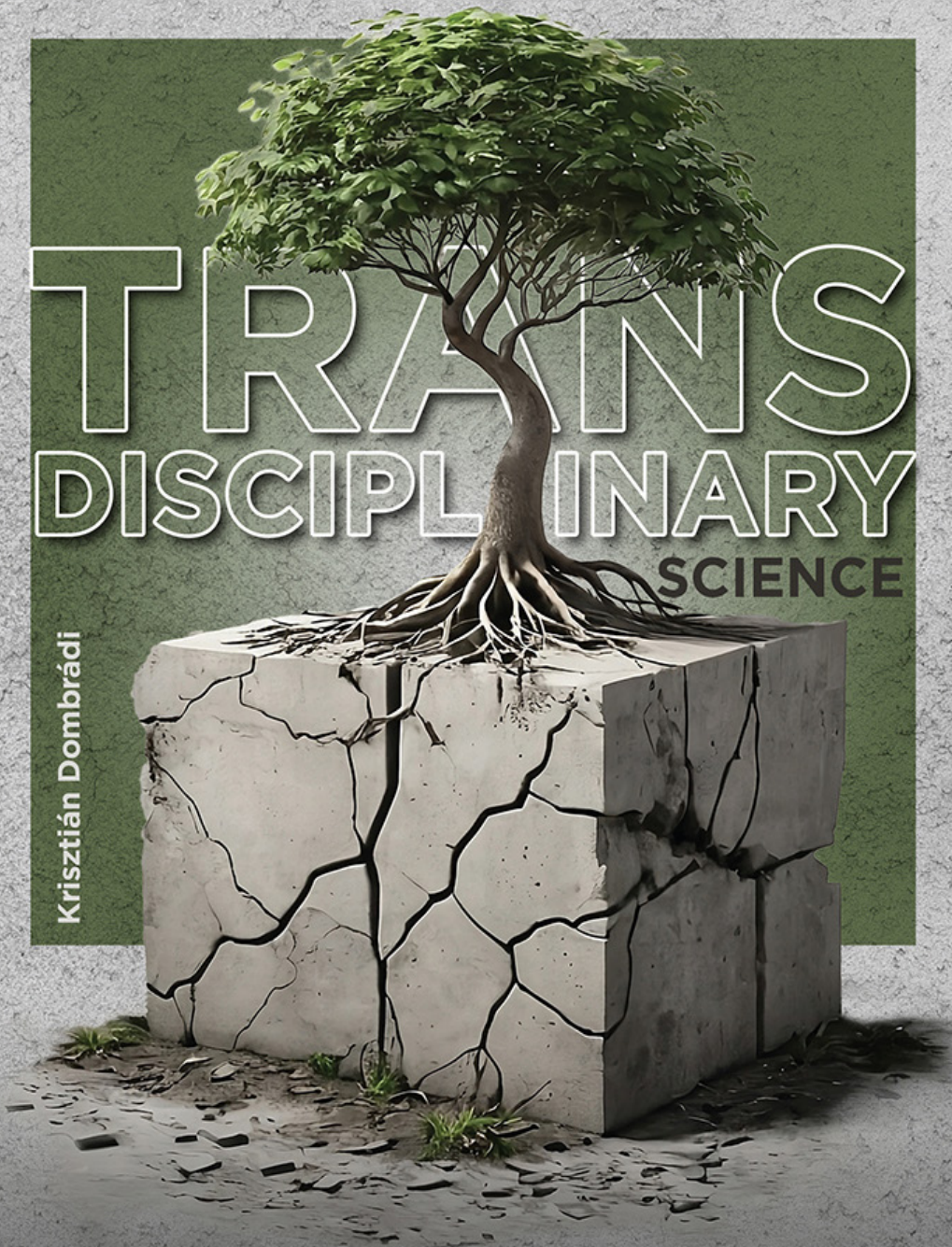
COMMUNICATION THEORY

TRANS DISCIPLINARY SCIENCE



Krisztián Dombrádi

KRISZTIÁN DOMBRÁDI

COMMUNICATION THEORY A TRANSDISCIPLINARY SCIENCE

2024 Budapest

I would like to dedicate this book to my beloved children, Zsófi and Ádám

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A Transdisciplinary Science
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PREFACE

A theory can enjoy several degrees of success. At the most basic level, it can spark a revival of interest in a particular discipline. It is put into an epistemological context, researchers interpret it, and critics suggest modifications. The second level of success comes when analysts no longer concern themselves with a theory as such but rather use and apply it to the study of specific problems. Finally, a theory can have a seminal effect, or in other words it can be put to concrete use in contexts which go beyond the boundaries of its own discipline. From this moment on, we are speaking of a transdisciplinary phenomenon.

Niklas Luhmann's systems theory has enjoyed all three stages of success. The complexity of this theory has arguably played a considerable role in this success from the perspective of its influence. Luhmann brought together three theoretical areas: systems theory, evolutionary theory, and communication theory. He mobilized these three intellectual fields to explore the characteristic features of modern society.

The work of Krisztián Dombrádi is both proof of and tribute to the three levels of success that Luhmann's theory has enjoyed. His doctoral dissertation, which shows his thorough knowledge of Luhmann's ideas, provides a rich elaboration of this theory. Dombrádi's subsequent publications have gone even further. His 2011 book Ismerős ismeretlen ("The Known Unknown) examines the relationship between social capital and communication,

linking the well-known ideas of Pierre Bourdieu with the critical apparatus offered by Luhmann. Particularly engaging in Luhmann's method is the use of specific distinctions, which is why his theory is also often referred to as difference theory.

With the book that the reader now holds, Dombrádi offers eloquent testimony to the success of Luhmann's theory as an approach that transcends disciplinary borders. His studies explore various aspects of the interconnections among communication theory, systems theory, the military sciences, and artificial intelligence. He raises questions concerning tactical warfare, the problems of decision making in combat situations, and the emergence of new space and time sensing in air warfare. In one of his engaging discussions, he points out that attempts to complement Darwinian evolutionary theory have failed to consider the implications of autopoietic systems and evolutionary theory. He also offers a penetrating analysis of religion and secularization, in which, again drawing inspiration from Luhmann, he discusses the transformed institutional world and the various strategies according to which the legal and moral order make claims to authority. Krisztián Dombrádi's book gives a rich sense of the array of possibilities for scholars and researchers who seek to apply Luhmann's ideas.

András Karácsony

1 September 2024
Budapest

INTRODUCTION

This books explores the application of Niklas Luhmann's communication theory in diverse fields, by adopting a transdisciplinary perspective. This work seeks to demonstrate how communication processes shape and are shaped by the structures within which they operate, revealing surprising connections between seemingly unrelated domains.

Niklas Luhmann, who was arguably the founder of sociological systems theory, carefully avoided various forms of critical thinking. Jürgen Habermas, his partner in debate, developed a discourse ethics-based social critique as part of the Frankfurt School that spread to influence social science thinking the world over. Instead of assessing the kinds of questions that concern researchers, Habermas articulated social expectations based on ethical principles. He did not necessarily aim to describe existing realities, which soon brought him into collision with Luhmann's pure, holistic, operational-constructivist systems perspective describing modern society. According to Habermas, one cannot expect an extensive social legitimization emerging from voluntary, coercion-free discourse, neither as a defining principle characteristic of societal subsystems nor as the uncompromising operational logic of professional organizations. Even in the case of (artificially coordinated) debate of local interest groups, such an expectation is difficult to imagine. In the turbulent world characteristic of postmodern society, alongside informational, cultural,

and religious differentiation, insoluble methodological dilemmas have clearly arisen.

Luhmann's understanding of communication is, therefore, a simple system of cause and effect. Nothing in the world happens without a precedent, often with additional consequences. Communication can only be understood in a given context: through the understanding of information and communication, social reality changes: (Luhmann, cited in Loet Leydesdorff 1999)[1], as is naturally expected in self-referential, autopoietic, adaptive organisms, and in human situations.

With these ideas in mind, we (re)construct the notion of knowledge patterns, which are personal, rapidly accessible patterns of knowledge, summarized for specific problem situations.

The concept of communication in operational constructivism

Social theorists have moved from the basic category of "man" to the study of human roles in a manner that arrives at an increasingly detailed, precise overview. Since Max Weber, human action has been at the center of theories, followed by Talcott Parsons' focus on the Unit Act.[2] Social theories systematize these as comprehensible units within their hypothesized systems. Niklas Luhmann describes the social world as a series of communicative selection processes that create and stabilize self-organizing systems.

From the perspective of communicative acts, therefore, what is essential is not when they started but the impact they had on those that followed. The function of circular communications is ultimately a kind of differentiation, the separation of a system from its environment, thereby

[1] Luhmann, Habermas, and the Theory of Communication, idézi: Loet Leydesdorff, (1999. draft version) Science & Technology Dynamics, Department of Communication Studies Oude Hoogstraat 24, 1012 EC Amsterdam, The Netherlands downloaded: https://www.leydesdorff.net/montreal.htm#:~:text=Luhmann%20defined%20communication%20explicitly%20as,idea%20of%20a%20social%20system.

[2] Formal and substantive voluntarism in the work of Talcott Parsons: A theoretical and ideological reinterpretation by Jeffrey C. Alexander University of California, Los Angeles, American Sociological Review 1978, Vol. 43 (April):177-198

increasing the complexity of the formula of functional subsystems. For Luhmann, the details of the social world are revealed not by focusing on actions themselves but by considering the communications which shaped these actions. As Luhmann suggests, "if one views communication as the simultaneous realization of three selections, namely the processes of information, communication, and understanding, then one can speak of communication when understanding is produced in the course of these processes" (Luhmann, N., 1984, 286). The construction of systems thus begins with observation.

Information, messaging, and understanding through communication can change a situation, but only if those involved understand the information and regard it as relevant to the given situation. The agent creates a description for itself in preparation for the act of messaging, and after understanding, the communicative act. All this should be thought of as a series of operations, the first which is connected to the second, the second which is linked to the third, the third which is linked to the fourth, thus increasing the internal complexity of the system. Problem solving triggers a series of response reactions.

Luhmann's social philosophy is based on differentiation, with self-observation at its heart. This serves as the starting point for the actions of the system, as a prerequisite for successful functioning, as a prerequisite for the interconnectedness of communication.

Many more or completely different

Luhmann's operational constructivism was created for modern society: "It is capable at times of prompting us to see many more things, or completely different things" (Luhmann, 2006:80). But things that are logical and understandable. After all, the organizational insight (internal image) borrowed from the psychology of self-

awareness and identity lays the foundation for successful strategic planning in management theory: an external observer, acting as an internal analyst, is capable of devising an adequate operational plan, often more effectively due to their position, than an actor (employee) working within the organization. Luhmann also argues that self-reference (the process of adaptive development of an internal image) and external reference are coexisting, simultaneous frames of interpretation, which can only take place within the internal space. If we imagine a work organization, it will undoubtedly be able to formulate a correct strategy through constant self-reference (taking place within the internal space), taking into account external irritations. Thus, members of management interpret the environment as an external reference. Similar organizations with exceptional (highlighted) responsibilities include military organizations, which require detailed knowledge and the tactical coordination of costly infrastructures (for instance "Closed-order tactical arms warfare.)"[3]

On social differentiation

Interpretation means that the actor recognizes the existing differences within his or her own surroundings and milieu. It is perhaps understandable if the actor knows what he intends to do, and hence exactly how the desired state of affairs differs from his present situation. Luhmann considers every recognition of difference as a stage in a cycle, in which a system (an actor) distinguishes itself from its environment and is able to connect the known elements of the external world with its own internal elements. Systems thus have the capacity to differentiate. Their internal capacities enable them to make precise connections and communicate with the outside world. The performance of the organization

[3] https://www.grin.com/document/1488108

or institution (system in general) thus can be increased through internal differentiation, i.e. through the division of labor. Internal fragmentation also increases naturally when the right stimuli make this necessary. Indeed, the novelty of Luhmann's theory lies in the idea that differentiation always implies the breakup of one system into two new systems, which then form each other's environment.

The broadest social system is society itself (society does not communicate, rather, communication takes place in society).

The stages of differentiation are the following:

1. Segmental differentiation: a multitude of similar subsystems.
2. Stratified differentiation: a hierarchy of subsystems. Unequal societies, for instance, feudal society.
3. Functionally differentiated: modern society.

In modern societies, the need to build trust is becoming increasingly acute. It is particularly important in times of economic and political crises, as it gradually assumes a prominent role in the process of social differentiation.

Transdisciplinary Science

The knowledge patterns described in this communication theory function as system-forming elements and, as such, also serve as units of analysis. Shared knowledge that is known to and followed by many harmonizes social acts, even in their details. Due to their variability, they keep this cycle in motion. Knowledge patterns this also have the ability to under transformation when they must respond to external environmental impacts.

Modern society is both complex and conflictual, but paradoxically united by its interest-driven nature

The theory presented above justifies the adoption of

a transdisciplinary scientific approach in the study of communication theory. The transdisciplinary perspective and method of analysis is a post-classical product of the twenty-first century, and it is seen by some as a revolutionary enterprise.

The theoretical framework outlined above establishes a direct connection between Niklas Luhmann's theories of communication and knowledge and the transdisciplinary approach.

Transdisciplinary science

For the ISC, transdisciplinary science means the joint design of research and the joint production of knowledge with communities and societal actors, in a way that integrates different scientific and societal perspectives on particular issues.

> *What is transdisciplinary science?*
>
> *"For the ISC, transdisciplinary science means the co-design of research and the co-production of knowledge together with communities and societal actors in a way that integrates diverse scientific and societal perspectives on given issues.*
>
> *Transdisciplinary science not only helps to generate actionable, context-specific and more nuanced knowledge and solutions to specific challenges, it is also a form of science that is premised on building closer relationships between science, policy and practice."*
>
> *(International Science Council)*[4]

[4] downloaded: https://council.science/what-we-do___trashed/transdisciplinary-science/

Maturana and Varela's concept of organic autopoiesis serves as an aid, and Luhmann's communication theory as a tool, for describing certain organizations designed for self-preservation. They also serve to counter the fragmentation of the sciences. Studies from widely disparate scientific fields are presented in the discussion below, and not by coincidence.

Krisztián Dombrádi

I

THE COMMUNICATION THEORY OF COMBINED ARMS WARFARE

COMMUNICATION THEORY:
A TRANSDISCIPLINARY SCIENCE

INTRODUCTION

”The concept of closed order acts is a new approach to defining the desired military objectives. Points made in this publication deserve further reflection”. Attila Varga[5]

Social reality changes as a consequence of the communication and understanding of information (to borrow from the sociological theory of Niklas Luhmann).[6] It involves perception and attention, communication and act, strategizing and feedback, much as how a living cell communicates with its environment (Maturana-Varela, 1979).[7] The organism perceives changes in the environment and responds, thus adapting to the new situation. It uses no strategy. It reacts instinctively and changes only as much as necessary, no more, no less. It does not use more or less energy than needed. It observes its environment, protects itself, and strives to develop.

”Combined armed warfare” involves the coordination of various tools, resources, and technologies. It also necessitates the processing of large amounts of information inferred from its environment to use a sufficient amount of energy, no more, no less. It aims to achieve the goal set within a given timeframe. Owing to the versatility of new technologies, having satisfied the need for an increased

[5] As colonel of the Hungarian Air Force and Senior Advisor to the former Chief of General Staff, Attila Varga has 47 years of military experience. He has held positions from the tactical through the operational and strategic levels. His operational experience includes serving as Operation Unified Protector. He also has more than 4,000 hours of flight experience in various kinds of aircraft.

[6] Niklas Luhmann, Social System. Stanford University Press, 1996, p 345. ISBN: 9780804726252.

[7] Humberto Maturana and Francisco Varela, Autopoiesis and Cognition: The Realization of the Living With Francisco Varela. Boston Studies in the Philosophy of Science, 1979. ISBN 90-277-1015-5.

amount of information, the effectiveness of defensive and offensive acts has improved significantly (among those who already have such knowledge and technology.)

The present study is also a response to the methodological toolkit used by some widely recognized "knowledge transfer" centers, such as the "US Army Research Institute for the Behavioral and Social Sciences: A Field Operating Agency Under the Jurisdiction of the Deputy Chief of Staff for Personnel," a technical review by George W. Lawton and Douglas Macpherson.[8]

Based on intensive secondary research, the study provides a communication theory description of "combined armed warfare" and the basic principles of its training. After the global defense capabilities within an organization have been identified, their development and coordination at the local level are justified and timely. The above text by the US Army Research Institute reveals that defensive potential can be developed after the knowledge system organized at a high level has been interpreted and in-depth research has been done on national forces.

[8] George W. Lawton and Douglas Macpherson, "U.S. Army Research Institute For The Behavioral And Social Sciences: A Field Operating Agency Under the Jurisdiction of the Deputy Chief of Staff for Personnel," 1997. https://apps.dtic.mil/sti/tr/pdf/ADA328076.pdf.

1 KNOWLEDGE PATTERNS

Man observed how a flaming tree branch gave him physical safety. He did so to stay alive, to be capable of recreating the flames under any circumstances, and to be able to make fire himself, which then brought about profound changes in civilization. In the modern era, this question has been the focus of scientific debate: could Homo sapiens neanderthalensis make fire, or did he merely guard a fire that had already been lit? The archaic human named after the valley of the River Düssel may already have had the knowledge that Homo sapiens, with its fine jawline and pushing north, undoubtedly possessed (discovering this subspecies marks the beginning of paleontology).

This example furthers a nuanced grasp of the practical benefits of knowledge replication. As the knowledge of making fire spread, it helped man's prospects for life at a deeper level.

How do we organize the information that we base our decisions on, and how does routine help us make this information readily accessible? We can make our decisions on an emotional or rational basis, or with reference to something transcendent.[9]

[9] Sociologists of systems theory divide modern society into professional subsystems, based on their communicative character. The attention of the system is devoted entirely to the environment, thus approximating the highest "still realistic" operational efficiency. See Niklas Luhmann, Social Systems, Stanford UP, 1996, p 301. ISBN: 9780804726252.

