

**Czesław Mesjasz**

Cracow University of Economics  
Cracow, Poland

Address for correspondence:

Cracow University of Economics  
31-510 Kraków, ul. Rakowicka 27, Poland  
Tel: +48-12-2935-619; Fax: +48-12-2935-067  
e-mail: [mesjaszc@ae.krakow.pl](mailto:mesjaszc@ae.krakow.pl)

## **SECURITY AS A PROPERTY OF SOCIAL SYSTEMS**

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(draft version; work in progress)

### **1. Introduction**

The debates on the interpretations of security have become one of the most important factors stimulating theory of international relations and of related areas in the beginning of the 21<sup>st</sup> Century. According to a rule observed in social sciences and in economics, theory as usual follows the unfolding processes and provides predominantly descriptions and new interpretations. Explanations are rare or superficial. Predictions or normative approaches are even less frequent and are mainly embedded in a broad ideological discourse, or common sense conclusions.

Such a situation seems normal in disciplines dealing with complex social phenomena and any far reaching expectations for its improvement are rather void. A question is however arising to what extent the lessons the theory of IR has learned after the end of the Cold War can contribute to better understanding of actual changes and, hopefully, to improve predictions and even perhaps, to elaborate better analytical and normative approaches.

In the present debate on changes in international relations special attention is paid to the concept of broadening and deepening of security. Most of the discussions on security are concentrated upon rather doctrinal issues - security for whom, how and according to which norms. Less attention is being paid to the question: **What security is about?**

Two questions are thus arising. Can a broadened and deepened idea of security in international relations be used as a foundation of a more rigorous research? If the first answer is "yes" then another question must be put before: How the concept of security can be used as an analytical instrument of IR theory, and subsequently, as a good point of departure for improved decision making in security policy.

It is obviously impossible to answer directly whether the broad idea of security can be refined in order to fulfill the needs of more rigorous diagnoses and prognoses concerning international relations. It is, however, possible to study, what are the analytical properties of the broadened definitions of security, i.e. to which extent they can be used for description, explanation of causal effects and prediction of processes in international relations. Since security theory by definition has a normative character, thus expectations are going even further and analytical properties of security require also its normative applications.

More or less refined idea(s) of security must be confronted with reality of international relations. Usually security is treated as an attribute of different social units - states, groups of states, or as in the case of human security, as a property of living conditions of individuals. It is then necessary to discuss security not solely as a normative idea but as a property of social entities and of their elements.

In search for analytical interpretations of security another question is emerging. Is it possible to identify a universal collection of characteristics of security defined in a different way and associated with various reference objects.

The response stemming from descriptive and normative approaches would be negative. State security can be frequently different, if not antagonistic to, say, societal security or to some aspects of human security.

Systems approach provides another answer. The questions stemming from such an approach can be put as follows:

1. What is the reason for assigning the term "security" to different attributes of social life?
2. Does it exist any set of common properties which can be identified in all social circumstances when the term "security" is applied?

In such an approach the concept of social system can be applied. The research problem is then reduced to the question how security treated as a property of various social systems and of their elements can be described and studied. This approach linking contemporary ideas

of security with modern concepts of broadly defined systems thinking, systems approach, etc. should be helpful in enhancing analytical value of broadened and deepened ideas of security.

Systems thinking, systems approach, or whatever it may be called, can be used in security theory and policy as analogies, metaphors and mathematical models. So using another approach our questions refer to three, or even four Wittgenstein's (1958) "language games" including the meaning of security, the meaning of system and with the meaning of ideas in which the concept of system and the concept of security are together applied<sup>1</sup>. Bearing in mind that at present discussions about systems are predominantly focused upon Complex Adaptive Systems (CAS), the "language game" can be supplemented with the game with complexity<sup>2</sup>.

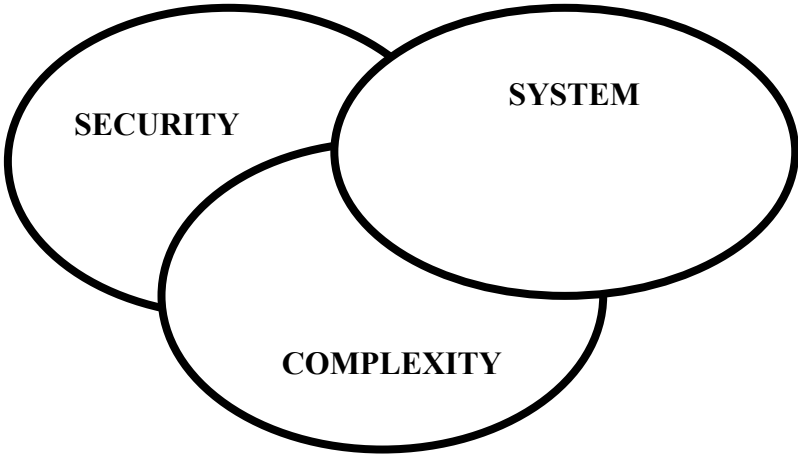


Fig. 1. System-complexity-security language games

As to achieve this goal, a systematization of ideas of security and presentation of basic attributes of security of social systems is necessary.

The main aim of the paper is to present what properties of various social systems can be used in studying and determining their broadly defined security. The core concept of security is developed into a typology of attributes of social systems which contribute to their security. Usefulness of applications of the typology for analytical studies is analyzed with reference to all concepts of security. The idea of security-related attributes of social systems is treated as an introduction to development of analytical properties of human security.

The proposed approach constitutes the point of departure of the studies on analytical applications of all concepts of security. The paper is but an introduction to a broader research

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<sup>1</sup> Applications of the concept of language game in IR theory has been recently analyzed by Fierke (2002)

project and should be treated not as a complete collection of conclusions and recommendations but rather as an introduction to further research and an invitation to theoretical and policy oriented discussions.

## 2. A survey of approaches to security

It will likely never be possible to elaborate a comprehensive definition of security. The collection presented herein reflects but the directions of evolution of the concept of security. It must be also underlined that the term security can be used in three meanings.

