FILOZOFSKI FAKULTET UNIVERZITETA CRNE GORE

Konferencija (Program / Knjiga apstrakata)

NAUKA, FILOZOFIJA NAUKE I NAUČNA METODOLOGIJA II

Podgorica, Crna Gora, 20. novembar 2025.
Univerzitet Crne Gore, Rektorat

FACULTY OF PHILOSOPHY, UNIVERSITY OF MONTENEGRO

Conference (Programme / Book of Abstracts)

SCIENCE, PHILOSOPHY OF SCIENCE AND SCIENTIFIC METHODOLOGY II

Podgorica, Montenegro, November 20, 2025
University of Montenegro, Rectorate

Nikšić, 2025.

FILOZOFSKI FAKULTET UNIVERZITETA CRNE GORE

Konferencija (Program / Knjiga apstrakata)

NAUKA, FILOZOFIJA NAUKE I NAUČNA METODOLOGIJA II

Podgorica, Crna Gora, 20. novembar 2025.
Univerzitet Crne Gore, Rektorat

FACULTY OF PHILOSOPHY, UNIVERSITY OF MONTENEGRO

Conference (Programme / Book of Abstracts)

SCIENCE, PHILOSOPHY OF SCIENCE AND SCIENTIFIC METHODOLOGY II

Podgorica, Montenegro, November 20, 2025
University of Montenegro, Rectorate

Nikšić, 2025.

Urednik:
Vladimir Drekalović

Izdavač:
Golbiprint

Tehnička obrada:
Dalibor Vukotić

Tiraž:
100

Štampa:
Golbi

Konferencija se organizuje u okviru projekta *Nauka i njeni filozofski aspekti u savremenom balkanskom prostoru – ideja naučne integracije*, koji finansira Ministarstvo prosvjete, nauke i inovacija Crne Gore

The conference is organized as part of the project *Science and Its Philosophical Aspects in the Modern Balkan Area - the Idea of Scientific Integration*, financed by the Ministry of Education, Science and Innovation of Montenegro

CIP - Каталогизација у публикацији
Национална библиотека Црне Горе, Цетиње

ISBN 978-9940-553-26-5
COBISS.CG-ID 36043780

Organizator / Organizer

Filozofski fakultet Univerziteta Crne Gore /
Faculty of Philosophy, University of Montenegro

Organizacioni odbor / Organizing Committee

Dr Veselin Mićanović
Dr Tatjana Novović
Dr Marijan Premović
Dr Vladimir Drekalović
Dr Mara Šćepanović
Dr Miloje Šundić
Dr Tatjana Vujović
Dr Jelena Mašnić

Naučni odbor / Scientific Committee

Dr Miloš Adžić, Univerzitet u Beogradu, Srbija
Dr Denis Čamo, Univerzitet u Sarajevu, Bosna i Hercegovina
Dr Neftalí Villanueva Fernández, Univerzitet u Granadi, Španija
Dr Ljudevit Hanžek, Univerzitet u Splitu, Hrvatska
Dr Dušan Jokanović, Univerzitet u Istočnom Sarajevu, Bosna i Hercegovina
Dr Svetlana Kalezić, Univerzitet Crne Gore, Crna Gora
Dr Pawel Korobczak, Univerzitet u Vroclavu, Poljska
Dr Jovana Kostić, Univerzitet u Beogradu, Srbija
Dr Budimir Lutovac, Univerzitet Crne Gore, Crna Gora
Dr Adi Maslo, Univerzitet Džemal Bijedić, Bosna i Hercegovina
Dr Veldin Ovčina, Univerzitet Džemal Bijedić, Bosna i Hercegovina
Dr Rui Romão, Univerzitet u Portou, Portugalija
Dr Bogdana Stamenković, Univerzitet u Beogradu, Srbija
Dr Nina Petek, Univerzitet u Ljubljani, Slovenija
Dr Ines Skelac, Univerzitet u Zagrebu, Hrvatska
Dr Sandra Tinaj, Univerzitet Donja Gorica, Crna Gora
Dr Franci Zore, Univerzitet u Ljubljani, Slovenija
Dr Kledi Xhaxhiu, Univerzitet u Tirani, Albanija

Sadržaj / Contents

PROGRAM / PROGRAMME

Četvrtak, 20. novembar 2025. / Thursday, November 20, 2025

12.00–12.15 ***Otvaranje konferencije i pozdravne riječi / Opening ceremony and welcoming speeches***

Vladimir Drekalović, predsjednik Organizacionog odbora konferencije / President of the Organizing Committee of the Conference

Tatjana Novović, dekanica Filozofskog fakulteta Univerziteta Crne Gore / Dean of the Faculty of Philosophy, University of Montenegro

Vladimir Božović, rektor Univerziteta Crne Gore / Rector of the University of Montenegro

Plenarna predavanja / Keynote lectures

12.15–13.45 **Igor Đurović** (Crna Gora / Montenegro): Da li će univerziteti preživjeti XXI vijek? / Will Universities Survive the 21st Century?

Lukáš Bielik (Slovačka / Slovakia): The Idealization Problem for Bayesianism

13.45–14.00 *Pauza za kafu / Coffee break*

Sesija 1 / Session 1

14.00–15.00 **Slobodan Perović** (Srbija / Serbia): Saznajne obaveze pri posmatranju i eksperimentisanju: slučaj nastanka radio astronomije / Distinguishing Observation and Experimentation: Epistemic Obligations at the Limit

Vanja Subotić (Srbija / Serbia): The L1/L2 Distinction as a Litmus Test: A Methodological Desideratum for Comparing Language Acquisition of Humans and LLMs

Jelena Govedarica (Srbija / Serbia): Kantov srednji put u prirodnoj istoriji / Kant's Middle Ground in Natural History

15.00–16.00 **Nikola Mijanović** (Crna Gora / Montenegro) Pojam i funkcija naučno-istraživačkih hipoteza u procesima proučavanja vaspitno-obrazovnih fenomena i pojava / The Concept and Function of Scientific Research Hypotheses in the Study of Educational Phenomena and Processes

Душан Игњатовић (Црна Гора / Montenegro): Сократов *elenchos* као претеча Поперове критичке епистемологије / Socratic *elenchos* as a Precursor to Popper's Critical Epistemology

Miomirka Rakonjac, Predrag Živković, Obrad Samardžić (Crna Gora / Montenegro): Usamljenost i samoća kao epifenomeni ljudskog postojanja u savremenom društvu / Loneliness and Solitude as Epiphenomena of Human Existence in Modern Society

16.00–17.00 *Pauza za ručak / Lunch break*

17.00–18.00 **Veselin Jovović**, **Radomir Čanjak** (Crna Gora / Montenegro): Odnos mase školske torbe i tjelesne težine kod učenika prva dva razreda osnovne škole / Relation of the School Bag and Body Weight for Students in the First Two Grades of Primary School

Nenad Vujadinović, Luka Rakojević, Nikola Vukčević (Crna Gora / Montenegro): Đurologija - Sva ljepota nauke/ Đurologija - The Great Beauty of Science

Igor Ivanović (Crna Gora / Montenegro): Od intuicije do algoritma: uticaj vještačke inteligencije i velikih količina podataka na savremena jezička istraživanja / From Intuition to Algorithm: The Impact of Artificial Intelligence and Big Data on Contemporary Linguistic Research

18.00–19.00 **Amir Ismić** (Bosna i Hercegovina / Bosnia and Herzegovina): Devastacija vjerskih objekata u Srednjoj Bosni od 1992. do 1995. godine / Devastation of Religious Buildings in Central Bosnia from 1992 to 1995

Armin Jašarević (Bosna i Hercegovina / Bosnia and Herzegovina): Temelji islamske političke misli: Pravda, moralnost i poredak / The Foundations of Islamic Political Thought: Justice, Morality and Arrangement

Vladyslav Shataliuk (Ukrajina / Ukraine): Language of Theory as a Window to Its World

19.00–20.15 **Vladimir Petrović** (Crna Gora / Montenegro): Modeli Sunčevog sistema - istorijski osvrt / Models of the Solar System - Historical Review

Darko Blagojević, Miloje Šundić (Crna Gora / Montenegro): Analitička filosofija i naučna paradigma: obračun sa tradicionalnom metafizikom / Analytical Philosophy and Scientific Paradigm: Reckoning with Traditional Metaphysics

Мара Шћепановић, Владимир Дрекаловић (Црна Гора / Montenegro): Дуална улога истраживача у емпиријској науци - експериментатор и мета-аналитичар / The Dual Role of the Researcher in Empirical Science - Experimenter and Meta-analyst

Petar Nurkić (Srbija / Serbia): No Place Like Home: Epistemology as the General Methodology of Science

20.15–20.30 *Rasprava / Discussion*

Završne riječi / Closing ceremony

Sesija 2 (Onlajn) / Session 2 (Online)

14.00–15.00 **Volodymyr Kuznetsov** (Ukrajina / Ukraine): On the Object of the Philosophy of Scientific Theories

Matías Pasqualini & Sebastian Fortin (Argentina / Argentina): Ontological Pluralism in Quantum Mechanics: A Tensor Product Structures Approach

Katarzyna Ciarcińska (Poljska / Poland): Empathy in Scientific Methodology: A Phenomenological Perspective on Human Understanding

15.00–16.00 **Bogdana Stamenković Jajčević** (Srbija / Serbia): "What is Life?": Darwinism, Gaia, and Our Worldview

Silviu-Constantin Federovici (Rumunija / Romania): Experience and Computation: Brouwer's Creating Subject and Turing's Universal Machine as Ideal Models of Mathematical Reasoning

Борис Милосављевић (Србија / Serbia): Филозофија и историјска наука у докторату Кајице Миланова / Philosophy and History in Kajica Milanov's Doctoral Dissertation

16.00–17.00 *Pauza za ručak / Lunch break*

17.00–18.00 **Aleksandar Prnjat** (Srbija / Serbia): Mihailo Marković o razvoju naučne metodologije / Mihailo Marković on the Development of Scientific Methodology

Гордана Медић-Симић (Србија / Serbia): Наука као духовна пракса: о парадигмама, језику и утеловљеном знању / Science as a Spiritual Practice: On Paradigms, Language, and Embodied Knowledge

Nemanja Popović, Milena Konatar, Milivoje Radović (Crna Gora / Montenegro): Metodološki pristupi stres testiranju klimatskih rizika u ekonomskim istraživanjima: primjer Crne Gore / Methodological Approaches to Climate Risk Stress Testing in Economic Research: The Case of Montenegro

18.00–19.00 **Asim Delibašić** (Bosna i Hercegovina / Bosnia and Herzegovina): Epistemološki status Likert skale: između ordinalnog i intervalnog mjerenja u političkim istraživanjima / The Epistemological Status of the Likert Scale: Between Ordinal and Interval Measurement in Political Research

Bojan Milunović (Crna Gora / Montenegro): Kompjutacioni modeli i pitanje inovacije u filozofiji nauke / Computational Models and the Question of Innovation in the Philosophy of Science

Марија С. Докић (Србија / Serbia): Када свет бива опажен: квантна теорија и филозофија ума у дијалогу / When the World is Perceived: Quantum Theory and Philosophy of Mind in Dialogue

19.00–19.15 *Rasprava / Discussion*

Završne riječi / Closing ceremony

IGOR ĐUROVIĆ

Elektrotehnički fakultet, Univerzitet Crne Gore
Crnogorska akademija nauka i umjetnosti /
Faculty of Electrical Engineering, University of Montenegro
Montenegrin Academy of Sciences and Arts

Da li će univerziteti preživjeti XXI vijek?

U izlaganju će biti razmatrani mogući razlozi zbog kojih tercijarno ili univerzitetsko obrazovanje gubi na atraktivnosti širom svijeta. Evidentno slabljenje interesovanja studenata (kandidata za upis) postepeno prelazi u krizu univerziteta i visokog obrazovanja. Izlaganje razmatra kako će se društveni akteri (politika, privreda, univerzitetsko osoblje) prilagoditi, kako reagovati na ova pojave, kao i moguće scenarije u vezi sa tim što će se sa univerzitetima i visokim obrazovanjem dešavati u budućnosti.

Will Universities Survive the 21st Century?

The presentation will discuss possible reasons why tertiary or university education is losing its attractiveness worldwide. The evident decline in student interest (among prospective applicants) is gradually turning into a crisis of universities and higher education. The presentation examines how social actors (politics, the economy, and university staff) will adapt and respond to these developments, as well as possible scenarios for what may happen to universities and higher education in the future.