CLOSED-ORDER COMBINED TACTICAL ACTS

2

2.1 Combined tactical acts

Bearing social, political circumstances, and technological infrastructure in mind, military organizations try to use the most effective tactics under changing conditions, while making optimal use of the resources available. Combined warfare involves the strengthening combination of effects. An adversary faces such intense effects that his usual decision-making processes are no longer applicable. The simultaneous employment of combined arms in real time is similar to a compensatory strategy. The more impact a military force has in time and space, the more likely it is that the enemy system will collapse. From the age of combined warfare onwards, qualitative military advantage triumphs over the traditional mass of military force (or in other words, quantitative advantages). This can be neatly summarized in the phrase, "the better defeats the more numerous."[10]

The core values of combined armed warfare are leadership, information management, training and practicing, planning, execution, and successful improvisation. Combined warfare, albeit complex, is characterized by unity: optimally, it is a coordinated tactic (offensive, defensive, involving security and assistance) executed in a well-defined order with advanced tools and based on knowledge patterns.[11] Combined armed warfare is a general theory that

[10] National Security. For insiders. By insiders. Benjamin Jensen and Matthew Strohmeyer: The Changing Character Oo Combined Arms. May 23, 2022.
[11] https://www.linkedin.com/pulse/impact-non-kinetic-effects-modern-warfare-decisive-factor-texeira-q5yfc.

synchronizes several skills in order to achieve the desired success.[12] The diversified and coordinated application of different arms dates back to World War I. "We can see this today in Ukraine, where the Russian Armed Forces have failed to implement CAW." (Combined Arms Warfare, which is no different from Combined Arms Tactics.[13])

In the ever-changing environment of combined arms warfare, a main dividing line was drawn by Bernard Brodie,[14] one of the most influential strategic thinkers of the twentieth century. "Brodie in his subsequent writings proposed that the USA put a greater reliance upon tactical nuclear weapons, as 'a second line of insurance' between absolute deterrence and all-out thermonuclear war." The stability of the bipolar world order then depended on innovations in information warfare. Information society and the consequences of digitalization made the so- called "military-technical revolution" (a term coined by Soviet theorists in the 1980s)[15] possible, and this in turn upset the seemingly unassailable position and power, in the Cold War constellation, of the states that had nuclear arms.

Compensatory strategies propose the use of technological superiority (qualitative advantages) to overcome the traditional military mass (i.e. quantitative advantage). As noted above, the better defeats the more numerous. The new configuration of the force, previously described by indicators regarding quantity, has become knowledge-based. The tools, with recognition of the value of capital invested in innovation, have become exceptional defensive and adaptive destructive weapons through the use of

[12] The differentiated subtasks include Offensive Support BOS, Ground Based Air Defence BOS, Mobility & Survivability BOS, Command & Control BOS, Intelligence, Surveillance & Reconnaissance BOS, Combat Service Support BOS, and Manoeuvre BOS) in Angelo Mirabella, "Analysis of Battlefield Operating System (BOS) Statements for Developing Performance-Measurement," U.S. Army Research Institute, Army Project Number 20363007A793. https://apps.dtic.mil/sti/tr/pdf/ADA328076.pdf.

[13] Tom Simoens, "Combined Arms Warfare as the Key to Success on the Contemporary Battlefield?" 2022. https://tdhj.org/blog/post/combined-arms-warfare-success-battlefield/. Accessed: 20 May 2024.

[14] Bernard Brodie, Strategy in the Missile Age, Princeton UP, 2007.

[15] "Andrew Marshall said this assessment would explore whether a major shift in the character of military competitions was under way – what Soviet writers had referred to as a 'military-technical revolution.' It was not clear to him, however, that such an assessment was possible. The consensus of the group was that the issue was too important not to address, despite the prospective difficulties" – 8 January 1991. See Andrew F. Krepinevich, Jr., The Military-Technical Revolution. A Preliminary Assessment, Center for Strategic and Budgetary Assessments, 2002.

knowledge patterns and their adaptation into complex strategies.

In combined tactical warfare, communication and information allocation are preconditions for command and control. When coordinating several simultaneous sequences of events, a leader's room for maneuver is limited. In addition to ensuring the synchronic outplay of multiple events (i.e. the coordination of different assets), the spectrum of command decision making is narrowed (in time and space), with each event building on the others and bringing the surrounding space into operation. Naturally, the leader in charge of the group continues to bear the greatest burden. There are fewer opportunities for improvisation, and the costs of the operation are multiplied while the speed of execution is accelerated. The cost of operations, furthermore, is multiplied several times over due to the combined forces deployed.

2.1.2 Tactical acts and everyday patterns

We have borne witness to an epochal and paradigmatic change in information technologies, mobile devices, and data collection processing infrastructure. With this shift, combined warfare has been able to combine more and divergent capabilities, tools, and behaviors.

Due to the unpredictable upheavals of environmental change (which can mean rapid, complex, and therefore unpredictable changes), long-term planning is hardly possible. Yet in spite of the turbulence created by environmental factors, tactical elements (for near-term events) can still be accurately arranged. (In the course of implementing tactics, unexpected events may arise, which, in our experience, the confident problem solver is able to resolve using his or her individual knowledge or knowledge

patterns in an improvised way.

At the same time, the more predictable a certain situation is, the more advantageous one's acts based on corrected knowledge patterns can be as opposed to those who have no plans based on valid information.

Tactical acts differ strikingly from everyday situations. "Self- efficacy", to use the term coined by Albert Bandura (1977), is a personal belief that one is capable of solving a given task with which one has been presented. It cannot be measured, nor can it be equated with anything analogous. It consists of social acts that are grounded in socialization.

2.1.3 The Increasing Importance of the Battlespace Operating System in Closed-Order Acts

The goal of the Battlespace Operating System (BOS) is to coordinate processes through information-data communication, support synchronized deployment of different combat tools, and ensure deployment in a scheduled manner. The seven BOS (Battlespace Operating System) systems listed in the literature increase in value and thus importance in "combined warfare" because of their usefulness in the synthesis of information. They function as a "self-referential system" (Social System, Luhmann, Niklas, 1996). The system and its environment react to each other, and the system changes its structure only in response to information that could potentially influence its operations. Through a continuous connection (with the BOS communication center), the efficiency of its reactions, its preparation, and its reaction time are influenced by the size of the observable field, the predictive potentials of its instruments, its calculations, and its data processing procedures.

It is a system that is capable of observing itself from the

outside, responding in principle to external factors much as a living cell, organism, or social subsystem would respond (Niklas Luhmann, "Self-Organization and Autopoiesis").[16] The complexity of the system and the utilization of its components depend on the need for current information. For example, capability of Manoeuvre BOS, Ground Based Air Defence BOS, Command and Control BOS, etc. to synthesize information can be combined, and even the full capabilities of all seven components can be utilized.[17]

2.2 Introducing the notion of so-called closed-order tactical acts

During "closed-order tactical acts," the order and nature of (relevant) events do not change much in the environment surrounding the acts – there are no surprises. Once certain signs of the environment have been recognized, the sequence of movements previously rehearsed can be easily performed and the knowledge planned to be used can be mobilized, thereby reducing the potential for error. This is because after several failures, the systematization of this knowledge and the renewal of its system led to reinterpreting knowledge in cycles, and thus acts can be close to optimal (which is, in fact, not interpretable).

A planned series of acts comes to an end when the resources allocated for the task are withdrawn. We will refer to these as "closed-order tactical acts." One must define what is meant by the end of a given tactical sequence because this is the only way in which to measure and analyze the success or failure of a completed sequence, as well as the effectiveness of the use of the resources allocated.

[16] Niklas Luhmann, "Self-Organization and Autopoiesis," Emergence and Embodiment: New Essays on Second- Order Systems Theory, edited by Bruce Clark et al., translated by Hans-Georg Moeller and Bruce Clarke, Duke University Press, 2021, pp. 143–156.

[17] "Introduction to the Battlespace Operating System," The Cove, 7 July 2017. https://cove.army.gov.au/article/introduction-battlespace-operating-systems-bos. Accessed: 4 May 2024.

The efficacy of information as tiny elements of reality providing the basis for knowledge patterns is inevitable as soon as we realize that the reason for someone falling behind or making a mistake is having had to improvise, given his or her lack of the necessary knowledge when facing such a problem for the first time.

THE CONCEPT OF A KNOWLEDGE MODEL AND THE LINKING OF KNOWLEDGE CENTERS

3

Knowledge patterns are versions of learned knowledge made unique through practice. They are linked to a lot of other knowledge. They are organic, and so that can also have emotional contents. One is faster and more confident in a critical situation if this knowledge is immediately available. Its uniqueness does not diminish its professional value, it does not lose its precision. It is also integrated with many existing skills, and it can enable one to identify and resolve critical situations more quickly and effectively. These models are flexible, change constantly, can be improved, and provide confidence, which is a prerequisite for adaptation and leadership. Capabilities and training are described in Training and Analysis Center Exceptional Training Documentation of the US Army Combined Arms Centers (CAC).[18]

After identifying a problematic situation, the actor instantly recalls and utilizes this set of knowledge that provides the basis for professional action. An environment that is changeable to a tolerable level should not pose a problem either, because the actor needs to have alternative knowledge patterns for the entire series of acts and – having reached the end of one phase of an operation – choose the one most suitable for continuing and successfully completing the mission.

Therefore, strategic precautions and self-defense are

[18] "Mission and Vision," United States Army – Combined Arms Centers (CAC). (Centers of Excellence, Branch Schools, Non-Branch Schools. The system has the function of training and knowledge transfer on an international level as well.) The leading training and research organization of the US Army develops well-functioning tactical and strategic elements, and works on the leadership development program of the army as well. https://usacac.army.mil/ Accessed 12 October 2023.

central to knowledge patterns. Other functions include building trust and creating cohesion in the group (CAC – Steward the Profession – TCP OBJ 1 – People).

This yields overall benefit: reduced loss of manpower and less need for retraining. The effectiveness of deployment increases as a consequence of the circularity of experience.

3.1 The importance of research-training in basic skills

Another institutional system, the U.S. Army Combat Capabilities Development Command (or DEVCOM), attempts to shed light on what lies behind the visible phases of knowledge, thereby predicting future trends. DEVCOM[19] not only raises the interest of the scientific community but involves this community in its work, invites its members to share knowledge, and integrates this into its objectives. Essential research programs like the initiatives carried out by DEVCOM show that communication plays a vital role in the accurate determination of navigation, position, and timing, which becomes particularly in combat situations.[20]

[19] https://arl.devcom.army.mil/who-we-are/ (The U.S. Army Combat Capabilities Development Command, DEVCOM).
[20] https://arl.devcom.army.mil/what-we-do/qis-pnt/.

THE COMMUNICATION THEORY OF PROBLEM-SOLVING

4

Observation is a type of operation (with a predetermined goal), and the observer, in the words of the aforementioned Niklas Luhmann, is a "system."[21] In Luhmann's view, the smallest analyzable unit through which social reality is changed is "communication." In the process of communication, the observer functions as a "system" and is separated from other actors in its environment by his purpose, adjusting his skills to specific tasks. Luhmann's theory is holistic, its scope has no limits and is expanded by its creativity. In our present-day, modern society competition, constant contest, and adaptation are mostly accepted as challenges of daily life.

Observers monitor their environment for what may influence their acts and functioning. Self-referential systems maintain an ongoing relationship with their environment (via communication, despite their operational closedness), interpreting and responding to any change. It is through knowledge, the traditional application of knowledge, that communication gains its power to change social reality.

4.1 The appreciation of inherent (inherited) knowledge

In the wake of the rapid development of information technologies in a "risk society," selecting group members is becoming an increasingly complex process, while

[21] Niklas Luhmann, Einführung in die Systemtheorie, Heidelberg, Carl-Auer-Systeme Verlag, Zweite Auflage, 2004, p. 132.

”inherent” capabilities and experience (the knowledge of previously used knowledge patterns) are more and more appreciated, and the complexity and duration of training courses are increasing. In a ”turbulent environment”, new or constantly changing emergency situations require different capabilities (knowledge that adapts). As a result, training now focuses on the acquisition of new, constantly changing versions of the knowledge patterns analyzed above. Institutions specializing in research on educational strategies, such as ARI (U.S. Army Research Institute for the Behavioral and Social Sciences, Project Number 2O363007A793),[22] are forced to monitor emerging threats in real-time and propose modifications to training.[23]

[22] https://ari.altess.army.mil.

[23] Angelo Mirabella, ”Analysis of Battlefield Operating System (BOS) Statements for Developing Performance Measurement,” Technical Report 1062, U.S. Army Research Institute.

5 STANDARDIZED KNOWLEDGE

The ability to acquire the skill of comprehending complex acts is now an expectation. The first and foremost task of commanding is to create synergy among the four main activities of operations[24] and to optimize the quantity and duration of using both human resources and infrastructure. This involves four key functions, eight warfighting functions, and twenty-four components, within which the task of ”operation” is subdivided into ten subsystems. So far, no research has been carried out on this and experts do not refer to it as a knowledge pattern, despite the fact that the cohesion of a group is ensured by the members' mutual knowledge and thereby their synchronized acts, and ten of the twenty-four components termed ”in Operation” do name the knowledge patterns utilized. As mentioned earlier, the knowledge linked to these patterns is shared knowledge: coordinated Maneuver, Action on Perception and Operational Environment, Combat support, and Contact (Close contact), which have been developed and perfected for a long time and both accelerate events and reduce chances of error.

5.1 The hidden power of knowledge patterns

”Combined armed warfare” is at its most complex in the decision-making and preparatory phase. The leader of the

[24] The four joint functions are Command, Achive information Superiority, Operate, and Sustain.

group is the ”client” ordering information, while the group is responsible for the execution, which is a complex task even after diverse information has been simplified into instructions. (The functional sub-systems of command are Command, Command Support, and Intelligence, which are further broken down into Command, Headquarters and Staff techniques, Communication and Information System, Support to HQs, Intelligence, Geography, and Meteorology.) The leader carries out the task of the final selection and interpretation of this complex set of information on the spot, in the context of the problem situation. Based on the nature of the information received, he instantly knows whether events proceed as normal or exceptional occurrences are to be expected. The latter happens when the information received from one of the BOS subsystems[25] does not fit into the (usual) knowledge pattern predicting a positive outcome (Possible source: Action on Perception and Operational Environment, or Intelligence). The leader then immediately starts preparations for an expected event. This well illustrates how knowledge of the rehearsed forms leads to a high level of effectiveness during deployment. Any new information that does not fit into the usual pattern is rightly interpreted as a threat. As Albert Szent-Györgyi famously said, ”Research is to see what everybody else has seen, and think what nobody has thought.” This is the hidden power of knowledge patterns.

Knowledge patterns (both practical and emotional) undoubtedly ensure stability, but their implementation comes with great responsibility: the turning points of a sequence of acts require quick and adaptive response from the participant in charge, under the pressure of time and responsibility.

[25] Angelo Mirabella, ”Battlefield Operating System (BOS) Statements for Developing Performance- Measurement,” U.S. Army Research Institute, Army Project Number 20363007A793. https://apps.dtic.mil/sti/tr/pdf/ADA328076.pdf

5.2 Knowledge patterns and the recognition of patterns in the environment, application techniques

The hidden power of knowledge patterns is the capability to recognize incongruous elements during the observation phase of operations. This does not come directly from knowledge patterns but from the recognition of unusual elements. (Naturally, patterns and the features of the environment are closely related, so in a certain situation, it is one single sequence of acts that is likely to be nearly optimal.) Recognition is immediately followed by preparations for defense or counterattack. The end of each phase of an operation is frequently marked by new information, and the action sequence is then continued based on other knowledge patterns. In this case, as well, the operations unit uses all the available resources to counter the destructive force of the attack expected. This marks the end of another phase. After recognition and analysis, communication is used for controlling, mobilizing resources, and then giving instructions in the form of simplified commands, followed by the placement, organization, and coordination of resources, up until meeting the stated objective (which may be anything, as long as the leadership can keep to the plans).

CONCLUSION

Knowledge patterns, which impact our objectives through communication, are utilized as a set of problem-solving tools in an environment that can be both observed and recognized through patterns. ”Closed order combined tactical acts” are a specific version of warfare that is foreseeable and happens at a predetermined time. The fact that these tactical acts are of a closed- order needs to be stressed because this is how the capital invested in the planned execution of a series of acts can be measured: they start at the beginning of a maneuver and finish at the end, upon the withdrawal of the resources allocated to the task. It is at this endpoint that the cost of success or failure can be determined, and whether the combined use of arms, human resources, and information technologies – coordinated in time, movement, and force – were in proportion to the objectives that have been set. Knowledge patterns also minimize the speed of acts and the possibility of error. Standardized and ”trademark” knowledge, practiced until becoming unique knowledge, is used and utilized by a small group of participants who have managed to survive critical situations by relying on so-called ”knowledge patterns” when assessing of situations and throughout their acts. The present study discussed the combined nature of the acts, the communicative infrastructure of tactical coordination, and the knowledge patterns providing the basis of the acts and explained the processes with knowledge and its changing forms. Yet, history teaches us that though rich in tools, an

army cannot be successful without the right knowledge, experience, and tactical skills.

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II

Attila Varga – Krisztián Dombrádi

THE ROLE OF AI IN DECISION MAKING FOR MILITARY OPERATIONS

COMMUNICATION THEORY:
A TRANSDISCIPLINARY SCIENCE

INTRODUCTION

People make decisions within limits. Rarely are we able to expand our options and create a predictable advantage by adopting new approaches. Rather, we need more effective means. We seek to simplify our thinking. We attempt to draw conclusions on the basis of face-to-face, close contact events. The theoretical structures and measurable indicators according to which the effectiveness of two "closed-order tactical" series of events can be determined should therefore be compared. Thus, we are looking for a tactical framework that is not based on quantitative dominance. This means, on one hand, competition between decision-making processes and knowledge patterns. As information becomes more plentiful, the effectiveness of traditional decision-making infrastructures decreases and the need to incorporate artificial intelligence becomes greater. On the other hand, without patterns of knowledge, to what extent can we rely on artificial intelligence? In our study, we only analyze close contact and closed order tactical warfare, since they are comparable and their effectiveness could be measured. Niklas Luhmann's operational constructivism and the systems theory derived from it have not been applied to the study of the science of war. Can the adaptivity of artificial intelligence and systems theory be reconciled? Is there a theoretical parallel between the operation of artificial intelligence and the aforementioned systems theory? It is hard to understand why Niklas Luhmann's theory has not been applied to interpretations of military theories and decision-making theories.

1

THIS IDEA IS NOT NEW

It is demonstrably possible to gain an advantage in (here and now, predicted, researched, observed) events through the use of new tools. This advantage is better obtained not through planning based on quantitative dominance but through the strategic use of patterns of knowledge, including accurate knowledge of the environment. This idea is not new.

The basis of the comparison is that the two sequences of events have consumed the same (material and intellectual) resources and also the closed-order sequence of events takes the same amount of time.[26] Therefore, though we could analyze the knowledge patterns, the material inputs remain irrelevant. Hence, they are the same.

Given this, a quick statement could be made. The tactic implemented will be more effective when it differs more from the most common approach. Provided the decisions are based on extremely detailed situation analysis and information competition and nevertheless remain identical with regard to the two indicators mentioned above (material input and time), the specificity of implementation will create a noticeable advantage in terms of position.

Why do we grant such remarkable importance to deviations from the ordinary?

Certainly, the choice of the most effective tactic is not only a function of quantitative inputs and time (also involving indirect impact of cultural, political, and

[26] The time taken is relevant because of the consumption of resources and the importance of speed.

environmental events and the complex effects of the tactics already implemented and implemented) but also on this simple theory, which is an incentive to draw attention to the probable success of unconventional solutions.

