

Znanost in ideologija: od spontane filozofije znanstvenikov do spontane znanosti ekonomistov¹

Matjaž Ličer

Nacionalni inštitut za biologijo, Ljubljana, Slovenija; Filozofski inštitut, ZRC SAZU, Ljubljana
matjaz.licer@gmail.com

Danes neredko naletimo na poenostavljeno manihejsko delitev znanosti na naravoslovne in humanistične. Naravoslovnim znanostim je pri tem pripisana vloga uporabne, klinično čiste, objektivne in eksaktne dejavnosti, humanizem pa je razumljen kot nekoristen konglomerat subjektivnih, ideološko motiviranih konstruktov. V navezavi na Althusserja poskušamo pokazati, da je taka delitev napačna, in sicer ne zato, ker bi humanizem ne bil prepleten z ideologijami, temveč zato, ker je takšno tudi naravoslovje, saj niti znanstveniki kot znanstveniki niso imuni proti svojim svetovnim nazorom, ki so vedno zvedljivi na neko povsem specifično filozofsko pozicijo (na primer na spinozizem pri Einsteinu, racionalizem pri Gödlu, materializem pri Heisenbergu). Poskušali bomo pokazati, da ta delitev vodi v nelegitimno naturalizacijo družbe, ki služi kot formalni okvir za vsiljevanje neoliberalnih svetovnih nazorov znotraj znanosti pa tudi širše.

Ključne besede: materialistična filozofija / naravoslovne znanosti / humanistika / ideologija / neoliberalizem

UDK 001.3

Danes imamo opravka z utrjeno delitvijo znanosti na naravoslovne in humanistične znanosti. Naravoslovne znanosti igrajo vlogo uporabne, klinično čiste, objektivne in natančne dejavnosti, medtem ko je humanizem reduciran na neuporaben konglomerat subjektivnih, ideološko motiviranih konstruktov, neločljivih od individualnih patologij ljudi, ki so vključeni v proces nastajanja humanizma. Nobena novost ni, da so tovrstne razmejitve napačne, saj niti najbolj priznani naravoslovci kot znanstveniki niso imuni proti lastnim (ideološkim) svetovnim nazorom.

Lep primer je Einsteinovo nasprotovanje Bohr-Heisenbergovi interpretaciji kvantne mehanike. Kot je znano, je eden glavnih nasledkov Bohr-Heisenbergove interpretacije v tem, da vsak fizikalni proces vsebuje končno (neničelno) količino negotovosti, končno količino popolne naključnosti.

To je nekaj, česar Einstein, znanstveni velikan velikanov, ni nikdar sprejel. Naključju v delovanju narave je nasprotoval s svojim razvpitim reklom, da Bog ne kocka z vesoljem, zapisanim leta 1926 v pismu Maxu Bornu: »Kvantna mehanika je zelo impresivna. Ampak notranji glas mi pravi, da to še ni prava stvar. Teorija podaja mnogo rezultatov, a nas ne pripelje nič bližje k skrivnosti Gospoda. V vsakem primeru sem prepričan, da *On* ne kocka z vesoljem.« (Nav. po Pais 443) (Bohr se je odzval tako, da je Einsteinu dejal, da naj Bogu ne predpisuje, kaj naj počne ali ne počne.) Kakorkoli že, razlogi za Einsteinovo zavračanje Bohr-Heisenbergove interpretacije po svoji naravi niso fizikalni. So, z Althusserjevimi besedami, spontano filozofski. Namesto na fizikalne kategorije se je Einstein pri formulaciji svojih zadržkov oprl na *filozofske*. Bil je izrecen zagovornik filozofije Barucha de Spinoze. Spinoza je v svojem velikem tekstu *Etika* ustvaril logiško strogo panteistično teologijo, ki v zadnji instanci interpretira Boga kot skupek racionalnih zakonov, ki so Naravi notranji in ji vladajo imanentno. Kot sam Spinoza zapiše v *Etiki* IV: »tisto večno in neskončno bitje, ki mu pravimo Bog ali narava, deluje po taisti nujnosti, po kateri biva« (Spinoza 260). Te razumske nujnosti Boga kot deterministične harmonije fizikalnih zakonov Einstein ni bil pripravljen opustiti in zamenjati s probabilistično, z naključjem gnano interpretacijo kvantne mehanike. V tem smislu – in *natančno* v tem smislu, da je imel harmonijo fizikalnih zakonov za božansko, da jo je imel *za* Boga –, je Einsteinova znanost pravzaprav znanost kot teologija (prim. Pais 443). Verjel je, da so fizikalni zakoni po svoji najgloblji naravi deterministični in da so nam, četudi jih je morda težko doumeti, načelno epistemološko dosegljivi. Znana je njegova izjava: »Gospod je subtilen, ni pa zloben.« Ostalo je zgodovina. Od dvajsetih let 20. stoletja naprej je Einstein poskušal ustvariti poenoteno teorijo totalnega polja. To naj bi bila klasična (vzročna) teorija elektromagnetizma in gravitacije, ki bi kot eno svojih *posledic* vsebovala tudi kvantno mehaniko (Pais 463–467).