LUKÁŠ BIELIK

Faculty of Arts, Comenius University in Bratislava

The Idealization Problem for Bayesianism

Bayesianism currently represents one of the pillars of confirmation theory. Despite some problems, its effectiveness and power are evident on several levels. In recent years, its probabilistic framework has contributed to the clarification of several problems and the explanation of key concepts related to scientific reasoning and hypothesis evaluation, including (concepts of) evidence diversity, robustness analysis, explanatory power, etc. No other confirmation theory has achieved such success and reach as Bayesian confirmation theory (BCT). However, this success encounters an interesting problem, which Michael Shaffer has already pointed out: the problem of idealizations (Shaffer 2001; 2012).

Idealizations are part of many scientific theories, both in the natural and social sciences. If we accept one of the traditional characterizations, according to which idealizations are deliberately accepted false statements that fulfill a certain theoretical function, then theories that contain such statements will be strictly speaking false. Nevertheless, we understand idealized theories in science as theories for which there is evidential support. The question is how—if at all—the relationship of confirmation (or disconfirmation) of an idealized theory can be modeled or interpreted in BCT?

In my talk, I will first outline two ways in which the problem of idealized theories can be expressed. The first way is typical of the approach of M. Shaffer (2012), the second of O. Vassend (2019), J. Sprenger (2020), and J. Sprenger and S. Hartmann (2019). I will point out some of the unfavorable consequences to which both approaches lead. Finally, I will suggest a possible extension of Sprenger & Hartmann's approach to allow for a comparison between the pragmatic adequacy of the theories and theoretical models being compared.

SLOBODAN PEROVIĆ

Filozofski fakulet, Univerzitet u Beogradu /
Faculty of Philosophy, University of Belgrade

Saznajne obaveze pri posmatranju i eksperimentisanju: slučaj nastanka radio astronomije

Distinkcija između posmatranja i eksperimentisanja je dinamički kontinuum, a ne strogo pojmovno razgraničenje. Taj kontinuum je definisan nivoom dostupnosti proučavanog fenomena kao i stepenom intervencije primenjene na taj fenomen. Ovaj filozofski okvir koji definiše distinkciju posmatranje/eskperiment, postaje ključan u eksploratornoj „nauci na granici" – u novim još uvek neispitanim oblastima istraživanja. Takve oblasti nam omogućavaju da lakše identifikujemo epistemičke i metodološke obaveze u izvođenju naučnih posmatranja i eksperimenata. Ovaj rad istražuje te obaveze na istorijskom slučaju nastanka radio astronomije 1950-ih godina. Prvobitno odbačena od strane optičkih astronoma kao puko „detektovanje" „tupim instrumentima", radio astronomija se zasnivala na signalima koji su bili slabo definisani i poreklo čijih izvora je bilo neizvesno. Da bi ta oblast astronomije prešla sa puke detekcije na legitimna posmatranja u punom smislu te reči, radio astronomi su se suočili sa osnovnom epistemičkom obavezom uspostavljanja „epistemičke recipročnosti". Ovo je zahtevalo potvrđivanje njihovih nalaza u odnosu na ustaljene prakse optičke astronomije, na primer, katalogizovanjem izvora i testiranjem kosmoloških teorija. Višegodišnji stručni, verbalni, a sudeći po svedočanstvima i fizički sukob između grupa ranih radioastronoma sa Kembridža i iz Sidneja, gde je druga navedena grupa stotine detektovanih izvora osporavala kao fiktivne, naglašava neophodnost ove obaveze. U nedostatku preovlađujućih ("mainstream") stavova, legitimnost oblasti je zavisila od uzajamnog testiranja opreme i metodologija kako bi se opravdalo njihovo mesto (posmatranja, a ne puke detekcije) na opservacionom kontinuumu. Ovaj slučaj pokazuje da tačke na kontinuumu opservacija/eksperimentisanje nisu samo deskriptivne, već nose inherentne epistemičke dužnosti, neophodne za opravdavanje praksi u različitim naučnim oblastima.

Distinguishing Observation and Experimentation: Epistemic Obligations at the Limit

The distinction between observation and experimentation constitutes a dynamic continuum, defined by the accessibility of phenomena and the degree of intervention applied to those phenomena. This philosophical framework of the distinction becomes critically prescient in exploratory "science at the limit," where epistemic and methodological obligations are well exposed. This talk explores this issue through the historical case of the emergence of radio astronomy in the 1950s. Initially dismissed by optical astronomers as mere "detection" with "blunt instruments," the signals were poorly defined and their sources ambiguous. To transition from detection to legitimate observation on the observation/experiment continuum, radio astronomers faced the core epistemic obligation of establishing "epistemic reciprocity." This required validating their findings against the established practices of optical astronomy, for instance by cataloguing sources and testing cosmological theories. The high-stakes conflict between the Cambridge and Sydney groups, where hundreds of detected sources were disputed as fictitious, underscores the necessity of this obligation. Without a mainstream view, the field's legitimacy hinged on mutually testing equipment and methodologies to justifiably define their place on the observational continuum. This case demonstrates that the points on the observation-experimentation continuum are not merely descriptive but carry inherent epistemic duties, essential for justifying a scientific field's practices and claims to knowledge.

VANJA SUBOTIĆ

Faculty of Philosophy, University of Belgrade

The L1/L2 Distinction as a Litmus Test: A Methodological Desideratum for Comparing Language Acquisition of Humans and LLMs

I argue that any rigorous methodological framework aimed at evaluating the claim "Large Language Models (LLMs) acquire language similarly to humans" must explicitly integrate the distinction between first (L1) and second (L2) language acquisition. The current discussion, be it in philosophy or cognitive science, suffers from a lack of conceptual clarity, which, in turn, results in the conflation of these two distinct learning processes (Brown et al. 2020, Dupre 2024, Johnsson & Dupre 2025). This conflation leads to a category error: by treating L1 and L2 acquisition as if they were the same kind of phenomenon and then compounding this error by assigning the LLM's statistical learning process to this undifferentiated category. The impact of the category error on the discussion is harmful because it allows for the following fallacious reasoning:

(P_1) *Humans (L1) are the gold standard for language acquisition.*

(P_2) *LLMs can generate grammatical text.*

(C) *Therefore, LLMs are achieving something akin to the human gold standard.*

The linguistic achievements of LLMs, if they mirror any human process at all, can only be distorted mirrors of L2, not L1. To support this, I proceed by defining the categories in question to expose the error. L1 acquisition is a biologically constrained process of primary cognitive bootstrapping: it constructs a language system from a non-linguistic baseline, operates on sparse, multimodal, and ecologically embedded data, and its core mechanisms are hypothesized to be domain-specific (see Brown 1973). L2 acquisition, in contrast, is a process of system reconfiguration: it integrates a new linguistic system into a pre-existing, mature cognitive-linguistic

framework, heavily leveraging metalinguistic awareness and often explicit instruction (see Ellis 2009). The "acquisition" process of an LLM amounts to a statistical optimization on a static, monolithic, and large text corpus, which is distinct from L1 acquisition because it lacks the developmental trajectory, embodied grounding, and ecological validity. However, it shares superficial similarities with L2 learning, such as reliance on massive explicit data and susceptibility to cross-system interference (e.g., between languages in its training set) (Marian 2023).

Recognizing this allows us to redirect the debate: claims about "acquisition" in LLMs should be evaluated against L2-like benchmarks, not L1. Methodologically, this requires **(i)** explicit operationalization of L1/L2 distinctions, **(ii)** reorientation of evaluation metrics toward reconfiguration and transfer rather than bootstrapping, and **(iii)** a rejection of inferential shortcuts that equate statistical performance with cognitive equivalence.

JELENA GOVEDARICA

Filozofski fakultet, Univerzitet u Beogradu /
Faculty of Philosophy, University of Belgrade

Kantov srednji put u prirodnoj istoriji

U literaturi koja Kantovu teoriju rase smešta u kontekst tadašnjih rasprava u okviru prirodne istorije (*Naturgeschichte*) postoji neslaganje oko toga da li je treba okarakterisati kao varijantu epigeneze ili preformacionizma. Tvrdiću da Kantova teorija rase zapravo predstavlja srednji put između ove dve oprečne teorije razvoja organizama.

Sa jedne strane, Kant je tvrdio da se u „klicama" (*Keime*) kriju svi potencijali ljudskog bića, te da su rasne razlike među ljudima posledica sredinskih faktora koji utiču na to koje će se konkretne „prirodne predispozicije" (*Anlagen*) aktualizovati, što govori u prilog tezi da njegova teorija sadrži bitne principe epigeneze. Sa druge strane, Kantovo dosledno insistiranje na monogenizmu, odnosno biološkom jedinstvu ljudske vrste, kao i uverenje da svaka biološka vrsta potiče iz sopstvenog „filuma" (*Stamm*), potvrđuje njegovo oslanjanje na fundamentalne principe preformacionizma.

Međutim, posebnost Kantovog pristupa izučavanju prirode ljudskih bića ogleda se u uverenju da je razvoj prirodnih predispozicija uvek teleološki ustrojen, što njegovu biološku teoriju čini potencijalno relevantnom za njegovo shvatanje istorije i napretka čovečanstva. S tim u vezi, u izlaganju ću se osvrnuti ne samo na najvažnije osobenosti Kantovog shvatanja rase, već i na bitnu distinkciju između istorije prirode i deskripcije prirode.

Imajući u vidu činjenicu da se Kantovo rešenje mnogih disciplinarnih sporova u filozofiji može okarakterisati kao srednji put, smatram da je teza prema kojoj je Kant načinio sintezu epigeneze i preformacionizma u potpunosti konzistentna sa kritičkom usmerenošću njegovog filozofskog sistema.

Kant's Middle Ground in Natural History

In the literature situating Kant's theory of race within the context of eighteenth-century debates in natural history (*Naturgeschichte*), scholars disagree on whether it should be understood as a version of epigenesis or of preformationism. I argue that Kant's account of race occupies a middle ground between these two opposing theories of organism development.

On the one hand, Kant claimed that all human potentials are contained within the "germs" (*Keime*), and that racial differences among human beings result from environmental factors determining which "natural predispositions" (*Anlagen*) become actualized, suggesting that his theory incorporates key principles of epigenesis. On the other hand, Kant's consistent commitment to monogenism, that is, to the biological unity of the human species, as well as his view that each biological species originates from its own "phylum" (*Stamm*), demonstrates his reliance on the fundamental principles of preformationism.

However, the distinctiveness of Kant's approach to the study of human nature lies in his conviction that the development of natural predispositions is always teleologically organized, making his biological theory potentially relevant to his understanding of history and the progress of humanity. In this context, I will address not only the main features of Kant's understanding of race, but also the crucial distinction between natural history and the description of nature.

Given that Kant's solutions to many disciplinary debates in philosophy can be characterized as a middle ground, I believe that his synthesis of epigenesis and preformationism in his theory of race is fully consistent with the critical orientation of his philosophical system.

NIKOLA MIJANOVIĆ

Filozofski fakultet, Univerzitet Crne Gore /
Faculty of Philosophy, University of Montenegro

Pojam i funkcija naučno-istraživačkih hipoteza u procesima proučavanja vaspitno-obrazovnih fenomena i pojava

Svako ozbiljnije istraživanje započinje kreiranjem, izradom i preciznim definisanjem naučno-istraživačkog projekta. Njegovu sadržajno-koncepcijsku osnovu konstitutivno zaokružuju idejni, studijski i tehnički dio. U idejnom dijelu projekta, najprije se definiše problem, iz čije se šire elaboracije izvode i konkretizuju predmet, cilj i zadaci istraživanja. Riječ je o fundamentalnim epistemološko-metodološkim premisama iz kojih se logičko-saznajnom dedukcijom izvode naučno-istraživačke hipoteze. Evidentno je da među metodolozima različite naučne provenijencije ne postoji potreban konsenzus oko shvatanja pojma, suštine i funkcije hipoteze. No, bez obzira na tu činjenicu, nesporno je da većina istraživača preferira stav, odnosno tvrdnju, da je ona misaona pretpostavka o predmetu koji se naučno proučava, o njegovoj strukturi, funkciji, stanju i odnosima sa drugim tangirajućim predmetima, procesima i pojavama. Sljedstveno ovom shvatanju, osnovano je tvrditi da je hipoteza naučna pretpostavka koja nije dokazana, ali je dovoljno vjerovatna da bi u konačnici mogla biti tačna. U epistemološko-metodološkom smislu, dobro osmišljena hipoteza morala bi da proistekne iz suštine proučavanog problema, a uz sve to podrazumijeva se da bude objektivna, činjenična, argumentovana i provjerljiva. Hipoteze se postavljaju s ciljem da se u istraživačkom procesu verifikuju povezanosti ili razlike između prethodno identifikovanih i jasno formulisanih dvaju ili više naučno-istraživačkih varijabli. Prema tome, težište ovog rada fokusirano je na objašnjavanje i elaboriranje pojma, funkcije i značaja naučno-istraživačkih hipoteza u procesima proučavanja složenih vaspitno-obrazovnih fenomena i pojava. U tu svrhu korištena je metoda teorijske analize i deskriptivna naučno-istraživačka metoda.