Moreover, the range of unconventional tactical solutions is practically the primary principle of warfare, or strategic action, and it is almost unnecessary to bind it to time or material expenditure, much as it is similarly unnecessary to reiterate the effectiveness of solutions that depart from the "conventional."

The ideal group is characterized by internal coherence and a wealth of information. This is the key to its effectiveness. Externally, however, the unpredictability of the group becomes the driving force behind the achievement of its objectives, a sort of planned spontaneity of its actions. For the outsider, this may seem to indicate an apparent irrationality in the group's actions. If we accept that in a turbulent environment (where changes are rapid and complex) there are hardly any meaningful raw data to be transformed into information and later into explanations, it is time for us to apply AI in decision making. Here the question arises: is AI able to prepare for unusual decisions?

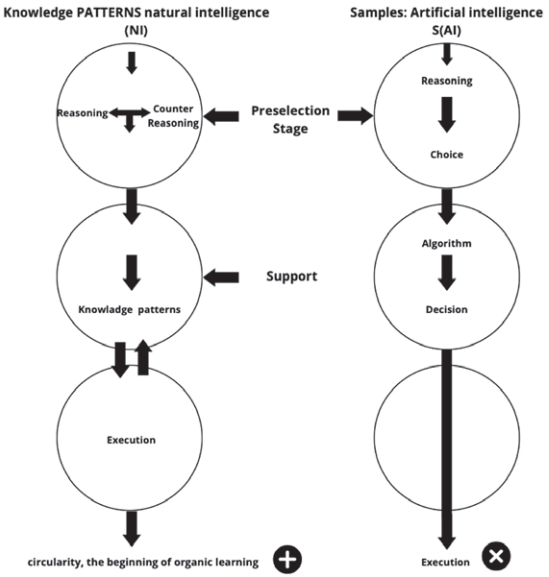
HUMAN LEARNING PROCESSES, MEANING OF ”KNOWLEDGE PATTERNS”

2

The clear answer to the question posed above is yes, assuming AI encountered such a pattern before. However, if the number of irrational plans is infinite (which are tactical decisions), this statement would call for correction.[27] AI-led decision-making processes could provide a complete solution in many cases, as long as the quantitative superiority of the raw data is available for analysis and the speed of decision making could also provide a situational advantage to the user. More understandably, one cannot expect a change in the outcome of events. However, as the figure below suggests, adaptation is less likely with intention, as AI is not yet mature enough to replicate human learning processes, and its ”knowledge patterns” are not as complex as they should be, since it only compares simple patterns. Furthermore, in this context, people’s decisions are energized by so-called knowledge patterns because of the ways in which they socially interact and their complex ability to interpret reality. (I touched on these questions in an earlier article titled Communication Theory of Combined arms Warfare.[28])

[27] Oriented by: Ashkan Farhadi: Awareness-based Choice Selection: Improving the Decision-making Efficiency by Using Known Information. January 2024. DOI:10.32388/5K6UMY.

[28] https://www.grin.com/document/1488108.



1. Natural Intelligence (NI) vs. **S(AI) Today. Model modified by authors**.[29] Meaning of S(AI): emphasizes the linear nature of AI, which refers to the mechanical nature of the samples (S) and their comparison.

Therefore, human actions could be interpreted and mimicked by AI in a preparatory role. There is an urge for association, not for a mechanical selection of raw data. An exceptionally widely referenced study predicts that AI, in its supporting role for NI, is going to undergo explosive development in the 2030s.[30]

The knowledge pattern is complex and is reflexively available to the individual, and it is more effective due to its complexity and is also integrated with personality. This makes it easy to detect: the decision-making process is more accurate and, most importantly, more adaptive, since it does not follow mechanical patterns.

[29] Original: Ashkan Farhadi: There is no "I" in "AI", September 2021AI & SOCIETY 36(3), DOI:10.1007/s00146- 020-01136-2.
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3

ARTIFICIAL INTELLIGENCE IS STABLE BUT FAST

Human decision-making processes (even if unstable or inaccurate) are characterized by interconnectedness and high adaptation, which in a crisis situation makes them more adaptive and effective in solving problems in new situations. Artificial intelligence is stable and fast, but it is not adaptive. Observing the figure above, we notice the difference in the essential elements of input and output.
Its internal processes are similar: transforming raw data into valuable information. However, the essential difference is noticeable at the end of the process.

The key to successful problem solving is learning, which is essentially nothing more than the circulation of actions (hence decision making), resulting in the end product of human intelligence. It restarts itself by going back to the beginning of the process and comparing its fixed set with its experience. The circular learning process is marked as a ”plus” sign in the bottom part of the process (see above), in the human intelligence bar. While in the case of (S(AI)), we have marked the temporary end of the process with ”negative X”.

4 NATURAL VS. NOT NATURAL

The impact of information (as a trigger) is the thing that, by changing the social, political, or even confrontational space, it leads to a natural cycle. This is important, since the process is an uninterrupted adaptation, or in other words a natural reaction to the outside world. This circulation, this continuity is natural. Only the end point of the sequence of events of artificial intelligence is not natural. Moreover, the socio-natural subsystems have an impact on each other as a matter of course. But they impact not only each other. In order to explain Luhmann's holistic view of society, I offer a brief explanation below.

NIKLAS LUHMANN ON THE CIRCULARITY THAT SUSTAINS THE SOCIAL WORLD

5

What is important for communication patterns is not the age at which they began but the impact they had on those who followed them, as the function of circular communications is ultimately to express a kind of distinction between the system (actor) and the environment. For Luhmann, the details of the social world are revealed by paying attention not to the actions but to the communication patterns that shape those actions. "If one regards communication as the simultaneous realization of three selections, such as information, communication, and understanding, one can speak of communication as the process of understanding that is produced" (Luhmann 1984, 286). Thus, the construction of systems begins with observation. One observes in order to receive information. It is in the synthesis of information, communication, and understanding that communication is achieved when understanding is established. Furthermore, the perception of the environment is in fact the perception of the problems that the environment holds for the actor (system). Communication is a series of information, transfer of information, and understanding through which social reality is changed. A description of this is made, and communication stems from this description. After the description has been understood, the structure is formed through communication. All this should be achieved in such a way that the first action is linked to the second, the second to the third, and the third to the fourth, thus increasing the internal complexity of the system.

Luhmann's description is a construct that is based on this gradual differentiation on the one hand and, on the other, differentiation could take place through communications based on self-observation, which is the starting point for the actions of the system. It stands as the precondition for successful functioning, the precondition for the interconnection of communication. The matter is also exciting since the external observer, as Luhmann writes, "may well see much more, or quite different things, than are accessible to the system itself" (Luhmann 2009, 80). However, it is logical and understandable, since the knowledge of organizational insight or the "inner picture" (a notion imported from psychology about self-consciousness and identity) is the basis for successful strategic planning in management theory. This means that the external observer, as an internal analyst, can draw up an adequate operational plan more effectively than the actor (employee) working in the organization himself. Luhmann also argues that self-reference (knowledge of the internal image) and external reference are simultaneous interpretative frameworks that take place side by side, but only in the internal space. If we imagine a work organization, it will undoubtedly be able to formulate a correct strategy through constant self-reference (external irritations may occur), and the members of the management will therefore interpret the environment as an external reference (Krisztián Dombrádi, 2007).[31]

[31] Krisztián Dombrádi: Familiar Stranger, Századvég, Budapest, 134.

6 ON DIFFERENTIATION

Differentiation means that the actor recognizes the differences in his own context. It is perhaps understandable if the actor knows what it intends to do and precisely how the desired state of affairs differs from the present situation. Luhmann sees the recognition of all differences as a stage in a cycle in which a system (an actor) distinguishes itself from its environment and is able to connect the already known elements of the external world with its own internal elements. Therefore, systems have the capacity to differentiate. Their internal capacities enable them to make precise connections and communicate with the outside world. In this way, the performance of the organization or institution (system in general) could be increased through internal differentiation, i.e. through the division of labor. Furthermore, internal fragmentation also increases when the right stimuli make it necessary. Consequently, the insight underlying Luhmann's theory is that differentiation always implies the decomposition of a system into two new systems, which then form the environment of each other (Dombrádi, 2007).

The stages of differentiation

a) Segmental differentiation: a set of similar subsystems.
b) Stratification differentiation: a hierarchy of subsystems. Unequal societies, e.g. the order society.
c) Functional differentiation: modern society. Institutions operate under unprecedented pressure to innovate. At the same time, the need to build well-functioning systems of security, social welfare, and general trust[32] is becoming highly acute. However, this could only be achieved through increased public interest and participation. In the context of sustainability, there is an extensive discourse on the development of social capital. It involves the division of capital into two, which then form a context for each other.[33]

6.1 Could artificial intelligence and systems theory adaptivity be reconciled?

”Planning theory is in a bleak state,” Niklas Luhmann claimed in his 1988 book Wirtschaft der Gesellschaft. According to Luhmann, systems theory introduced nature-identical concepts into the social sciences, while creating its own internal contradiction-free idea of process.

[32] In modern societies, the need to build trust in the noise of the multitude of offers and unpredictable relationships is becoming increasingly acute. Particularly in times of economic and political crisis, it is gradually taking on a prominent role in the process of social differentiation. Therefore, self-interest is often confronted with public interest, the formulation of which is hardly imaginable without trust. Could the recognition of self-interest or the public interest (alongside limited self-interest) be the key to the stability of modern societies? Could mankind achieve further developments in the understanding of trust, even when trust is generally considered a precondition for the stability of systems? Whatever the case, the debate on this issue is likely to last decades, especially for experts who have analyzed the economic and financial crises of recent years (and who have focused on the economic aspects of social capital), (see Krisztián Dombrádi: Familiar Stranger, 2007. Századvég, Budapest, 112.)

[33] https://www.researchgate.net/publication/313557173_The_limits_of_planning_Niklas_Luhmann's_social_systems_theory_and_the_analysis_of_planning_and_planning_ambitions

6.1.2 System-environment communication in systems theory

In social systems theory, Niklas Luhmann's functional (operational constructivist) description provides a simplified, rule-based description of system-environment communication. It could be observed as a way to formulate tactical elements more precisely. This would lead to the simplification of management and planning.

However, according to Luhmann, the complexity and turbulence of modern society (which is characterized by rapid and complex change) "leaves planning in a barren state" (Luhmann, 1988). Today, many social subsystems and their alteration of internal systems increase the information that could be extracted from raw data beyond recognition. The unprecedented volume of data and the ever shrinking time available for operations are driving attention to initializing and taking advantage of AI technologies configured precisely for such situations.

6.2 Similarities between social patterns, subsystems and (S)AI

In addition, Luhmann also created patterns that are specific to each social subsystem. He refers to them as binary codes of the communication "issues" specific to each subsystem, which allow one to distinguish each social subsystem according to its purpose and function (science, law, politics, etc.).

However, let us return to our original train of thought. (S)AI works in a similar way (for specific tasks, not for a whole social subsystem), but it functions on the principle of capturing, interpreting, and comparing patterns. Luhmann's gives the outlines of this in his explanation of his concept.

6.3 Information 'hurricane'

The pattern of AI searches and pattern identification are very similar to the self-referential operation of systems theory. In both cases, the task is to compare and distinguish between systems and subsystems (in the case of AI, it is assigned to learned patterns). In the first case, a subsystem in a society is isolated. In the second, the analysis of learned patterns leads to problem solving (AI).

As the authors note, "this makes planning a very complex, unlikely, and uncertain business," and it seems it is now high time to link the functions of AI to the processing of this raw data set. At the same time, however, it is not precisely clear why the authors are not totally satisfied with Luhmann's system or his self-referential, adaptive, holistic theory based on binary codes. It is complex, but it shows the way to interpretation and therefore to decision-making mechanisms. Moreover, raw data processing is a particularly complex process, the details of which we cannot delve into now. To determine the validity, structure, and relevance one by one is a challenge. Not only is it complex, but it is also under the force of time that military, operational, and tactical decisions must be taken into consideration with serious consequences. The course of linking the notion of the information "hurricane" (drawn from AI and Luhmann's theory) to the information "hurricane" that has become characteristic of modern society should be mentioned here.

6.4 Time and decision-making, practical examples

The effective use of time is critical for decision preparation and decision-making. In operations, initiation is an advantage in and of itself. Furthermore, possible response (reactive action) requires time and additional resources.

In this case, however, it could not be considered (under reactive action) as decision preparation. Nevertheless, tactical disorders may be caused by the element of surprise. The precondition for the effective use of time is theoretical readiness (in this case, at the operational level, the importance of relevant knowledge patterns as available readiness is not sufficiently emphasized; see Özséb, Horányi, 2007).[34] Those in a leadership role should have the necessary competencies to plan, organize, lead, direct, and execute the operation. They are responsible for classifying and evaluating information and also for monitoring AI.

6.5 Kingsley explanation

Information is available to us in such a volume and at such speeds that it makes it very difficult for the brain to process. Nowadays, assuming we were not concerned merely with the amount of information but also with the process of interpreting it, we would understand much more of the world. People pay more attention, but they are hardly able to understand and analyze things. They may know a lot, but they understand very little. The primary area for the interpretation of knowledge is education, where the structure of knowledge reacts to the external environment. ”To ensure that Air Force training remains adaptive and responsive to evolving threats, we focus on maintaining a common threat baseline across all areas. Understanding the current threat landscape and anticipating future threats is crucial because it directly influences our training and readiness postures” (Creid Johnson, 2024).[35]

In addition, in Hungarian, the word ”critical” tends to have a negative connotation, but the term ”critical thinking”

[34] Özséb, Horányi: A kommunikáció, mint participáció, Typotex, 2007. Budapest.

[35] The core pillars of rebuilding future pilot training. Institute for Defense and Government Advancements, Downloaded, 6 June 2024. https://www.defenceiq.com/events-militaryflighttraininglondon Conference: 2024, Westin San Antonio North San Antonio, TX, USA.

is of particular importance for our topic. Is the system of analyzing and pairing raw data, assigning contexts of use, and automating it precisely defined in all its elements? A slight deviation from the optimal methodology could have fatal consequences: technical, tactical, and human losses.

Therefore, the mere gathering of raw data has a long way to go before it can become a guiding force for human thinking. It should occur, moreover, at the right pace, ahead of its competitors, since it should provide an operational advantage, from which point it has the chance to create a dominant position (not underestimating several other quantitative and qualitative factors which are not discussed here).

In the discussion below, I present a concrete example. The real-time Recognized Aerial Position (RAP)[36] image could be created since the information is transmitted and displayed in real time using various sensors, secondary transmitters (transponders), and Identification Friend or Foe (IFF)[37] secure data transmission systems.

[36] https://www.acronymfinder.com/Recognized-Air-Picture-(RAP).html.
[37] https://www.hensoldt.net/what-we-do/air/identification-friend-or-foe-iff/.

ON THE CHARACTERISTICS OF COMMUNICATION IN MANAGEMENT AND ABOUT ADAPTATION

7

The language of combat air control reveals a lot about the character of communication (general combat, control). When an unexpected task comes up, the chance for more suitable adaptation increases through clearly communicated information. This dialogue is, in principle, without any human input. Its exemplary nature improves the chances of communication without misunderstanding. The degree of any discrepancy is largely related to how clear the description (pattern) of the events is. This is the reason why army communication is characterized by this extremely simplified, schematized language. Furthermore, the preparation of decisions is carried out by the occasionally successful use of data sources, which means repetition. This consists essentially of the recognition of patterns in the environment and the utilization of the most successful methods of analysis. Nevertheless, this approach is close to the character separating system from system we noted in Niklas Luhmann's theory (his binary codes based on communication). The ability of a system to react and change is based on three pillars: observation, communication, and action.

Air traffic control experts reduce the chances of detection using a special method. The occurrence of errors in international flights and especially air traffic control would increase due to differences in native language. (When read aloud, grammatically incorrect wording can create clearer codes. The appropriate written language is "sacrificed" for the sake of the clarify and precision of the spoken text.

The following happens here: the dialogue below is grammatically correct (even for someone living in a non-professional environment). A grammatically incorrect version is given in Appendix 2. However, for both groups, the audio material read aloud (see attached QR reference at the end of this text, and it is also available online) is clear and understandable.

Levels:
1. correct written text.
2. attached audio file: pronounced correctly. See online link.
3. In appendix 2 (the phonetic transliteration read aloud, which, though grammatically incorrect, is understandable for everyone).

Unable to vacate runway via taxiway Bravo[38]

Aircraft 1: Tower, H-AB, short final runway 31 right, full stop landing
Tower: H-AB cleared to land runway 31 right, wind from two eight zero (280) degrees five (5) knots
Aircraft 1: cleared to land runway 31 right, H-AB
Aircraft 2: Tower, H-CD, 8 miles final runway 31 right, full stop landing
Tower: H-CD, number 2 for landing, report 4 miles, preceding traffic 2 miles from touch down, full stop
Aircraft 2: number 2, will report, 4 miles, H-CD
Aircraft 1: H-AB landed at 48
Tower: H-AB vacate runway via taxiway Bravo
Aircraft 2: H-CD 4 miles runway 31 right
Tower: H-CD continue approach

[38] See the detailed explanation: in Appendix 1: Description of communication between air traffic control and two pilots returning from dispatch in traffic. This is an example of parallel adaptation in communication. (The dialogue is fictive model made by ATTILA VARGA AND KRISZTIÁN DOMBRÁDI, 2024.) Dialogues which require complex control could also be analyzed based on the text above, e.g. traffic passing through BOS systems, thus during the communication of "close-order tactics." (Krisztián Dombrádi: The Communication Theory of Combined Arms Warfare, in: Grin Verlag, 2024.)

Aircraft 1: H-AB unable to vacate runway 31 right due to nose wheel steering malfunction Aircraft 2: H-CD going around

Tower: H-CD go around, climb straight ahead 3500 feet, join left hand traffic circuit runway 31 left

CONCLUSION
(double, parallel adaptation) I–II.

C

I. The pilot of aircraft number two recognized the situation, made the decision and a take-off start-over "Aircraft 2: H-CD going around."
II. The controller detected that the nose gear of the number one plane was blocking the right runway 31, so he ordered the number two traffic control to go straight up to the height of the circuit and join the left traffic circle of the left runway 31. "Tower: H-CD go around, climb straight ahead 3500 feet, join left hand traffic circuit runway 31 left."

Listen to the dialog here:

https://humanreport.hu/grin Feedback: NI vs S(AI)

Artificial intelligence is driven by human instructions at this stage of its (individual) development. It could provide mechanical as well as fast, accurate solutions if a properly designed methodology that provided a large raw data set for an AI tool consisting of correctly, validly programmed systems were utilized (see figure above: Support.).
Human knowledge between AI and the real world, however, is not only an interface, it is also a responsible, creative actor. Hence, the relationship between AI and human knowledge can be described in terms of uninterruptible, control-like communication. In some cases, in contrast,

AI knowledge could get stuck, and its field of application might be terminated. Especially in warfare, we usually get stuck when we are faced with a completely new, unknown situation. War theorists generally plan possible responses to future conflicts based on the experiences of previous conflicts (Course of Action - COA).[39] For instance, according to Sun Tzu, there are five ways of achieving victory:

1) The person who understands when to fight and when not to fight will win;
2) The person who recognizes how to employ large and small armies will win;
3) The person whose army has superiors and subordinates with a common goal will win;
4) The person who waits fully prepared for his enemy's unpreparedness will prevail;
5) The person who has a talented general unhindered by his ruler will prevail.