Kot vemo danes, je Einstein pravilno lociral temeljni problem vse poznejše fizike – iskanje teorije poenotenja, ki ga je sam sprožil, poteka še danes –, vendar je zaradi svojega doslednega nasprotovanja kvantni mehaniki (kot načelno veljavni teoriji) vse svoje nadaljnje poskuse poenotenja obsodil na neuspeh. Seveda ne moremo trditi, da je bilo v dvajsetih letih jasno, da mora pot do poenotenja nujno voditi skozi kvantna področja, saj so takrat različne nekvantne metode veljale za povsem legitimna orodja na poti do velike enotne teorije. A kolikor je bila izbira *neke* poti in ne kake druge stvar posameznikove osebne *odločitve*, je navedeni zgled najbrž dovolj ilustrativen, ko gre za delovanje ideologije na področju znanosti: danes je jasno, da je Einstein sprejel napačno odločitev na podlagi nefizikalnih razlogov (»notranji glas«). Ideologija sicer ne spreminja *metod*, ki jih

fiziki uporabljajo pri svojem delu, a jih v določeni meri *usmerja* pri odločitvah, katere probleme naj zaznavajo kot relevantne in katere naj opustijo kot nepomembne.

Zgled, kako posameznikov svetovni nazor vpliva na njegovo znanost, najdemo tudi pri Kurtu Gödlu. Gödel je najbolj znan po svojih izrekih o nepopolnosti v matematični logiki. Bil pa je tudi tesen Einsteinov prijatelj in je v poznih štiridesetih letih 20. stoletja odkril nove rešitve za Einsteinove relativistične enačbe polja v rotirajočih vesoljih. Te rešitve so mu omogočile presenetljivo interpretacijo, da je mogoče potovati skozi čas. Z drugimi besedami, Gödel je dokazal, da lahko z gibanjem po natančno določeni krivulji v prostor-času v njegovem vesolju dosežemo izvirno točko izhodišča – izhodišča v prostoru *in času*. Sprva je poskušal najti napako v svojih izračunih, a je ni bilo, zato je sklepal, da objektivnega toka časa ni mogoče definirati v *nobenem* tipu vesolja.

Res je, piše Gödel, da lahko v našem vesolju definiramo absolutni tok časa, toda vsakdo, ki bi tovrstni objektivni tok časa sprejel, bi moral

kot posledico sprejeti tudi dejstvo, da je to, ali objektivni tok časa obstaja ali ne (tj. ali obstaja čas v običajnem pomenu besede), odvisno od konkretnega načina, na katerega sta snov in njeno gibanje porazdeljeni po vesolju. To ni neposredno protislovje, je pa filozofski nazor, ki vodi k tovrstnim posledicam, težko obravnavati kot zadovoljivega. (Gödel, »A Remark« 206–207)

Na drugem mestu postane njegova argumentacija globoko leibnizevska:

Če pa bi tak svetovni čas v teh vesoljih vendarle vpeljali kot novo entiteto, neodvisno od vseh opaznih količin, bi to kršilo načelo zadostnega razloga, kolikor bi namreč morali popolnoma arbitrarno izbirati med neskončno mnogo fizikalno povsem nerazločljivimi posledicami. (Gödel, »Some Observations« 237)

Verjetno je očitno, da Gödel zavrača objektivnost časa zgolj zaradi metafizičnih razlogov (gl. Ličer). Kot leibnizevski racionalist se Gödel ni mogel sprijazniti s kršitvijo načela zadostnega razloga, osrednjega aksioma Leibnizeve filozofije. Pojem absolutnega svetovnega časa bi namreč impliciral »popolnoma nerazločljive možnosti« (»popolnoma nerazločljivo« tu pomeni, da niti Bog ne more razločiti med njimi), kar bi pomenilo, da te možnosti niso *partikularne* možnosti in da torej v skladu z Leibnizem ne obstajajo. Kot je dejal sam Leibniz: tisto, kar ni *neka* bitnost, ni *bitnost*. Po Gödlu objektivni svetovni čas potemtakem ne obstaja.

Navedena zgleđa kažeta, da znanstvenike kot znanstvenike pri njihovem delu vodijo njihovi svetovni nazori (celota njihovih idej o svetu), natančneje, njihove spontane filozofije znanosti (celota njihovih idej o

