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## Un enfoque antropológico de la evolución de creencias y valores humanos.

En esta comunicación presentamos una aproximación sistémica de la teoría de la supervivencia de las sociedades. Esta teoría incluye la supervivencia de los valores y creencias de las sociedades humanas, así como de su dinámica socio-económica. La teoría de la supervivencia de las sociedades predice el surgimiento de nuevas estructuras socio-económicas y de la supra-estructura ideológica que las acompaña. Estas emergencias de nuevos valores y estructuras son producto de presiones y crisis puntuales. Por tanto, este enfoque se aparta de una visión lineal y progresiva de la evolución de las sociedades, que considera que es el progreso y la razón la que conduce la historia desde la barbarie hasta la civilización. La teoría de la supervivencia de las sociedades defiende la existencia de unos mecanismos de supervivencia que se presentan en todo tipo de sociedades y en cualquier etapa histórica. Para materializar este enfoque, presentaremos un primer esbozo cualitativo de un modelo matemático dinámico. Este modelo debería explicar en un futuro los mecanismos de supervivencia y las bifurcaciones propias de las crisis que conducen hacia nuevos valores y estructuras socioeconómicas.

## Une analyse anthropologique de l'évolution des croyances et valeurs humaines.

Dans cette communication nous présentons un rapprochement systémique de la théorie de la survie des sociétés. Cette théorie inclut la survie des valeurs et les croyances des sociétés humaines, ainsi que de sa dynamique socio-économique. La théorie de la survie des sociétés prédit le surgissement de nouvelles structures socio-économiques et de la supra-structure idéologique qui les accompagne. Ces émergences de nouvelles valeurs et de structures sont le produit de pressions et crises ponctuelles. Par conséquent, cette analyse s'écarte d'une vision linéaire et progressive de l'évolution des sociétés, qu'elle considère que c'est le progrès et la raison celle qui conduit l'histoire depuis la barbarie jusqu'à la civilisation. La théorie de la survie des sociétés défend l'existence des mécanismes de survie qui se présentent dans tout type de sociétés et dans toute étape historique. Pour matérialiser cette analyse, nous présenterons une première ébauche qualitative d'un modèle mathématique dynamique. Ce modèle devrait expliquer dans un futur les mécanismes de survie et les bifurcations propres des crises qui conduisent vers de nouvelles valeurs et structures socio-économiques.

## An anthropological approach to the evolution of beliefs and human values.

In this communication we present a systemic approach to the theory of the survival of societies. This theory includes the survival of the values and beliefs of the human societies, as well as of their socioeconomic dynamics. The theory of the survival of societies predicts the sprouting of new socioeconomic structures and the ideological supra-structure that accompanies them. These sprouting of new values and structures are product of pressures and crises. Therefore, this approach separates from a linear and progressive vision of the evolution of societies that considers that it is the progress and the reason the one that leads history from barbarism to civilization. The theory of the survival of societies defends the existence of survival mechanisms that appear in all type of societies and any historical stage. In order to materialize this approach, we will present a first qualitative outline of a dynamic mathematical model. This model would have in the future to explain the mechanisms of survival and the bifurcations own of the crises that lead towards new values and socioeconomic structures.

# AN ANTROPOLICAL APPROACH FOR THE EVOLUTION OF HUMAN BELIEFS [1]

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**Abstract**
*We present in this article a first system approach to the society survival theory. This theory predicts the emergency of new socio-economic structures and their ideological supra-structure. The causes of these emergencies can be explained from pressures and punctual crises. Thus, the evolution of societies is not described by a linear and progressive vision, as a consequence of the progress and the reason that drives History from the barbarism until the civilization. The society survival theory defends the existence of some mechanisms of survival that are present in all type of societies and in any historic step. The future mathematical model, based on this system approach, should simulate the mechanisms of survival and bifurcations that drive societies toward further beliefs and socioeconomic structures.*

**Résumé**
*Nous présentons dans cet article une première approximation systémique à la théorie de la survie des sociétés. Cette théorie prédit l'émergence de nouvelles structures socio-économiques et leur supra-structure idéologique. Les causes de ces émergences peuvent être expliquées par des pressions et des crises ponctuelles. Ainsi, l'évolution des sociétés n'est pas décrite par une vision linéaire et progressive, en raison de progrès et la raison qui a poussé l'histoire de la barbarie jusqu'à la civilisation. La théorie de la survie des sociétés défend l'existence de certains mécanismes de survie qui sont présents dans tous les types de sociétés et à n'importe quelle étape historique. Le futur modèle mathématique, basé dans cette approche systémique, doit simuler les mécanismes de survie et de bifurcations que conduisent les sociétés à se diriger vers d'autres croyances et des structures socio-économiques.*