The Concept and Function of Scientific Research Hypotheses in the Study of Educational Phenomena and Processes

Every serious research endeavour begins with the creation, development, and precise definition of a scientific research project. Its conceptual and substantive framework is integrally shaped by three components: the conceptual, the study-based, and the technical parts. In the conceptual section of the project, the problem is first defined, while the subject, aims, and tasks of the research are derived and concretised from its broader elaboration. These constitute fundamental epistemological and methodological premises from which scientific research hypotheses are logically and cognitively deduced. It is evident that among methodologists of different scientific orientations there is no consensus regarding the understanding of the concept, essence, and function of a hypothesis. Nevertheless, despite this fact, it is generally accepted that most researchers support the view that a hypothesis represents a mental assumption about the subject of scientific study, its structure, function, state, and relations with other related subjects, processes, and phenomena. In accordance with this understanding, it can be reasonably claimed that a hypothesis is a scientific assumption that has yet to be proven but is sufficiently plausible to be ultimately confirmed as true. From an epistemological and methodological perspective, a well-formulated hypothesis should originate from the very core of the studied problem, and it is implied that it must be objective, factual, reasoned, and verifiable. Hypotheses are formulated with the aim of verifying, within the research process, the relationships or differences between two or more previously identified and clearly defined research variables. Accordingly, the focus of this paper is on explaining and elaborating the concept, function, and significance of scientific research hypotheses in the examination of complex educational phenomena and processes. For this purpose, the theoretical analysis method and the descriptive scientific research method have been employed.

ДУШАН ИГЊАТОВИЋ

Филозофски факултет, Универзитет Црне Горе /
Faculty of Philosophy, University of Montenegro

Сократов *elenchos* као претеча Поперове критичке епистемологије

Рад разматра паралеле између Сократовог elenchos-а и Поперове критичке епистемологије, показујући како античка пракса дијалошког побијања претходи модерној логици фалсификације. У Платоновим раним дијалозима elenchos служи разоткривању противрјечности у моралним и политичким увјерењима, водећи до апорије и свијести о незнању. Поперов критички рационализам, у контексту философије науке 20. вијека, почива на истом принципу: знање напредује кроз стално тестирање и покушаје оповргавања теорија. Сличност је у конструктивној улози критике – прочишћавању појмова и подстицању трагања за бољим рјешењима. Разлике се огледају у домену примјене и епистемолошким посљедицама: док Сократово побијање завршава апоријом у етичко-педагошком контексту, Поперово води прогресивном замјењивању теорија у науци. Посебно је истакнута Поперова селективна рецепција античке традиције – величање Сократа као узора критичког рационализма уз истовремено одбацивање Платонове епистемологије као догматске. Закључак је да ова веза није пука историјска аналогија, већ жива традиција критичког мишљења која показује да напредак знања почива на способности препознавања и превазилажења грешака.

Socratic *elenchos* as a Precursor to Popper's Critical Epistemology

This paper examines the parallels between Socratic *elenchos* and Popper's critical epistemology, showing how the ancient practice of dialogical refutation anticipates the modern logic of falsification. In Plato's early dialogues, *elenchos* exposes contradictions in moral

and political beliefs, leading to aporia and the awareness of ignorance. Popper's critical rationalism, within twentieth-century philosophy of science, rests on the same principle: knowledge advances through continuous testing and attempted refutation of theories. The similarity lies in the constructive role of criticism – purifying concepts and encouraging the search for better solutions. Differences concern scope and epistemological consequences: Socratic refutation ends in *aporia* within an ethical-pedagogical context, while Popperian falsification leads to progressive theory replacement in science. Special attention is given to Popper's selective reception of the ancient tradition – celebrating Socrates as a model of critical rationalism while rejecting Plato's epistemology as dogmatic. The conclusion emphasizes that this connection is not a mere historical analogy but a living tradition of critical thought, demonstrating that the progress of knowledge depends on recognizing and overcoming errors.

MIOMIRKA RAKONJAC, PREDRAG ŽIVKOVIĆ, OBRAD SAMARDŽIĆ

Filozofski fakultet, Univerzitet Crne Gore /
Faculty of Philosophy, University of Montenegro

Usamljenost i samoća kao epifenomeni ljudskog postojanja u savremenom društvu

U radu ćemo razmatrati usamljenost i samoću kao integralne segmente ljudskog postojanja. Iako se ova dva fenomena ponekad preklapaju, između njih postoji i značajna razlika. S obzirom na kompleksnost fenomena usamljenosti, fokus analize usmjerićemo na savremeno društvo i ukorijenjenost ovog problema u njegovim strukturalnim i kulturnim promjenama. Intenzivna urbanizacija, mobilnost ljudi, kultura individualizma, brz razvoj tehnologije uslovljavaju slabljenje primarnih veza, prije svega porodičnih, srodničkih, prijateljskih, komšijskih. Istovremeno, ovi faktori formiraju ambijent zasnovan na odsustvu komunikacije i bliskosti, što ćemo u radu odrediti sintagmom 'zajedno, a sami'. Iz sociološke perspektive, usamljenost se javlja kao epifenomen načina života u postmodernom društvu. Pod uticajem hegemonije individualističke i neoliberalističke ideologije, otežano je zadovoljenje fundamentalne ljudske potrebe za pripadanjem, što za posledicu ima duboku emocionalnu i socijalnu usamljenost. Drugi fenomen, značajan za našu eksplikaciju, jeste samoća, u čijem se suštinskom značenju prepliću pozitivni i negativni aspekti. Samoću ćemo u pozitivnom kontekstu tumačiti *kao svjesno* izabran, vremenski definisan i funkcionalan prostor individualne introspekcije u cilju uspostavljanja i osmišljavanja kvalitetnijeg individualnog i društvenog života. Njena negativna konotacija se manifestuje u situacijama kada pojedinac uspostavi potpunu distinkciju od grupe u vremenski neograničenom toku ili kada osjeća potrebu za permenentnim bjekstvom od obaveza koje zahtijeva ljudska egzistencija u zajednici.

Loneliness and Solitude as Epiphenomena of Human Existence in Modern Society

In this paper, we will consider loneliness and solitude as integral segments of human existence. Although these two phenomena sometimes overlap, there is also a significant difference between them. Given the complexity of the phenomenon of loneliness, we will focus the analysis on contemporary society and the rootedness of this problem in its structural and cultural changes. Intensive urbanization, the mobility of people, the culture of individualism, and the rapid development of technology cause the weakening of primary ties, primarily family, kinship, friendship, and neighborly ties. At the same time, these factors form an environment based on the absence of communication and closeness, which we will define in the paper with the phrase 'together and alone'. From a sociological perspective, loneliness appears as an epiphenomenon of the way of life in postmodern society. Under the influence of the hegemony of individualistic and neoliberal ideology, it is difficult to satisfy the fundamental human need for belonging, which results in deep emotional and social loneliness. Another phenomenon, significant for our explanation, is loneliness, in whose essential meaning positive and negative aspects are intertwined. We will interpret solitude in a positive context as a consciously chosen, time-defined and functional space of individual introspection with the aim of establishing and designing a better quality individual and social life. Its negative connotation is manifested in situations when an individual establishes a complete distinction from the group in a time-limited course or when he feels the need for a permanent escape from the obligations required by human existence in the community.

VESELIN JOVOVIĆ[1], RADOMIR ČANJAK[2]

[1]*Fakultet za sport i fizičko vaspitanje Univerziteta Crne Gore / Faculty of Sports and Physical Education of the University of Montenegro*

[2]*Vojska Crne Gore / Army of Montenegro*

Odnos mase školske torbe i tjelesne težine kod učenika prva dva razreda osnovne škole

Težina školske torbe se u stručnim i laičkim krugovima veoma često pominje kao jedan od najčešćih uzroka nastanka posturalnih poremećaja kod školske djece. Brojna istraživanja ukazuju da preteške školske torbe mogu dovesti do narušavanja stato-dinamičkih odnosa na lokomotornom aparatu, a time i do pojave lošeg držanja tijela (Hong i Cheung, 2003; Grimer i sar., 2002; Jovović, 1999), kao i do bolova u leđima (Ali El-Nagar S. i Mohamed M., 2017). Cilj istraživanja je da se utvrdi odnos težine školske torbe sa tjelesnom masom djevojčica i dječaka prvog i drugog razreda osnovne škole. Programom istraživanja obuhvaćeno je 126 učenika/ca, od čega 61 entitet muškog i 65 ženskog pola OŠ „Braća Ribar“ u Nikšiću. Školske torbe su mjerene posebno za svaki dan u sedmici. Takođe, posebno je izmjerena težina praznih torbi i cjelokupnog školskog kompleta koji je obavezan za svakog učenika. Istraživanje je pokazalo da je prosječna težina prazne torbe iznosila 1,1kg, a težina školskog kompleta, bez torbe, za prvi razred 3,3kg, a za drugi 3,9kg. Opterećenost školskom torbom bila je najmanja kod dječaka prvog razreda (11,3%), a najveća kod djevojčica drugog razreda (15,5%), od ukupne tjelesne mase. Iako su obrazovne institucije u Crnoj Gori počele da uvode mjere za smanjenje težine đačke torbe taj problem još uvijek nije riješen i zato i dalje treba raditi na njegovom prevazilaženju.

Relation of the School Bag and Body Weight for Students in the First Two Grades of Primary School

The weight of the school bag is very often mentioned in professional and lay circles as one of the most common causes of postural disorders in school children. Numerous studies indicate that too heavy school bags can lead to disruption of the static-dynamic relationships of the locomotor apparatus, and thus to poor posture (Hong and Cheung, 2003; Grimer et al., 2002; Jovović, 1999) as well as Dobilova in the back (Ali El-Nagar S. & Mohamed M., 2017). The aim of the research is to determine the relationship between the weight of the school bag and the body weight of girls and boys in the first and second grade of elementary school. The research program included 126 students, of which 61 were male and 65 were female from the "Braća Ribar" elementary school in Nikšić. School bags are measured separately for each day of the week. Also, the weight of empty bags and the entire school kit, which is mandatory for every student, was separately measured. The research showed that the average weight of an empty bag was 1.1 kg, and the weight of a school kit, without a bag, for the first grade was 3.3 kg, and for the second grade 3.9 kg. The burden of the school bag was the lowest among first-grade boys (11.3%), and the highest among second-grade girls (15.5%), of the total body weight. Although educational institutions in Montenegro have started to introduce measures to reduce the weight of schoolbags, this problem has not yet been solved and therefore we still need to work on overcoming it.

NENAD VUJADINOVIĆ[1], LUKA RAKOJEVIĆ[2], NIKOLA VUKČEVIĆ[3]

[1]*Univerzitet Donja Gorica / University of Donja Gorica*

[2]Leksikografski centar CANU / Lexicographic Center of MASA

[3]Univerzitet Donja Gorica / University of Donja Gorica

Đurologija Sva ljepota nauke

Termin *đurologija* često je koristio prof. dr Ratko Božović s ciljem da opiše djelovanje i značaj svog kolege i prijatelja Đura Šušnjića. Zabilježio ga je u tekstu *Susret sa stvaralaštvom Đura Šušnjića* i istakao kao naslov priloga za knjigu *Izvan igre*. Upotrijebio ga je i prof. dr Goran Bašić u članku *Kako me je Đurologija učila da postanem nesvrstan ili o piscu knjiga koje prašina ne pokriva*.

Ovdje je termin naveden da bi označio ono što prof. dr Đuro Šušnjić predstavlja za nauku o kulturi. U *radu Đurologija: Sva ljepota nauke* referisano je na knjige *Metodologija: kritika nauke*, *Kritika sociološke metode: uvod u metodologiju društvenih nauka*, *Trojica protiv jednoga: ogledi iz filozofske antropologije*, *Sjaj odlomka: prilozi otvorenoj antropologiji*, *Cvetovi tla: ogledi o ulogama ideja u životu*, *Ribari ljudskih duša: ideja manipulacije i manipulacija idejama*, kao i na zbornik *Život za ideju* koji je priredio prof. dr Čedomir Čupić.