znanstveni praksi). Spontane filozofije znanstvenikov ne vodijo toliko pri tem, *kako* delajo znanost, kolikor pri tem, kaj zaznavajo kot relevantne probleme (gl. Macherey 20). Ko so znanstveniki soočeni z resnim epistemološkim problemom, pogosto spontano premestijo diskurz v filozofijo oziroma vsaj filozofsko obarvano ideologijo (gl. Althusser 64). Filozofija pa po drugi strani do znanosti zelo pogosto razvije odnos izkoriščanja (gl. Althusser 85): po Althusserju je Bergson sodobne znanstvene krize izkoristil za restitucijo spiritualizma, Descartes, Kant in Husserl pa za formulacijo različnih nians idealizma, ki so v zadnji instanci znanosti od zunaj predpisovale »pravno podlago«, ki naj bi znanstvenemu aparatu tako rekoč pokrila hrbet (Descartes: kdo mi jamči, da so znanstvene resnice onstran dvoma? Kant: kdo mi jamči, da mi pogoji možnega izkustva zagotavljajo resnico izkustva samega? Husserl: kakšna mora biti »moja« »konkretna« zavest, da bo hkrati tudi zavest znanstvene idealnosti?) V ta register sodijo tudi znanstveniki, ki ob osebnih znanstvenih krizah (ki so po Althusserju pravzaprav njihove *filozofske* krize) producirajo filozofije znanosti (Einstein in Gödel nista izjemi). Ker pa so znanstveniki, se pač *kot znanstveniki* umeščajo v »veliko tradicijo« tistih, ki izkoriščajo znanosti v »apologetske namene«, a brez nadzora, ki ga zagotavlja »spoznanje mehanizmov ideologije in njenih razrednih konfliktov« (Althusser 91).

Iz tovrstnih interakcij pa očitno ne izhaja, da med filozofijo in znanostjo poteka dialog. Dialoga ni – vsaj ne v smislu, da znanost potrebuje filozofijo pri reševanju svojih *neposrednih* problemov, problemov, ki jih zna ubesediti *znotraj* same sebe. Ne potrebuje je. Razliko med znanostjo in filozofijo je jasno izrazil Althusser (79): znanost deluje kot sistem odprave zmot v našem razumevanju narave. V filozofiji pa po drugi strani ni zmot – ne obstaja pravilna filozofija, obstaja le boj za prevlado med različnimi filozofskimi tokovi. A čeprav znanost in filozofija izvirata iz naporov različnega reda, znanstveni problemi potrebujejo refleksijo in interpretacijo, da bi bili, če uporabimo Kuhново terminologijo, vgrajeni v obstoječe paradigme ali da bi sprožili nove paradigme. In pri tem se znanstveniki sami spontano postavijo na specifično ideološko pozicijo, ki deluje kot nekakšna »nadomestna filozofija [...], rešena vseh referenčnih okvirov, filozofija, ki si lasti splošno veljavnost« (Macherey 21–22). Tovrstne pozicije, ki so v filozofskem smislu le redko razsvetljuječe, so v zadnji instanci vselej pozicije nekega specifičnega filozofskega toka (kakršni so pozitivizem, racionalizem, empirizem, idealizem). Einsteinova pozicija je bila spinozistična, Gödlova racionalistična, matematiki so pogosto platoniki. A bodimo jasni: tovrstni vplivi ne zmanjšujejo pomembnosti katerih koli znanstvenih dosežkov. So kvečjemu preprosto zunanji načinom preverjanja znanstvenih teorij. Kdor misli, da so tovrstni vplivi nekakšno onesnaženje znano-

sti, ki da lahko obstaja tudi neomadeževana, si (v povsem kantovskem smislu) slika precej romantično podobo modernega znanstvenega aparata. Sama izjava, da je resnična znanost neideološka, je popolnoma ideološka. Althusser (32) je tu spet zgovoren:

Napačne ideje o znanosti niso samo v glavah filozofov, temveč tudi v glavah znanstvenikov. Obstajajo napačne »evidence«, ki so – daleč od tega, da bi bile sredstva napredka – v bistvu »epistemološke ovire« (Bachelard). Treba jih je kritizirati in jih reducirati, s tem da pokažemo dejanske probleme, ki jih prikrivajo pod imaginarnimi rešitvami, ki jih izražajo. [...] Filozofija, ki jih je sposobna razpoznati in kritizirati, lahko učinkuje tako, da pritegne pozornost znanstvenikov na eksistenco in učinkovanje epistemološke ovire, ki jo predstavlja ta spontana znanstvena ideologija. [...] Tudi pri tem se filozofija ne postavlja na mesto znanstvenikov: filozofija intervenira, da sprosti pot, na katero je potem mogoče zarisati pravilno črto.

V okviru spontanosti filozofij znanstvenikov po Althusserju obstajata dva protislovna elementa: *materialistični* in *idealistični*. Za *materialistični* pristop k znanosti je značilno, da znanstveniki preverjajo *teorije* s pomočjo *poskusov* in pri tem verjamejo v materialni in realni obstoj *predmeta* znanstvenega spoznanja. To je njihova *metoda*, v katere pravilnost in učinkovitost verjamejo. Na drugi strani *idealistični* pristop materialni obstoj predmeta nadomešča z osebnim *izkuštvom znanstvene prakse*, ki ga podvrže »vrednotam«, izvirajočim iz praktičnih ideologij (na primer iz religioznih obskurantizmov), ki so strogo zunanje sami znanosti. Pri materialističnem elementu gre za partikularnost in časovnost konkretnega poskusa na konkretnem predmetu, čigar izid napove (ali ga pač ne napove) določena teorija, ki se navezuje na ta poskus. In medtem ko je materialistična vednost, ki jo lahko o predmetu posreduje eksperiment, vedno nedokončna in tako rekoč razpokana, se idealistična vednost o izkustvu napaja iz ideoloških referenc vsakokratnega celovitega Enega. Materialistični element se osredotoča na parcialne predmete znanstvenega spoznanja, idealistični pa na ideološko ovrednotenje izkustva znanstvene prakse, ki svojo legitimnost črpa iz zunajznanstveno konstituirane avtoritete Enega. Idealizem je tako v znanosti vedno znova odpiral strukturno mesto za transhistorično Eno religioznih ideologij (v zadnji instanci: za Boga).