**Key words**
Society survival theory; Dynamics; Crises; Ideology.

**Mots-clés**
La théorie de survie de la société; Dynamics; Crises; Idéologie.

## 1. Introduction

The present idea in Occident is that the evolution of societies is described by a linear and progressive vision, as a consequence of the progress and the reason that drives History from the barbarism until the civilization. On the top of societies, as a consequence of the rational human thinking would be the social ideologies, beliefs and values that would constitute the spiritual

[1] This article is dedicated to Lorenzo Ferrer Figueras, President of the Spanish Society of General Systems (SESGE) until his final departure; Master and friend, he always will be present in our memory.

representation of societies. However, the society survival theory (Amigó, 2001) claims that social evolution and ideologies, beliefs and values constitute supra-structures that arise and consolidate as a result of social crises, i.e., non-rational social changes related with the exhaustion of natural resources.

The society survival theory proposes the same mechanism of change that plays in all societies and historic ages. When a society suffers a crisis, it resolves it choosing one of the potential possible options. As a consequence, a new ideology arises. Once "selected" a determined option, it is consolidated simultaneously with the new ideology. This new ideology extends to be kept in time until a new crisis demands a change. Some possible options to solve the crisis are: 1) New social structure; 2) Persistence of the social structure; 3) Recover of a prior social structure; 4) Social changes of transition to a new social structure.

Thus, the society survival theory does not support a linear and progressive vision of History. Societies do not evolve of a natural manner toward a greater level of civilization and perfection. Besides, crises have a great importance in History, as Giambattista Vico asserted in the seventeenth century. Contemporary authors, as Toynbee (1987), consider crisis as stunning of historic cycles. The society survival theory considers that crises, but not tendency to civilization, are the causes that induce to social and ideological changes.

For instance, Contemporary Age, from French Revolution until our days, is presented as a historic step of social conquer and ideological developments without comparison. The economic development, from Industrial Revolution, has enabled a progressive improvement for the conditions of life. Besides, the progressive development of science and technology is as well considered. Furthermore, the ideals of equality and democracy have raise and consolidated, as well as nationalism and international solidarity. But the society survival theory can explain this progressive ascent of social welfare, as well as the conquest of liberty and equality of Contemporary Age. In addition, this theory can explain also the large social changes in history and in complex societies. These changes are the consequence of the historic events that have happened for long periods of time.

In this paper, a first system approach to the society survival theory is presented. This approach must derive, in a future, in an abstract model suitable to each particular case of social change, such as the theory forecasts. A first qualitative, non-quantitative, application case of the society survival theory was applied to study the conditions that unchained the French Revolution (Amigó, Micó & Caselles, 2009). This revolution transformed the politic system of the Ancient Regime in a Republic and subsequent Empire. This supposed also the consequent change in ideology.

## 2. The model of the society survival theory

From the work of Amigó (2001), we can define four subsystems that can reproduce mathematically the mechanisms presented in the society survival theory: demographic, natural resources, social well-being and ideology subsystems. In Figure 1 (see Annex I) the hydrodynamic diagram of the model is presented after the list and description of the model variables.

In order to provide a first simplified model, no human migrations are considered in the first approach here considered. Thus, in the context of the demographic subsystem, if *x(t)* is the population (population of the country where the society settles), its dynamics is given by:

$$\frac{dx(t)}{dt} = (\alpha(t) - \beta(t))x(t) \tag{1}$$

In (1), $\alpha(t)$ and $\beta(t)$ are, respectively, the birth and death rates. For the natural resources subsystem, the simplification that they are only exploited by the humans of the country is done. Thus, if *y(t)* is the natural resources variable (resources of the country where the society settles), its dynamics is given by:

$$\frac{dy(t)}{dt} = \gamma(t) \cdot y(t) - F_1(v(t), h(t)) \tag{2}$$

In (2), $\gamma(t)$ is the growth resources rate (consequence of a natural growth of resources; it is an input variable); and $F_1(v(t), h(t))$ is a function to be determined; it represents the exploitation resources variable. This function depends on the ideology variable $v(t)$ and on the natural resources stock $h(t)$. Both, $v(t)$ and $h(t)$ represent the main variables of the natural resources subsystem. The dynamics of $h(t)$ is given by:

