit bedeutet Unvollständigkeit, Unvorhersehbarkeit, Offenheit und Nichtlinearität eines Ergebnisses jeder sozialen Aktion. Jede Handlung eines Individuums wird durch Bedingungen der sozialen Umwelt bestimmt und es kann sich herausstellen, dass es von der Richtung abweicht, die ihm ursprünglich zugewiesen wurde. Daher ist es notwendig, die Fähigkeit zu erwerben, die Richtung der Aktion in Abhängigkeit von den sich verändernden sozialen Umweltsituationen anzupassen und die strategische Vision der gewünschten und erreichbaren Zukunft zu entwickeln.*

Helena KNYAZEVA

Helena Knyazeva is a professor at the **Russian National Research University Higher School of Economics**. She sits on the board of the **Bertalanffy Center for the Study of Systems Science**, the **Association of Complex Thinking**, the **German Society of Complex Systems and Nonlinear Dynamics** and the **Russian Philosophical Society**. Knyazeva is also an editor for *Ludus complexus: Revista Multiversitaria de complejidad*, *Praxema: Journal of Visual Semiotics*, *Complex Systems: An Interdisciplinary Scientific Journal*, and *Exploring Unity through Diversity*. Knyazeva's fields of expertise include philosophy of complexity, synergetics, cognitive complexity, theory of innovations, and futures studies. Knyazeva has authored about 450 publications, including 10 monographs and 21 peer-reviewed journal articles. Knyazeva has been appointed to the **Academic Council of the Multiversidad Mundo Real Edgar Morin** and as a council member for the **Darwin Project**.

Could Theory of Complex Multi-networks Provide a Framework for Holistic Systems Approach?

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Keywords: complexity; dynamical systems; networks; multi-networks; dynamic graphs; structural controllability.

Abstract: *It is shown in the paper that it may well be feasible to derive a holistic systems approach to contemporary conflicting worldwide interconnected societal environments via a set of consistently compatible models that co-exist over a complex dynamic multi-network structure (Dimirovski, IEEE EUROCON 2017, pp. 650-664; Liu, Dimirovski, Zhao, Physica A: statistical Mechanics & Its Applications, 387, pp. 643-652, 2008) either nested or planar. Regrettably so, since the time of Leonardo da Vinci ("There is no much truth in sciences that do not make use of mathematics"), it seems the only crucial societal change is emergence of more or less conflicting alliances and/or states across increasingly inter- and cross-connected planet Earth that replaced conflicting city states across Italy. This contemporary emerging global societal environment, being largely achieved due to Mankind's technological advances but not accompanied alongside with the relevant cognitive and spiritual advances, also enhances global social environment that hardly has begun to understand its survival needs holistic management strategy modifications. Mankind has only begun to understand that actually it is the origin of the relationship of determination, where the boundaries of human freedom ought to accept the survival constraints thus emphasising the underlying structural constraints on our world. Further interaction of Mankind and its societal and social environment with the natural environment seems has become decisive primary instance, which essentially determine each other now and in a foreseeable future. People as conscious actors every societal must transcend from knowledge to wisdom in order to overcome the rising greediness and selfishness so strongly enhanced by the global banking-financial neo-capitalism with its inherent generic uncertainty that may yield further unprecedented consequences. On the grounds of a kind of synergy of Dragoslav D. Siljak's dynamic graphs (Nonlinear Analysis: Hybrid Systems 2, pp. 544-567, 2008) and Guangrong Chen's enhanced controllability via pinning control on complex dynamical networks (International Journal of Automation & Computing 14, pp. 1-9, 2017) it seems possible to derive an appropriate systems background a holistic systems approach to contemporary conflicting worldwide interconnected societal environments. At least it does seem to be a rather worthy research adventure into holistic re-thinking of uncertain systemics of this world.*

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La Théorie des Systèmes peut-elle prédire le mouvement indépendantiste en Catalogne?

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Mots clés : modèle causal, prédiction, variables de base, variables co-adjuvantes, indépendance politique

Résumé : *Le modèle prédictif qui suit présente trois blocs de variables (circonstances et faits) qui expliquent comment une approche systémique peut prédire les prochains résultats électoraux en Catalogne. J'utiliserai un schéma simplifié pour cela, mais il pourrait être utile d'éclairer les effets de la récente tentative d'indépendance. Cela fait partie du schéma causal présenté à la fin de ce texte. Le premier bloc est constitué des trois circonstances (région périphérique langue différente, et l'augmentation du revenu par habitant, principalement celui-ci) qui déterminent un comportement sécessionniste (signe +) où ils se produisent (Pays Basque, la Flandre, la Padanie, Bavière, Santa Cruz en Bolivie, ... etc.). Dans le cas de la Catalogne, une attente que l'on pourrait qualifier de "structurelle" a été créée ces derniers temps, qui oscille autour de 45% des indépendantistes contre 55 des constitutionnalistes. La structure même du modèle causal avec seulement trois signes positifs de sécession, nous permet d'avancer un certain résultat logique qui changerait, via le feedback ou le feedback, les attentes initiales de 45% des "oui" et 55% des "no", à 40% "oui" et 60% "no", moins favorables même pour les attentes en faveur de l'indépendance. Cela signifie-t-il que le modèle atteindra le 40% "oui" et 60% "no", lors des prochaines élections de 2018? La logique du système le propose, mais plusieurs circonstances de dernière minute peuvent modifier considérablement la prédiction.*

Can Systems Theory predict the independence movement in Catalonia?