- "traditional meaning" - security as an attribute of state, absence of military conflict - "military security",
- security used in a broader sense yet still referring directly to the phenomena taking place in international relations, or directly/indirectly caused by inter-state relations
- security as a public good,
- security in a universal sense (of a unit and of a social entity) - human security.

Etymological discussions on the English notion "security" are twofold. In the first approach the term security is deriving from Latin *securus* safe, secure, from *se* without + *cura* care - the quality or state of being secure or as a freedom from danger (freedom from fear or anxiety). In the classical sense security - from the Latin *securitas*, refers to tranquility and freedom of care, or what Cicero termed the absence of anxiety upon which the fulfilled life depends (Liotta 2002, p. 477).

In the second interpretation, the English word "security" originates from the Latin word "*se-curus*". "*Se*" means "without" and "*curus*" means "uneasiness." That is, "security" originally meant liberation from uneasiness, or a peaceful situation without any risks or threats. The English word "security" has a wide range of meaning including "to feel safe," and "to be protected" and is used to describe a situation without any risks or worries<sup>3</sup>.

In other discussions on security some classical concepts are recalled (Møller 2001): "In his seminal work on Realism, Hans Morgenthau thus hardly bothered to define "security". The closest he came to a definition was: "National security must be defined as integrity of the national territory and its institutions" (Morgenthau 1960). In another connection, he added "culture" to the list, emphasizing that the "survival of a political unit in its identity" (i.e.

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<sup>2</sup> Rosser (1999, p. 170) has presented some 45 different definitions of complexity.

<sup>3</sup> This discrepancy will be studied in further research.

“security”) constitutes “the irreducible minimum, the necessary element of its interests vis-à-vis other units” (Morgenthau 1971, p. 219).

A more comprehensive definition of security was proposed by Arnold Wolfers (1962). This definition has become a “standard” in IR theory (Møller 2001): "Security, in an objective sense, measures the absence of threats to acquired values, in a subjective sense, the absence of fear that such values will be attacked".

It must be reminded, especially when the increasing role of economy and finance is considered, that in economic terms security is a “public good” which provides benefits to *all* members of a community as soon as it is made available to any one person. Such a good is collectively consumed by everyone in a community, and it’s impossible to charge for its use.

This collection of definitions of security used in the project is in the making and will have to be developed along with relevant typologies. It should be supplemented with an explanation of human security - the broadest and the deepest concept of security, which is now dominating the debate in security theory and policy.

"The concept of security must change-from an exclusive stress on national security to a much greater stress on people’s security, from security through armaments to security through human development, from territorial security to food, employment and environmental security" (Human Development Report 1993 - [www.undp.org/hdro/e93over.htm](http://www.undp.org/hdro/e93over.htm)).

For too long, the concept of security has been shaped by the potential for conflict between states. For too long, security has been equated with the threats to a country’s borders. For too long, nations have sought arms to protect their security. For most people today, a feeling of insecurity arises more from worries about daily life than from the dread of a cataclysmic world event. Job security, income security, health security, environmental security, security from crime-these are the emerging concerns of human security all over the world. (..)

Human security is relevant to people everywhere, in rich nations and in poor. The threats to their security may differ-hunger and disease in poor nations and drugs and crime in rich nations-but these threats are real and growing. (...)

Most people instinctively understand what security means. It means safety from the constant threats of hunger, disease, crime and repression. It also means protection from sudden and hurtful disruptions in the pattern of our daily lives-whether in our homes, in our jobs, in our communities or in our environment (Human Development Report 1994 -

[www.undp.org/hdro/e94over.htm](http://www.undp.org/hdro/e94over.htm)). In another short declaration, human security is to be concentrated on "...survival, daily life and dignity of human beings" (Sen 2000, p. 1).

Such a strong universal normative interpretation of human security has an ethical and political impact. However, its too universal character can undermine its analytical applications. If human security bears so much of universal positive values it can have different meaning for different audience - theorists and policy makers, and in consequence its usefulness in social communication can be diminished. If human security is to become equivalent to overall happiness and well-being then it can lose its distinctive character and subsequently its analytical applications will be limited.

### **3. The core of the concept of security**

Instead of presenting a survey of interpretations and reinterpretations of security and discussing the broadening and deepening of that concept, it seems worthwhile to rethink what security is about, and why does, if so, this idea requires reconceptualization.

Initially, in a narrow realist, or later, neorealist approach, military security was an attribute of relations of a state, a region or a grouping of states (alliance) with other state(s), regions, groupings of states. It was also referred to as "international security". It is obvious in such sense that security had a strong positive interpretation. Security was viewed as an absence of threat or a situation in which occurrence of consequences of that threat could be either prevented or state (region, alliance) could be made isolated from that.

Broadening the neorealist concept of security means inclusion of a wider range of potential threats, beginning from economic and environmental issues and ending with human rights and migration. Deepening the agenda of security studies means moving either down to the level of individual or human security or up to the level of international or global security, with regional and societal security as possible intermediate points. While broadening can be attributed predominantly to attempts made by representatives of neorealist approach, then parallel broadening and deepening of the concept of security has been proposed by the constructivist approach associated with the works of the Copenhagen School (Buzan *et al.* 1998). This typology seems representative for most writings discussing reconceptualization of security, e.g. (Krause & Williams 1996), (Knudsen 2001).

Going further, it is necessary to look closer at the meaning of threat (existential threat), which can be perceived as a disturbance.. The disturbance (threat) could be resulting either from purposive actions by a "threatener", or natural phenomena or from their mixture. What

must be also taken into account that the course of events perceived as a threat usually leads to the outbreak of large scale conflicts and the use of violence. Character of the threats should be a topic of further investigations.<sup>4</sup>

Therefore the core issue in any security discussions is a broadly defined prediction, or identification of a threat which should make possible subsequent future actions - “emergency measures” - monitoring, prevention, elimination, isolation, etc. At the same time it is the most important theoretical problem of all security-oriented disciplines - assuming that their results must have any policy impact.