Rad tretira promišljanja o fenomenu nauke profesora Šušnjića, kao i njegovu percepciju tog pojma. Poseban segment je posvećen njegovim stavovima iskazanim kroz akcentovanu knjigu *Metodologija: kritika nauke*. U ovom kapitalnom djelu autor elaborira premise na kojima je nauka zasnovana.

Poetičan stil i raskošne reminiscencije Đura Šušnjiča svrstavaju među one rijetke autore koji su oplemenili jugoslovensku nauku o kulturi, bez kojih bi ona bila znatno siromašnija i štura. Lucidnost, vizija i nadahnuće imanentni njegovim tekstovima i studijama unijeli su neophodan glas razuma, koji se često opirao i bio oprečan opštem galijamtijasu društvenog života.

Manir kojim ovaj sociolog-pisac stvara svoja djela ne podrazumijeva ni najmanju dozu monotonije. On je uvijek prijemčiv i to ne u smislu slatkastog podilaženja čitaocu, već na onaj najozbiljniji način edukatorski i oličen je u uživanju prilikom spoznaja i saznanja. Zato je u đurologiji sažeta sva ljepota nauke.

Đurologija
The Great Beauty of Science

The term *đurologija* was often used by professor Ratko Božović, PhD, with the aim of describing the work and significance of his colleague and friend Đuro Šušnjić. The same term was noted in his paper *The Encounter with Đuro Šušnjić's Works* and it was emphasized as the title of the paper for the book *Out of the Game*. The term was also used by professor Goran Bašić, PhD, in the article *Manner in which Đurologija Made Me Unaligned or about the Author of Books which Never Gather Dust.*

In this paper, the term is listed in order to mark the significance of professor Đuro Šušnjić in regards to cultural studies. The paper *Đurologija: the Great Beauty of Science* refers to the following books: *Methodology: Criticism of Science, Criticism of Sociological Method: Introduction to Methodology of Social Sciences, Three Agains One: Experiments in Philosophical Anthropology, The Shine of the Fragment: Contribution to Open Anthropology, Flowers of the Soil: Experiments in Ideas' Roles in Life, Fishermen of Human Souls: Idea of Manipulation and Manipulating Ideas,* as well as the collection of papers *Life for the Idea* prepared by professor Čedomir Čupić, PhD.

The paper treats professor Šušnjić's reflections of the phenomenon of science as well as his perception of the term. One separate seg-

ment of the paper is dedicated to his attitudes expressed through his book *Methodology: criticism of science.* In this masterwork author elaborates the premises on which the science is built.

The poetic style and rich reminiscences of Đuro Šušnjić place him among those rare authors who have ennobled Yugoslav cultural studies, without whom it would be markedly poorer and more limited. The lucidity, vision, and inspiration inherent in his texts and studies brought forth a necessary voice of reason, one that often resisted and stood in contrast to the general confusion of social life. The manner in which this sociologist-writer creates his works allows not even the slightest trace of monotony. He is always engaging, not in the sense of sweetly indulging to the reader, but in the most serious, educational way, embodied in the joy of discovery and understanding. That is why in "Đurologija" lies the very essence and beauty of science.

IGOR IVANOVIĆ

Filološki fakultet, Univerzitet Crne Gore /
Faculty of Philology, University of Montenegro

Od intuicije do algoritma: uticaj vještačke inteligencije i velikih količina podataka na savremena jezička istraživanja

Tradicionalna jezička istraživanja u velikoj mjeri počivala su na ograničenim korpusima, ručnoj analizi i tumačenju rezultata. Međutim, razvoj digitalnih tehnologija, vještačke inteligencije i dostupnost ogromnih količina podataka otvorili su novo poglavlje u lingvistici. Pojava vještačke inteligencije i naprednih metoda obrade jezika učinili su da dosadašnja metodološka praksa više ne može da se primjenjuje, jer je količina dostupnih podataka preobimna da bi ih istraživač obradio bez tehničke podrške, a složenost jezičkih obrazaca zahtijeva nove pristupe.

U ovom izlaganju predstavićemo kako se metodologija u lingvistici izmijenila pod uticajem velikih količina podataka i alata zasnovanih na vještačkoj inteligenciji. Poseban akcenat stavićemo na ulogu programskih jezika poput Python-a, koji omogućava automatizovanu analizu, statističko modelovanje i vizuelizaciju rezultata. Umjesto oslanjanja isključivo na istraživačku intuiciju i opisne metode, današnji lingvisti sve češće koriste tehnike mašinskog učenja, dubokih neuronskih mreža i algoritamska predviđanja da bi došli do uvida koji ranije nijesu bili dostupni.

Novi pristupi, međutim, ne znače potpuno odbacivanje tradicionalnih metoda. Naprotiv, hermeneutička dimenzija i kritička interpretacija ostaju neophodni kako bi se podaci stavili u širi kontekst i kako bi se izbjegla opasnost da rezultati budu svedeni na čistu kvantitativnu statistiku. Promjena se ogleda u tome što se istraživačka pažnja premješta sa ograničenih uzoraka na velike korpuse, sa ručnih na automatizovane procedure i sa jednostavnih mjerenja na složene modele jezičke dinamike.

Cilj ovog izlaganja je da prikaže kako spoj lingvistike i tehnoloških inovacija redefiniše samu prirodu naučnog istraživanja u jeziku i

otvara mogućnosti za pitanja i odgovore koji su do prije deceniju izgledali nedostižno.

From Intuition to Algorithm: The Impact of Artificial Intelligence and Big Data on Contemporary Linguistic Research

Traditional linguistic research has largely relied on limited corpora, manual analysis, and interpretative approaches. However, the development of digital technologies, artificial intelligence, and the availability of vast quantities of data have opened a new chapter in linguistics. The emergence of artificial intelligence and advanced methods of language processing has rendered earlier methodological practices increasingly untenable: the scale of available data is too extensive to be processed without technical support, while the complexity of linguistic patterns demands new approaches.

This presentation will demonstrate how linguistic methodology has been reshaped under the influence of big data and tools grounded in artificial intelligence. Particular emphasis will be placed on the role of programming languages such as Python, which enable automated analysis, statistical modelling, and the visualisation of results. Rather than relying exclusively on scholarly intuition and descriptive methods, contemporary linguists increasingly employ techniques of machine learning, deep neural networks, and algorithmic prediction to obtain insights that were previously unattainable.

These new approaches, however, do not imply the complete abandonment of traditional methods. On the contrary, hermeneutic perspectives and critical interpretation remain indispensable for situating data within a broader context and for avoiding the risk of reducing research outcomes to mere quantitative statistics. The change lies in the shift of scholarly attention from limited samples to large corpora, from manual to automated procedures, and from simple measurements to complex models of linguistic dynamics.

The aim of this presentation is to illustrate how the convergence of linguistics and technological innovation is redefining the very nature of scientific inquiry into language, opening questions and answers that only a decade ago seemed unattainable.

AMIR ISMIĆ

Devastacija vjerskih objekata u Srednjoj Bosni od 1992. do 1995. godine

Vrijeme deficita etike i razuma, lične i kolektivne destruktivne svijesti racionalnog rasuđivanja heterogenih vjerskih zajednica unutar bosanskohercegovačkog društva početkom devedesetih

U radu Devastacija vjerskih objekata u Srednjoj Bosni od 1992. do 1995. godine težište je na obradi cjelokupne problematike rušenja vjerskih objekata svih konfesija na području geografske oblasti Srednje Bosne, odnosno općina Bugojno, Busovača, Gornji Vakuf, Donji Vakuf, Fojnica, Jajce, Kiseljak, Maglaj, Novi Travnik, Skender Vakuf, Teslić, Tešanj, Travnik, Visoko, Vitez, Zavidovići, Zenica i Žepče.

Literatura koja se bavi ovom problematikom je relativno oskudna, te ako je nešto i pisano, onda je posmatrano sa stanovišta jedne konfesije, što onemogućava sagledavanje ovog problema u cjelini, a često su ovakvi pokušaji i rezultat sekundarnog izvora informacija, odnosno ne odražavaju precizno stanje na terenu, ili su u određenoj mjeri nepotpuni, ili djelomično nacionalistički nastrojeni.

Suprotno tome, u ovom radu se nastoji da se, na osnovu što većeg broja raspoloživih izvora, kompletira slika o stvarnom stanju i obimu devastacije vjerskih objekata u Centralnoj Bosni tokom proteklog rata. Intencija je da se sve raspoložive činjenice prezentiraju onakve kakve one u stvarnosti i jesu, bez bilo kakvog preuveličavanja ili umanjenja stvarnog obima devastacije vjerskih objekata bilo koje od tri najbrojnije konfesije.

Informacije i podaci prezentirani u radu prikupljeni su na nekoliko načina. Prvi jeste da je objedinjena sva raspoloživa građa u literaturi, a drugi se ogleda u terenskom obilasku teritorija svih općina Srednje Bosne obuhvaćenih u ovom radu, kako bi se na licu mjesta provjerila tačnost podataka iz literature, ali i došlo do dodatnih informacija o današnjem stanju i obnovi vjerskih objekata, te do novih podataka o velikom broju uništenih ili oštećenih objekata koji nisu spominjani u literaturi, te se ovdje po prvi put obrađuju.

Pored samih džamija i crkava, stradali su i pomoćni objekti ili groblja i mezarja, što se u radu također prezentira. Dobar dio podataka potječe i iz direktnog razgovora sa mještanima ili svjedocima uništenja ili oštećivanja vjerskih građevina, što je svakako dodatni doprinos i nova dimenzija ovog rada.

Važno je napomenuti da je mnogo džamija ili crkava koje su stradale, zbog svog umjetničkog, kulturnog, arhitektonskog ili historijskog izražaja i vrijednosti bilo proglašeno nacionalnim spomenicima, što predstavlja neizmjerljiv gubitak i kulturocid.

Treba naglasiti i to da su najviše stradali islamski vjerski objekti, ali i činjenicu da u većini slučajeva odgovorni za ova rušenja još uvijek nisu odgovarali pred licem pravde. Katalog svih vjerskih dobara stradalih na području Centralne Bosne predstavlja najveći doprinos proučavanju ove tematike, te je u svakom slučaju polazna osnova za njeno dalje proučavanje.

Devastation of Religious Buildings in Central Bosnia from 1992 to 1995

In the thesis The destruction of religious facilities in Central Bosnia from 1992 to 1995, the author deals with the issue of destruction of religious facilities from all religions in the geographical area of Central Bosnia, including Municipalities Bugojno, Busovača, Gornji Vakuf, Donji Vakuf, Fojnica, Jajce, Kiseljak, Maglaj, Novi Travnik, Skender Vakuf, Teslić, Tešanj, Travnik, Visoko, Vitez, Zavidovići, Zenica and Žepče. Works related to this topic are rather scarce and even if there are some, they are one-sided, observing the situation from the standpoint of one religion, what makes it difficult to perceive the whole issue. Frequently, these attempts are created out of the secondary sources of information and they do not reflect real situation in the field and they are also frequently incomplete or partially biased. Contrary to previously stated, this work tries to complete the picture about the real extent and condition of destruction of religious facilities in Central Bosnia during last war. The aim is to present real life data, without any interventions, diminishing or magnifying the extent of destruction of religious facilities, regard-

less of the three religions. The information and data were collected from several sources. The first includes gathering all available literature related to the topic and the second includes field research in the area of all municipalities in Central Bosnia, in order to verify the data from literature or to record additional information about current condition and rebuilding of religious facilities. Data also includes information about great number of destroyed or damaged facilities which have not been mentioned in literature before. Besides mosques and churches, this paper also presents data about auxiliary facilities and cemeteries which also underwent certain destruction. Great deal of information comes from direct conversation with local population or with witnesses of destruction or damaging of religious facilities, what adds another dimension and additional contribution to this thesis. It is important to note that many destroyed churches and mosques, due to their artistic, cultural, architectural or historical importance, were declared as national monuments, what makes this immense loss and culturecide. It should be stressed that the greatest destruction happened to Islamic religious facilities and in most cases, culprits did not meet justice. The catalogue of all destroyed religious facilities in Central Bosnia represents the greatest contribution to studying this issue and this is definitely a starting point for further research in this field.