$$\frac{dh(t)}{dt} = F_1(v(t), h(t)) - \varepsilon(t) \cdot x(t) \tag{3}$$

In (3), $\varepsilon(t)$ is the resources consumption rate per capita variable; here it is here considered an input variable. Let *z(t)* be the social well-being variable, representative of the social well-being subsystem. The *z(t)* variable is here quantified as an abstract variable that represents the crucial variable to assess crises. This variable would influence on the dynamics of the birth and death rates. In addition, let *v(t)* be the ideology variable, representative of the ideology subsystem. This variable is also quantified abstractly, and it influences on the exploitation resources variable. In other words, the ideology must change or fix the ways of production of the society and, therefore, to change or fix the exploitation rate. The dynamics involved in these subsystems is based on the following hypotheses:

1. The dynamics of the social welfare variable depends on itself and on the ideology variable:

$$\frac{dz(t)}{dt} = F_2(z(t), v(t)) \tag{4}$$

2. The dynamics of the ideology variable depends on itself and on the social welfare variable:

$$\frac{dv(t)}{dt} = F_3(z(t), v(t)) \tag{5}$$

The mathematical structure of the functions $F_2$ and $F_3$, respectively of Equations (4) and (5), must be investigated. Finally, as said above as well, the dynamics of birth and death rates depends on the social welfare variable:

$$\alpha(t) = F_4(z(t)) \tag{6}$$

$$\beta(t) = F_5(z(t)) \tag{7}$$

The mathematical structure of the functions $F_4$ and $F_5$ respectively of Equations (6) and (7), must be also investigated. See Figure 1 for the hydrodynamic diagram of the model.

**3. Conclusions**

We have presented a first system approach of the society survival theory. The basic ideas have been extracted from the work of Amigó (2001). This approach considers that all societies constitute a basic society system composed by four subsystems, in order to explain the human social evolution and crises that change them. The systems considered are: demographic, natural resources, social well-being and ideology subsystems. The basic relationship model is presented in Figure 1 (see Annex I) after the list and description of the model variables.

The concepts of society survival theory have been translated to systems theory language. Thus, society tendency to stability is the tendency of system to equilibrium. Crises are the stunning of changes in equilibrium states (steady states). The emergency of a new society system (new structure) is the qualitative transformation after overcoming the threshold of disequilibrium. Societies transform as a response to pressures that are collectively perceived as threaten to their survival (expectation of a catastrophe).

All socio-economic structure and ideological supra-structure have to be conserved while pressures that threaten the stability do not exist. When the social, economic and ideological pressures (which constitute the ideology system) are considerable, it is sufficient that some few done punctual occurs to unchain a crisis. From crisis a new socio-economic structure and a new ideology will arise. Its function will be to preserve and to keep the new order.

Thus, without rejecting the influence of other historical steps, the society survival theory predicts great changes in civilization. They are due, fundamentally, to crises and threatened to the survival of a determined social order. Therefore, the complexity of the ideology subsystem is the motor of society evolution. The idea of a progressive tendency toward major levels of civilization, based on rationale, must be left.

This system approach must explain the dynamics of survival mechanisms. In future investigations we will include other factors that here have not been considered, such as the impact of economic cycles in social crises. The theory of economic cycle was started with the work of Mitchell (1927), Kondratieff (1935), and Schumpeter (1939). It has been developed afterwards by authors as Lucas (1975), and Kydland & Prescott (1982). There exists an alternative theory to the deterministic theory of cycles given by the models of stochastic fluctuations (Maldenbrot, 1963; Mantenga &

Stanley, 1995), which we will have to consider as well. The cyclic fluctuations are elements to be included in survival dynamics. In this sense, the long cycles of Arrighi (1994) (see also Arrighi & Silver (1999)) have very much influence on the perspective of the world-system of Wallerstein (1979).

In a future, we want to develop the model here sketched including a mathematical formulation and elements of complexity. This is also a way to integrate natural and social sciences, in order to have a better understanding of reality.

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## Annex I

**Model variables**

***x(t)***: Population
***α(t)***: Birth rate
***β(t)***: Death rate
***y(t)***: Natural resources
***γ(t)***: Growth resources rate
***h(t)***: Natural resources stock
***ε(t)***: Resources consumption rate per capita
***z(t)***: Social well-being variable
***v(t)***: ideology variable

**Figure 1: Model Hydrodynamic diagram**