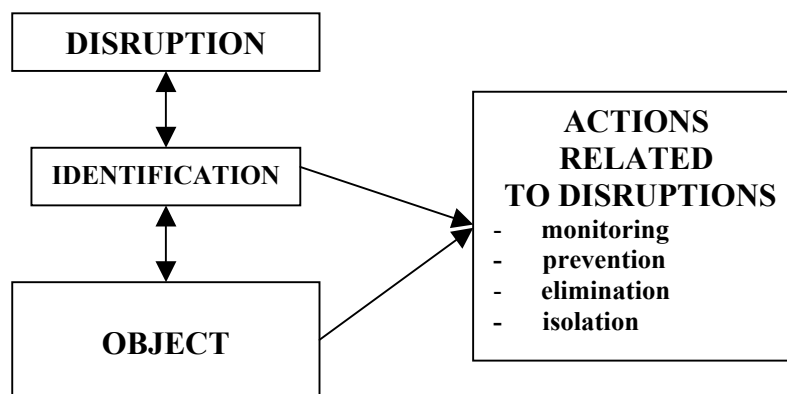


Fig. 2. The core of the concept of security

The “core scheme” of security can be extended in various directions by combination of the following attributes:

1. Reference object - state, region, alliance, society, various social groups - nations, minorities, ethnic groups, individuals, global system.
2. Areas in which existential disturbances (threats) are emerging (sectors) - political, military, economic, ecological, societal.
3. Methods of prediction (identification) of disruptions - beginning from search for “objective” threats and ending with subjectively perceived threats, also resulting from social discourse (“securitization”).
4. Methods of planning and accomplishing extraordinary actions aimed at monitoring, preventing or eliminating existential threats.

<sup>4</sup> Fischer (1993, p. 6) has proposed to replace "threat" with "danger". Threat may often have the connotation of a deliberate action pursued by a distinct threatener. Dangers are frequently not intended, whether stemming from natural or human sources. Buzan (1991, pp. 112-116) has suggested a distinction between threat and vulnerability stemming from relative capabilities of states. The terms "existential threat", or "threat" as coming

This simple scheme shows that all directions of development of the concept of security provide a ground for prediction (identification) of threats, and planning and preparations of actions, which in turn, are the main goals of any policy-oriented investigations into security. However, in contemporary discussions on widening and deepening of the concept of security too much stress is put on two aspects of results of combinatorial operations with attributes of security:

1. Excessive universalization of security by covering too broad scope of issues - from global security to human rights.
2. Too far deepening of the concept of security, e. g. an idea of human security, which as a universal good is becoming a surrogate of other ethical values - well-being, health, happiness, etc.

In both cases the operational usefulness of the concept of security is weakened if not at all lost. It is especially visible in any attempts of prediction of threats and policy making at various levels of societal hierarchy.

### **3. Reconceptualization of security**

Being aware of all directions of widening and broadening the concept of security it would be interesting to answer to the second question. Why was it necessary to reconceptualize security beginning from the late 1980s?

The reasons for reconceptualization can be summarized as follows:

1. Changing world before and after the end of the Cold War, with decreasing threats of nuclear conflict potentially affecting the rich North. Subsequently it was reflected in the political and scholarly discourse in the North.
2. Changing role of the state and emphasis put on market and society, which result from:
  - a broadly defined globalization,
  - regional integration, especially in Europe,
  - new ideological, political and theoretical approach in economics (minimal state), politics (liberal doctrine) and IR (state as the main source of previous large-scale conflicts),
3. Awareness of failure of all security-related disciplines and institutions (governmental and non-governmental), which were unable to predict even in general terms the course of events in the Soviet bloc after 1985 and then, the path of reforms in Russia after 1992.

4. Lessons drawn from some successful cases of coping with situations which occurred after the collapse of the Soviet bloc; so far it has been possible to avoid “worst-case” scenarios for the East and for the West, which initially were frequently mentioned before 1991 (unimaginable economic collapse of a nuclear superpower!).
5. Awareness of necessity of developments of methods of prediction of the threats and either methods of prevention, or methods of diminishing the consequences.
6. Globalization and the emerging need for “global governance”.
7. Increasing impact of all “post-“ trends (post-modernism, post-structuralism, etc.) upon methodology of all social sciences reflected also in the development of “critical” tendencies in IR and in other security-related fields.
8. Dynamics of communities of academics, advisors, consultants, etc.:
  - a natural development of new theoretical concepts,
  - de-ideologization and decreasing intensity of tensions between peace research, security studies and strategic studies leading to the conceptual, institutional and personal links,
  - intensification of multidisciplinary international cooperation of scholars, advisors on various security matters; frequently they are coming from formerly unfriendly institutions, e.g. US think tanks and Russian (frequently former Soviet) specialists,
  - dynamics of the “knowledge market” - necessity of professional survival and promotion of people, and survival of institutions; search for the *raison d’être* by scholars, advisors, etc. - evolution from interests in military security, through conversion to economic security, environmental security, and to next, what..... ?

In order to preserve and develop analytical properties of the concept of security, a specific “middle-of-the-road”, eclectic, or even better, “common-sense” approach is proposed. The main aim of that approach is to combine at least declarative objective value of widened neorealist broadened security concept with the constructivist and at the same time “deepened” idea of security viewed as an “act of speech” (Buzan *et al.* 1998).<sup>5</sup>

In the eclectic approach security is referred to the following sectors: military, economic, political, environmental and societal. Following Buzan *et al.* (1998) the concepts of existential threat and securitization are used. Any public issue can be securitized (meaning the issue is presented as an existential threat, requiring emergency measures and justifying actions outside the normal limits of political procedure). Security is thus a self-referential

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<sup>5</sup> A “common sense” label is added since knowledge of ontology and epistemology of social sciences show that they cannot be neither purely constructivist nor objective in the positivist sense.

practice, because it is in this practice that the issue becomes a security issue - not necessarily because a real existential threat exists but due to the fact that the issue is depicted as such a threat.