V navezavi na Aleša Bunto lahko rečemo, da je ta nezgodovinska in nerazpokana entiteta, ki jo Althusser izganja iz spontane filozofije znanosti, sodoločala formo in vsebino filozofije vse od antike in da še zmerom odmeva na primer v Badioujevi ontologiji. Althusser je znanstvenikom ponudil materialistično filozofijo kot oporo pri obvladovanju idealističnega elementa v polju spontane filozofije znanstvenikov, Badiou pa se pri izganjanju Enega iz ontologije zateka h Zermelo-Fraenkelovi aksiomatizaciji

Cantorjeve teorije množic. Badiou po Bunti (15) ni uspešen, saj naj bi bil »Badioujev boj z metastazami Enega« v zadnji instanci »boj nekega modificiranega monizma, ki se ob pomoči figure Dvojega bori proti dualizmu, utemeljenem v figuri Enega«. Navzočnost tega transhistoričnega jedra, tega večnega jedra, tega Enega, je znanost skoz zgodovino vselej znova izpostavljala diskurzom in ravnanjem – na primer v praksah cerkve in/ali kapitala –, ki so bili motivirani z interesi oblasti, tj. z interesi, ki so znanosti strogo zunanji. Iz Althusserja lahko izpeljemo, da to dejstvo odpravlja eno glavnih (idealističnih) iluzij evropskega razsvetljenstva: pokaže, da *ni nobene oblasti vednosti, ki ne bi bila vezana na oblast samo*. Misel, da že sam vznik Resnice prežene temo ter razprši sence in predsodke, še danes obseda znanstvenike – v tem smislu niso znanstveniki, pa naj se še tako borijo proti religioznim vplivom, nič manj idealisti kakor tisti, zoper katere se borijo.

Z Althusserjevo pomočjo smo pokušali opozoriti na dejstvo, da moderna znanost ni prosta ideologij in da v njej poteka ideološki boj med materializmom in idealizmom, ki evropsko misel spremlja vsaj od Aristotelove *Metafizike* in njenih neusmiljenih kritik Platonovega idealizma naprej. Dolgujemo pa še odgovor na vprašanje, čigavo stališče s tem pravzaprav zanikamo. Kdo natančno je danes tisti, ki predstavlja naravoslovje, Znanost, kot rešeno vseh ideologij? In kdo je tisti, ki obenem reducira humanizem in filozofijo na nekoristno ideološko brbljanje? Odgovor je, na kratko: globalne instance oblasti. Na primer bolonjska reforma visokega izobraževanja jasno kaže, da se v EU soočamo z redukcijo teoretskega humanizma in filozofije, ki ju nadomeščajo sociološke in ekonomsko-statistične študije. A pri tem ne smemo pozabiti, da se soočamo tudi z redukcijo teoretskega *naravoslovja*, ki ga izrinjata računalništvo in na primer »poslovna informatika«. To je lepa demonstracija Althusserjeve teze, da ni oblasti vednosti, ki ne bi bila vezana na dejansko oblast. Znanstveniki sami nimajo velikega vpliva na strukturne politike, ki narekujejo razvoj znanosti. Te politike so določene v političnih institucijah prek agentov, ki jih ženejo znanosti zunanji interesi.

Implicitna predpostavka evropskih izobraževalnih politik je, da humanistika in filozofija nista več koristni, ker da ju lahko pri obravnavi družbe nadomestimo z matematiziranimi sociologijami in ekonomijami, ki naj bi bile po novem zmožne matematično kvantificirati družbene procese. Čudovit primer najdemo v nedavni publikaciji OECD, kjer lahko v poglavju o spremembi in rasti – seveda o rasti in ne o padcu – preberemo tole opredelitev naravnih pojavov: »Vsak naravni pojav je manifestacija spremembe. Na primer: spremembe organizmov ob rasti, cikli letnih časov, tokovi plimovanja, cikli nezaposlenosti, vremenske spremembe in borzni indeks Dow-Jones.« (OECD 49)

Se pravi, cikli nezaposlenosti so vključeni med naravne pojave. Enako velja za borzni indeks Dow-Jones – za OECD je to naravni pojav. Za cikle nezaposlenosti in za borzo – za borzo! – veljajo po OECD zakoni prav tiste fizike, ki regulira plimovanja in atmosferske procese.