The enduring relevance of the third idea can be seen today, for instance, in the so-called collaborative planning method, where information flows up and down via various channels (e.g. chatrooms) between the combat, operational, and strategic levels (certainly with minimal delay, due to the human factor this time). In addition, planning, decision preparation, and decision making are more efficient, and the loss of time is minimized, which leads to loss of initiative and decisional superiority. However, the fifth idea refers to a talented war leader with intuitive abilities, which is somewhat contradictory to the idea that human knowledge could get stuck somewhere. The combination of knowledge and experience could provide a good basis for intuition (see the earlier description of so-called knowledge patterns).

[39] Lt. Col. AARON M. CORNETT: Developing multiple sustainment courses of action in support of a maneuver plan. see: https://www.army.mil/article/209253/developing_multiple_sustainment_courses_of_action_in_support_of_a_ma neuver_plan.

8 THE COMPONENTS OF THE DECISION-MAKING UPON WHICH ONE COULD BUILD

Ultimately, we come to a dilemma. We have been researching the operating patterns of a modern, turbulent society which is constantly adapting to a mass of raw data (we are not yet aware of the principle on which this adaptation is based, however, like a living cell adaption). It is not yet clear that we could be sure that we have selected the relevant data mass that can be developed into a valid tactic. However, in order to make the given problem or operation a success, which requires the choice of a good strategy, we have hopefully opted for the right solution. The column describing natural intelligence in the flow diagram published in the study puts an emphasis on the so-called inherent knowledge acquired during socialization, which is referred to as knowledge patterns here and in previous texts. These patterns are more complex and more instantly accessible than other, non-organic knowledge patterns. If we describe the pattern of society with Luhmann's theory and build a bridge between this system theory and the potentials of AI (which is capable of interpreting the hurricane-like mass of raw data), the following question may arise: which component of the decision-making process can one build upon: knowledge patterns (NI), or S(AI) capabilities?

CONCLUSION

Problem solving depending on the situation and the preconditions requires access to the necessary preparation to arrive at a solution. According to the conclusion of our "thought pattern," knowledge patterns as an NI decision-making process are supported by AI. Why does this seemingly trivial statement need such a lengthy proof? The answer is simple: we have to contextualize and explain many basic concepts for further analysis. Furthermore, the semantics of the changed operations are an important part of this explanation if we seek to arrive at a nuanced understanding of knowledge-based adaptation and understanding (e.g. remote modification of the target system of a combat operation). Thus, decision-making will be most effective through a mixture of knowledge patterns and the input of AI data as well as interpretive information. AI is not yet able to replace the adaptive, creative nature of human, organic knowledge. Moreover, the unusual nature of tactics, which is an important element of success, has not been overtaken by the AI infrastructure for the time being, due to the reasons described above (e.g. the un-processability of an infinite number of possibilities).

Finally, the connection among the three different concepts has been explained in this process of theories. Information (which is supposedly accurate and valid in a problem situation) contributes to better decision making. This recognition was prompted by Niklas Luhmann, and hopefully the Maturana-Valera[40] cell metaphor offers a unique glimpse of the character of tactical decisions. ”Social reality changes through the understanding of information communication,” as Luhmann claims. Luhmann, moreover, built his interpretation of reality on typed information (binary codes), and this is the basis of his system theory. If this could be compared to how AI works, we should remember that all knowledge (matching the knowledge of the actor) is pattern-like. Hence, this analysis has been about adaptation and the communication theory of problem solving.

[40] Journal of Humanistic Psychology The Roots of Reality: Maturana and Varela’s the Tree of Knowledge, First published SPRING 1989, Morris Berman. Volume 29, Issue 2. https://doi.org/10.1177/0022167889292011.

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Appendix 1

Explanation of communication between air traffic control and two pilots returning from dispatch in traffic.

Double, parallel adaptation in communication.

1. Two aircrafts are approaching to land, one after the other, on the same runway (hereinafter: runway),
2. Number one aircraft reports the short final straight, it is granted the permission from the controller to land on runway 31 right with the current wind direction and wind speed (5 knots from 280 degrees)
3. Obviously, the more distant aircraft is the second in line to land, the landing permit is not yet issued by the controller, since the first aircraft has not landed yet.
4. The air traffic controller asks the pilot of airplane number two to report when he is 4 miles from the runway, and at the same time, informs him about the traffic of airplane number one,
5. In the meantime, aircraft number one lands, the controller asks him to leave the runway on the Bravo taxiway,
6. Aircraft number two reports that it is 4 miles from the runway, according to the rules the controller has not yet issued a landing clearance (the number one traffic has not yet left the runway), instructs the pilot of aircraft number two to continue the approach.

Modification:

7. After landing and taxiing, the pilot of plane number one reports that the nose gear control is not working, so he claims that he is not able leave the runway.

Adaptation:

8. The pilot of plane number two detects the situation and reports to the controller that he is attempting a taking off start-over,
9. The controller acknowledges the decision of the pilot of aircraft number two and instructs him to climb straight up to 3500 feet and join the left traffic circle of the left runway 31.

Appendix 2

The dialog of air traffic control based on pronunciation[41]

Aircraft 1: Tower, Hotel Alfa Bravo, short final runway tree wun right, full stop landing
Tower: Hotel Alfa Bravo, cleared to land runway tree wun right, wind from too ait ze-ro degrees fife knots
Aircraft 1: cleared to land runway tree wun right, Hotel Alfa Bravo
Aircraft 2: Tower, Hotel Charlie Delta, ait miles final runway tree wun right, full stop landing
Tower: Hotel Charlie Delta, number too for landing, report fow-er miles, preceding traffic too miles from touch down, full stop
Aircraft 2: Number too, will report fow-er miles, Hotel Charlie Delta
Aircraft 1: Hotel Alfa Bravo, landed at fow-er ait
Tower: Hotel Alfa Bravo, vacate runway via taxiway Bravo

[41] On the phonetic transcription see Airwin, www.aviator-school.com.

Aircraft 2: Hotel Charlie Delta, fow-er miles runway tree wun right
Tower: Hotel Charlie Delta, continue approach
Aircraft 1: Hotel Alfa Bravo, unable to vacate runway tree wun right due to nose wheel steering malfunction
Aircraft 2: Hotel Charlie Delta, going around
Tower: Hotel Charlie Delta, go around, climb straight ahead tree tou-sand fife hun-dred feet, join left hand traffic circuit runway tree wun left.[42]

Listen to the conversation here:

https://humanreport.hu/grin

[42] An imaginary dialogue by Attila Varga and Krisztián Dombrádi between tower and two pilots before approach.

III

TRANSDISCIPLINARITY[43] A PRACTICAL COMPARISON OF NATURAL AND ARTIFICIAL NEURAL NETWORKS THOUGHTS ON THE AIR FORCE RENEWING TRAINING SYSTEM

[43] Proofreader: Attila, Varga (Colonel of Hungarian Air Force – Senior advisor to the Chief of General Staff) 47 yrs in military service. Positions from tactical trough operational to strategic level. Operational experience:e.g. Operation Unified Protector. 4000+ flight hrs on different types of aircraft.

INTRODUCTION

The study of human (natural) neural networks is a motivation for the development of artificial intelligence. This scientific conception is transdisciplinary. In this essay, the role of (S)AI training infrastructure based on artificial neural networks in air warfare is discussed. Airspace, in the modern times of warfare, contains both threats and opportunities. In addition, people's perception of space and time has changed, as they have gotten further from their natural environment.

This essay briefly analyzes and compares the contemporary processes of human decision making and artificial neural networks with natural networks in the context of modelling these processes. It then offers a description of the air force infrastructure, its equipment, and the role of (S)AI in the creation of tactical alternatives.

ARTIFICIAL INTELLIGENCE S(AI)

1

Research in the United States has shown a steady decline in pilot preparedness within the frame of US Air Force, which has already affected national defense and offensive capabilities.[44] Furthermore, the ”robust” training volume was reconfigured, with three pillars: S(AI) (pattern-based artificial intelligence),[45] ML (logarithmic machine learning) and augmented reality (AR). Nevertheless, the use of ”Advanced Technologies”[46] was expected to corelate better with the ever-changing knowledge needs of pilots.

(S)AI performs comparisons by using a suitable infrastructure that works without human intervention. In its current state of development, its recognition capability is closely linked to its capacity to process digitized raw data.

Moreover, the algorithms created by natural intelligence (NI) could also enable (S)AI to create new algorithms. The intelligence of ”AI” is derived from this.

We know the theory of rational limits of human cognition. Also, the ”triggers” from the environment could be prioritized, but we would only be able to guess what is more important and what is less important. In addition, we would notice that this simplification reduces the chances of making (and repeating) error-free decisions. It is, however, not yet known when we could be sure that the diversity of

[44] CREID JOHNSON: Can you elaborate on the key foundational items that are critical for rebuilding future fighter learning and training? n.: THE CORE PILLARS OF REBUILDING FUTURE PILOT TRAINING Latersee conference in 2025. https://www.defenceiq.com/events-military-flight-training-london.

[45] Attila Varga - Krisztián Dombrádi: The role of AI in decision making for military operations, 2024: Pages: 21. Catalog Number: V1495581, ISBN (eBook) 9783389053782, ISBN (Book) 9783389053799, Grin Verlag.

[46] Artificial intelligence (AI) Machine learning (ML), Augmented and virtual reality (AR/VR), Robotics and automation, Quantum computing, Nanotechnology, Advanced materials such as graphene and carbon nanotubes 5G wireless networks, Energy storage technologies such as lithium-ion batteries.

the natural and social environment could be fully known and modelled in the future.

Could we ever identify the external influences that determine the correctness of our decisions? This would happen if, in a theoretical situation, the ”worlds” dominated by (S)AI technologies would be free of bias. (We could imagine this in a theoretical model, but it contradicts the laws of nature.) In contrast, this does not mean that the complexity of the natural environment could never be modelled.

1.1 ”Unless it does”

Unless we achieve the over-expansion of this technology, human-designed (S)AI algorithms (merely) in their supporting role will not be exceeded for a long time. They are useful, no doubt, and they can facilitate more rapidly made natural decisions and improve their accuracy. However, they will not develop their system-building power. In addition, algorithms will create new algorithms, but in this form they do not induce the differentiation that occurs in nature, nor do they play a determining role (sui jure) in inducing social adaptation.

1.2 Natural and artificial networks

Nevertheless, simulations of human intelligence could be derived from the functions of the nervous system. The human brain consists of approximately 86 billion neurons which communicate through electrical and electrochemical signals. These connections are called synapses. The relevant triggers for the transmission of signals, in the physical-natural environment, are ”translated” for the

dendrites, these short-branched extensions. In addition, when these electrical signals reach a certain threshold, the nerve cell generates an action potential. These then travel along a single (in the body) longer stretch of the axon, which eventually passes the information on to the next cell.

In the case of (S)AI5,[47] in contrast, algorithms and their subsystems decide whether the information induces an action potential or not. Hence, the human nervous system is able to prioritize the (natural) stimuli that force the nervous system to respond. Furthermore, the human rational cognitive potential is sufficient for subjective selection between stimuli from the direct and indirect environment. Based on their pre-knowledge, humans are capable of constructing a multitude of models, algorithms, and subsystems for (S)AI. The bulk of information taken from the indirect environment exceeds any independent potential for interpretation.

1.3 Natural intelligence vs. activation function

A ”node” is nothing more than what copies information (making it pattern based on a pre-designed simplification). The information is stored by the ”node” and transmitted. Following this, it is transmitted adaptively and weightily to new ”selection recipes” created by artificial algorithms or subsystems, which could generate the (artificial) action potential. Therefore, the inputs to an artificial neuron do have weight, which determines how much the input affects the output of the neuron. Moreover, we calculate the output of a neuron as the sum of all the inputs multiplied by their all weights. We add a constant value (called ”bias”) to this summed input, which controls the threshold for activation

[47] Attila Varga - Krisztián Dombrádi: The role of AI in decision making for military operations, 2024: Pages: 21. Catalog Number: V1495581, ISBN (eBook) 9783389053782, ISBN (Book) 9783389053799, Grin Verlag

of the neuron. The bias helps fine-tune decision-making limits. Finally, the activation function converts the summed input into the final output of the artificial neuron. This is then passed on to the neurons in the next layer. The "bias" is initially set randomly in order to train the artificial neural network (simulating a natural environment to help improve adaptation accuracy, thereby reducing the network bias).

Consequently, the data are propagated from the input layer[48] (forward propagation) to the output layer. This is where the aforementioned "weighting" takes place. A so-called "loss function" is used to measure the deviation between fine-tuning ("prior knowledge") anticipation and the real values. The ultimate goal is to minimize this value. We could only achieve this by repeating these processes (interactive optimization). Furthermore, the network's ratio system is also modified (process of back-propagation).[49] This learning process, the epochs, reduces the possibility of error step by step by running over and over again through the "iterations" of the data sets. Over-modelled systems, in contrast, could become insensitive to new situations. I am referring to adaptation.

As a consequence, the contribution of "non-natural intelligence" to the "simulation of reality" could not be underestimated. Even in the form in which it exists today, despite its apparent deficiencies, it could supersede the role of traditional tools in education, excluding real-life practice, certainly.

It could do this through the repetition of problem situations and the unchanged demonstration of expected outcomes.

[48] Forward propagation in neural networks — Simplified math and code version, by: Vikashraj Luhaniwal, Towards Data Science, May 7, 2019.
[49] Backpropagation: The Basic Theory, David E. Rumelhart, Richard Durbin, Richard Golden, Yves Chauvin1995, Imprint Psychology Press, eBook ISBN 9780203763247.

1.4 The importance of simulation to support learning

Today, we could not think of pilot training without simulators that provide us with simulated experiences of flying. Their advantages include the following:

1) They allow pilot trainees to practice basic tactical (BFM - Basic Fighter Maneuvering) operations in a safe environment, also modelling emergency situations during different phases of flight, such as Air Combat Maneuvering (ACM). In addition, the further an understanding of the concept of expendable physical energy (potential and kinetic energy) and geometric vision in aerodynamic space, as well as the relationship between time and tactics, which could be a constant challenge in the future, as they are very specific skills. Nevertheless, simulators also provide opportunities to develop and exercise other knowledge in a manner:
2) which is cost-effective to operate;
3) which enables the measurability of maneuvers and procedures (systemic approach to behaviors, ability to make sense of information, adaptation, stress loading as well as the "quantitative reflection" of physical and visual loads).

Furthermore, "AI" is now playing a dominant role at three levels of tactical decision-making: modelling, simulation, and wargaming (WG – War Games).

There is consensus on the reality modelling potential of wargaming:[50] these are interdependent tactical infrastructures attempting to determine the optimal outcome.

[50] "We have also benefited greatly from wargaming, in part through long associations with Herman Kahn (P.B.), RAND, and Andrew Marshall, but the quality of wargames ranges from being a waste of time or even counterproductive to being a rich source of insights. Although such insights cannot be trusted without follow- upstudy, that is true also of insights from modeling." in: Artificial intelligence for wargaming and modeling by Paul K Davis and Paul Bracken.

> *"Over time, the lessons from M&S and wargaming are assimilated using "AI" to mine data from M&S experiments, so as to refine theory and data for subsequent cycles."*[51]

This short essay intends to specify a problem and pose a question that can only be partially answered today. The (S)AI-supported systems (which are sometimes competing with one another and sometimes supporting one another), modelling, simulation, and war games (WG) have not yet departed from the optimal starting point.

There are two reasons for this. The first concerns the distribution of information (protected information blocks the development of accurate tactics, and this information is essentially covered data). Second, no form of (S)AI could deal with the diversionary power of human subjectivity and affectivity as emotional motivation.

[51] Artificial intelligence for wargaming and modeling by Paul K Davis and Paul Bracken Journal of Defense Modeling and Simulation: Applications, Methodology, Technology 1–16.

TRANSDISCIPLINARITY

2

One of the basic needs of people in modern society is to have lives that are to some degree predictable. Their knowledge should provide a realistic chance of success in life and also be able to meet the expectations of their personal or professional environments.

When modelling natural neuron networks, we rely on a transdisciplinary methodology in the design of artificial neuron networks. In addition, the composition of knowledge required in modern (turbulent) society is changing rapidly. As previously explained, artificial neural networks would reduce the discrepancy between prediction and real values by copying the operations of natural neuroanatomy.

2.1 Reconstruction of knowledge and tactics

Why has the air force been chosen for the analysis above? In the first text of this volume, we introduced the concept of "closed order tactical acts."[52] By emphasizing the clarity of "tactical acts," our aim was to improve their measurability. We could reply with a simple "yes" or "no" to the questions of effectiveness.

[52] The Communication Theory of Combined Arms Warfare University of Szeged (HUNGARIAN ACADEMY OF SCIENCES (MTA-SZTE)) Krisztián Dombrádi 2024, Pages: 13. Catalog Number: V1488108ISBN (eBook): 9783389045190 Grin Verlag.

2.2 Closed order tactical acts

”During closed-order tactical acts, the order and nature of (relevant) events do not change much in the environment surrounding the acts, or in other words, there are no surprises. Once certain signs of the environment have been recognized, the sequence of movements previously rehearsed can be easily performed and the knowledge planned for use can be mobilized, thus reducing the potential for error.”

Nevertheless, the need for predictability is a priority for modern man. Almost all the concepts mentioned in this paper could be explained in the context of general sociality, but without this context, they might seem non-real. Thus, our goal is not to describe the Air Force training systems.

The aim, rather, is to attempt to reconstruct human knowledge and to show how it is created and how it is organized. Moreover, the goal was also to offer a general analysis of knowledge patterns and to argue for their transdisciplinary character.

Furthermore, the success and failure of the tactic affect many social subsystems, triggering a series of interactions. Success and failure provide different scenarios in each social subsystem in their essential elements. Hence, the impact of tactics goes beyond their military significance.

The selection of suitable and effective tactics is the result of collective collaboration. In military decision making, this includes data collection and interpretation, and in many cases (S)AI points offers help navigating the ”information hurricane.”[53]

Moreover, the success of tactics could be measured via several variables, some of them military, others socio-political. The finalization of tactical decisions, which are in accordance with the accepted strategy, could provoke

[53] ATTILA VARGA – KRISZTIÁN DOMBRÁDI: THE ROLE OF ”AI” IN DECISION MAKING, Grin Verlag, 2024. https://www.grin.com/document/1495581.

debate among decision makers. Thus, the main reason for this is to question the validity of the raw data, with disagreements which might escalate even over the selection and adequacy of the data. This chain of thought, however, might be unclear for the reader.