Discourse that takes the form of presenting something as an existential threat to a referent object does not by itself create securitization. It is solely a securitizing move and the issue is securitized only if and when the audience accepts it as such. Securitizations in different sectors frequently cannot be separated. Securitization studies aims to gain an increasingly precise understanding of who securitizes, on what issues (threats), for whom (referent objects), why, with what results and under what conditions (Buzan *et al* 1998).<sup>6</sup>

A mirror concept of desecuritization must be also taken into account. It can be defined as a process in which a factor (threat) which under one “speech act” compels extraordinary measures in another “speech act” is presented as not requiring such measures (Wæver 1995). All other aspects of securitization like referent object, actors, moves, audience, etc., are also included in desecuritization<sup>7</sup>. Introduction of the pair securitization/desecuritization is but the first step in the discussion about relationships linking all their aspects.

A specific form of desecuritization is proposed. It can be called marketization and specifies how an aspect of social life, in particular sources of a potential or real existential threat, can obtain economic value and become a subject of exchange and bargaining. Desecuritization can be achieved by marketization accomplished by direct or indirect links (implicit or tacit bargaining) between security issues and economic (financial) issues. It can be, for instance, expressed in the linkage between arms reduction negotiation and negotiation on debt relief or trade negotiation.

An open question remains which concerns relationships between actors involved in marketization. On the one hand it can be stimulated by a neutral external actor, e.g. the IMF attempting to eliminate regional security threats by calling for limits on military spending by borrowing countries, external powers, international community. On the other extreme, desecuritization via marketization can, for example, result from bargaining of arms reduction in exchange for trade privileges or financial aid provided by a former adversary.

Although the “middle-of-the-road” approach is close to the initial ideas elaborated by Buzan (1991), it is also worthwhile to draw upon the constructivist aspect of the wider interpretation of security. It was of especially helpful in studying development of East-West

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<sup>6</sup> I In finance the term securitization means a method of loan risk management.

<sup>7</sup> These concepts are supplemented with complacency - nonsecuritization of apparent threats (Buzan *et al.* 1998: 57).

relations where the meaning of threats was evolving from the mid-1980s until the end of the 20<sup>th</sup> Century. The "failure of reforms" in Central Eastern Europe, described in very broad terms as a "security threat" in 1989-1990, later lost its security connotations. Similarly, other sources of threat, like for example possibility of nuclear smuggling from the former Soviet Union, or nuclear leakage from old post-Soviet submarines, have been almost neglected in political debate and in the public opinion both in Russia and in the West after the late 1990s.

A closer scrutiny of potential analytical value of security concept shows that both neorealist "objective" ideas and constructivist approaches face the same challenge. Leaving apart such purely mechanistic research, as for example statistical analysis of dyadic interstate relationships (Singer & Diehl 1990) or concepts based on game theory, utility, etc., it is necessary to realize that studies of basic determinants of objective security - beliefs, intentions and perceptions of actors involved in security-related processes - political and military decision makers, advisors, journalists, etc. cannot be fully objective. Subjectivity at each level of formation of beliefs, intentions and perceptions as well as their external analysis is unavoidable. Therefore it may be even concluded, that the constructivist approach to security paradoxically strengthens the analytical value of neorealist methodology by showing the need for investigation into the origins of threats, including their social context and structure of the discourse.

Last but not least, as the crucial argument against any potential methodological critics about the proposed mixed approach, coming either from the objectivist side - accusations of subjectivity, or from constructivist side - accusations of realism (objectivism), it is worthwhile to remind a specific paradox. In all writings referring either to realism or objectivism, or to constructivism, post-modernism, etc., exists a latent trap of self-reference. In the ultimate resort assumptions that something is treated either as "objective" or as "an act of speech" can be also regarded as another "act of speech", and so on, *ad infinitum*.

The proposed approach to security allows to find a compromise between a neorealist assumption of predictability of, at least, some more objective threats, and constructivism's denial of any possibilities of prediction. Inspiration for solution of this dilemma can be found in other normative social sciences, especially in economics, management and in futures studies. Possibility of reconceptualisation of prediction in those disciplines was mainly resulting from a slow abandonment of mechanistic views of social processes. Instead of refining extrapolations, computer models, scenarios and forecasts, stress is being put on the mechanisms of learning which results in making predictions as it is in management - the

famous strategic scenario planning applying at the Royal Dutch Shell (van der Heijden 1996), or in refining methods applied in forecasting as it is the case in the futures studies (Glenn & Gordon, 2002). This approach is also slowly gaining ground in heterodox economy where neoclassical mathematization is mixed with more subjective strands of institutionalism, especially in development of the so-called “Knowledge Economy”.

The mixed approach to security is based upon the following assumptions concerning possibility of identification of threats and taking relevant actions:

1. Securitization/desecuritization must be the main focus of studies; processes of social discourse are treated here as mechanisms of securitization and desecuritization.
2. The mechanisms of threat identification and action planning within securitization must be analyzed and methods of its objectivization should be searched for.
3. It is necessary to bear in mind self-reflexive character of securitization and self-reflexive character of the studies of securitization, etc.
4. In addition to improving methods of classical forecasting, it is necessary to investigate what internal and external factors are influencing processes of securitization/desecuritization and what are the conflicting beliefs, perceptions and interests of the actors involved in that process; unbiased analysis of those views and interests could provide ground for limited predictions yet perhaps more reliable predictions.
5. In particular, the mechanisms of social learning must be taken into account; a concept of double learning loop widely used in management and in economics, can be applied solely as a source of inspiration since social learning in a broader scale is a much more complex phenomenon.
6. Since existential threats can be overlooked already in securitizing discourse, special attention must be paid to the norms determining the discourse and actions; similarly as in economics and in management, those norms must be under constant scrutiny and critical assessment; except a minimal set of commonly accepted rules of behavior, all norms and forms of “political correctness” must be constantly reviewed.
7. Due to the widening of the concept of security to other areas, the methods of dealing with uncertainty not only in the military sphere (security dilemma) must be taken into account.
8. Because of increasing role of economic and financial factors methods of dealing with uncertainty and risk in those disciplines have also to be considered in security policy and theory.

9. Despite the tendency for broadening and deepening the idea of security agenda to global issues on the one side and to human security on another, the studies of security concentrating upon already “traditional” sectors are sufficient for analytical purposes.