Ta bizarna klasifikacija, ta matematizacija družbe oziroma naturalizacija družbe je eden vodilnih ideoloških sofizmov danes. To je ideologija ekonomije in biznisa, ideologija *kot* znanost, ideologija, ki se prezentira kot znanost. To ni spontana filozofija znanstvenikov, temveč – z besedami Martina Klanjška – *spontana znanost ekonomistov*. Ekonomija in biznis se predstavljata kot znanstveni, da bi ustvarili vtis, da so zakoni tržnega neoliberalizma večni in objektivni. Kot je lepo demonstriral Philip Mirowski, se je ekonomija želela prezentirati kot *deterministična socialna fizika* vsaj od formulacije neoklasične ekonomije naprej. Pareto, Walras, Jevons in Fisher so se pri matematizaciji ekonomije zanašali na hamiltonske formalizme iz fizike 19. stoletja. Mirowski v svoji knjigi formulira uničujočo kritiko te formalistične geste, ki ji očita neutemeljeno uporabo fizikalnih metafor v okviru neoklasične pa tudi poznejše ekonomije. Njegova glavna poanta je v tem, da so neoklasični ekonomisti nekritično prepisali Hamiltonove enačbe iz fizike v ekonomijo in s tem ustvarili nekonsistentno ekonofizikalno himero. Lepota Hamiltonovih enačb v fiziki je v tem, da deterministično določajo dinamiko sistema, *za katerega veljajo* (tj. *ne* za borzo) za vse čase do neskončnosti. A kot opozori Mirowski, deterministična hamiltonska metaforika nima nobenega smisla, če obenem z gibalnimi enačbami v polju ekonomije ne formuliramo tudi analogije ohranitvenih zakonov (na primer zakona ohranitve energije), ki (v fiziki) ob upoštevanju določenih simetrijskih zahtev izhajajo neposredno iz Hamiltonovih enačb. Neoklasični ekonomisti ohranitvenih zakonov niso nikdar formulirali, s tem pa so nepopravljivo pohabili svojo »teorijo«. Ko so uveljavljeni fiziki in matematiki – med njimi Laurent, Planck, Helmholtz, Volterra in Gibbs – zahtevali utemeljitev ekonomske aplikacije fizikalne metaforike, so se neoklasični ekonomisti odzvali z nesmisli in nerazumevanjem (Mirowski 279). Ker se niso bili zmožni soočiti s temi zagatami svoje poenostavljene matematizirane »teorije« družbe, so zgubili tla pod nogami ob kvantnomehanskem sesutju determinističnih korenin klasične fizike (275).

Seveda tu nimamo opravka z znanstveno uzurpacijo humanizma ali filozofije. Nasprotno: naravoslovje je tisto, ki je v imenu partikularnih ideoloških gest nelegitimno pretvorjeno v nekakšno ekonometrično statistično črno magijo, v nekakšno ekono-mistiko, ki naj vzdržuje iluzijo transparentnosti kapitalizma prostega trga. Povrh tega se situacija ni izboljšala: ekonomija je sčasoma pozabila na nelegitimnost neoklasične instrumentalizacije fizike v polju ekonomije, zato da je matematični novorek zaživel svoje

lastno življenje kot pripoznan del ekonomskega diskurza. To je tisto, kar današnjim neoliberalnim ekonomistom in poslovnežem omogoča, da svoje nasprotnike tako samozavestno diskvalificirajo kot reakcionarne subjekte, ki – podobno kakor katoliška cerkev v galilejskih časih – danes niso sposobni sprejeti kopernikanske revolucije moderne matematizirane ekonomije.²

Vse to kaže, da danes potrebujemo *več* filozofije in *več* znanosti, ne manj. Kot je zapisal Althusser, je teoretska praksa filozofije v razmejevanju ideološkega od znanstvenega v nerazločni realnosti obeh. In danes imamo, morda bolj kakor kdajkoli, opravka z nerazločno realnostjo obeh.

OPOMBI

¹ Ta članek je eden rezultatov projekta ARRS J7-4175(A): Struktura praznine (temeljni raziskovalni projekt).

² Ta naturalistični nazor družbe utegne pojasniti dejstvo, da današnji desničarski voditelji demontirajo socialno državo – državo zaznavajo kot umetno, tako rekoč genetsko intervencijo v sociodarvinistično strukturo družbo, ki omogoča preživetje tistim, ki sami niso sposobni preživeti, in torej *ipso facto* ne bi smeli preživeti. Najbolj pravično politično stanje je po njihovem naravno stanje, stanje vsakega proti vsem, stanje brez zastojkarstva, ki naj se utelesi v spinozistični državi, kjer je *moč* obenem tudi *pravica*. Je pa vsaj zanimivo, da so številni zagovorniki socialnega darvinizma pogosto karseda radikalni kreacionistični nasprotniki biološkega darvinizma.