Information and the accurate interpretation of information are strategic expectations which follow the interests and normative expectations of a sub-system of society. The operationalization of actions should be in accordance with the properly selected and interpreted information.

2.3 Operational constructivism

Principally, this volume has attempted to place these practices in a causal context according to Niklas Luhmann's holistic approach. We could not imagine the development of the right tactics without valid information, but social and political circumstances as well as the potential of its own infrastructure should be taken into account, not to mention the mass and distribution of its human resources and its knowledge.

Furthermore, the so-called "closed order tactical acts" demonstrated the intention that operational optimization (cost-effectiveness) is the point of departure: this paper has drawn the attention to the value of general knowledge patterns. Also, this essay has attempted to show the (not insignificant) differences between the natural (NI) and what we call the neural (S)AI approach.

It has sought at least to give rise to doubts: for the creators of artificial neural networks, the natural, human nervous system cannot be more than a motive, since its complexity cannot yet be copied.

All this notwithstanding, artificial intelligence is undeniably a breakthrough in training and anticipating complex sequences of events that involve many social subsystems. However, its reliability remains in doubt:

> *"Anticipating possibilities has great potential; reliable prediction does not."*[54]

[54] Artificial intelligence for wargaming and modeling by Paul K Davis and Paul Bracken Journal of Defense Modeling and Simulation: Applications, Methodology, Technology 1– 162022 DOI: 10.1177/15485129211073126 journals.sagepub.com/home/dm.

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Krisztián Dombrádi: The Communication Theory of Combined Arms Warfare University of Szeged (HUNGARIAN ACADEMY OF SCIENCES (MTA-SZTE)) 2024, Pages: 13. Catalog Number: V1488108 ISBN (eBook): 9783389045190 Grin Verlag

Vikashraj Luhaniwal: Forward propagation in neural networks - Simplified math and code version, by, Towards Data Science, May 7, 2019.

Artificial intelligence for wargaming and modeling by Paul K Davis and Paul Bracken Journal of Defense Modeling and Simulation: Applications, Methodology, Technology 1–162022 DOI: 10.1177/15485129211073126 journals.sagepub.com/home/dm.

IV

NEW INTERPRETATIONS OF DARWIN'S THEORY OF EVOLUTION

INTRODUCTION

Recently, an addition to Charles Darwin's theory of evolution received some international attention. It was written by researchers working in the United States who titled their study "On the roles of function and selection in evolving systems" (In: Proceedings of the National Academy of Sciences, 16 October 2023.) In this study, they make the following contention: "Motion, gravity, electromagnetically charged fields, and the principle of interactions described by the second law of thermodynamics energize universal evolution." It is not entirely clear, however, why they did not start from an autopoietic theory that describes complex natural and social subsystems without contradiction. This would have the explanatory power to bridge the gaps in Darwin's theory of evolution in a more elegant way. Darwin's theory leaves to chance the emergence of new capacities essential for survival. These abilities prove their indispensability by being passed on by the living organism to future generations. The new theory of the history of the origins and evolution of species has finally brought natural scientists, who had been studying the origins and evolution of life for centuries, out of their intellectual paralysis.

DARWIN AS A MATTER OF FAITH

This theory, however, calls for patience. It takes us on a journey of individual evolution without letting us know how the world came about. Darwin's genius lies in the fact that, despite this pitfall, he describes a future vision of a self-functioning system. Children could draw the homo sapiens without any prior study. The idea of how species change was complemented by the idea of adaptation, which determined the direction and manner of change, simply and clearly, but not without consequences. Religion was juxtaposed with scientific thinking, and atheism became synonymous with pragmatism, and according to the sciences, "faith" became a metaphor for ignorance.[55]

Faith is essential to understanding life born of dust and mud. Darwin was irrefutable for the creativity of his theory describing the process of individual evolution, yet some of his critics questioned his theory.[56] How can a living organism repel a frontal assault from the extremes of its environment?

For all the creativity of scientific atheism and evolutionary theory, they failed to describe the first moment of life's emergence or even to provide insights into the boring daily routine of species adaptation. They also pushed the "real" sciences on the one hand and faith on the other, or the science of the soul, as far apart from each other as possible. The description of the laws of nature remained incomplete,

[55] Livingstone 2009., 348–369.
[56] Behe 1996. Darwin's Black Box.

and this creative tenet of biology became a matter of faith.

We must start from the rules of nature, including its capacity for renewal and self-healing.[57] We must presuppose the existence of all sensible substances and recognize their interdependence. The subsystems of nature and society have created for themselves an overarching rule that has determined not only the near future but also the unforeseeable on a human scale.

The evolution of the human as an individual came to the center of evolution because humans sought to understand the origins of existence. Over the course of history and over the course of our individual lives, we resolve countless contradictions. Our conflicts may be emotional, existential, or transcendental.

In reality, autopoietic systems[58] that work well in theory turn a blind eye to the contradictory nature of processes in every aspect of existence, which defeats the very purpose of this holistic approach. Do we think that nature does not correct itself, that cells and communities cannot recover from a disease? We know this is not true![59] The living cell has this capacity. Nevertheless, this appealing theory has given a major role to natural knowledge produced in synchrony with man, which is an inseparable specialty because of its uniqueness.[60]

[57] Cremaldi & Bhushan 2018., 907-935.
[58] Giddens 1984, Luhmann 1995, Mingers 2002 & 2004., 278–299.
[59] Reya et al. 2003. 423(6938).
[60] Zeleny 2006, Hall 2005. 7 (1),3.

FAITH AND BELIEF

2

The power of this personal end product lies in its uniqueness and intimacy. In modern society, religion is a social subsystem which is so complex that a separate science, theology, has been built around it. Faith, of course, has also been forced to undergo one of man's devastating simplifications: it has been institutionalized over the centuries. It is now a religion, which continues to have elemental force because it is personal.[61] A religious man may know the history of his faith, he may have already come across a written codex of one of the world religions, he may have read it, and he may even have quoted it. But this is not what determines the ability of his faith to heal the mind and body. The power of this personal end product lies in its uniqueness and intimacy, shaped by the demands of its physical and spiritual environment. In the collective process that has been going on since the ascension of man and which has been completed in a single lifetime at lightning speed, it becomes the most intimate inner creation of a believer. But it also holds other surprises.

Faith and religion are not identical; their sources are the same, but while faith is imperceptibly organic, the institutionalized, demonstrative, orthodox version of religious practice creates violence. Both are inexplicable creations of the brain.

[61] Beyer 1998. 45 (1), 1-29.

Religion, most people think, is a bridge. (The masses of modern society are alienated from religion by its obligations, callousness, and poor sense of humor.) Religion and faith have become a controlling, healing, emotion-generating structure, completed and shaped to our own needs, still today, but almost certainly forever, unknowable from our point of view.[62] We do not know how they work, nor will we. Not because it is none of our business. Exhaustive knowledge of religion and faith is not remote, it is impossible and unjustifiable.

[62] Levin 2009. 5(2), 77-96.

THE HEART OR THE HEAD?

3

For centuries a debate has been underway as to whether people make decisions with their hearts or their brains. In the earlier ages of our development, we attributed this role to the heart, because it sometimes beats rapidly and sometimes beats slowly. This theory has held for centuries. Only modern science was able to disprove it. The arguments in favor of the role of the brain in controlling the body have been mounting.

In the mind of the layman, it would be able to alleviate disease.[63] Take the example of depression, which can have many causes: external environmental, genetic, but also imbalances in neurotransmitters.[64]

In addition to the known neurological processes, the hormonal system also has an impact on the development of depression. The sella turcica is located in the dorsal fossa of the skull, the two lobes of which produce different hormones and perform different functions. The posterior lobe stores and secretes oxytocin (anti-anxiety and euphoric) and vasopressin, while the anterior lobe produces growth hormone and influences processes related to sexual function, metabolism and stress management. Pituitary function is influenced by higher nervous system centers, signals from the periphery, environmental influences, nutrition, and stress.[65]

[63] Luo & Yu 2015. Frontiers in Psychology, 6.
[64] Beck & Alford 2009.
[65] Van Praag 2004. 28 (5), 891-907.

The antidepressants which have been developed on the basis of this knowledge have been given a complex task: to block the escape route of serotonin, noradrenaline, dopamine (neurotransmitters, which are chemical messengers), which are responsible for mood changes, leaking back from the synaptic cleft.[66]

Drugs that block the killer protein slow down the reflux of neurotransmitters, delaying their reuptake. For the sake of accuracy, we should add that the breakdown enzymes affect the function of a protein responsible for the reuptake of dopamine and serotonin from the gap into the neuron (the molecule is not broken down, it is just recycled in order to be secreted back into the gap later, to enhance the transmitter's effect).

It takes a week or two to determine whether the drugs reduce the chances of a test subject developing depression. The drug closes the synaptic gap. But why does the brain not reduce the chances of depression developing or at least dampen its power once it has developed? (As a reminder, the cause of depression is not just hormonal: genetic and environmental influences also contribute to it.)[67]

Why does the brain not narrow the synaptic gap on its own, without medication? Why not turn on its heels and slow down the reuptake? Researchers have come up with different solutions (SSRI, SNRI drug classes have been developed.) This has enabled us to give a "helping hand" to a brain that does not seem to be up to the task.[68]

[66] Delgado 2004., 25-34.
[67] Nestler 2002. 34 (1), 13-25.
[68] Biringer et al. 2009, Pigott et al. 2010. 5 (3), 164-174.

VARYING APPROACHES TO DEFEATING DEPRESSION

4

It is important to keep in mind that depression is a very complex symptom: the brain's hormone production is not solely to blame for its development. Humans are a fragile, power-hungry, closed organism, often unable to fight off attacks from the outside environment. Once in trouble, the wounded person can hardly accept even emotional help.[69] A closed self-referential system, which has been much discussed, can lose its vitality and even its faith. The link between depression and hormones was not superfluous, because the analogy between the legendary 'autopoietic' system, which is sensitive and responsive to the environment, and evolution is striking, but we do not understand: if evolution is a magic bullet, why do diseases exist, or how can depression, for example, develop? As we may have been able to show, the organism can alleviate it or reduce the chances of it developing, because it has evolutionary knowledge (belief, a "master program," or whatever one wants to call it) that was created at the same time as man. It has this experience.

If we adopt a holistic (autopoietic) view, where all events are closely causally linked, we can rule out the possibility that the brain and our hormone-producing, controlling organs are doing their job incorrectly. They are doing what they are supposed to do. We may well wonder whether what we are investigating is worth investigating. (Medical and biological science is now capable of correcting, in some

[69] Boas et al. 2019.

cases, the errors and flaws of living things in the current state of evolution once these errors and flaws have been recognized and understood.) The doctor heals the patient. It is also not true that there is no research on fundamental questions. But the relationship between the body and evolutionary knowledge (belief) is not understood and not made the subject of research. Even today, the question itself gives the impression of ignorance.

THE LIMITS OF KNOWLEDGE

5

It is worth repeating: "We don't fully understand religion or faith because it is none of our business to understand them. Exhaustive knowledge of religion and faith is not remote, it is impossible and unjustifiable."

Faith is the most intimate special knowledge, born at the same time as man, personalized as a result of evolutionary development, which does not control hormone production, but induces important biochemical reactions. (We know such the consequences of such emotional ups and downs, but we do not yet see deeper.) The term transcendent is also a misnomer, because faith is not otherworldly, but immanent. Its existence and role cannot be questioned.

Why do the nerve cells not "knock out" depression by increasing the production of serotonin and noradrenaline? This is the real dilemma. It would be potentially life-saving in the case of depression that triggers a chronic symptom complex. It is worth repeating: "Because there is no cause that is our business. Such knowledge is not only remote, but impossible and unjustifiable."

SCIENCE AND FAITH

6

Scientific thinking cannot be separated from faith. These two manners and methods of understanding have been artificially set in opposition to each other in order to protect the theory of evolution, although in fact they are inextricably linked, like a program is linked to a means of production. They arose side by side, in synchrony. They are evolutionary products, relying on each other to do all they can to sustain human life and the viability of the species.

If the physiological impact of these phenomenological mosaics of decisive force in Charles Darwin's theory had been proven by basic research, if they were more than mere hunches (embedded in a logical system), the theory would have been stronger.

Acting in the living cell, or looking into the past, the future, or the clear night sky and pondering the unmitigated forces which act upon man and the earth, we understand: everything happens for a reason, and if we look beyond the narrow limits of our knowledge, even if we search blindly, we can plot the irregular elliptical orbit of a planet. And we can do this because we know the forces at work at a distance, the effects of which can be felt even here, close to the Earth. Man can see no further than this. You could say that this not a small thing, but you would be wrong. It is nothing. It is pointless to design a space shuttle with nowhere to go.

"Save time and increase your chances of living?" The image of a spacecraft landing safely on a tail on a wobbly platform cannot give that illusion. Until the infinity of

distance, the fact of perceived scientific inertia, has been disproven by the same science (validly and adequately), we will increase our chances of living by repeating what we have.

The success of an individual's evolution is also very much a function of time. The faster it takes for the most stable individual of a species to evolve, the less evolutionary pressure the species is under, the greater its chances of survival.

If this process is prolonged to an extreme, the chances of this stable form evolving are reduced due to competition among species and environmental changes. It is likely that the chances of species survival will be improved if a narrower spectrum is attempted. The success of the prolonged evolution of an infinite number of species over an infinite time, left to blind luck and chance, is almost impossible.

WHY DID DARWIN LEAVE THE RENEWAL OF SPECIES TO PURE CHANCE

This inherent (inherited and acquired) knowledge is a program to ensure the shortest possible scenario of adaptation. We now assume that the creation of new mutations across the stage boundaries of individual evolution takes place faster than we had imagined (through the evolutionary knowledge available in the brain). It is incomprehensible why Darwin left the renewal of species to pure chance. This would stretch the evolution of the phylogeny to infinity, which would radically reduce the chances of improving the survival of species.

The knowledge, which is made up of intuitions and individual knowledge composed out of collective and personal past experience, can be called ”guiding faith.”

”Why don’t the nerve cells produce more dopamine, serotonin, if they could alleviate the suffering of the depressed patient?” (They would not eliminate the complex underlying causes of the illness.)

The question can be answered without much effort. At first glance, the process of evolution seems very simple, so it has quickly become part of the public discourse.[70] It offers a comprehensive formula for change and natural processes. Its uniqueness and creativity made it an unpleasant and well-trained opponent.

We still have not answered the question. Why do the nerve cells not immediately rush to the aid of the depressed patient with a little extra serotonin and dopamine production?

[70] Falk 1988, Dennett 1995. 9 (1), 61-94.

Perhaps because they are not programmed to do so? They are programmed, rather, to maintain species, not to cure individuals or correct diseases. Why did the revolutionary theory explain everything without being asked? It is because the proponents of scientific thought have forcibly extended its reach. Public discourse has forced Darwin's logic, and a creative scientific approach has been surrounded by a smaller obscurity, contrary to the scientist's intention.

As an overarching explanation, it has become the dominant one in describing the interactions between man and nature. Darwin probably did not design it for this purpose. Or perhaps he was simply considering how much scientific creativity would be needed to contradict his theory. This would be hard to predict. Then he dismissed the question. His success was guaranteed.[71]

He was too successful! One need merely consider homo sapiens and his successors. First, man gathered some tree branches and set them on fire. A little later, on the time horizon of the Earth's history, with his tail, he formed a vehicle that landed on the waves of the waves, which, after leaving the planet's atmosphere, lost power and returned, and thanks to the mastery of high mathematics, after many attempts, finally landed successfully in a revolutionary new position: with his tail. But why?

Surely the rocket does not land on its tail, because we think this does not make sense. (If it does, there's a big problem.) Obviously, this statement is disputed by many. These ideas are seemingly far apart, but they are part of the story of evolution.

The adaptive, self-healing capacity of the body is not inferior to that of the soul, which is open to all solutions, not for the individual but for the whole species, in the hope of a predictable and potent future. It reprograms itself again and again. This knowledge community created

[71] Mayr 1991. 135 (2) 123-139.

(belief), participated in collective evolution, and was later institutionalized by humanity.

Even the atheist does not deny that he feels some kind of faith (no wonder, since for him this knowledge is not transcendent, but immanent, this knowledge is this worldly). It is a program that has been residing and changing in the deep layers of bodies for thousands of years. It is designed to guide.

CHALLENGES TO FAITH TODAY

8

We must confront some bad news. In the turbulence of a complex modern society, it is slowly unable to perform its task and cannot keep up with the pace or switch to the tempo of modern society. It was not designed for that! It cannot put a substantially renewed program into operation within a generation or two. In a turbulent world, it can correct the fluctuations of body and soul. It can hastily put pressure bandages on spiritual wounds.

In Europe, the proportion of people who consider themselves religious is falling year by year, according to surveys.[72] People are beginning to lose their sense of coherence and can become unbalanced. The individualism and gross irrationalities of modernity are already testing evolutionary knowledge. The main problem is that our capacity for evolution and adaptation is no longer a suitable defense in this turbulent environment.

Alienation, our loss of contact with our natural groupmates, our insensitivity to nature, and all these things in general pose far greater dangers than the launch of a tactical nuclear weapon on the Russian-Ukrainian front.[73]

Man has come to understand the complex interconnectedness of life on earth (its autopoietic aspect). It presupposes the existence of guiding knowledge evolving in parallel and under the influence of the forces of evolution. But can Darwin's infinite evolution of the individual, which

[72] Burkimsher 2014. 53 (2), 432-445., Brenner 2016. 80 (2) 563-583.
[73] Cacioppo et al. 2014, Beutel et al. 2017, Smith & Victor 2019. 140 (6) 1464-1504.

destroys the chances of survival, be true? Rather, it was this particular knowledge that kept fast-moving evolution on course and prevented it from hitting dead ends. But it is no longer immune to the self-destructive tendencies of modern society.