## 5. Security studies and systems thinking: Assumptions of analysis

For the sake of clarity the following distinction is made. Classical “systems thinking”, “systems approach”, or whatever we may call it, following the ideas drawn from N. Wiener’s cybernetics and L von Bertalanffy “systems theory”, are discerned from complexity studies based upon chaos theory, non-linear thermodynamics etc. although in many sources they are treated as unified area of research. “Systems approach” applied in social considerations to social systems can be identified with “sociocybernetics” (Geyer & van der Zouwen 1992; Geyer 1994).

There are numerous writings in International Relations and in related areas - security studies and peace research, where the authors use such concepts as system, stability, turbulence, adaptation, self-organization, equilibrium, complexity, chaos, fractal politics, attractors, catastrophes, emergence, etc. Character of applications of those concepts vary, beginning from mathematical models and ending with analogies and metaphors, with dominance of the latter two.

It is highly plausible that majority of policy makers using the term stability are not aware that origins of their ideas, and eventually of their policy making, are rooted in mathematical theory of automatic control, which, in turn, can be viewed as a part of cybernetics and/or systems theory (Bellman 1953), (Ashby 1963). Similarly, many politicians talking about turbulence in contemporary world politics likely do not realize that origins of that term are deriving from thermodynamics.<sup>8</sup> It is even more probable that they do not know that the roots of **turbulence** go even deeper, since in Latin *turbulentus* means stormy, violently disturbed, irregular and *turba* means crowd, disorderly mass of people (Oxford Latin Dictionary, 1968, p. 1990/1993).<sup>9</sup>

At the same time, in the works rooted in broadly defined systems thinking (systems approach, systems theory), complex adaptive systems theory, complexity studies, or even more ambitiously, “complexity science”, many authors discover that their concepts used as

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<sup>8</sup> Reference to the book of James Rosenau (1990) is not incidental.

<sup>9</sup> There are of course numerous exceptions. Frequently it sounds surprising for policy makers from the East when they learn that George Soros sought for inspiration in systems thinking when tried to apply the concept of self-reflexivity in supporting transformation in the East (Soros 1991).

mathematical models or as analogies and metaphors, could help to encapsulate various aspects of social reality. Such applications span from social organization at the micro-level (group, company, etc.) and end at the level of broadly defined international relations or even global system.<sup>10</sup> Some of the terms associated with systems thinking and/or complexity have even become a kind of “buzzwords” of social theory and practice, frequently used in a trivialized way.

There also exists a specific "missing link" between social sciences and systems thinking, and complexity studies. On the one hand specialists in social sciences frequently refer but to very general intuitions or simplified interpretations of "system", "chaos", "complexity", etc., On the other, scholars interested in applications of the ideas of systems and complexity to social issues ignore actual knowledge in more or less established disciplines, such as, for example, economics, management or International Relations.

Although this exchange of ideas concerns all social sciences, yet it has a special importance for security studies and related areas. In all security-oriented theories and policies, three basic human desires are expressed. First, to overcome uncertainty by enhancing predictive capabilities. Second, to set the rules of social behavior allowing to enhance security. Third, to elaborate methods to implement those rules.

This triad reflects the essence of any normative social discipline yet for studies of security it has a special meaning due to the fundamental significance of security.

In other normative disciplines, and in economics and management in particular, ontological, epistemological and axiological foundations were enhanced by borrowing from “established” sciences, especially from physics and biology.

Security was always defined more vaguely and concepts deriving from physics and biology would be perceived as too limited. Therefore emergence of cybernetics, systems thinking, and later complexity studies, providing more comprehensive, holistic ideas, have met with such an interest of many of those trying to elaborate theory of security laying ground for effective policy making. The hope for control of social systems offered by early (and naive!) cybernetics and systems thinking had a special appeal beginning from the 1950s and ending in the 1970s. Later, since the mid-1970s the limits of prediction revealed in non-equilibrium thermodynamics were used in security-oriented studies as a warning against any expectations for prediction and control of social processes.

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<sup>10</sup> Due to the space limit it is not possible to quote all necessary references. The author’s bibliography sources include about 2000 writings published in English, French, German, Russian and East European languages. Some of them can be found in the works quoted in the Bibliography.

## 6. Security studies and systems analogies and metaphors

Despite multiple ways systems thinking and studies of complexity have influenced security-oriented research, any comprehensive research has not been done so far. Only a few partial attempts described in the remainder of the proposal have been already made.

It is interesting to observe that some of the founders of “systems thinking”, “systems approach” were also involved in various domains of security-related studies - peace research (Anatol Rapoport, Kenneth Boulding), international relations - Karl W. Deutsch (1964), Morton Kaplan (1957). Similarly many modern works on security exposes the links with systems thinking and complexity studies - see, for example:

1. Direct references - (Rosenau 1990, 1997), (Snyder & Jervis 1993), (Jervis 1997) and indirect, introductory references (Kauffman 1993, 1995).
2. The links between broadly defined security and "complexity paradigm" presented frequently in a different manner. Here it is worthwhile to mention a book edited by Alberts and Czerwinski (1999) reflecting the interest of the US military in general issue of security and in specific, operational solutions. Similarly the interest of the US policy making centers can be quoted, e.g. the RAND Corporation (RAND Workshop 2000).
3. Studies of specific security oriented issues with non-linear mathematical models and - see, for example, (Saperstein 1984, 1991), other chapters in the book of Alberts and Czerwinski (1999),
4. Studies of specific security oriented issues with analogies and metaphors deriving from various non-linear mathematical models (complexity models) - see, for example, chapters in the book of Alberts and Czerwinski (1999).

Ideas originated in systems thinking and complexity studies are used in social sciences as models, analogies and metaphors. According to this distinction, the term "models" is used only for mathematical structures.