ARMIN JAŠAREVIĆ

Doktorand na Fakultetu političkih nauka u Sarajevu /
PhD student at the Faculty of Political Sciences in Sarajevo

Temelji islamske političke misli: Pravda, moralnost i poredak

Islamska politička misao obuhvata skup ideja i teorija koje se razvijaju u kontekstu islamske tradicije, a odnose se na pitanja vlasti, prava, odnosa između vjere i države te društvenog uređenja. Ovaj rad nastoji analizirati temeljne pojmove koji oblikuju islamsku političku filozofiju kroz historijsko, teološko i filozofsko nasljeđe islama. Kroz metodu teorijske analize klasičnih i savremenih izvora utvrđeno je da tri ključna pojma čine jezgro islamske političke misli: **pravda**, **moralnost** i **uređenje** (sistem).

Historijsko-političko djelovanje poslanika Muhammeda a.s., posebno u medinskom periodu, pokazuje neraskidivu povezanost religije i politike u islamu. Prve institucionalne forme vlasti u islamskoj tradiciji, poput hilafeta i šerijatskog uređenja, proizilaze iz ovog jedinstvenog spoja vjerskog i političkog autoriteta. Nakon Poslanika, politička praksa prvih halifa, kao i kasniji historijski razvoj, dodatno su artikulisali ključna pitanja islamske političke teorije. U fokusu islamske političke misli ostaju nastojanja da se uspostavi pravedan društveni poredak zasnovan na moralnim principima.

Ova analiza predstavlja pokušaj sistematizacije temeljnih koncepata islamske političke misli, posebno u akademskom kontekstu našeg podneblja, gdje još uvijek ne postoji razvijena studijska literatura o ovoj tematici. Cilj rada je ponuditi osnovu za dalja istraživanja i dublje razumijevanje političke filozofije islama.

The Foundations of Islamic Political Thought: Justice, Morality and Arrangement

Islamic political thought encompasses a set of ideas and theories that develop in the context of the Islamic tradition, and relate to

issues of government, law, the relationship between religion and state, and social order. This paper seeks to analyze the fundamental concepts that shape Islamic political philosophy through the historical, theological, and philosophical heritage of Islam. Through the method of theoretical analysis of classical and contemporary sources, it has been determined that three key concepts form the core of Islamic political thought: justice, morality, and order (system).

The historical and political activities of the Prophet Muhammad, peace be upon him, especially in the Medina period, demonstrate the inextricable connection between religion and politics in Islam. The first institutional forms of government in the Islamic tradition, such as the caliphate and the Sharia order, stem from this unique combination of religious and political authority. After the Prophet, the political practice of the first caliphs, as well as subsequent historical developments, further articulated the key issues of Islamic political theory. The focus of Islamic political thought remains the efforts to establish a just social order based on moral principles.

This analysis represents an attempt to systematize the fundamental concepts of Islamic political thought, especially in the academic context of our climate, where there is still no developed study literature on this topic. The aim of the paper is to offer a basis for further research and a deeper understanding of the political philosophy of Islam.

VLADYSLAV SHATALIUK

PhD student at H. Skovoroda Institute of Philosophy of the NAS of Ukraine

Language of Theory as a Window to Its World

This paper advances a simple claim with wide consequences: the language of a theory is not a neutral conduit for facts but the primary medium through which the theory brings a world into view. By "language" I mean not only vocabulary, but also syntax (formal structure and mathematization), semantics (model-world mappings), pragmatics (explanatory aims, norms, audiences), and its figurative scaffolding (metaphors, diagrams, narratives). I propose a compact analytic protocol that traces how theories carve reality: (1) lexicon (how entities are individuated and named e.g., "fields," "particles," "fitness landscapes"); (2) metaphor networks that steer inference (e.g. "quark color", "quantum foam", "energy wells"); (3) inferential roles encoded by formal grammar (what follows from what); (4) representational choices (equations, simulations, visuals) that stabilize what counts as evidence.

The historical mini-study illustrates the method. What we know about theory and how we understand it puts restrictions on the language it should use, and thus, the model of the world proposed by theory receives its restrictions. Mach's economy-of-thought vocabulary (phenomena, sensations) frames a world of measured regularities, according to which the theory must clarify what we can actually get a grip on. Duhem's talk of "natural classification" and theory-holism frames a world where laws cohere systemically, in contradistinction to Mach, everything that looked like explanation now has to justify itself as representation, and words earn their meaning only inside the work a theory actually does. Poincaré's conventionalist idiom ("convenience," "definitions") frames a world where geometry and metric structure are chosen within empirical constraints, and the language of theory should talk about not hidden substances, but structures of relation. In each case, changing language reconfigures ontological commitments, admissible explanations, and the salience of evidence.

VLADIMIR PETROVIĆ

Srednja mješovita škola Golubovci /
Secondary school Golubovci

Modeli Sunčevog sistema - istorijski osvrt

Od kada je spoznao sebe čovjek je pokušavao da osmisli model njemu najbližih planeta odnosno Sunčevog sistema. Da bi smo to na pravi način shvatili trebamo prije svega definisati mehaničko kretanje. Mehaničko kretanje je promjena tijela u odnosu na drugo (referentno) tijelo. Ukoliko posmatramo kretanje Sunca u odnosu na nas koji predstavljamo referentno tijelo čini se da mi kao referetno tijelo mirujemo, dok Sunce kruži oko nas. Upravo je takav način sagledavanja učinio da se formira geocentrični sistem svemira. Geocentrični sistem svemira u kojem se Zemlja nalazi u centru svemira, dok sve ostale planete i zvijezde kruži oko nje, opstalo je toliko godina zahvaljujući učenju crkve da čovjek ima neki "poseban" status odnosno da je čovjek "privilegovan". Međutim, možemo se zapitati kako bi izgledalo ovo kretanje ukoliko bi se nalazili na Suncu (zanemarivši činjenicu da bi se istopili). Na Suncu bi nam se činilo da Zemlja kruži oko Sunca, na Mjesecu da sve kruži oko Mjeseca, na Neptunu da sve kruži oko njega. Klasična fizika nije dozvoljavala da i jedno i drugo mišljenje bude tačno. Geocentrični sistem svemira je komplikovani sistem svemira u koji je Ptolomej matematički opisao. Ali da model svemira nije toliko komplikovan ukazali su Kopernik, Galilej, Kepler i Njutn prešavši sa geocentričnog na heliocentrični sistem svemira. U ovom sistemu centar svemira predstavlja nepokretno Sunce oko kojeg kruže planete. Ajnštajn je ukazao na to da se ne može ovako prosto sagledavati Sunčev sistem. Proučimo na kratko problem "relativnosti" kretanja. Za posmatrača na Zemlji čovjek koji hoda 1 m/s u istom pravcu i smjeru kao voz čija je brzina 10 m/s relativno se kreće u odnosu na posmatrača na Zemlji brzinom 11 m/s. I to nije ništa novo - klasično sabiranje brzina. Za ljude koje se nalaze u vozu čovjek se kreće brzinom od 1m/s. Međutim, obzirom da ništa što ima masu se ne može kretati brže od svjetlosti to bi značilo da ukoliko bi se posmatrač u vozu kretao brzinom svjetlosti u istom pravcu i smjeru u vozu koji se takođe kreće brzinom svjetlosti, posmatrač na

Zemlji će zapaziti da se ove dvije brzine ne sabiraju kao kod klasične fizike, već da se čovjek u vozu i dalje kreće brzinom svjetlosti. Dakle drugačije "doživljavamo" kretanje ukoliko se krećemo brzinom mnogo manjom od brzine svjetlosti, a drugačije ukoliko se krećemo brzinom svjetlosti. Ako bi se sve u svemiru kretalo brzinom svjetlosti da li bi znali uopšte da se krećemo? Ljudi u auto koji se kreću brzinom 20 m/s misle da ljudi u auto koji se kreću istim pravcem i smjerom i istom brzinom pored njih se uopšte i ne kreću. Za čovjeka koji sjedi na klupi međutim oba automobila se kreću. Dakle, postavlja se pitanje šta bismo vidjeli da živimo na nekoj planeti koja nije dio Sunčevog sistema. Mi bi smo zapravo vidjeli Sunce koje se kreće velikom brzinom kroz Mliječni put i planete koje se kreću oko Sunca po putanjama koje liče na rozete. Mijenjanjem referetnog tijela mijenjaju se i zaključci odnosno predstave o mehaničkom kretanju. Pa koje onda u pravu: oni koji su mislili da se sve kreće oko Zemlje, oni koji su mislili da se sve kreće oko Sunca ili oni koji misle da se i Sunce kreće i planete oko njega kreću? Navikli smo da istina može biti samo jedna. Od te navike moramo da odustanemo.

Models of the Solar System - Historical Review

Ever since he realized himself, man has been trying to create a model of the planets closest to him, that is, the solar system. In order to understand this in the right way, we first of all need to define mechanical movement. Mechanical movement is the change of a body in relation to another (reference) body. If we observe the movement of the Sun in relation to us, who represent the reference body, it seems that we, as the reference body, are at rest, while the Sun circles around us. It was this way of seeing that led to the formation of the geocentric system of the universe. The geocentric system of the universe, in which the Earth is in the center of the universe, while all the other planets and stars revolve around it, survived for so many years thanks to the teaching of the church that man has a "special" status, that is, that man is "privileged". However, we can ask what this motion would look like if they were on the Sun (ignoring the fact that we would melt). On the Sun, it would seem to us that the Earth revolves around the Sun, on the Moon that everything revolves around the Moon, on Neptune that everything

revolves around it. Classical physics did not allow both opinions to be correct. The geocentric system of the universe is a complicated system of the universe that Ptolemy described mathematically. But Copernicus, Galileo, Kepler and Newton pointed out that the model of the universe is not so complicated by switching from the geocentric to the heliocentric system of the universe. In this system, the center of the universe is the stationary Sun around which the planets orbit. Einstein pointed out that the solar system cannot be viewed in this simple way. Let's briefly study the problem of "relativity" of movement. For an observer on Earth, a man walking 1 m/s in the same direction as a train whose speed is 10 m/s moves relative to the observer on Earth at a speed of 11 m/s. And it's nothing new - classic speed addition. For the people on the train, the person moves at a speed of 1 m/s. However, considering that nothing with mass can move faster than light, this would mean that if an observer on the train were to move at the speed of light in the same direction as the direction of the train that also moves at the speed of light, the observer on Earth would notice that these two speeds do not add up as in classical physics, but that the man on the train is still moving at the speed of light. Therefore, we "experience" movement differently if we move at a speed much lower than the speed of light, and differently if we move at the speed of light. If everything in the universe moved at the speed of light, would we even know that we are moving? People in a car moving at a speed of 20 m/s think that people in a car moving in the same direction at the same speed next to them, are not moving at all. For the man sitting on the bench, however, both cars are moving. So, the question arises, what would we see if we lived on a planet that is not part of the solar system. We would actually see the Sun moving at high speed through the Milky Way and the planets moving around the Sun in rosette-like paths. By changing the reference body, the conclusions or ideas about mechanical movement also change. So which one is right: those who thought that everything moves around the Earth, those who thought that everything moves around the Sun, or those who think that the Sun also moves and the planets move around it? We are used to the fact that there can only be one truth. We have to give up of that habit.

DARKO BLAGOJEVIĆ[1], **MILOJE ŠUNDIĆ**[2]

[1]*Filozofski fakultet, Univerzitet Crne Gore /*
Faculty of Philosophy, University of Montenegro

[2]*Prirodno-matematički fakultet, Univerzitet Crne Gore /*
Faculty of Science and Mathematics, University of Montenegro

Analitička filosofija i naučna paradigma: obračun sa tradicionalnom metafizikom

Apstrakt: Analitička filosofija stremi da naučni arhetip promišljanja transponuje u dimenziju filosofije. Naime, tradicionalna metafizika je, po mišljenju analitičara, koristila polisemične iskaze čija se istinitost nije mogla utvrditi. Njihova krajnja intencija jeste da odrede granicu koja razdvaja iskaze koji imaju smisao od onih koji su semantički besmisleni. Svi filosofski problemi su kamuflirani jezički problemi i na nivou jezika mogu biti riješeni. Jezik je ishodište i odredište krajnjeg smisla unutar analitičke filosofije.

Analytical Philosophy and Scientific Paradigm: Reckoning with Traditional Metaphysics

Analytical philosophy strives to transpose the scientific archetype of reflection into the dimension of philosophy. Namely, traditional metaphysics, according to analysts, used polysemic statements whose truth could not be determined. Their ultimate intention is to determine the boundary that separates statements which make sense from those which are semantically meaningless. All philosophical problems are camouflaged linguistic problems and can be solved at the level of language. Language is the origin and destination of ultimate meaning within analytical philosophy.