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V

INTERSECTIONS OF SECULARIZATION AND THE EVOLUTION OF LAW IN EUROPE

COMMUNICATION THEORY:
A TRANSDISCIPLINARY SCIENCE

INTRODUCTION

Over time, religious faith has undergone a process of simplification through increased institutionalization. In earlier eras, religion was one of the main pillars of society. Today, however, it has been transformed by secularization trends that have been underway now for centuries, which have included the secularization of politics and the secularization of the moral and ethical rules of the private sphere. These trends themselves have developed into a new force for legitimacy. The European legal order has not forgotten its traditional source of authority and legitimacy, however, and it has increasingly relied on discourses based on social consensus. Moreover, in many cases, the interpretation of morality and values has been linked to the democratic state institutional system, which stands as the theoretical framework of social cooperation. However, although the aims of the "monist" and "pluralist" concepts of democracy are similar, the aim of the former is to maintain the moral integrity of the society as a whole, whereas the aim of the latter is the uncompromising maintenance of individual freedoms (such as legal equality, the freedom of religion and speech, etc.). The concept of the "democratic state" is characterized by being somehow "overburdened".[74] This study points at the unique areas of the application of specialized knowledge and the importance of interdisciplinary research on knowledge patterns in an environment where morality, norms, religion, and the legal order are seeking a new basis for legitimacy. This quest for a new foundation for legitimacy it underway in no small

[74] FRÖHLICH JOHANNA: A demokrácia fogalom értelmezési tartományának bővítése: relativizálódás, vagy garancia? In IAS, 2010/3. 17-24.

part because Europe, under pressure from secularization trends, is being forced to modify its traditions with the incorporation of unconventional forms of melting cultures. The evolution of legal traditions is taking place at a highly forced pace. In their study "Law, Morality, Religion," Nándor Birher and Ferenc Janka have offered a more precise definition: "Europe, which seems to be too lazy to defend herself (...) is faced with a religious, moral, legal, and demographic challenge triggered by Islam."[75]

Secularization, legal order, normative evolution, meeting of cultures in today's Europe, framework, network model, addition to complexity map.

[75] BIRHER NÁNDOR – JANKA FERENC: Jog, erkölcs, vallás. in.: Deliberationes. X./2. 2017/2. 188.

1 CURRENT TRENDS

Glancing at the social changes of our time, we could rightly say that they are taking place under the influence of globalization and multiculturalism, which often pose radical challenges to the subsystems of society, religion, morality, and law. Thanks to technological developments, the expansion of international trade, the evolution of communication networks, or in a word, globalization, different parts of the world are much more closely connected to one another as for economy, society, culture, and politics are concerned than ever before.

Alongside technological innovation, economic expansion, and a rise in living standards, the diverse global cultural palette has also come to the forefront, creating opportunities for people from different cultural backgrounds to live together and also encouraging mutual respect and acceptance. The integration into mainstream European society of people from different cultural backgrounds has not been an entirely smooth process, however, and indeed it may well be a source of many conflicts. According to the advocates of globalization and multiculturalism, however, society should support the integration of newcomers while steadily striving to preserve its own cultural identity. In their view, cultural diversity can contribute to economic growth, as people from different backgrounds create new markets and offer new business opportunities.

Today, globalization and multiculturalism are inseparably intertwined; globalization promotes the spread

of cultural diversity, while multiculturalism strengthens the positive effects of globalization and makes it easier to handle the challenges it presents. At the same time, due in no small part to globalization and improvements in information technology, liberal values have spread to an unprecedented extent and have had considerable impacts on the social organization of individual countries today.

In recent centuries, the religious and social structures of Europe have undergone significant changes,[76] since the continent, the cultures of which have deep Christian roots, is increasingly becoming secular (or "post-Christian"), suggesting that Christianity as a dominant religious and cultural force is gradually receding and becoming something of a private matter. In this post-Christian Europe, the role of Christianity in public life and politics has significantly declined, while religious pluralism has increased via globalization and migration.[77]

Owing to the presence of (and comparatively higher birthrates among) Muslim immigrants, Islam is the fastest growing religion in Europe, posing new social and political challenges, including religious integration and the questions raised by cultural diversity. In addition, Buddhism, Hinduism, and other Eastern religions are also becoming increasingly popular, especially among young people and intellectuals. These shifts pose new challenges to the religious, moral and legal evolution of post-Christian Europe. It is thus both necessary and even pressingly urgent to reflect upon the relationships among the factors mentioned in the title of this chapter, as well as the wide-ranging problems posed by this process of evolution.

Based on the trends described above, traditional concepts of law, morality, and religion alone are not adequate means

[76] In Western society, this process started centuries ago at least. The Enlightenment questioned the exclusivity of religious dogmas and put rational philosophy and the scientific method in the foreground. This was followed by the gradual separation in many western states of church and state. Urbanization caused by the industrial revolution also reduced the role of religion. Finally, the postmodernist trends of the twentieth century further weakened traditional religious institutions and beliefs.

[77] When we talk about a decrease, we must also be aware that the cultural heritage of Christianity is deeply embedded in European societies via religious holidays, traditions, and moral standards.

with which to ensure fruitful cooperation among diverse cultural groups in a multicultural society. Furthermore, a society with a frail legal, religious, and moral identity is unable to cooperate with foreign cultures. It is thus essential today that we raise these admittedly old questions concerning the potentials and limits of multiculturalism and that we reexamine the relationships among law, morality, and religion.

CHALLENGES TO FAITH TODAY

2

The role and place of law, religion, and morality in society raises a rather complex question, since these three sources of authority sometimes overlap and sometimes compete, each playing a decisive role, both for the individual and for the life of a given society.

Furthermore, there are several systems of norms in a society at any given time, of which the common feature is that each belongs to the category of rules of conduct. They do show a significant difference, however, in the ways in which they were created, their social weight, the ways in which they find manifestation, and their impacts.

For centuries, religion played a determining role in the formation of moral norms and social order. In addition, religious precepts formed the foundation of legal regulations, and religion also served as one of the main sources of community cohesion. According to cultural history, this unique relation among religion, morality, and law was first broken by the conflict between clerical and secular power and then later by wars among different congregations triggered by the Reformation.

As a consequence, secularization dramatically changed the social role of religion significantly, since in these societies, religion was often squeezed into the private sphere. Although religion often continued to play important roles in the lives of individuals, public and legal regulations were increasingly independent from religious regulation.

In secularized societies, moral pluralism is common,

meaning that different moral value systems and norms exist side by side. This pluralism enables individuals and communities to live according to different moral principles, but it also presents challenges for community cohesion and the preservation of shared values.

Furthermore, it is also interesting to note that religion still provides defining moral guidelines for both the individual and the community, and from this perspective it has a significant impact on the development of moral values. At the same time, however, in secularized societies morality is increasingly considered autonomous, which means it can be interpreted without religious foundations or authority.

In addition, the relationship between law and morality is also a complex and often debated issue. While the law consists in principle of formally binding rules, morality refers to the system of individual and community norms and values. Legal regulations often reflect the moral values of a given society, but they are not always identical with these values. While in the European legal system, law was often based on religious and moral rules, in secularized society this has undergone a fundamental change. Basically, legal systems are founded on a social contract created by the consensus among citizens, and thus law has become an autonomous system ensuring social order.

In contrast, in secularized societies, the relationship between the legal system and religious precepts is usually minimalized. Religion might play a role in shaping the moral values behind legal regulations, but legal decision-making and law-making are usually independent of religious regulation.

In conclusion, the relationship among religion, law, and morality in secularized societies is complex and dynamic. Whereas religion traditionally played a determining role in the formation of moral norms and legal regulations, in the course of secularization, law and morality became largely

autonomous areas. Regardless of this, religion continues to have a significant impact on an individual's moral life and beliefs.

2.1 Religion

Several experts have attempted to define the concept of religion. Péter Antalóczy offers perhaps the most concise definition when he contends that "religion is a system of sufficiently declared beliefs and principles that others are required to follow, and it shapes the life of the given community and the ways in which and conditions according to which one can belong to it."[78]

Moreover, we can conclude that the role and importance of religion around the world may be different in each culture and historical period, but this role is unquestionably not static, as religion itself is constantly evolving as a result of social, political, and economic changes.

Religion essentially determines the values and norms accepted for individuals and communities, and it actively influences social behavior as well as relationships among individuals. As a crucible of ethical norms and value systems, it also underlines what is considered right and wrong in a given society. In addition, these principles serve as a compass for navigating between behavioral norms and decision-making processes. Thus, in Christian teachings, human dignity, justice, and love play an important role, whereas in Islam, justice, solidarity and respect for divine law are in the forefront.

Furthermore, religion also performs a community-building function in society, as it contributes to the formation of the identity of the members of the fold. Religious

[78] In PÉTER ANTALÓCZY: A gondolat, a lelkiismeret és a vallásszabadság elméleti megközelítése, in Antalóczy Péter (ed.): Az állami egyházjog alapjai, Budapest 2012, 101.o.; See also: DR. ANTAL ÁDÁM: Bölcseletek, vallások, jogi alapértékek, Pécs 2015.

communities are seen as central participants in social life, since they often take an active part in education, health care, social assistance programs, and charity activities and also provide support for the needy due to their special legal status granted by the state, which allows them to remain important participants in maintaining social prosperity and stability. Finally, one should not forget that religions, as traditions and institutions with significant political and social influence (even if also with varying characteristics and varying amounts of influence, depending on their history and place in a given society), can have a significant impact on legislation, social norms, and the functions of institutions.

2.2 Morality

Although the concept of morals (or morality) is closely related to religion, it does have exclusively religious origins. It includes the rules of acceptable acts as a normative system valid for citizens and society. Morality is a system of norms which regulates what is considered right and wrong.
Moral norms and values determine accepted principles and values in a society and contribute to the stability of society as a cohesive force. Moreover, consensus on common moral fundaments helps people unite and achieve common goals. Also, we cannot disregard the fact that moral principles often serve as the basis of legal norms. Many legal systems, moreover, are exclusively based on basic moral principles (e.g. the principle of good faith, dishonest behavior, good morals, etc.).

In such cases, the role of moral principles is essentially duplicated, as morals are integrated into the system of legal norms.[79]

[79] Péter Miskolczi Bodnár explores the phenomenon in detail, see. PÉTER MISKOLCZI BODNÁR: Az erkölcs és a jog szoros kapcsolat in Polgári Szemle 4–6 (2015) 27-33.

As far as the philosophy of law is concerned, the relationship between morality and law can be seen from three different perspectives. According to advocates of the fusion of morality and law (or in other words, those who see these two concepts as essentially synonymous), laws are derived directly from moral norms. Based on the theory of St. Thomas Aquinas, natural law is the order created by God, which arises from human nature and moral percepts. Furthermore, in a system of natural law, the basis of law lies in universal moral principles that the human senses are able to discover. In contrast, Hart and Austin, as representatives of legal positivism, define morality and law as two completely separate systems of norms.[80] According to them, the validity of legal norms does not depend on moral norms. Hart, who belongs to the more radical trend, states that law is nothing but the rules created and enforced by the state, regardless of whether these rules are morally justifiable or not.

Finally, those who consider the relationship between morality and law dialectical emphasize the difference between the two and believe in their dynamic interaction. According to this understanding, moral norms influence legislation, and law can also form moral values, which in this case means that law has a feedback effect on moral values.

In our view, this interaction is particularly important if we seek to address the challenges posed by legal reforms, moral pluralism, and legal relativism today.

2.3 Law

The function of law in society is basically to maintain social order, ensure justice, and protect the rights of individuals and communities.

[80] HART, H.L.A: Essays in Jurisprudence and Philosophy. Oxford University Press, 1983.

In addition, according to the broadest approach, law is a specific, general rule of conduct ensured by means of state enforcement, in which the intention and will of the state appear. Nevertheless, in the process of legislation, this also means that the state bodies opt for different methods and choose the one that best suits the goals to be achieved. During this procedure, however, these bodies must also pay attention to the coherent nature of the legal system, which means that different rules must be in an elemental unity with one another.

Over the course of many years, basically two theories have stabilized in debates concerning the philosophy of law concerning the concept of law. Hans Kelsen, the best-known representative of the normative approach, defines law merely as a normative system, separated from social and moral norms.[81] In contrast, representatives of law sociology (e.g. Eugen Ehrlich) emphasize that the real source of law may be found in social practice and customs. According to this approach, the law is viewed as a social institution serving to maintain social order and coordinate individual interests.

Regarding the validity and moral foundations of law, we have already mentioned the legal positivism represented by Hart, according to whom the validity of law is independent of its moral foundations. Legal systems, however, often involve morally questionable rules that are nonetheless valid in a formal sense. Furthermore, trends resting on the notion of natural law see a close connection between law and morality. They contend that the law can only be considered valid if it corresponds to universal moral principles and the basic requirements of justice stemming from human nature. According to this approach, the legal validity of a precept is inseparable from its moral validity. According to St. Thomas Aquinas, who is the most prominent representative of this

[81] KELSEN, HANS: General Theory of Law and State. 1945.

school of philosophy, law stems from the human nature and the divine order, and it is therefore necessarily based on moral foundations.[82]

When examining the roles and nature of law, one notes that the legal systems created throughout history were dynamically adapted to social, economic, and political changes. This adaptation is the process that has mostly formed and steadily continues to form the development of society today. Nowadays, globalization and multicultural society pose more and more challenges for the legislator, who is steadily pressed to find the solutions best serving the social order and ensuring political and economic stability in a complex intermeshing of varying interests. Therefore, in this context, a burning issue arises as to how international legal norms could correspond to national sovereignty and local cultural differences.

[82] AQUINAS, THOMAS: On Law, Morality, and Politics. Hackett Publishing, 1988.

CONCLUSION

Post-Christian Europe is currently undergoing a transformation, part of which is a constant search for balance between the traditions of the past and the challenges of the present. Although religion does not dominate the social and political spheres as much as it used to, it still plays an important role in individual and community identity. Moreover, in order to build a sustainable future, European societies have to find their path in the tangled web of religious pluralism, secularization, and ethical issues.

This path is full of challenges and opportunities to reconsider and rethink the relationship among law, religion, and morality, each of which will undoubtedly continue to play significant social roles in the future.

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VI

THE SOCIOLOGY OF RELIGION AS A SOCIOLOGY OF KNOWLEDGE, TRENDS AND CHALLENGES

INTRODUCTION

In the study of the process of secularization, functional differentiation, which is a distinctive and even defining feature of modern societies, is particularly important. In this sense, different sectors of society (e.g. politics, economy, education) are becoming increasingly autonomous and no longer require religious legitimacy. According to Niklas Luhmann, who approaches sociology from the perspective of systems theory, social systems such as law, politics, and economics operate according to an autonomous logical mechanism. Two years after Luhmann's death in 1998, André Kieserling published his systems theory interpretation of the sociology of religion, which was itself a theoretical milestone. Religion, Kieserling suggests, is a functional subsystem of modern society, which, like all other subsystems, is shaped by autopoietic and meaning-rich communication. Religion purports to explain, without contradiction, the relationship between the transcendent and the immanent in everyday life. Faith becomes a personal end product the power of which rests in its uniqueness and intimacy. In modern society, religion has become a social subsystem, now so complex that a separate science, theology, has been built around it.

The systems theory of religion addresses important issues ranging from meaning and development to secularization, and it turns decades of sociological assumptions on their head. It offers a new vocabulary and a fresh philosophical and sociological approach to one of society's most fundamental phenomena.

1 SECULARIZATION

1.1 The impact of secularization on the social roles of religion

Before delving into the theoretical questions, we would do well to pause and consider the increasing pace of secularization in postmodern society. We must ask, in other words, how this process has affected the roles of religion in society.

As a social process, secularization has transformed the relationship of modern and postmodern societies to religion, with religion playing an ever smaller role in private and public life, including within various institutional systems. The accelerating pace of secularization under the influence of the Enlightenment and the Industrial Revolution of the eighteenth and nineteenth centuries has had a significant impact on the role and function of religion in society.

The concept of secularization itself can be interpreted in several ways. Essentially, it refers to the separation of religion from other spheres of society, most importantly politics, education, and the sciences. Max Weber, perhaps the single most prominent figure in the field of sociology to study this process, described secularization in terms of "disenchantment" (Entzauberung). Weber suggests that the world is becoming increasingly rational and increasingly understandable from the perspective of the sciences, while religious teachings are being pushed to the

margins. Secularization thus refers not only to the decline in the influence of religious institutions; it also means the waning of religion as a social narrative and interpretative framework.[83]

Émile Durkheim, another representative of the classical theory of secularization, also called attention to the waning role of religion, while the sciences and industrialization, he noted, were gaining ground in many spheres of life.

In the study of the process of secularization, functional differentiation, which is a distinctive and even defining feature of modern societies, is particularly important. In this sense, the different sectors of society sectors of society (e.g. politics, economy, education) are becoming increasingly autonomous and no longer require religious legitimacy. According to Niklas Luhmann, who approaches sociology from the perspective of systems theory, social systems such as law, politics, and economics operate according to an autonomous logical mechanism in which religion no longer plays a separate role.

The teachings of the Church unquestionably played a dominant role in social structures such as systems of government, education, and moral norms for centuries. As the process of secularization has progressed, however, these institutions have gradually lost their influence, especially in Western societies.

Perhaps the most significant event in this process was the separation of church and state,[84] which made it possible for political systems to function free of religious influence. This idea is one of the fundamental pillars of modern democracies. In principle, it is intended to ensure that government does not interfere in religious affairs and that churches and other religious groups do not influence

[83] Berger, Peter L. *The Sacred Canopy: Elements of a Sociological Theory of Religion*. New York: Anchor Books, 1967. 78-81.

[84] The most famous example of the separation of church and state was the First Amendment to the United States Constitution, which stated that the state could not enact laws that promoted or hindered the practice of a religion. This principle ensures that all citizens are free to practice their religion, while guaranteeing the neutrality of the state in religious matters.

decision making on the state level. The separation of church and state does not, however, mean that religion can be excluded from public life altogether, as the principle is based first and foremost on the clear division of powers and the common good.

Similarly, the sciences and scientific methodologies have become the guiding principle in educational systems. As religious festivals, rituals, and norms gradually became more a matter of personal preference than social (or even political) obligation, religious belief itself was increasingly a matter of personal choice and was relegated more and more to the private sphere.

In recent decades, however, several studies have suggested that secularization is not a uniform process and that it does not occur in all societies in the same way. Secularization, thus, has not meant the complete disappearance of religion from society, but merely a transformation of its functions and roles. While religion used to be the primary source of social norms and thus arguably could be understood as a centripetal force, today it has become dominated by pluralism and diversity. In modern societies, religion finds expression as a form of cultural identity rather than a binding belief system. In many cases, religious practices and systems of belief have lost their normative (centripetal) role and have become a matter of personal, individual choice. The decline in the influence of churches (broadly understood) does not necessarily mean the disappearance of faith, but rather has led merely to a transformation of how people experience faith in everyday life.[85]

Secularisation thus has had a complex and multifaceted impact on the roles of religion in society. While religion has come to play a strikingly smaller role than it used to in political, economic, and educational systems, it is nevertheless still present in various social spheres, if in different forms. It can

[85] Casanova, José: *Public Religions in the Modern World*. Chicago: University of Chicago Press, 1994. 45-52.

therefore be concluded that secularization does not mean the disappearance of religion but only its transformation, especially in the areas of individual religious practice and community life. The relationship between religion and secular society will remain dynamic in the future, especially given the transformations brought about by globalization and cultural diversity.

1.2 Theories of secularization

Theories of secularization venture explanations from an array of perspectives as to how and why religion has come to play an ever-smaller role in the lives of individuals and society. Below, I examine these theories in more detail and offer several examples.