Comprehensive studies of advantages and disadvantages of applications of concepts (mainly analogies and metaphors) drawn from physics, engineering and biology are an inherent part of economic studies (Mirowski 1989, 1994). The same concerns applications of complexity in economics - see a series of writings published by scholars associated with the Santa Fe Institute, e.g. (Anderson; Arrow & Pines 1988), (Epstein & Axtell 1996), (Arthur; Durlauf & Lane 1997), (Cowan; Pines & Meltzer 1999) or (Rosser 1991, 1999). Similarly, applications of analogies and metaphors drawn from physics, biology and/or directly to

referring to systems thinking and complexity studies are applied in management, e.g. (Morgan 1996), (Senge 1990), (Lissack 1999).

Due to their significance in the language of theory and policy of security, the main attention has been paid to **analogies** and **metaphors** deriving from systems thinking and complexity studies. Those analogies and metaphors are related to ideas drawn from "rational" science. They are treated as "scientific" and obtain supplementary political influence resulting from "sound" normative (precisely prescriptive), legitimacy in any debate on security policy.

In applications of models, analogies and metaphors the following approaches can be identified: **descriptive, explanatory, predictive, normative, prescriptive and regulatory**.

Bell, Raiffa and Tversky (1988) have proposed to discern between the normative approach resulting from mathematical models, predominantly game models, and prescriptive approach reflecting recommendations resulting from decision analysis, including also qualitative aspects.

In analysis of the impact of systems thinking and complexity studies upon theory and policy of security the following distinction can be used: **descriptive approach** - based on analogies and metaphors, **explanatory approach** - based upon mathematical models and analogies, and metaphors, **predictive approach** - resulting from mathematical modeling and other methods of prediction (statistical, qualitative), **normative approach** - resulting from mathematical systems modeling, **prescriptive approach** - including norms deriving from mathematical models and norms resulting from qualitative predictions based on systems analogies and metaphors,

A **regulatory approach** can be also proposed. In management this approach is expressed in a way the dominant analogy or metaphor influences control of a system, i.e. they differ for mechanistic, evolutionary or learning system, e.g. (Senge 1990), (Palmer & Dunford 1996), (Tepper 1996). Similarly, specific security policies are stemming from applications of analogies and metaphors deriving from the "first order cybernetics" (early systems thinking) - how to achieve "stability" or "projection of stability", etc. At present new security policies are influenced by acquiring metaphors of chaos, turbulence and complexity, and to some extent also taken from the "second order cybernetics" - self-referential character of security as an act of speech (Buzan *et al.* 1998).

The key issue which is arising can be summarized as follows:

What could be the use of systems thinking and complexity studies in theory and policy of security? Since it can be agreed that security is a product of the social discourse (securitization),

it is necessary to ask how the ideas drawn from systems thinking and complexity studies can be used in all aspects of securitization - identification of threats and in their prevention.

First of all it must be agreed that ideas taken from systems thinking and complexity studies cannot be used in security studies solely as mathematical “objective” models. Bearing in mind the state-of-the-art of systems thinking and complexity studies their mathematical apparatus do not seem relevant in any security-oriented studies. Of course it does not mean that it will be always the case.