МАРА ШЋЕПАНОВИЋ[1], ВЛАДИМИР ДРЕКАЛОВИЋ[2]

[1]*Природно математички факултет, Универзитет Црне Горе / Faculty of Natural Sciences and Mathematics, University of Montenegro*

[2]*Филозофски факултет, Универзитет Црне Горе / Faculty of Philosophy, University of Montenegro*

Дуална улога истраживача у емпиријској науци - експериментатор и мета-аналитичар

Човјек је од самог почетка свог постојања био истраживач природе. Његова радозналост, способност да опажа и разликује појаве, као и да их тумачи, довела је до развоја науке. У сржи тог процеса стоји улога човјека као „детектора“ физичког експеримента – он је биће које својим чулима хвата сигнале из спољашњег свијета, упоређује их, записује и на крају формулише законе. Али истовремено човјек није само апарат који региструје податке; он је и филозоф који покушава да разумије дубље значење тих података и њихово мјесто у широј слици стварности. Овај рад има за циљ да покаже двоструку природу човјека у научном истраживању: као чулног посредника који прикупља информације из природе и као мисаоног бића које надмашује искуство и уноси смисао у оно што је експериментом добијено.

The Dual Role of the Researcher in Empirical Science - Experimenter and Meta-analyst

From the very beginning of his existence, man has been an explorer of nature. His curiosity, ability to observe and distinguish phenomena, as well as to interpret them, have led to the development of science. At the core of this process lies the role of man as a “detector” of physical experiments – a being that, through its senses, captures signals from the external world, compares them, records them, and ultimately formulates laws. Yet, man is not merely an instrument that registers data; he is also a philosopher who seeks to understand the deeper meaning of those data and their place within the

broader picture of reality.The aim of this paper is to highlight the dual nature of man in scientific research: as a sensory mediator who gathers information from nature, and as a thinking being who transcends experience and gives meaning to what has been obtained through experiment.

PETAR NURKIĆ

Faculty of Philosophy, University of Belgrade

No Place Like Home: Epistemology as the General Methodology of Science

In the second half of the twentieth century, epistemology underwent profound transformations. At the center was Quine's naturalistic turn (1969), which displaced the traditional foundations of epistemology – most notably conceptual analysis – in favor of a scientifically informed study of belief-formation. This shift was quickly interpreted, most prominently by Kim (1988), as entailing eliminativism about epistemic normativity. In retrospect, however, the lasting consequence has been the near-exclusive focus of contemporary epistemology on normativity as its central problem. Suppose, however, that we set this problem aside. What then remains for epistemology, if not prescribing how beliefs ought to be formed, justified, and turned into knowledge? This question reopens the terrain of the general methodology of science, where epistemology had been situated before the naturalistic turn (Carnap, 1928; Popper, 1934; Kuhn, 1962). The aim of this paper is to explore a radical consequence: that epistemic normativity is dispensable within naturalized epistemology (NNE). We then ask whether epistemology thereby forfeits its autonomy as a philosophical discipline. We argue that it does not; rather, only by abandoning normativity can epistemology's genuine role be clarified. On our account, epistemology is best conceived as a general methodology applied to lower-order theories of knowledge developed within the sciences, particularly psychology and biology. In studying cognitive biases, mechanisms of belief formation, and the selective advantages of evolved cognitive functions, these sciences already articulate theories of the constituents of knowledge. Accordingly, epistemology has two primary functions:

(f_1) Metanormative general methodology, evaluating lower-order theories by criteria such as coherence, explanatory power, and evidential adequacy.

$$f_{NNE}^{(1)}: T_L \longrightarrow \mathcal{P}(K)$$

where T_L is the set of lower-order theories of knowledge, K the set of general methodological criteria (coherence, explanatory power, evidential adequacy, etc.), and $f_{NNE}^{(1)}$ assigns to each theory its relevant criteria of evaluation. The aim is that, for every $\forall t \in T_L$, $f_{NNE}^{(1)}(t)$ examines the methodological validity of the assumptions contained in t.

(f_2) Metatheoretical general methodology, synthesizing $f_{NNE}^{(1)}$ theories into a higher-order, meta-integrative account of epistemic phenomena.

$$f_{NNE}^{(2)}: \mathcal{P}(T_L) \longrightarrow T_H, \text{ such that:}$$
$$f_{NNE}^{(2)}(\{t_1, t_2, \dots, t_n\}) = T_H$$

Here T_H represents a meta-integrative theory that explains and unifies epistemic phenomena at the higher-order level.

Finally, we distinguish this conception from general methodology, from the philosophy of a special science, and from the internal methodology of such sciences themselves. The proposal is that epistemology should be understood precisely as general methodology applied to the lower-order theories of knowledge that arise within the special sciences.

VOLODYMYR KUZNETSOV

H. Skovoroda Institute of Philosophy, National Academy of Sciences of Ukraine Department of Physical-Mathematical Disciplines, The National University "Kyiv-Mohyla Academy"

On the Object of the Philosophy of Scientific Theories

Science is a network of interconnected and evolving specific (sectoral) sciences. Each of these comprises a complex mixture of institutions, universities, professional societies, professional journals, libraries, channels of communication, scientists and their groups, particular areas of study, experimental techniques and methods, abstract ways of understanding, and more. As a result, the philosophical analysis of a specific science as a whole tends to be rather vague, broad, and undifferentiated. It provides a general overview of a chosen science but often overlooks many of its key features that are of interest to both students and experienced scientists.

Typically, philosophers of sectoral science view its theories as, firstly, the ultimate, holistic, and static outcomes of research; secondly, as self-contained and disconnected from other theories; and thirdly, as independent of the experimental conditions and equipment used. Many such perspectives produce simplified, competing views of theories that distort and overlook both the history and current state of a sectoral science.

The philosophy of scientific theories aims to address these limitations. Its main focus is on the textual exposition of specific theories, rather than on what philosophers of science or scientists say and write about those theories. It considers sectoral domain-specific theory (classical celestial mechanics, quantum atomic theory, etc.) as an evolving, interconnected polysystem of components; their development is driven by internal issues within the theory, progress in related theories, and co-evolves with advancements in experimental techniques. The history of elementary particle theories supports the heuristic value of the polysystemic view of the network of these theories.

MATÍAS PASQUALINI[1], **SEBASTIAN FORTIN**[2]

[1]*Instituto de Investigaciones "Dr. Adolfo Prieto", Universidad Nacional de Rosario, Santa Fe, Argentina*

[2]*Universidad de Buenos Aires, Buenos Aires, Argentina*

Ontological Pluralism in Quantum Mechanics: A Tensor Product Structures Approach

Does quantum theory impose a unique, fundamental decomposition of composite systems into subsystems? This presentation defends ontological pluralism grounded in the formalism of tensor-product structures (TPS) in quantum mechanics. Most common views of quantum ontology assume that the Hilbert space of a composite system carries a fixed and uniquely privileged decomposition, thereby favoring hierarchical and non-pluralistic perspectives. However, the mathematical framework of quantum theory admits multiple tensor factorizations of the same global state space. This formal underdetermination challenges the idea of a single, ontologically fundamental level of physical description. Instead, it supports a pluralist stance: reality may accommodate several equally legitimate structural decompositions into parts, depending on which TPS are physically or pragmatically relevant. After outlining the general argument for this ontological pluralism, the presentation develops two illustrative case studies. The first concerns composite bosons (cobosons), whose collective behavior exhibits both effective bosonic properties and an underlying fermionic structure. The TPS formalism shows that the transition between these ontological levels is not merely approximate but structurally definable, revealing a coexistence of distinct yet interrelated decompositions. The second case examines phonons—quasiparticles emerging from collective excitations in crystal lattices. While they are usually described as arising solely from a change of coordinates, this transformation can be understood as a change of tensor-product structure, demonstrating that phonons and the lattice of atoms stand on ontological parity.

KATARZYNA CIARCIŃSKA

University of Szczecin

Empathy in Scientific Methodology: A Phenomenological Perspective on Human Understanding

This presentation explores the role of empathy in the context of scientific methodology, with particular attention to phenomenological perspectives on intersubjectivity and temporality. Drawing on the work of Roman Ingarden, Edith Stein, and Dan Zahavi, I argue that empathy – understood not as emotional contagion but as a temporally extended mode of grasping the other's subjectivity– offers valuable insights into the epistemic and ethical dimensions of human-focused sciences.

Through a critical engagement with the phenomenological tradition, I examine how empathy operates as a method of access to the subjective world of another person and how time plays a constitutive role in this process. By shifting focus from abstraction to embodied and lived experience, this approach challenges traditional models of objectivity in the human sciences and calls for a reassessment of what counts as valid knowledge when working with human participants.

Ultimately, I propose that integrating phenomenological empathy into research methodology can enrich our understanding of qualitative and mixed-method approaches, especially in areas like disability studies, educational research, and cognitive ethnography. The paper contributes to ongoing discussions on the methodological foundations of the humanities and social sciences, advocating for a view of science that includes not only explanation but also meaningful recognition of the other.

BOGDANA STAMENKOVIĆ JAJČEVIĆ

Faculty of Philosophy, University of Belgrade

„What is Life?“: Darwinism, Gaia, and Our Worldview

This presentation aims to investigate how the conceptual framework of one adopted theory shapes our worldview and our understanding of natural phenomena. To achieve my goal, I provide an analysis of the notion of *life* in two famous biological theories – Darwin's theory of evolution by natural selection, and Lovelock's Gaia theory, and show how different definitions of life influence our understanding of the evolutionary process.

As known, there is no widely accepted definition of "life." Whilst we encounter various (e.g., physiological, metabolic, biochemical, genetic, thermodynamic, etc.) definitions, each carries different problems, often formulated in the robust counter-examples (Cleland 2002, p. 388). Since my presentation follows Darwin's and Lovelock's theories as examples, my analysis will include the so-called *Darwinian* and *Thermodynamic* definition of life adopted by these two scholars, and show that these two definitions influence our understanding of the phenomena of evolution of natural species in the following ways:

1) The adopted definition of life allows us to recognize certain entities as living beings subject to some kind of evolutionary process. Whilst Darwinian definition states that life is a self-sustaining chemical system capable of Darwinian evolution, thermodynamical definition describes living organism as a self-organized system whose entropy is actively maintained at a low level.

2) Following (1), the embraced definition of life enables us to establish boundaries between living and non-living entities, i.e., between living beings and their material environment. Whilst the Darwinian definition allows us to establish clear boundaries between organisms that evolve under the pressure of changing environmental conditions, the thermodynamic definition seems to blur those boundaries.

3) Finally, the definition of life shapes our understanding of the evolutionary process itself. Whilst Darwinian definition of life entails the evolution of *organisms*, the thermodynamic definition implies the *common evolution of organisms and their environment*.

SILVIU-CONSTANTIN FEDEROVICI

„Alexandru Ioan Cuza“ University of Iași

Experience and Computation: Brouwer's Creating Subject and Turing's Universal Machine as Ideal Models of Mathematical Reasoning

A possible way to understand how reasoning occurs in mathematics, as well as in other domains, is by positing an *ideal mind* that mirrors our own thinking in its essential faculties, abstracted enough to be studied as an object in itself. Turing (1936, 1938) employed this method by schematizing his *Universal Machine*, capturing the essence of computability through the mechanical simulation of symbolic reasoning. Another, less-known but perhaps deeper model of an ideal mind is offered by Brouwer's *Creating Subject* theory, which, by contrast, situates mathematical reasoning within acts of experienced truth. Yet while Turing's model became foundational across logic, computer science, and cognitive theory, Brouwer's concept gradually lost influence and came to appear as a bizarre and generally non-applicable idea. The current paper seeks to investigate why Turing's model captured the more influential traits of mathematical reasoning and how Brouwer's can be re-evaluated by interpreting the intuitionistic notion of experience implied in it. In other words, what becomes of mathematical reasoning when its idealization is subjective-experiential rather than deterministic-mechanical? This paper contributes to current debates on the limits of formalization by showing how Brouwer's experiential model provides a non-mechanical epistemology of mathematical reasoning, without being overly reductive. Drawing on van Atten (2018, pp. 1594-5), who notes the schematic character of both the Creating Subject and the Universal Machine, I suggest that a richer notion of mathematical experience, one that transcends but encompasses the idea of computability, can yield significant insights into the nature of mathematical knowledge, even if not applicable in the same way as computation. The comparison reveals two complementary yet

incommensurable ideals: one where knowledge arises from experience, and one where it arises from procedure. Clarifying this distinction explains why Brouwer's proposal was often judged "unusable" within formal mathematics, yet remains fruitful for understanding the epistemic limits of algorithmic models.