1.2.1 Classical theories of secularization

Classical theories of secularization constitute an important part of modern sociological thought. These theories attempt to describe, first and foremost, the process by which religion and its influence have gradually become increasingly marginalized. Fundamentally, they suggest that, as a result of modernization, industrialization, urbanization, and scientific progress, religion has lost much of its social weight and has become more a part of the private life of the individual, while so-called rational and science-based thinking has come to play an ever more prominent role.[86] Classical theories of secularization can be traced back to the writings of influential sociologists, such as Max Weber and Peter Berger.

[86] Habermas, Jürgen: *Between Naturalism and Religion: Philosophical Essays*. Cambridge: Polity Press, 2008, 93-96.

1.2.1.1 Max Weber

Max Weber, one of the founders of German sociology and economics, is famous for his penetrating analysis of the interrelationship between modernity, religion, and capitalism. His theory of secularization is key to understanding the relationship between modernity and religion.

As noted above, Weber argued that secularization refers not simply to the decline of religion in society but also to the move away from religious worldviews brought about by modernization and the triumphs of rational thinking. According to Weber, religious worldviews were gradually losing their relevance as the advances of modernity led people to rely on rational approaches and scientific knowledge rather than religious explanations. Protestantism, Weber famously contended, and especially the Puritan work ethic played a key role in the development and spread of modern capitalism. In his milestone work *The* ***Protestant Ethic*** *and the Spirit of Capitalism*, Weber showed that Protestant religious values such as the "Beruf" or "vocation" ethic and Puritan thrift were essential contributing factors to the development of modern capitalism. As capitalism emerged, religious social foundations gradually faded, and economic activities were increasingly organized according to rational calculations and market logic. This process itself was one of the main drivers of secularization, as the rise of rational thinking called into question the role of religion in everyday life. Traditional religions, which had been called upon to give meaning to human life and order to human coexistence, lost much of their influence in the modern world. People were less and less inclined to see nature and human life as guided by divine intervention or transcendental forces and tended more to understand the laws of nature and human life according to scientific methods.

1.2.1.2 Peter Berger

American sociologist and religious scholar Peter Berger was another prominent representative of secularization theory. According to Berger, the driving force behind the process of secularization was the development of modern societies and in particular scientific and technological progress. With the advent of modernity, people increasingly embraced a secular outlook, and scientific explanations of natural phenomena and questions of social life gradually came to replace religious explanations. Berger contended that the secularization of modern societies has been accompanied by a growing pluralism of worldviews, and this has posed a challenge to religion. The emergence of religious pluralism, furthermore, has stimulated the process of relativization, and this in turn has weakened the social influence of religion.

In his earlier theoretical work, Berger emphasized the "privatization" of religion, by which he referred to the tendency towards the relegation of religion to the private sphere, while other areas of (public) life became increasingly secularized. Later, however, Berger realized that religions was not necessarily being completely marginalized to the private sphere and in many cases could even reenter the public sphere, for instance in the United States or in the countries of the global south.[87]

1.2.2 Functionalist approaches

Functionalist theories of secularization examine how, with the emergence of new institutions, religion becomes increasingly peripheral in modern societies. These theories emphasize the differentiation of modern society, meaning

[87] Berger, Peter L.: *The Sacred Canopy: Elements of a Sociological Theory of Religion.* New York: Anchor Books, 1967.

the dominance of rational thought and the advances of the sciences, all of which contribute to the diminishing role of religion in society. As social life becomes increasingly specialized, religious institutions lose the importance they once enjoyed and are replaced by other spheres or institutions. This process can be described as structural differentiation. From a functionalist point of view, secularization is a kind of social evolution in the course of which secular institutions based on rational thought take over various functions which had once been the prerogative of religion.

1.2.2.1 Émile Durkheim

French sociologist Émile Durkheim was one of the most prominent figures of functionalism. According to Durkheim, the fundamental function of religion was to maintain social cohesion and reinforce community norms.

Durkheim examined religion not solely as a system of beliefs but also as a social institution that plays a vital role in social cohesion and the maintenance of moral order. In his system, religion was understood as a fundamentally collective phenomenon. It was not simply a matter of individual belief but also concerned unity among people at the community level. Religion's central role, Durkheim suggested, lay in the shared values, norms, and beliefs that hold society together. In other words, through shared rituals and symbols, it helps strengthen solidarity and unity between members of a community.

In his 1912 book *The Elementary Forms of Religious Life*, Durkheim explained that religion is based on the distinction between the "sacred" and the "profane." The "sacred" are things to which the community attaches special meanings which are reinforced through ritual and ceremony. These

rituals, thus, not only serve spiritual purposes. They also promote social stability and unity.[88]

According to Durkheim, industrialization, scientific progress, and the gradual division of social life into increasingly distinct fields all contributed to the decline of religion's traditional role. Durkheim never suggested, however, that religion would disappear completely. Instead, he believed that certain functions of religion would be transformed and would continue to exist in secular forms. People would always need a common set of values and a collective consciousness. In secularized societies, he posited, these values would increasingly come from secular sources, such as notions of human rights, democracy, and scientific rationality. Durkheim was convinced that these principles could also be used to create the social unity that previously had been founded on religion.

1.2.2.2 Talcott Parsons

American sociologist Talcott Parsons, though not a figure who introduced a separate, comprehensive theory of secularization, nonetheless had notions concerning this process which can be inferred from his views on modernization and social differentiation. His best-known theoretical system is structuralist-functionalism, which considers the functioning, maintenance, and development of social systems. Secularization plays an important role in this. Parsons argued that modern societies are characterized by the emergence of increasingly distinct, differentiated social systems, a process in which different social institutions, including education, economics, and religion, become increasingly separate and specialized. This process is an integral part of modernization, and

[88] Durkheim, Émile: *Professional Ethics and Civic Morals*. London: Routledge, 1957.

according to Parsons, the roles of religious institutions have also changed as a result of this differentiation.

According to Parsons, secularization essentially means a decline in the role and influence of religious institutions. Parsons did not interpret this process as, first and foremost, a decline of religion, but rather as a natural consequence of the structural transformation of society. In modern societies, certain functions which were once the prerogative of religion have been taken over by various specializations, and the traditional tasks of religious institutions, such as providing moral guidance or social care, are also being performed by other secular institutions. Parsons, thus, did not necessarily see secularization as a negative process. In his view, while it may have lost much of its direct social influence, religion could nonetheless continue to play a decisive role in the lives of individuals.

Parsons stresses that religious values and norms continue to play a role in society, albeit indirectly. Thus, he sees secularization as a transformation in which religious teachings and value systems are incorporated into the institutions and norms of modern society and thus continue to live on in them.

1.2.3 Post-secularization theories

In the 1990s, classical theories of secularization began to come under increasing criticism as religious revivals and resurgent religious movements began to emerge all over the world. Post-secularization theories reassess the roles of religion in modern societies, especially in light of social changes of the late twentieth century and the first decades of the twenty-first. These theories are based on critical confrontation with the fact that theories of secularization which posited a decline in the prominence and place of

religion have not always been borne out. Secularization may have had a strong impact on many Western societies, but religion continues to play important roles and, in some situations, has even gained new momentum. Representatives of post-secularization theories thus also use the prefix "post" to indicate that theories of the separation between the religious and secular spheres are being rethought, since religious practices, beliefs, and institutions – far from having declined or receded – in certain social contexts have gathered new strength and even taken on new forms.

1.2.3.1 Jürgen Habermas

Perhaps the most prominent figure of this rethinking of the theoretical framework of secularization (implied in the term post-secularization) was German philosopher Jürgen Habermas. Habermas unquestionably believed that, since the Enlightenment, secularization has been one of the determining factors in the decline of the prominence and influence of religious beliefs and institutions. Religion, however, has not disappeared completely. Rather, it has rather been renewed, and modern societies must recognize that dialogue between citizens with secular beliefs and citizens who hold to religious faith must be placed on a new footing. Habermas pointed out that secular states do not need to exclude religion from public life altogether, but instead should provide opportunities for constructive dialogue between religious and secular views. According to Habermas, the "common language" is the language in which the secular citizen and the member of the religious fold can engage in debate. This is both a precondition for coexistence and also a guarantee of the integrity of democratic society. In the pluralistic world of modern democracies, each side must respect the other's position. In other words, those of

religious faith must accept secular arguments in public debates, while the secular citizen must acknowledge that religious beliefs can be a legitimate source of moral and ethical discourse. This theory, thus, seeks neither to refute nor deny secularization. It offers, rather, an opportunity for a new form of coexistence and dialogue between religious and secular values. Habermas derives this view primarily from pluralism and democratic political culture, in which different worldviews must learn from one another and cooperate.

Habermas also warns that the maintenance of rigid boundaries between religious and secular worldviews can become a source of conflict.[89]

1.2.3.2 Charles Taylor

Canadian philosopher Charles Taylor offers a theory of post-secularization that explores the dynamic interaction between religion and modernity, with a particular focus on the specific role of religion in a secularized world. The central idea of Taylor's theory is that people in the secular world live within an "immanent framework," meaning that they see the world only in terms of natural, material reality and that divine or transcendent reality is less obvious to them. This framework, however, does not exclude religious belief. It merely offers a different perspective. According to Taylor, people still feel a longing for the transcendent, which opens the way to post-secularization. This in turn implies the emergence of new, more flexible forms of religion. Religious experience is understood more as subjective and personal, and often it is not bound to traditional institutions or dogmas. This shift is part of a broader cultural trend that emphasizes the importance of individuality and self-

[89] Habermas, Jürgen: "Notes on Post-Secular Society" (2008). In *New Perspectives Quarterly*, *25*(4), 17-29.

realization. Taylor envisions post-secular society as a world in which different religious and secular worldviews coexist peacefully.[90]

1.3 The critique of theories of secularization[91]

Theories of secularization are strikingly varied and approach the decline of the role of religion from different perspectives. While classical theories have linked this process to modernization and the triumphs of rational thought, post-secular approaches offer a more nuanced picture of the position of religion in the global world today. Some criticize these approaches for allegedly overestimating the apparent resurgence of religion and ignoring the continued effects of secularization. Others contend that religion is present, but that its influence is still receding and the new forms it has taken are not as significant as before.

Secularization clearly is not a linear and universal process. It is, rather, a social, historical, and culturally context-dependent phenomenon. The more recent scholarship has increasingly acknowledged the complexity of this relationship and has focused on the dynamic links between religion and secularization.

The so-called "post-secular" theories point out that secularization does not necessarily mean the final decline of religion but only its survival in new forms. Habermas, the aforementioned German philosopher, argues that religion can continue to play an important role in modern societies, especially in public debates and moral discourses. Thus, in post-secular societies, religion can be reasserted, even if it takes on a new guise, different from the traditional forms it had previously taken.

[90] Taylor, Charles: A Secular Age. Cambridge: Belknap Press of Harvard University Press, 2007.
[91] Due to space constraints, we cannot go into a detailed critical analysis of the theories of secularisation, so in this chapter we will focus only on the main lines.

This seems to be borne out in practice, as the process of secularization has not unfolded in the same way in all societies and cultures. While in Western societies and especially in the cultures of Europe the role of religion has declined significantly, in other regions, such as Africa, South America, and South Asia, it continues to play a prominent role. In many countries and particularly in the non-Western world, religion has claimed a stronger political role and is often closely linked to issues of national identity. This is true not only in the Islamic world, but also for other religious groups. One could think, for instance, of the political role of Hinduism in India.

1.4 The emergence of secularization in different cultural contexts

Research has shown that the process of secularization is not unfolding in the same way in different regions of the world. While in Western Europe the influence of religious institutions has declined significantly, religion remains strong in other regions, such as the Global South and Eastern Europe. Theories of secularization, thus, are not universally applicable, as different cultures and historical processes play significant and different roles in shaping the relationship between religion and society.

1.4.1 Western Europe

In Western Europe, a rapid and dramatic process of secularization began, and this process particularly gathered steam after the Second World War. Church attendance and religious beliefs declined dramatically, especially among members of the younger generations. The separation of

church and state institutions and the rise of the welfare state also contributed to the marginalization of religion. Scientific and technological progress and the emphasis on individualism and cultural pluralism encouraged people to seek meaning and answers to their ethical and existential questions from sources other than religion.

1.4.2 Eastern Europe and Russia

In Eastern Europe, after the fall of communism, there was something of a religious revival, especially in Orthodox Christianity and Catholicism. After the collapse of the atheist ideologies of the socialist regimes, many people turned back to religion, although this attachment to religious belief and ceremony was in no small part cultural and not necessarily associated with deeply held religious belief. In Russia, the Russian Orthodox Church gained considerable political and social power and reasserted its importance as a defining part of Russian identity.

1.4.3 The United States

One can observe an interesting phenomenon in the case of the United States, which, unlike many Western European nations, has always had a strong religious vitality. Although secularization processes have been underway here too, churches still play a prominent social role, especially in evangelical and Protestant communities. The role of religion in the political sphere is also important. This distinctive feature of the American context is due in part to the American tradition of religious pluralism and religious freedom, which has allowed different religious groups to flourish and compete.

1.4.4 Latin America

In recent decades, a remarkable religious transformation has been underway in Latin America. Protestant movements and especially Pentecostalism have gained ground in this traditionally Catholic part of the world. This religious dynamism should not be misunderstood as secularization. Rather, it is part of the pluralization of religious life and the emergence of new religious movements.

1.5 Perspectives for the future

The future course of secularization will depend on an array of factors, including global political and economic developments, technological progress, and the internal dynamics of societies. While religion may continue to play an increasingly marginal role in some areas, in other regions and communities a strong religious identity may remain dominant. Given the immense diversity of the cultures of the world and the rise of cultural pluralism, the relationship between religion and secularization will continue to change, and both tendencies (the tendency toward religious faith on the one hand and the tendency towards a more secular worldview on the other) will continue to be present in modern societies. However, we must always keep in mind that the relationship between religion, secularization, and modernity cannot be understood and described as a simple one-way process, because as the world becomes increasingly interconnected and globalized, the role of religion is likely to change and religion itself will adapt to new challenges. But religion will unquestionably remain an important part of human experience, particularly in the areas of personal identity and community building. In the future, the balance between religion and secularization will determine the role

of religion in society. The relationship between religion and secular society will in all likelihood remain dynamic and diverse, and this relationship will assume different forms in different regions and cultures.

RELIGIOUS PLURALISM

2

One of the most important cultural and philosophical issues for modern societies is religious pluralism, meaning the coexistence of and interaction among different religious traditions. Contemporary social phenomena, including globalization, migration, and modernization, have all contributed to the rise of religious pluralism, since religious and cultural differences have become an increasingly marked part of everyday social life. Globalization has led to more and more encounters among different religious traditions, creating new challenges for societies from the perspectives of tolerance, acceptance and peaceful coexistence.

The development of information technologies (in particular the spread of the internet) has greatly facilitated the spread of religious ideas, practices, and teachings, leading to increasingly pluralized religious communities.

Religious pluralism is both a de facto recognition of religious diversity and a framework that promotes dialogue and respect across denominational lines.

Religious pluralism also extends to deeper issues, however, such as the relativity of religious truths, the relationship between faith and morality, and the role of the secular state among religious communities.

2.1 The concept of religious pluralism and its theoretical foundations

The concept of religious pluralism is based on the principles of religious diversity and the peaceful coexistence of different religious beliefs. This concept is not limited to this, however. It also implies mutual recognition of different religious traditions and acceptance of these traditions on an equal footing in society. Religious pluralism has taken various forms throughout history and has developed in different ways in different historical periods and civilizations.[92]

Although there have been many examples of religious pluralism in the history of civilization, arguably the real turning point came in the sixteenth century with the Reformation. Reformation thinkers challenged the authority of the Catholic Church, and several new denominations were created, aptly dubbed Protestant (i.e. in protest). Religious conflicts erupted across Europe, which in the long term contributed to the emergence of new forms of religious pluralism. The bloody conflicts were resolved by the Peace of Westphalia in 1648, when, in a spirit of religious tolerance, the different denominations gradually recognized one another's right to exist. The first amendment to the constitution of the United States of America, which guarantees the right of religious freedom, offers a relatively recent landmark in the history of religious pluralism. The founding fathers themselves stressed the importance of the separation of church and state, and this furthered the emergence of a modern form of religious pluralism. The historical roots of the concept also go back to nineteenth-century philosophical and religious thought.[93]

[92] One of the most significant ancient examples of religious pluralism was the Roman Empire, whose expansion brought different peoples and religions under Roman rule. Roman rulers generally showed a high degree of tolerance for the religious customs of the peoples they conquered. The state supported many religious cults, and many new gods from different parts of the empire were introduced into the official Pantheon.

[93] Habermas, Jürgen: "Religion in the Public Sphere" (2006). In *European Journal of Philosophy*, 14 (1), 1-25.

According to the British philosopher of religion John Hick, a prominent theorist of modern pluralism, religious pluralism is necessary if we seek to understand differences between religions not as absolute truths but as expressions of different perspectives. In other words, different religious traditions are different expressions of the same transcendent reality. According to Hick, all religions are thus directed towards the same transcendent reality, but they find form and expression in different ways in different cultural and historical contexts. Hick thus embraces the notion that no single religious tradition can stake a claim to absolute truth. Rather, each religious tradition is rooted in the diversity of human experience. Thus, one of the most important questions in this regard is whether religious truth is relative or absolute in nature. These questions have been the subject of much theological and philosophical reflection, especially in Western thought, where Christianity has played a dominant role for centuries.[94]

Thus, in practice, religious pluralism means that a society or community accepts several different religions and ensures that they stand on an equal footing in society, without any single religion being exclusive. In this sense, religious pluralism is not simply a matter of tolerance but also implies the belief that all religions have the right to exist legitimately and each has its place in society, and each religion respects the beliefs, practices, and values of the others.

One of the most important philosophical challenges of religious pluralism is clearly the question of the relativity of truth. If several different religious traditions stake an exclusive claim to truth, how can they possibly engage in respectful dialogue with one another? It is precisely on this point that pluralism differs from syncretism, which seeks to blur the differences between religious traditions. According

[94] Miller, D. (2015). "The Role of Religion in Modern Democracies." *Ethics & International Affairs*, 29 (4), 487-501.

to the pluralist approach to religion, each religion reflects transcendent truth in its own way, even if the understandings of this truth sometimes differ in significant ways. Naturally, this view does not exclude the possibility of disputes and conflicts between different religious traditions.

2.2 Social impact and challenges

Religious pluralism obviously has many positive social effects, but it also presents a number of challenges. Perhaps one of the biggest challenges it raises is how to reconcile different religious traditions without infringing on identity and autonomy. Indeed, religious communities often seem to fear that pluralism undermines the specific characteristics and teachings of their faith, especially when coexistence requires compromises. Another difficulty for some religious groups is that pluralism is seen as leading to a kind of relativism that may weaken the strength and solidity of religious faith.