LITERATURA

- Althusser, Louis. *Filozofija in spontana filozofija znanstvenikov*. Prev. Vojislav Likar. Ljubljana: ŠKUC in ZIFF, 1985.
- Bunta, Aleš. »Saving Private One«. *Filozofski vestnik* 31.3 (2010): 7–17.
- Gödel, Kurt. »A Remark About the Relationship between Relativity Theory and Idealistic Philosophy«. Gödel, *Collected Works: Volume II*. Ur. Solomon Feferman idr. Oxford: Oxford University Press, 1990. 202–207.
- — —. »Some Observations About the Relationship between Theory of Relativity and Kantian Philosophy«. Gödel, *Collected Works: Volume III*. Ur. Solomon Feferman idr. Oxford: Oxford University Press, 1995. 230–260.
- Ličer, Matjaž. »Gödelovo pojmovanje časa in Badioujeva razklenitev konstruktivizma«. *Filozofski vestnik* 31.3 (2010): 17–31.
- OECD. *Measuring Student Knowledge and Skills: A New Framework for Assessment*. Pariz: OECD Publications Service, 1999.
- Pais, Abraham. *Subtle is the Lord: The Science and the Life of Albert Einstein*. Oxford idr.: Oxford University Press, 1982.
- Macherey, Pierre. »Althusser and the Concept of the Spontaneous Philosophy of Scientists«. Prev. Robin Mackay. *Parrhesia* 6 (2009): 14–27.
- Mirowski, Philip. *More Heat than Light: Economics as Social Physics, Physics as Nature's Economics*. Cambridge, New York in Melbourne: Cambridge University Press, 1989.
- Spinoza, Baruch de. *Etika*. Prev. Primož Simoniti. Ljubljana: Slovenska matica, 1988.

Science and Ideology: From the Spontaneous Philosophy of Scientists to the Spontaneous Science of Economists¹

Matjaž Ličer

National Institute of Biology, Ljubljana, Slovenia; ZRC SAZU, Institute of Philosophy, Ljubljana
matjaz.licer@gmail.com

Today we are witnessing a quite common Manichean break-up of science on natural sciences and the humanities. Natural sciences play the role of useful, clinically clean, objective and exact activity, while humanism is reduced to a useless conglomerate of subjective, ideologically motivated constructs. Following Althusser, I aim to show that this delineation is false – not because humanism is not entangled with ideologies, but because the same holds for science: scientists are as scientists not immune to their personal beliefs and worldviews that can always be reduced to very concrete positions within philosophy (say, Spinozism in Einstein's case, rationalism in Gödel's, or materialism in Heisenberg's). I claim that the break-up of science leads to an illegitimate naturalisation of society that serves as the framework of the neoliberal worldview within science and other fields

Keywords: materialist philosophy / natural sciences / the humanities / ideology / neoliberalism

UDK 001.3

Today we are witnessing a well established break-up of science on natural sciences and the humanities. Natural sciences play a role of useful, clinically clean, objective and exact activity, while humanism is reduced to a useless conglomerate of subjective, ideologically motivated constructs, inseparable from individual pathologies of the people involved in its production. It is not difficult to show that such delineations are false because even the most eminent natural scientists are *as scientists* not immune to their personal (ideological) worldviews.

Perhaps one of the most striking examples is Albert Einstein's opposition to the Bohr-Heisenberg interpretation of quantum mechanics. As is well known, one of the major finding of the Bohr-Heisenberg interpreta-

tion is that every physical process involves a finite (non-zero) amount of uncertainty, of pure chance. This is something that Einstein, the scientific giant of giants, never came to terms with. To this randomness in the functioning of nature he opposed his now famous saying that God does not play dice, stated in the 1926 letter to Max Born: ‘Quantum mechanics is very impressive. But an inner voice tells me it is not yet the real thing. The theory produces a good deal but hardly brings us closer to the secret of the Old One. I am at all events convinced that *He* does not play dice with the Universe.’ (Qtd. in Pais 443) (Niels Bohr responded by telling Einstein not to tell God what God does or does not do.) The reasons for Einstein’s refusal of the Bohr-Heisenberg interpretation are obviously not physical by nature. They are spontaneously philosophical in Althusser’s sense. Einstein invoked philosophical categories instead of physical ones in order to formulate his objections. He was an outspoken defender of Spinoza’s philosophy. In his magnum opus, *Ethics*, Spinoza created a logically strict pantheistic theology which ultimately interprets God as a set of rational laws intrinsic to Nature and governing Nature from within. To discover these laws is to discover the divine Nature. As Spinoza writes in *Ethics* IV, ‘the eternal and infinite being, whom we call God, or Nature, acts by the same necessity whereby it exists’ (Spinoza 321). This rational necessity of God in the form of deterministic harmony of physical laws was something that Einstein refused to forsake and replace with a probabilistic chance-driven interpretation of quantum mechanics. In this strict sense – and *precisely* in this sense, in which he held the harmony of natural laws to be divine, to *be* God – Einstein’s science is science as theology (see also Pais 443). He believed that natural laws were deterministic by nature and that while they might be difficult to comprehend they are ultimately within our epistemological grasp. The rest is history. From the 1920s on Einstein had tried to create what he called the unified theory of total field. This was to be a classical (causal) field theory which would lead to quantum rules as one of its *consequences* (Pais 463–467).