БОРИС МИЛОСАВЉЕВИЋ

Српска академија наука и уметности /
Балканолошки институт САНУ

Serbian Academy of Sciences and Arts /
Institute for Balkan Studies

Филозофија и историјска наука у докторату Кајице Миланова (поводом 120. годишњице рођења)

Кајица Миланов је одбранио докторску дисертацију под насловом „Образовање закона, разумевање и опажајна апстракција у историјском сазнању“ у Берлину 1932. године (референти: Heinrich Maier, Wolfgang Köhler). Миланов на почетку даје преглед подела наука на више начина (теоријске и практичне; природне и духовне; општепојмовне, индивидуализујуће, описне и објашњавајуће). Истиче да су научници из веома различитих области (математика, психологија, социологија) безуспешно покушавали да утврде историјске законе. Посебно је нагласио да је индивидуално окарактерисано као мање важно, односно да је платоновско-аристотеловска појмовна филозофија ставила „мрљу ирационалности” на оно што је индивидуално. Сматра да је главна грешка Кантове трансценденталне дедукције категорија то што је њихово важење засновано на априорности. Емпиријска захтеваност и емпиријска примена категорија постављају их на сигурно емпиријско тле. Истакао је да је и Либерт (Arthur Liebert) увидео немогућност разумевања уз помоћ смисла лишеног стварности. Миланов одбацује све што нема упориште у самом процесу сазнавања историјског. Иако се поједине апстракције и категорије већ налазе у самом процесу сазнавања, не представљају више „спољa“ или „вештачки“ постављене циљеве, већ их можемо разумевати као саставни део историјске стварности којој и сам историчар припада. Критички анализира Рикертово (Heinrich Rickert) становиште, указујући на то да се увођењем општих система вредности могу створити

само општи појмови и да је „проблем само померен", односно да није решен. Миланов усваја Мајерово одређење опажајне апстракције према коме, осим општепојмовне апстракције, која функционише у појмовним судовима, постоји и опажајна апстракција у индивидуалним судовима. Сматра да је тек након сазнавања опажајне апстракције могуће приближити проблеме јаснији и решењу. Закључује да само онај ко уме да овлада мајсторијама приказивања и ко се у свако доба може тако преместити у слике погледа на свет, да би живот могао превести у наше слике, односно ко је те ирационалне стране историјског сазнања талентом и вежбањем изградио као чврсте и сигурне механизме, може постати „велики историчар".

Philosophy and History in Kajica Milanov's Doctoral Dissertation (on the occasion of the 120th anniversary of his birth)

Kajica Milanov (1905–1986) taught philosophy at the Faculty of Philosophy of the University of Belgrade in Yugoslavia (1934–1941) and at the Department of Philosophy of the University of Tasmania in Hobart, Australia (1953–1975). Milanov published four books and a numerous papers and reviews. He was a member of the Kant Society (Kant-Gesellschaft, Berlin, 1931), the Philosophia Society (Belgrade, 1936) and the Serbian Philosophical Society (Belgrade, 1938). Milanov successfully defended his doctoral dissertation, which was entitled *The Formation of Laws, Understanding and Perceptive Abstraction in Historical Knowledge* (*Die Gesetzesbildung, das Verstehen und die anschauliche Abstraktion im geschichtmphlichen Erkennen*) in Berlin in 1932. His doctoral supervisors were Heinrich Maier and Wolfgang Köhler. He was awarded the high grade, magna cum laude, and subsequently promoted to Doctor of Philosophy by the University of Berlin in 1933. In his dissertation Milanov emphasises that, historically, the individual has been regarded as a relatively unimportant and changeable entity within the context of philosophical discourse. He adopts Mayer's definition of perceptual abstraction, which occurs in individual judgments. Milanov puts forth the argument that the fundamental limitation of Kant's transcendental de-

duction of the categories is that their legitimacy is contingent upon an a priori foundation. He asserts that while the categories are functionally logical a priori for our imagination and thought, their objective reality is substantiated by an empirically grounded necessity. Subsequently, he examines the role of historical laws and the interpretation of history in historical research and representation. Since certain abstractions and categories have already been integrated into the learning process, they are no longer perceived as externally or artificially imposed objectives. Consequently, they can be regarded as an intrinsic aspect of historical reality, to which the historian himself belongs.

ALEKSANDAR PRNJAT

Alfa BK Univerzitet /
Alfa BK University

Mihailo Marković o razvoju naučne metodologije

Mihailo Marković se osim socijalnom i političkom filozofijom te zasnivanjem originalne etičke teorije bavio i filozofijom nauke. U okviru nje interesovale su ga različite teme, naročito filozofija društvenih nauka, ali se bavio i opštim pitanjima naučne metodologije. U ovome što sledi biće izloženo njegovo shvatanje predmeta i metode nauke a posebna pažnja biće posvećena njegovom viđenje razvoja naučne metodologije. Za njega je nauka objektivno, kritičko i metodski izvedeno znanje. On smatra da se ovo može izraziti i stavom da je cilje nauke utvrđivanje objektivne stvarnosti. Govoreći o razvoju naučnog metoda on predistoriju nauke, u kojoj još ne postoji nikakav naučni metod, naziva mitskim dogmatizmom. Kao zaslugu stare Grčke za razvoj same nauke ali i naučne metodologije ističe da je tada izgrađen prvi naučni jezik, da je došlo do niza uopštavanja empirijskih znanja i da je tada razvijena metoda apstraktnog mišljenja i utemeljena logika. Posebno ističe zasluge antičkih Grka za razvoj deduktivnog i analitičkog mišljenja. Ovo je po njemu bilo od odlučujućeg značaja za razvoj likege kao nauke i tu ističe Sokrata, Platona i Aristotela. On, dodouše, upozorava da iako su Grci dali metodologiji ogroman doprinos, dok njih se ipak ne može govoriti o načnoj metodi istraživanja u savremenom smislu. Marković u rekonstrukciji razvoja naučne metodologije zatim prelazi na sholastički pristup u interpretiranju Biblije i crkvenih dogmata. Tu naročito afirmiše razvoj formalne logike. Potom prelazi na doprinose Bekona i Dekarta da bi stigao do onoga što označava kao savremeni induktivno-deduktivni i empirijsko-racionalni metod. Ukazuje da su se veliki naučnici svih vremena služili ovim metodom. Kao prvog velikom modernog naučnika uzima u razmatranje Galileja. Posebno ga u razvoju metodologije interesuje kritika metafizike. Svoju rekonstrukciju završava razmatranjem simboličke logike i kvantitativne metode.

Mihailo Marković on the Development of Scientific Methodology

In addition to social and political philosophy and the establishment of an original ethical theory, Mihailo Marković also dealt with the philosophy of science. Within it, he was interested in various topics, especially the philosophy of social sciences, but he also dealt with general issues of scientific methodology. In what follows, his understanding of the subject and method of science will be exposed, and special attention will be paid to his view of the development of scientific methodology. For him, science is objective, critical and methodically derived knowledge. He believes that this can also be expressed with the view that the goal of science is to determine objective reality. Speaking about the development of the scientific method, he calls the prehistory of science, in which no scientific method exists yet, mythical dogmatism. As the merit of ancient Greece for the development of science itself, but also of scientific methodology, he points out that the first scientific language was built then, that there was a series of generalizations of empirical knowledge and that then the method of abstract thinking and grounded logic were developed. He especially emphasizes the merits of the ancient Greeks for the development of deductive and analytical thinking. According to him, this was of decisive importance for the development of lykega as a science, and he singles out Socrates, Plato and Aristotle here. He, admittedly, warns that although the Greeks made a huge contribution to methodology, they still cannot be said to be a natural method of research in the modern sense. In the reconstruction of the development of scientific methodology, Marković then switches to a scholastic approach in interpreting the Bible and church dogmas. It particularly affirms the development of formal logic. He then moves on to the contributions of Bacon and Descartes to arrive at what he terms the modern inductive-deductive and empirical-rational method. It indicates that great scientists of all times used this method. He considers Galileo as the first great modern scientist. He is especially interested in the critique of metaphysics in the development of methodology. He concludes his reconstruction by considering symbolic logic and the quantitative method.

ГОРДАНА МЕДИЋ-СИМИЋ

Гимназија „Патријарх Павле“ Београд /
Gymnasium “Patrijarh Pavle”, Belgrade

Наука као духовна пракса: о парадигмама, језику и утеловљеном знању

Рад разматра однос између науке, друштва, језика и телесности, са фокусом на филозофске интерпретације научних парадигми. Полазиште је Хајзенбергова мисао да науку стварају људи, што упућује на потребу превазилажења јаза између техничко-природних и духовно-уметничких дисциплина. Парадигме као дубоко укорењени обрасци научног мишљења показују дуговечност услед когнитивних и социјалних фактора, што илуструје пример касног прихватања неуропластичности.

Разматрају се увиди Попера, Куна и Фајерабенда. Попер истиче улогу логичких и психолошких разлога у избору теорије и своју концепцију „три света“, где трећи свет — објективно знање — настаје као творевина заснована на језику. Кун указује да је смена парадигми блиска конверзији искуства, а језичка несамерљивост отежава комуникацију између научних заједница. Фајерабенд уводи епистемолошки анархизам, залажући се за методолошки плурализам као предуслов развоја знања.

У вези са ширим културним утицајем науке, посебно се истиче улога језика: Витгенштајнов појам језичких игара, Вацлавиково истраживање прагматике комуникације и Хајдегерово упозорење на доминацију калкулативног мишљења показују да је језик кључни посредник између мисли и стварности. Овде се надовезује став енактивизма: знање није одвојено од субјекта, већ настаје као утеловљена и ситуациона пракса у интеракцији са светом. То указује на могућност интеграције неуронаучних увида са древним телесним и духовним праксама.

Указује се да раст научног знања није само квантитативан, већ и квалитативан процес који зависи од когнитивних и вредносних капацитета научних заједница. С тим у вези, у раду сугерише-

мо да би образовање требало развијати у правцу креативног плурализма и преиспитивања доминантних парадигми. Циљ рада је да отвори простор за дијалог између различитих области људског знања и сагледавање науке као форме духовности.

Science as a Spiritual Practice: On Paradigms, Language, and Embodied Knowledge

This paper examines the relationship between science, society, language, and embodiment, focusing on philosophical interpretations of scientific paradigms. The starting point is Heisenberg's insight that science is created by humans, highlighting the need to overcome the gap between technical-natural and spiritual-artistic disciplines. Paradigms, as deeply rooted patterns of scientific thought, demonstrate longevity due to cognitive and social factors, as illustrated by the delayed acceptance of neuroplasticity.

The paper considers the contributions of Popper, Kuhn, and Feyerabend. Popper emphasizes the role of logical and psychological reasons in theory choice and his concept of the "three worlds," where the third world—objective knowledge—emerges as a linguistic construct. Kuhn points out that paradigm shifts are akin to conversions of experience, and linguistic incommensurability complicates communication between scientific communities. Feyerabend introduces epistemological anarchism, advocating methodological pluralism as a precondition for the development of knowledge.

Regarding the broader cultural impact of science, the role of language is especially emphasized: Wittgenstein's notion of language games, Watzlawick's investigation of communication pragmatics, and Heidegger's warning against the dominance of calculative thinking all indicate that language serves as a crucial mediator between thought and reality. Here, the enactivist perspective becomes relevant: knowledge is not separate from the subject but emerges as an embodied and situational practice through interaction with the world. This suggests the potential integration of neuroscientific insights with ancient bodily and spiritual practices.

The paper also notes that the growth of scientific knowledge is not solely a quantitative process but a qualitative one that depends on the cognitive and value capacities of scientific communities. Accordingly, the study proposes that education should be developed toward creative pluralism and the critical re-examination of dominant paradigms. The aim of this paper is to open space for dialogue between different domains of human knowledge and to conceive of science as a form of spirituality.