7. Security and social systems

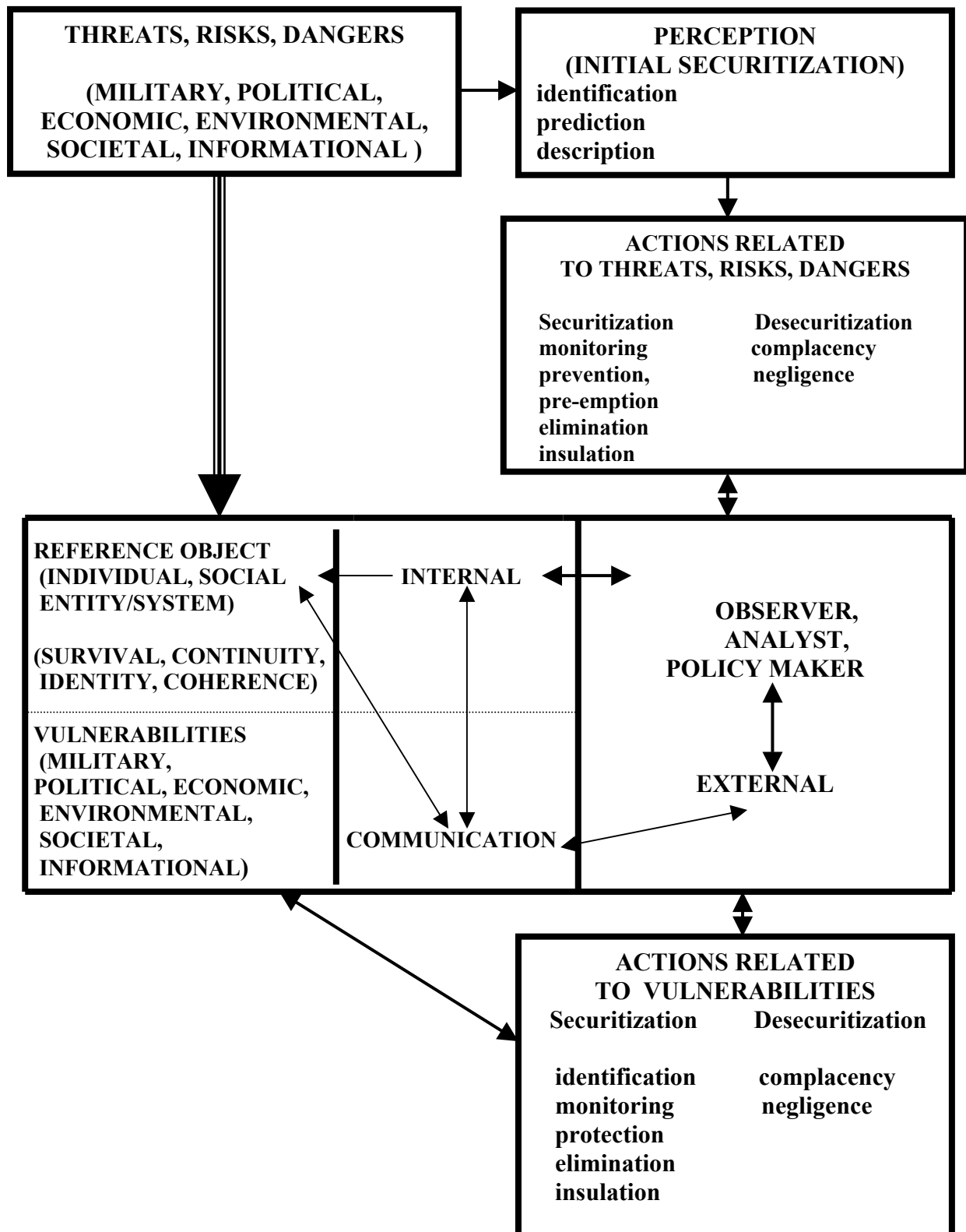


Fig. 3. Security as a property of social systems - a conceptual framework

The core concept of security presented in Fig. 2 can be viewed as a foundation for developing a broader idea of security which can be used for studying the links between security treated as a property of social systems and various concepts defined as systems thinking, systems approach or complex systems studies - see Fig. 3.

#### *Reference object*

Social entity (subsystem) and individual as an element of a system:

- dimensions of security - survival, identity, coherence (really, is the later the case - maybe something better, or perhaps identity is equivalent to coherence; perhaps a broadly defined identity),
- other systemic properties of a social system, which can be endangered.

#### *Threat, risk, danger*

- semantic distinction (if any) of threat, risk and danger,
- relations between meaning of those terms,
- securitization of social phenomena - threats, risks or dangers.

#### *Vulnerabilities*

- vulnerability as a systemic property ,
- relations between vulnerabilities and threats, risks and dangers .

#### *Prediction (identification) of threat (risk, danger)*

- classical approach - risk and uncertainty
- threat, risk and uncertainty and methods and limits of their prediction,
- two situations:
  - A. Present threat (risk, danger) - known consequences - deterministic features and unknown consequences
  - B. Potential threats - unknown features and consequences

#### *Actions*

- prevention, securitization, desecuritization, marketization
- elimination,

#### *Structural aspects of security of social systems*

#### Relations between domains

- links between military, political, economic, environmental and societal domains of security

#### Links between security of elements and security of collectivities

- security of individuals and of collectivities

*Attributes of a "secure" reference object (system of reference objects)*

- minimization of uncertainty, continuity, survival, increased capabilities of prediction
- stability???

*Inter-system relational aspects of security*

- which systems - units (states, other social entities - ethnic groups, etc.)
- security dilemma, relations with other social systems, relations with natural environment

The above attributes of security treated as a property of social systems will be developed in further studies. In result, a kind of "framework" for discussion of applications of various ideas of systems thinking in security theory and policy research.

The following concepts drawn from systems thinking which were already discussed in IR should be studied in order to assess their correspondence to the framework concept of security:

- stability and security (peace),
- bipolarity vs. multipolarity,
- power cycle theory,
- systems thinking and hegemonic stability,
- turbulence and chaos in globalizing world politics,
- evolutionary systems, world politics and security,
- systems thinking, governance (global governance) and security,
- democratic peace and systems thinking,
- thermodynamics, peace and war,
- new mathematical ideas and security: catastrophe theory and fuzzy systems,
- computer simulation models,
- information, learning, knowledge and international systems,
- complexity theories and concepts of security,
- social learning, complex systems and security,
- systems thinking and terrorism,
- vulnerability of social systems,
- systems approach and identification of threats of terrorism,
- applications of systems approach in preventing terrorism.

## 8. Conclusions

The above framework should help in at least partial answer what was a contribution of each system idea to better understanding security of different kinds of social systems and/or of their elements. It can be treated as a more operational supplement to normative, sometimes even doctrinal, discussions about security. Obviously it was, and it is, not possible to expect that systems thinking could provide decisive answers to the questions arising in security theory and policy. At the same time, it can be easily noticed how strongly the discussion on security in international relations has been influenced by systems thinking. The impact of the idea of stability (international stability) on security policy or the discussion on bipolarity vs. multipolarity may serve as best examples.

Under the present circumstances, the framework concept of security can be also used in studying the links between modern concepts of systems thinking (complex adaptive systems, learning organization) and various concepts of security used in theory and policy making in "Information Society". Due to its universality and at the same time a kind of technical character, it can also be applied as a foundation of the further studies on analytical applications of human security.

## Bibliography

Alberts, David. S. & Thomas J. Czerwinski, eds., 1999. *Complexity, Global Politics and National Security*, National Defense University.  
(<http://www.ndu.edu/ndu/inss/books/complexity/index.html>)

Anderson, Philip W.; Kenneth J. Arrow & David Pines, eds., 1988. *The Economy as an Evolving Complex System*. (Santa Fe Institute Studies in the Sciences of Complexity, vol. 5), Redwood City, CA: Addison-Wesley (Perseus Group).

Arthur, W. Brian; Steven N. Durlauf & David A. Lane, eds., 1997. *The Economy as an Evolving Complex System, II*. (Santa Fe Institute Studies in the Sciences of Complexity, vol. 27), Boulder CO: Westview Press (Perseus Group).

Ashby, W. Ross, 1963. *An Introduction to Cybernetics*. New York: Wiley.

Bell, David E.; Howard Raiffa & Amos Tversky, 1988. *Decision Making: Descriptive, Normative, and Prescriptive Interactions*, Cambridge University Press: Cambridge.

Buzan, Barry, 1991. *People, States and Fear*. Second Edition, Harvester Wheatsheaf: New York.

Buzan Barry; Ole Wæver & Jaap de Wilde, 1998. *Security. A New Framework for Analysis*, Lynne Rienner Publishers: Boulder-London.

Cowan George A.; Pines David & David Meltzer, eds., 1999. *Complexity, Metaphors, Models, and Reality*, Santa Fe Institute Studies in the Sciences of Complexity. Perseus Press.

Deutsch, Karl W., 1964. *The Nerves of Government. Models of Political Communication and Control*, Free Press: New York.

Doran Charles F., Systemic Disequilibrium, Foreign Policy Role, and the Power Cycle: Challenges for Research Design, 1989. *Journal of Conflict Resolution*, vol. 33, pp. 371-401.