The issue of social and political integration is another major challenge of religious pluralism. Coexistence among different religious groups often depends on the political institutions that regulate the rights and opportunities of religious minorities. The achievement of religious pluralism therefore depends on the extent to which society and the state are able to develop policies that ensure equal rights and freedoms for religious communities. Religious pluralism unquestionably plays an important role in modern political systems, especially in democracies, where religious freedom is a fundamental human right.

In secularized states such as France and the United States, the challenge of pluralism is how to manage tensions among religious communities while ensuring individual

religious freedom.[95] Religious freedom, after all, has come to be understood as a fundamental element of human rights, which means that the state must allow people to follow their religious beliefs freely and cannot interfere in religious practices as long as these practices do not infringe on the rights of others. Furthermore, religious freedom means not only the freedom to choose a religious belief but also the freedom to choose atheism.

In a secular society, the state should remain neutral in religious affairs as a matter of principle,[96] but religious communities often ask for special rights and recognition, which can cause controversy and even tension. From a practical point of view, religious pluralism simply means a guarantee of social tolerance and religious freedom. Today, however, religious pluralism faces new challenges, especially in societies where religious fanaticism, ethnic and religious conflicts, and tensions related to migration have intensified.

In summary, mutual respect and dialogue among different religions are arguably in the interests not only of religious communities but also of society as a whole. Pluralism, however, does not mean the elimination of religious differences, but their recognition and respect.

2.3 The future of religious pluralism

The future of religious pluralism is closely linked to the processes of globalization and the ensuring social changes. Maintaining interfaith dialogue and mutual respect will also be essential for peace in the societies of the future. However, this will require religious communities to remain

[95] This is referred to in Article 18 of the Universal Declaration of Human Rights, which states that *"Everyone has the right to freedom of thought, conscience and religion; this right includes freedom to change his religion or belief, and freedom, either alone or in community, in public or private, to manifest his religion or belief in teaching, practice, worship and observance."*

[96] This also means that the state cannot take a position on theological issues. And neutrality means that the state does not give preference to any religion, but keeps an equal distance from all of them.

open to one another and ready to engage in dialogue. In a sense, religious pluralism can further social cohesion by creating opportunities for dialogue and mutual understanding among different religious groups. It also contributes to the protection of human rights by enshrining respect for individual religious freedom as a fundamental value. However, pluralism can also present challenges, for example in the management of interreligious tensions or the need to maintain a balance between secular and religious views.[97]

One of the great challenges of the future will be how different religions will cope with the growing effects of secularization and how they will be able to preserve their own identities in pluralistic societies.

[97] Habermas, Jürgen: "Religious Tolerance: The Pacemaker for Cultural Rights" (2003). In *Philosophy*, 79(1), 5-18.

3

MULTICULTURALISM

Like religious pluralism, multiculturalism[98] is an important concept which also plays a significant but sometimes controversial role in modern societies. Both concepts are built on the recognition of diversity and the equality of different cultural and religious identities. In recent decades, as a consequence of globalization and migration, questions concerning the meanings, uses, and potential limitations of multiculturalism have been raised in an increasing number of countries and cultural contexts with an increasing sense of urgency, but the responses to these questions have varied. In the second half of the twentieth century, multiculturalism became an increasingly pressing issue, since, mainly as a result of international migration and the collapse for the most part of the colonial world, an increasing number of ethnic and cultural minorities emerged in Western societies. Multiculturalism, however, is not simply a social and political issue. It is also a philosophical one, raising complex problems of identity, pluralism, legal equality, and social cohesion[99].

[98] Multiculturalism, as a political and social ideal of peaceful coexistence and mutual respect between different cultural groups, became the dominant ideology in the Western world in the second half of the 20th century. In the 1960s, under the influence of the civil rights movements and globalization processes, several countries, notably the United States, Canada and many European nations, began to introduce multicultural policies aimed at protecting the rights of minorities and promoting social diversity.

[99] Steger, M. B.: *Globalization: A Very Short Introduction.* Oxford University Press., 2017.

3.1 The concept of multiculturalism and its theoretical background

The concept of multiculturalism refers to the peaceful coexistence and interaction of different cultural groups within a society, in which groups from different ethnic, religious, linguistic, and historical backgrounds seek to preserve their identities. The ways in which this concept takes political, social, and cultural form are the subject of considerable debate in public discourse and politics worldwide. At the theoretical level, the systems of the aforementioned Canadian philosopher Charles Taylor[100] and political scientist Will Kymlicka in particular have played an important role in defining multiculturalism. According to Taylor, cultural recognition is a fundamental aspect of human dignity, which ensures that individuals and communities alike can preserve their cultural identities. Kymlicka adds that the protection and recognition of minority cultures require various legal and political mechanisms.

3.1.1 Liberal multiculturalism

Theories of multiculturalism draw on a variety of philosophical and social science approaches. If we want to understand these approaches systematically, perhaps the first and most important among them is liberal multiculturalism, according to which the individual has the right to preserve his or her cultural identity and that the legal system should offer protections for cultural minorities to this end. This approach is based on the notion that in a democratic society people can come from different cultural, religious, ethnic and national backgrounds and that these

[100] Taylor, Charles. Multiculturalism and *"The Politics of Recognition" (1992)*. Edited by Amy Gutmann. Princeton University Press.

differences are not only acceptable but desirable for the enrichment of society. Critics of this theory often argue that the emphasis placed on differences can increase segregation and that the alleged rights of minority communities can come into conflict with the interests of other groups in society.

3.1.2 Post-colonial multiculturalism

Postcolonial multiculturalism, another approach to the multifaceted concept of multiculturalism, focuses on the legacy of colonialism and the identity crises that came with this legacy. Postcolonial multiculturalism seeks to critically engage with the legacies of colonialism, with a particular focus on the cultural, economic, and political consequences of colonialism. As has been often discussed and thoroughly documented, the colonial powers exerted not only an economic but also a cultural influence, sometimes forcibly spreading their own languages, religions, and value systems. This long shadow of past is still visible today, particularly in the multicultural societies of the former colonies, where the coexistence of different ethnic and cultural groups remains fraught with tensions.

3.1.3 Critical multiculturalism

Finally, critical multiculturalism adopts a more pragmatic approach by focusing on power relations and inequalities. In contrast to liberal multiculturalism, this theory does not simply call attention to the alleged virtues of multiculturalism as peaceful coexistence of different cultural groups. It also examines the ways in which power imbalances are created between different cultural and

ethnic groups within a society. This approach considers how social, economic and political systems affect different cultures, and it focuses on how inequalities can be dealt with to create a more just society.

3.2 The social impact of multiculturalism

The social effects of multiculturalism can be studied from different perspectives, including economic development, social cohesion, identity formation, and the transformation of political and legal structures. Multiculturalism also poses significant challenges for countries at the societal level. One major sociological question is simply whether cultural diversity promotes or hinders social cohesion. Some studies have suggested that multicultural societies may be at a higher risk of social conflict because of the tensions that can arise from interactions among different groups. Other studies suggests that cultural diversity stimulates innovation and economic growth.

Whatever the case, the impact of multiculturalism on social cohesion is now a hotly debated issue. Some theoreticians contend that cultural diversity nurtures understanding and cooperation within society, while others believe that tensions and antagonisms between different groups create insecurity. With regards to economic impact, cultural diversity can have a stimulating effect on economic growth, particularly in industries in which innovation and creativity have an important role. At the same time, cultural differences and discrimination in the labor market can be significant obstacles. Cultural divisions can have a negative impact on labor efficiency from a social point of view if discrimination is not handled effectively.

One of the most important social effects of multiculturalism is the development of individual and community

identities. Cultural diversity poses new challenges to traditional national identities, as different groups seek to preserve their own cultural values. On the one hand, a multicultural environment can have a positive impact, since it offers individuals the opportunity to develop a richer cultural self-image.[101] On the other hand, it can have a negative impact, as individuals may suffer an identity crisis and may be unable to find a balance between their cultural heritage and the norms required by the majority society. Finally, from the perspective of political and legal impacts, multicultural societies are particularly affected by major changes in the protection of human and minority rights. The same can be said of politics, where responses to the challenges posed by multiculturalism may vary from country to country. It is worth noting that efforts to reconcile minority cultural customs with notions of universal human rights can sometimes lead to conflict.

3.3 A critique of multiculturalism and the challenges it poses

While multiculturalism can be beneficial in some respects in a given society, it has also been made the subject of vigorous criticism. Some argue that it contributes to the fragmentation of society by isolating different cultural groups from one another. Others go further and contend that it can even lead to a weakening of the core values and norms of the majority society if it fails to create a shared platform for different groups. The examples of France and Germany have provoked particularly sharp criticism, where the integration of Muslim immigrants has been the subject of considerable social and political controversy. Some argue that these countries were not prepared to deal with the conflicts arising

[101] Taylor, Charles. Multiculturalism and "The Politics of Recognition" (1992). Edited by Amy Gutmann. Princeton University Press.

from cultural diversity in an appropriate way and that this may be the reason why assimilation models have failed. The most frequent criticisms are summarized below.

3.3.1 Social cohesion and the tensions of multiculturalism

The most common criticism of multiculturalism is that it threatens social cohesion. Critics argue that multiculturalism weakens efforts towards integration among different cultural groups and thus encourages the emergence of increasingly parallel societies, as newcomers are not always able to integrate into the majority society. Ethnic segregation is becoming more and more evident in many Western European cities, and it is causing considerable tensions. Immigrant communities are often concentrated in neighborhoods where they can follow their own cultural traditions without having to maintain close links with local society. In the long term, this can erode mutual trust and increase the risk of ethnic conflict.

3.3.2 The crisis of national identity

Proponents of multiculturalism often contend that equal recognition of different cultural identities is important for minority groups. Others, however, perceive this as a potential threat to national identity, especially when the cultural values and norms of immigrants are fundamentally different from those of the host country. These kinds of clashes may arise, for example, between the values and traditions of Muslim communities and those of liberal democratic countries.

In Europe, on several occasions immigrant communities, taking advantage of multicultural policies, have used their

own legal systems (notably religious courts) to settle issues which they have seen as belonging to their internal affairs. This practice, however, can come into conflict with the legal system of the given state and with liberal legal principles, especially when religious laws differ from international human rights laws.

3.3.3 Migration and integration

Multiculturalism is often linked to the politics of immigration, especially in countries that have received large numbers of immigrants. In these societies, the question of integration has become a central problem, as multiculturalism policies often have not placed adequate emphasis on adaptation to the host society and have not sufficiently encouraged immigrants to integrate.

The principle of multiculturalism and the politics on which it rests, although positive in the goals it has set, nevertheless faces serious challenges and criticisms today. The problems of integration, crises of national identity, and the weakening of social cohesion all suggest that multiculturalism alone is not sufficient for the successful coexistence of different cultural communities.

RELIGIOUS FUNDAMENTALISM AND RADICALISM

4

Throughout history, religion has been an important cornerstone of many societies and cultures, and it has exerted a profound influence on the lives of individuals and on social norms. Religious fundamentalism and religious radicalism are phenomena which also look back on a long history but which have been at the center of academic, political, and public debate, particularly in recent decades. These two key terms (fundamentalism and radicalism) are easy to conflate (and are often conflated in the public discourse), but it is important to draw a clear distinction between them. In the discussion below, I describe the characteristics, differences, and similarities between religious fundamentalism and radicalism, as well as their social and political implications.

4.1 Definitions and characteristics of religious fundamentalism and radicalism

4.1.1 Religious fundamentalism

Religious fundamentalism is an ideological phenomenon that emphasizes rigid adherence to religious traditions and a return to the allegedly "original" interpretations of these traditions. The term gathered both meaning and strength in twentieth-century American Protestant communities, which built strongly on the Calvinist insistence on the

centrality of the word of God, meaning actual reading of the Scriptures rather than reliance on (Catholic) interpretations of the Scriptures. The proponents of this approach to religion held to their understanding of a literal interpretation of the Bible and rejected liberal theological views. Later, the term came to be applied more widely to strands of thought in other religions, including Islam. Fundamentalists claim to have arrived at interpretations of religious texts and prescriptions independent of historical context, while rejecting the norms of the modern state, such as secularism and feminism. The original aim of any fundamentalism is to restore religion to its allegedly pure form, which generally means a return to (power relations of) the past. The followers of fundamentalisms are often isolated from mainstream society. Religious fundamentalism is not necessarily violent, but it does constitute a closed, dogmatic worldview that is difficult to reconcile with a pluralistic, democratic society.[102]

4.1.2 Religious radicalism

Religious radicalism, as a radical strand of religious fundamentalism, is an extreme ideological tendency that advocates radical social or political change based on religious foundations. It often insists on the transformation of political systems and the rejection of established secular power. Religious radicalism frequently embraces the use of violence to achieve its goals and thus differs from fundamentalism, which adopts a more passive approach. Religious radical groups do not shy away from terrorist attacks, armed struggle, or other forms of violence. They often create a clear and distinct image of their alleged enemies, which can be religious minorities, political systems, and even adherents of other religious movements.

[102] Bruce, Steve: Fundamentalism, Polity Press, Cambridge 2000.

Radicalism and fundamentalism share common ideological roots, but radicalism has much more ambitious aims and therefore takes a more active, confrontational approach. Members of these groups often feel threatened by what they perceive as social injustice, discrimination, or geopolitical situations, and they encourage radical action to break the status quo.

4.2 Social impacts, security challenges

4.2.1 Social impacts

Globalization, migration, multiculturalism, and the emergence of various forms of religious fundamentalism and radicalism are closely intertwined phenomena, all of which significant impacts on modern societies. One could even go so far as to say that one is a consequence of the other, and thus they are causally linked and interact closely with one another.

Both religious fundamentalism and radicalism can have significant consequences for society. As a result of globalization, countries around the world are becoming increasingly interconnected economically, culturally, technologically, and politically. This creates opportunities for interaction among different religions, ideologies, and cultural identities, but it can also lead to serious tensions.

With the spread of globalization, many traditional societies feel that their identities, cultures, and religions are at risk. This can foster the spread of religious fundamentalisms, as globalization is often seen merely as another form of "Western hegemony." Some communities return to their religious roots as a counterreaction to preserve their identities and traditions. Fundamentalism can lead to polarization and, as cultural conflicts become

increasingly intense, can even create sectarian wars, and radicalism can lead to political instability, terrorist attacks, and in extreme cases even civil wars.[103]

Social and political instability often provides fertile soil for both fundamentalism and radicalism, so understanding and precisely defining how to deal with them is a pressing challenge for social scientists and policy makers. If we seek to develop effective strategies with which to counter extremist ideologies, we must be able to discern the differences between religious fundamentalism and religious radicalism.

4.2.2 Security challenges

Both fundamentalism and radicalism pose challenges for security policy. I offer below a discussion of some of these challenges, without claiming to be exhaustive.

4.2.2.1 Cultural and political tensions

Religious fundamentalism can often lead to political tensions, especially in some of the countries of the Middle East, where fundamentalist forces try to influence politics and education, which can lead to internal political and social tensions.

Religious fundamentalism is particularly likely to cause cultural tensions in societies in which different religious groups live alongside one another. In these societies, the strict religious norms demanded by fundamentalists may be difficult to reconcile with the norms of other religions and cultures and may call into question the viability of

[103] Ken Booth and Tim Dunne (eds.) The Globalization of World Politics: An Introduction to International Relations, (2008). Co-authored with John Baylis and Steve Smith, Oxford University Press, 2008.

religious and cultural pluralism. In such circumstances, fundamentalist groups often perceive other religious communities or social strata that do not respect religious differences as enemies.

4.2.2.2 Terrorism

Religious radicalism includes movements or individuals who encourage extreme political or social change based on religious beliefs. Radicalism is not necessarily violent, but it often encourages actions in this direction.

Religious radicalism is often linked to terrorism, as radical groups such as the Islamic State or Al-Qaeda launch violent attacks in the name of religion. Their primary aim is to change the political system or impose religious dictates in place of secular political structures. These attacks are particularly threatening because they destabilize societies and pose a direct threat to both state and international security.

4.2.2.3 Migration and the refugee crisis

Migration and the refugee crisis are intertwined with questions of religious radicalism and fundamentalism. Migration has brought westward large numbers of people from other religious and cultural backgrounds, especially from conflict zones in the Islamic world, such as Syria, Iraq, and Afghanistan. These people are often fleeing religious persecution or civil war, where radicalism is common.

Fears of a rise in radicalism can often gather strength in societies which have welcomed refugees, as some radical groups (e.g. ISIS) have identified refugees as potential targets of manipulation in the service of their aims.

Conflicts ignited by religious radicalism in the Middle East have contributed significantly to the international refugee crisis. Millions of people have been displaced, causing a major migration crisis, particularly in Europe and other regions.

Fundamentalist regimes and groups usually persecute people who do not share their views. In many cases, this has triggered waves of refugees. For example, under the terror of the Islamic State (ISIS), many non-Muslims or Muslims whose attachment to their faith is regarded as insufficient by the regime have been forced to flee their homes.[104]

4.2.2.4 The destabilization of the social order

Religious fundamentalist and radical movements often constitute a threat to national and regional stability, especially when a given group gains significant support in a given country. Armed uprisings and revolutions can then break out, destabilizing the country or region.

The fight against religious fundamentalism and radicalism presents many challenges, as both phenomena are deeply rooted in individual and community identities and are often linked to perceptions of social injustice, political oppression, and economic disadvantages.

Changes in global politics and the social environment have made religious fundamentalism and religious radicalism an increasingly important issue that can only be kept under control through internationally coordinated strategies.

[104] Ken Booth and Tim Dunne (eds.) The Globalization… 68-70

SUMMARY

In recent decades, the discipline of the sociology of religion has undergone significant changes due to global social and cultural shifts. One of the most obvious consequences of secularization has been the decline in the role of religious institutions. It was therefore particularly important to take a closer look at the changes at work in the depths of postmodern society and the ways in which these various changes have been intertwined, with particular reference to religious pluralism, secularization, multiculturalism, and, finally, religious fundamentalism. The study of these trends and shifts reveals numerous challenges and causes for concerns, but there are also encouraging signs.

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The work of Krisztián Dombrádi is both proof of and tribute to the success that the theory of sociologist and systems theorist Niklas Luhmann has enjoyed. Dombrádi's doctoral dissertation, which shows his thorough knowledge of Luhmann's ideas, provides a rich elaboration of this theory. His 2011 book Ismerős ismeretlen ("The Known Unknown) examines the relationship between social capital and communication, linking the well-known ideas of Pierre Bourdieu with the critical apparatus offered by Luhmann. Particularly engaging in Luhmann's method is the use of specific distinctions, which is why his theory is also often referred to as difference theory. With the book that the reader now holds, Dombrádi offers eloquent testimony to the success of Luhmann's theory as an approach that transcends disciplinary borders. His studies explore various aspects of the interconnections among communication theory, systems theory, the military sciences, and artificial intelligence. He raises questions concerning tactical warfare, the problems of decision making in combat situations, and the emergence of new space and time sensing in air warfare.

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