(translated by Stuart Umpleby)

Keywords: causal model, prediction, basic variables, coadjutant variables, political independence

Abstract: *The predictive model that follows presents three blocks of variables (circumstances and facts) that explain how a systemic approach can predict the next election results in Catalonia. I will use a simplified diagram for this, but it might be useful to shed some light on the effects of the recent attempt at independence. This is part of the causal scheme presented at the end of this text: The first block consists of the three circumstances (different language peripheral region, and the increase in per capita income, mainly this one) that determine secessionist behavior (sign +) where they occur (Basque Country, Flanders, Padania, Bavaria, Santa Cruz in Bolivia, ... etc.). In the case of Catalonia, an expectation that could be described as "structural" has been created recently, which oscillates around 45% of separatists against 55 of constitutionalists. The very structure of the causal model with only three positive signs of secession, allows us to advance a certain logical result that would change, via feedback or feedback, the initial expectations of 45% of "yes" and 55% of "no", to 40% "yes" and 60% "no", less favorable even for the expectations in favor of independence. Does this mean that the model will reach 40% "yes" and 60% "no" in the next elections in 2018? The logic of the system proposes it, but several last-minute circumstances can considerably modify the prediction.*

Francisco PARRA-LUNA

Francisco Parra-Luna is an academician who has been president of and/or founded many systems theory organizations such as the **Association Internationale des Sociologues de Langue Française**, the **Sociedad Española de Sistemas Generales**, and the **Instituto Univesitario de Recursos Humanos**. He is also a member of the editorial board of the journal **Systems Research and Behavioral Science**. Parra-Luna is the founder and was the first president of the **Sociocybernetics and Social Systems Theory group in the International Sociological Association**. Parra-Luna has authored 19 books and more than 50 articles. Parra-Luna has won several prizes and distinctions including first prize from the Fundación Rumasa in 1979, second prize from the Instituto de Estudios Laborales in 1979, the Prize del Centro de Investigaciones Sociológicas in 1982, the national prize on "Marketing político" in 1983, and the national prize for "Martin Artajo" on Employment Politics in 1987. He also had a square in the town Villanueva de los Infantes, Spain dedicated to him in 2010.

Systemic Behavior via Social responsibility as a Way to Peace and Development

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Key words: social responsibility, world peace, international cooperation

Abstract: *Systemic behavior is here to overcome the ancient human one-sided and short-term behavior by holistic approach based on interdependence of cooperating professionals, who are mutually different. The new way toward this end was passed only two years after the surfacing of the current global socio-economic crisis that results from neoliberal monopolies. Social responsibility is everyone's (new) **responsibility** for his/her **influence on society** on the basis of practicing **interdependence** as a precondition for requisite **holism**. Consequences of millennia of the human practice of one-sidedness and short-term criteria of behavior make social responsibility now unavoidable: the 3rd World War is here/pending rather than peace and development. Both interdependence and (requisite) holism are exposed by both systems theory and ISO 26000 on social responsibility. The – unfortunate and dangerous – situation in society is well clarified by the fact that ISO 26000 was passed only as an advisory rather than obligatory international standard; this means that peace is considered less important than companies' profit, while peace is a crucial precondition for profit/benefit resulting from development and well-being.*

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Matjaz MULEJ, after his Doctorates in Economics/Systems Theory and in Innovation Management, used to work at the University of Maribor, where he still works with doctoral students. He works also in other Slovene higher education institutions. He retired in 2001 as Professor Emeritus of Systems and Innovation Theory. For the recent 10 years he has applied systems theory also to social responsibility as personal and organizational attributes – ethics of responsibility, interdependence and requisite holism. He published more than 1.800 publications in over 40 countries (see: IZUM/Cobiss/Bibliographies, 08082). He was visiting professor at foreign universities for 15 semesters, mostly in US, including Cornell (as Fulbright scholar), also in Austria, China, Germany, Mexico, and gave talks in about 50 further universities around the world. He consulted to organizations in 6 countries about 500 times. He is author of **the Dialectical Systems Theory** (see: François, 2004, International Encyclopedia), **Innovative Business Paradigm and Methods for transitional countries and enterprises**; many millions of innovation results value are reported. He is a member of the European Academy of Sciences and Arts, Salzburg (2004), European Academy of Sciences and Humanities, Paris (2004), International Academy for Systems and Cybernetic Sciences, Vienna, now in France (2010; establishing former head, now vice-president). He was president of IFSR, president of the Slovene Systems Research Society (since 1991), head of the research unit of IRDO Institute for Development of Social Responsibility. Under his impact University of Maribor became 'Sustainable and Socially Responsible University of Maribor' with an action program for 2014-2020. He was granted all available official awards for his work on non-technological innovations in Yugoslavia, Slovenia, Maribor and University of Maribor. In 2013-2016 he published and edited 9 books, 3 collections of articles (in Systems Research and Behavioral Science, Kybernetes, Systems Practice and Action Research) with more than 100 authors from 30 countries, and 4 conference proceedings, all about **systemic behavior via social responsibility**. His most recent award is HORUS platina award for 60 years of volunteering as a practice of social responsibility.

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