Epstein, Joshua M. & Robert L. Axtell, 1996. *Growing Artificial Societies. Social Science from the Bottom Up*, Cambridge, Mass.: MIT Press.

Fierke K. M., 2002. Links Across the Abyss: Language and Logic in International Relations, *International Studies Quarterly*, vol. 46, no. 3, pp. 331-354.

Fischer, Dietrich, 1993. *Nonmilitary Aspects of Security: A Systems Approach*, Geneva: UNIDIR/Dartmouth: Aldershot

Geyer, Felix, 1995. *The Challenges of Sociocybernetics*, *Kybernetes*, vol. 24, no.4, pp:6-32..

Geyer, Felix & Johannes van der Zouwen, 1992. *Sociocybernetics*, in C.V. Negoita, ed., *Handbook of Cybernetics*, New York: Marcel Dekker, 1992 , pp. 95-124

Glenn, Jerome C. & Theodore J. Gordon, 2002. *2002 State of the Future*, The Millennium Project, American Council for the United Nations University: Washington, D.C.

Heijden, van der Kees, 1996. *Scenarios. The Art of Strategic Conversation*, John Wiley & Sons: New York 1996.

Human Development Report 1993 - [www.undp.org/hdro/e93over.htm](http://www.undp.org/hdro/e93over.htm).

Human Development Report 1994 - [www.undp.org/hdro/e94over.htm](http://www.undp.org/hdro/e94over.htm).

Jervis Robert, 1997. *System Effects. Complexity in Political and Social Life*, Princeton University Press, Princeton, NJ.

Kauffman, Stuart A., 1993. *The Origins of Order: Self-Organization and Selection in Evolution*, Oxford University Press: New York./Oxford.

Kauffman, Stuart A., 1995. *At Home in the Universe. The Search for Laws of Self-Organization and Complexity*, Oxford University Press: New York/Oxford.

Krause, Keith & Michael C. Williams, 1996. Broadening the Agenda of Security Studies: Politics and Methods, *Mershon International Studies Review*, vol. 40, no. 2, pp. 229-254.

Knudsen Olav F., 2001. Post-Copenhagen Security Studies: Desecuritizing Securitization, *Security Dialogue*, vol. 32, no. 3, pp. 355-368.

Liotta Peter H., 2002. Boomerang Effect: The Convergence of National and Human Security, *Security Dialogue*, vol. 33, no. 4, pp. 473-488 .

- Lissack, Michael R., 1999. Complexity: The Science, its Vocabulary, and its Relation to Organizations, *Emergence*, vol. 1, no. 1, pp. 110-126.
- Morgan, Gareth, 1996. *Images of Organization*, 2<sup>nd</sup> edition. London: Sage.
- Morgenthau, Hans J., 1960. *Politics Among Nations. The Struggle for Power and Peace*, 3rd edition, Alfred A. Knopf: New York.
- Mirowski, Philip, 1989. *More Heat than Light: Economics as Social Physics, Physics as Nature's Economics*. Cambridge: Cambridge University Press.
- Mirowski, Philip, ed., 1994. *Natural Images in Economic Thought: "Markets Read in Tooth and Claw"*. New York/Cambridge: Cambridge University Press.
- Morgenthau, Hans J., 1971. The Problem of the National Interest, in: *Politics in the Twentieth Century* University of Chicago Press: Chicago, pp. 204-237
- Møller, Bjørn, 2001. Global, National, Societal and Human Security, A General Discussion with a Case Study from the Middle East, Paper presented at the 4<sup>th</sup> Pan-European Conference at the University of Kent at Canterbury, U.K., 8-10 September 2001, Panel S 16: *Mediterranean Conflict Prevention Security and the Environment in the Mediterranean in the 20<sup>th</sup> Century - Conceptualising Security and Environmental Conflicts*.
- Oxford Latin Dictionary*, 1968. Oxford: Clarendon Press.
- Palmer, Ian & Richard Dunford, 1996. Conflicting Uses of Metaphors: Reconceptualizing Their Use in the Field of Organizational Change, *Academy of Management Review*, vol. 21, no. 3, pp. 691-717.
- Rosenau, James N., 1990. *Turbulence in World Politics. A Theory of Change and Continuity*. Princeton University Press: Princeton.
- Rosenau, James 1997. *Along the Domestic-Foreign Frontier: Exploring Governance in a Turbulent World*. Cambridge University Press: Cambridge.
- Saperstein, Alvin M., 1984. Chaos - A Model for the Outbreak of War, *Nature*, vol. 309, pp. 303-305.
- Saperstein, Alvin M., 1991. The "Long Peace" - Result of A Bipolar Competitive World, *Journal of Conflict Resolution*, vol. 35, no. 1, pp. 68-79.
- Sen, Amartya, 2000. *Why human security*, Paper presented at the International Symposium on Human Security, Tokyo, 28 July 2000.
- Senge Peter M., 1990. *The Fifth Discipline. The Art and Practice of the Learning Organization*, Doubleday: New York.
- Singer, J. David & Paul F. Diehl, 1990. *Measuring the Correlates of War*, University of Michigan Press: Ann Arbor, MI.

Snyder, Jack & Robert Jervis, eds., 1993. *Coping with Complexity in the International System*, Westview Press: Boulder, CO.

Soros, George, 1991. *Underwriting Democracy*, (Revised and expanded version of “Opening the Soviet System”), New York: Free Press.

Tepper, August, 1996. Controlling Technology by Shaping Visions, *Policy Sciences*, vol. 29, no. 1.

What Kind of Security?, 1998. UNESCO.

<http://unesdoc.unesco.org/images/0010/001096/109626eo.pdf>

Wolfers, Arnold, 1962. National Security as an Ambiguous Symbol, in: *Discord and Collaboration. Essays on International Politics* John Hopkins University Press: Baltimore, pp. 147-165.

Wæver, Ole, 1995. Securitization and Desecuritization, in Ronnie D. Lipschutz, ed., *On Security*, New York, Columbia University Press, pp. 46-86.