NEMANJA POPOVIĆ[1], MILENA KONATAR[2], MILIVOJE RADOVIĆ[3]

[1]*Ekonomski fakultet, Univerzitet Crne Gore*
Faculty of Economics, University of Montenegro

[2]*Ekonomski fakultet, Univerzitet Crne Gore*
Faculty of Economics, University of Montenegro

[3]*Ekonomski fakultet, Univerzitet Crne Gore*
Faculty of Economics, University of Montenegro

Metodološki pristupi stres testiranju klimatskih rizika u ekonomskim istraživanjima: primjer Crne Gore

U ovom radu se ispituju metodološki izazovi mjerenja klimatskih rizika u kontekstu ekonomske nauke, sa akcentom na upotrebu stres testiranja kao alata za analizu finansijske stabilnosti. Studija pokazuje kako se indikatori kreditnog rizika, adekvatnosti kapitala i ekonomskog rasta mogu koristiti za modeliranje i simulaciju fizičkih klimatskih šokova, posebno poplava, koristeći ekonometrijski model i metodologiju zasnovanu na scenarijima. Regresiona analiza sa jakim standardnim greškama, testovi stacionarnosti i kointegracije i „bootstrap" validacija su deo metodologije, koja garantuje pouzdanu empirijsku procjenu kako klimatski događaji utiču na finansijski sistem. Pošto su klimatski rizici fenomeni koji se ne mogu precizno izmjeriti, rad takođe naglašava kognitivna ograničenja naučne metodologije u kontekstu neizvjesnosti, pored njenog tehničkog aspekta. Ovo pokreće razgovor o tome kako naučni modeli utiču na institucionalne politike i vrijednost interdisciplinarnog pristupa koji povezuje ekologiju, ekonomiju i filozofiju nauke. Studija ima za cilj da istakne neophodnost uključivanja klimatskih rizika u metodološki okvir društvenih nauka i da pomogne u stvaranju analitičkih alata za stres testiranje u malim ekonomijama.

Methodological Approaches to Climate Risk Stress Testing in Economic Research: The Case of Montenegro

The methodological difficulties of measuring climate risks within the context of economic science are examined in this paper, with an emphasis on the use of stress testing as a tool for financial stability analysis. The study shows how indicators of credit risk, capital adequacy, and economic growth can be used to model and simulate physical climate shocks, particularly floods, using an econometric model and a scenario-based methodology. Regression analysis with strong standard errors, stationarity and cointegration tests, and bootstrap validation are all part of the methodology, which guarantees a trustworthy empirical evaluation of how climate events affect the financial system. Since climate risks are phenomena that cannot be precisely measured, the paper also emphasizes the cognitive limitations of scientific methodology in the context of uncertainty, in addition to its technical aspect. This starts a conversation about how scientific models influence institutional policies and the value of an interdisciplinary approach that links ecology, economics, and the philosophy of science. The study intends to highlight the necessity of incorporating climate risks into the social sciences' methodological framework and to aid in the creation of analytical tools for stress testing in small economies.

ASIM DELIBAŠIĆ

Filozofski fakultet, Univerzitet u Tuzli /
Faculty of Philosophy, University of Tuzla

Epistemološki status Likert skale: između ordinalnog i intervalnog mjerenja u političkim istraživanjima

Rad ispituje epistemološki i ontološki status Likert skale u kontekstu primjene parametrijskih testova u društvenim naukama, s posebnim osvrtom na istraživanja u oblasti političkih nauka. Uobičajeno je stanovište da su pojedinačne Likert stavke ordinalne, te da tek sabiranjem u kompozitne skale, uz visoku internu konzistentnost (npr. Cronbach α), zadobijaju intervalna svojstva. Međutim, u ovom radu se zastupa teza da je takvo razumijevanje pogrešno, jer kvalitativna razlika između ordinalnog i intervalnog tipa mjerenja ne može biti prevaziđena prostim agregiranjem podataka. Ako su pojedinačne stavke ordinalne, tada ni njihova suma ne može biti ontološki intervalna, jer zbir ordinalnih vrijednosti ne mijenja ontološku prirodu mjerene varijable.

Polazeći od epistemološkog realizma, autor tvrdi da priroda podataka mora odražavati način na koji ispitanici percipiraju i upotrebljavaju skalu. Empirijski i intuitivno, ispitanici Likert skalu doživljavaju kao kontinuum jednakih razmaka između vrijednosti od 1 do 5, što implicira intervalni karakter same mjere. Takvo iskustveno razumijevanje predstavlja oblik implicitne teorije mjerenja koju istraživači često zanemaruju.

Odbacivanje ove interpretacije, u ime formalističkog shvatanja kvantifikacije, dovodi do epistemološke nedosljednosti i distorzije između teorijske definicije i praktične upotrebe podataka.

Stoga se u radu argumentira da upotreba Likert skala u parametriziranim analizama, poput OLS regresije, nije samo metodološki dopustiva nego i epistemološki opravdana. Takva upotreba ne podrazumijeva zloupotrebu statističkih pretpostavki, već priznaje način na koji društvene nauke operacionaliziraju subjektivne procjene i transformišu kvalitativna iskustva u kvantitativno interpretabilne

forme. Time se brani legitimnost intervalnog tumačenja Likert skale kao nužnog mosta između subjektivnog značenja i empirijske verifikacije u istraživačkoj praksi.

The Epistemological Status of the Likert Scale: Between Ordinal and Interval Measurement in Political Research

The paper examines the epistemological and ontological status of the Likert scale in the context of applying parametric tests in the social sciences, with particular reference to research in political science. The conventional view holds that individual Likert items are ordinal in nature, and that only by summing them into composite scales—with high internal consistency (e.g., Cronbach's α)—do they acquire interval properties. However, this paper argues that such an understanding is flawed, since the qualitative distinction between ordinal and interval measurement cannot be overcome by mere aggregation of data. If individual items are ordinal, then their sum cannot be ontologically interval, as the addition of ordinal values does not alter the ontological nature of the measured variable.

Starting from epistemological realism, the author argues that the nature of data must reflect how respondents perceive and use the scale. Empirically and intuitively, respondents experience the Likert scale as a continuum with equal intervals between values from 1 to 5, which implies the interval character of the measure itself. Such experiential understanding constitutes a form of implicit measurement theory often neglected by researchers.

Rejecting this interpretation in the name of a formalistic view of quantification leads to epistemological inconsistency and a distortion between the theoretical definition and practical use of data. Therefore, the paper argues that the use of Likert scales in parameterized analyses, such as OLS regression, is not only methodologically permissible but also epistemologically justified. This use does not entail a misuse of statistical assumptions; rather, it recognizes the way in which the social sciences operationalize subjective judgments and transform qualitative experiences into quantitative-

ly interpretable forms. Thus, the paper defends the legitimacy of interpreting the Likert scale as an interval measure—serving as a necessary bridge between subjective meaning and empirical verification in research practice.

BOJAN MILUNOVIĆ

Filozofski fakultet, Univerzitet Crne Gore /
Faculty of Philosophy, University of Montenegro

Kompjutacioni modeli i pitanje inovacije u filozofiji nauke

U eseju posvećenom pitanju inovativnosti filozofije kompjuterskih nauka, Roman Frig (Roman Frigg) i Džulijan Rajs (Julian Reiss) tvrde da kompjuterske simulacije ne predstavljaju ništa novo za filozofiju nauke. Epistemološki posmatrano, one ne uvećavaju značajno opseg fenomena koji su nam kognitivno i saznajno dostupni, dok s metodološke tačke gledišta, simulacije služe kao posrednici između teorije i sveta, što možemo reći da je odlika i ostalih sredstava naučne reprezentacije, poput matematičkih formalizama i materijalnih maketa i prototipa. Ovaj rad ispituje validnost njihovih tvrđenja. Termin „kompjuterska simulacija" supstituisaćemo terminom „kompjutacioni model", kako bismo raspravu preneli iz domena filozofije kompjuterskih nauka u domen filozofije modelovanja. Iako je danas većina naučnih modela kompjutacionog karaktera, u filozofiji nauke i dalje ne postoji konsenzus povodom toga da li ove modele treba tretirati na poseban način ili kao instancu filozofima dobro poznatih matematičkih modela. Rad će odgovoriti na sledeće ključno pitanje*: Da li kompjutacione od drugih modela razlikuje isključivo nivo kompleksnosti, ili kompleksnost prati i grupa epistemoloških i metodoloških izazova s kojima se filozofi nauke do sada nisu susretali?* Pokazaćemo da, iako standardni problemi kompleksnosti sistema poput epistemičke neprozirnosti procesa, nisu jedinstveno primenjivi na kompjutacione modele, način na koji naučnici ove sisteme koriste ipak zahteva blaži vid metodološke reorijentacije i fokusiranje na empirijsku realnost praksi programiranja i dizajna softvera.

Computational Models and the Question of Innovation in the Philosophy of Science

In their essay on the philosophical innovation of computer science, Roman Frigg and Julian Reiss argue that computer simulations do not present anything truly novel for the philosophy of science. They do not expand the range of phenomena cognitively and epistemically accessible to us, while from a methodological standpoint, simulations—like other means of scientific representation—serve as intermediaries between theory and the world, differing little from mathematical formalisms or material models and prototypes. This paper aims to assess the validity of their claims. We substitute the term "computer simulation" with "computational model" in order to bring this debate from the domain of philosophy of computer science to the domain of contemporary philosophy of modeling. Although most scientific models today are computational in nature, there is still little to no consensus in the philosophy of science on whether these models should be treated in a new, unique way or simply as extensions of mathematical models. The paper addresses the following question**:** *Does the distinction between computational and non-computational models lie solely in their complexity levels, or does the complexity imply a set of novel epistemological and methodological challenges for the philosophers of science?* Although standard issues regarding complexity, such as epistemic opacity of processes, aren't uniquely applicable to computational modeling, this paper will demonstrate that the specific ways in which scientists approach and apply these models necessitate some form of methodological reorientation that will shine additional light on the empirical reality of programming and software design practices.

МАРИЈА С. ДОКИЋ

Институт за политичке студије, Београд /
Institute for Political Studies, Belgrade

Када свет бива опажен: квантна теорија и филозофија ума у дијалогу

Овај рад истражује дубоку и танану аналогију између квантног посматрача и свесног субјекта, отварајући простор у којем физика и филозофија ума ступају у дијалог – не као дисциплине, већ као два вида истинитог присуства. У квантној механици, чин посматрања није пука регистрација, већ онтолошки догађај: таласна функција се урушава, а из поља могућности израња једно стање. Посматрач постаје истовремено саучесник у стварању света. Унутар феноменолошке перспективе, свест није само прозор ка стварности, већ и њен ултимативни архитекта. Субјективно искуство није тек одраз, већ извор – ритам кроз који свет остварује свој облик. Рад разматра могућност да је свест креативни принцип, аналоган квантном колапсу: да је опажање чин избора, а избор чин постојања. Кроз критички осврт на дуализам, материјализам и теорије свести, као и кроз анализу идеја Шредингера, Стапа и феноменолошких увида Нагела, рад уједно поставља питања о границама сазнања, природи стварности и улози субјекта. Да ли квантни колапс имплицира метафизичку партиципацију? Да ли је свест тачка у којој се космос прелама у искуство? Уместо закључка, рад нуди отворену могућност да се стварност не појављује као дата, већ као догађај унутар релације посматрања. Свест и квантни посматрач нису само фигуре у теорији, већ можда и прагови кроз које свет бива опажен – и тиме постаје. У том светлу, граница између онтолошког и епистемолошког постаје танка, а стварност релациона.

When the World is perceived: Quantum Theory and Philosophy of Mind in Dialogue

This paper explores a subtle and profound analogy between the quantum observer and the conscious subject, opening a space where physics and philosophy of mind enter into dialogue – not merely as disciplines, but as two modes of truth-bearing presence. In quantum mechanics, the act of observation is not mere registration, but an ontological event: the wave function collapses, and from a field of possibilities, a single state emerges. The observer becomes a co-creator of the world. Within the phenomenological perspective, consciousness is not a window to reality, but its architect. Subjective experience is not a reflection, but a source – a rhythm through which the world takes shape. The paper considers the possibility that consciousness is a creative principle, analogous to quantum collapse: that perception is an act of choice, and choice an act of being. Through a critical reflection on dualism, materialism, and theories of consciousness, and through the analysis of ideas by Schrödinger, Stapp, and Nagel's phenomenological insights, the paper raises questions about the limits of knowledge, the nature of reality, and the role of the subject. Does quantum collapse imply metaphysical participation? Is consciousness the point at which the cosmos folds into experience? Rather than offering conclusions, the paper opens a possibility: that reality does not appear as given, but as an event within relation. Consciousness and the quantum observer are not merely figures in theory, but perhaps thresholds through which the world becomes perceived – and thus becomes. In this light, the boundary between ontology and epistemology becomes porous, and reality – relational.

ISBN 978-9940-553-26-5