As we know today, Einstein has correctly identified the very central of all modern physical problems – the quest for unification that he initiated is still going on – but due to his persistent refusal to accept quantum mechanics (as a theory of principle) all his attempts at a unified field theory were doomed to fail. In the 1920s it was admittedly not clear that the road to unification should lead through the quantum domain, as several different paths seemingly yielded legitimate methods that were to lead towards the same goal. Yet insofar as pursuing *one* path and not the other was a matter of personal *decision*, I believe that this is an illustrative example of how ideology affects scientific work. In retrospect it is clear that

Einstein made the wrong decision based on reasons other than physical ones ('an inner voice'). Ideology does not perturb the *methods* physicists use to achieve their goals, but it does to a certain extent *guide* them in terms of what they identify as true problems and what they dismiss as irrelevant.

Another example of a remarkable impact of personal belief on a scientific result is that of Kurt Gödel. Gödel is mostly known for his incompleteness theorems in mathematical logics, but in the late 1940s this close friend of Einstein's found a new solution to Einstein's relativistic field equations in rotating universes. His solutions allowed him to propose a surprising interpretation according to which time-travel might be possible. In other words, Gödel proved that by following a precisely specified curve in spacetime in such a universe, one eventually reaches the original point of departure, the original point in space *and time*. Gödel first tried to find a mistake in his calculations – but there was none. So he concluded that there is *no* type of universe in which the objective lapse of time can be defined.

It is true, he writes, that in our universe we *can* define an absolute lapse of time, but anyone who accepts this objective lapse of time

accepts as a consequence that whether or not an objective lapse of time exists (i.e., whether or not a time in the ordinary sense of the word exists) depends on the particular way in which matter and its motion are arranged in the world. This is not a straightforward contradiction; nevertheless, a philosophical view leading to such consequences can hardly be considered as satisfactory. (Gödel, 'A Remark' 206–207)

In another study his argument gets profoundly Leibnizian:

If, however, such a world time were to be introduced in these worlds as a new entity, independent of all observable magnitudes, it would violate the principle of sufficient reason, insofar as one would have to make an arbitrary choice between infinitely many physically completely indistinguishable possibilities, and introduce a perfectly unfounded asymmetry. (Gödel, 'Some Observations' 237)

It should be clear by now that Gödel rejected the notion of time exclusively on *metaphysical* grounds (see Ličer). As an outspoken Leibnizian rationalist, Gödel could not come to terms with a violation of the principle of sufficient reason, the central axiom of Leibniz's philosophy. For the notion of absolute world time implies 'completely indistinguishable possibilities' ('completely' here meaning that even God could not distinguish between them), which means that these possibilities are not *particular* possibilities and hence, following Leibniz, do not exist. As Leibniz put it: 'What is not *a* being, is not a *being*.' Hence, for Gödel, the objective world time does not exist.

These examples show that major scientists are *as scientists* guided by their world views (the totality of their ideas about the world), more precisely, their spontaneous philosophies of science (the totality of their ideas about their own scientific practice). Spontaneous philosophies of science do not impact the way they *do* science, but rather influence what they *perceive* as relevant problems (see Macherey 20). Faced with a grave epistemological problem, scientists often spontaneously shift the mode of discourse into philosophy or at least philosophy-flavoured ideology (see Althusser 64). Philosophy, on the other hand, tends to develop a relationship of exploitation with regard to science (Althusser 85): according to Althusser, Bergson was exploiting contemporary scientific crises in order to reconstitute spiritualism, while Descartes, Kant and Husserl were doing the same in order to formulate various nuances of idealism, which were, in the last instance, supposed to provide science with an external 'legal foundation' (Descartes: who guarantees that scientific truths are beyond all doubt? Kant: who guarantees that the conditions of possible experience vouch for the truth of the experience itself? Husserl: what is this consciousness that is both 'my' 'concrete' consciousness and the consciousness of scientific ideality?) This regime includes those scientists who, during their personal scientific crises (which are for Althusser nothing but their personal *philosophical* crises), produce their own philosophies of science (to which Einstein and Gödel are no exceptions). But since they are scientists, they are *as scientists* part of a long tradition of those who tend to exploit science for apologetic ends, 'and naturally without the counterweight of materialism and without the critical checks that can be ensured, within materialism, by knowledge of the mechanism of ideology and the class conflicts within it' (Althusser 132).

Obviously, these interactions do not imply that there exists a dialogue between science and philosophy. There is no such dialogue – at least not in the sense that *science* needs *philosophy* to solve its *immediate* problems, that is, problems that science is able to articulate within the scope of its own discourse. Science does not philosophise in this sense. Their difference was quite clearly grasped by Althusser: science functions as a system of reduction of errors in our understanding of nature, while there are no errors in philosophy – there is no correct philosophy, there is merely a struggle for domination between different philosophical cross-currents. But even though philosophy and science are undertakings of different order, scientific problems always need to be reflected and interpreted to be, to use Kuhn's terminology, incorporated into the prevailing scientific paradigms or to start off new paradigms. And here, as I have tried to show, scientists themselves spontaneously invoke specific ideological positions that func-

tion as a sort of ‘ersatz philosophy [...] loose from any reference whatsoever to practice, and which claim general validity’ (Macherey 21–22). And these positions – which are, in philosophical sense, rarely illuminating – are, in the last instance, always positions pertaining to a *specific* philosophical school (such as the positivist, rationalist, empiricist or, say, idealist-Platonist school). Einstein’s position was Spinozist, Gödel’s was Leibnizian, and positions of mathematicians are often Platonist. But I should stress that such influences do not downplay anyone’s *scientific* achievements the slightest bit. If anything, they are merely *external* to the way scientists test their theories. Anyone who believes that such influences on hard-core natural science somehow also contaminate it, holds (in a properly Kantian manner) a highly romantic picture of contemporary scientific enterprise. The very statement that true science is devoid of ideology *is* ideology at its purest. Althusser’s lecture is quite telling:

There are false ideas about science, not simply in the heads of philosophers but in the heads of scientists themselves: false ‘obviousnesses’ that, far from being means of making progress, are in reality ‘epistemological obstacles’ (Bachelard). [...] A philosophy capable of discerning and criticizing them can have the effect of drawing the attention of scientists to the existence and efficacy of the epistemological obstacle that their spontaneous scientific ideology represents. [...] Here again philosophy does not substitute itself for science: it intervenes, in order to clear a path, to open the space in which a correct [*juste*] line may then be drawn. (Althusser 88)

Althusser locates two contradictory elements of the spontaneous philosophies of scientists: the *materialist* and the *idealist* element. In their *materialist* approach to science, scientists test their *theories* using *experiments*, as they believe in the material and real existence of their scientific object; this is their scientific *method*, which they believe to be correct and effective. On the other hand, the *idealist* approach to science replaces the material existence of the scientific object with the *personal experience of scientific practice*, which it subordinates to ‘values’ derived from practical ideologies (such as religious obscurantisms), which are completely external to science. The materialist element is about particularity and temporality manifested in a particular experiment whose outcome is proposed (or not) by the theory that relates to this experiment. If the materialist knowledge about the scientific *object* is always mediated by experiment, and is thus finite, limited and never total, then the idealist knowledge about the scientific *experience* stems from the Totality of its particular ideological framework. The materialist element focuses on the partiality of the object of scientific knowledge, while the idealist element focuses on the ideological evaluation of the experience

of scientific practice and is supported by the authority of the One as strictly external to the field of science.² Idealism has thus been structuring science again and again in accordance with the transhistorical unity of the One of religious ideologies (in the last instance: the unity of God).

Following Aleš Bunta, one might say that this transhistorical and total unity, which Althusser criticises on the level of spontaneous philosophies of science, has been co-determining the form and the content of philosophy since Ancient Greece and that it still resonates in Badiou's ontology, to name just one example. Althusser sees in materialist philosophy support for the scientists who try to control and evict idealist elements from the field of spontaneous philosophies of science, while Badiou struggles to ban the One from (matematics as) ontology by using Zermelo-Fraenkel axiomatisation of the Cantor set theory. Bunta tries to demonstrate that Badiou's project must ultimately fail since his 'struggle with the metastases of the One' is in the last instance 'a struggle of a certain modified monism that, supported by the figure of the Two, struggles against a dualism grounded in the Figure of the One' (Bunta 15). The presence of the *transhistorical kernel*, the *eternal kernel*, the *One*, within the very core of science has in the past opened up science again and again to discourses – of, say, the Church and/or capital – that were driven by interests of power, that is, interests external to science. This, following Althusser, shatters one of the main (idealist) illusions of the European enlightenment: *there is no power of pure knowledge that is not bound up with power proper – with political and social power*. These spontaneous philosophies of scientists resonate also in political and social fields and are affected by them. The idea that the very emergence of Truth suffices to light up the darkness and chase prejudice away has been obsessing scientists to this day – in this sense, as Althusser is right to point out, scientists are just as idealist as the religious influences they try to fight.

Following Althusser, I tried to show that contemporary science is not devoid of ideology, but is instead a locus of the struggle for domination between idealism and materialism within the spontaneous philosophy of science, the struggle as old as Aristotle's *Metaphysics* and its empiricist critique of Plato's idealism. But I still owe an answer to the question of whose position precisely I am negating here. Who is it exactly that is nowadays presenting natural science, the Science, as devoid of all ideology? And who is, on the other hand, reducing humanism and philosophy to useless ideological ramble? In a nutshell, the answer could be: the global instances of power. It is obvious from, say, the Bologna reform of higher education that the EU is engaged in a downscaling of theoretical humanism and philosophy on behalf of practical sociological and economical statistical

studies. So much is clear. But we must not forget that we are also witnessing a downscaling of theoretical *natural* sciences in the name of computer sciences, technology and a kind of ‘business informatics’. This is a clear manifestation of Althusser’s thesis that there is no power of pure knowledge that is not bound up with power proper. The scientific knowledge itself, the scientists themselves, hold no actual power – the structural policies that dictate the shape of the development of science are set by political powers through agents whose interests are strictly external to science.

The implicit assumption at the core of the EU education policies is that humanism and philosophy no longer serve any useful purpose since mathematised social and economical sciences are so reliable (that is, objective) that they can henceforth mathematically quantify and predict social phenomena. Let me quote a beautiful example from a recent official OECD publication, *Measuring Student Knowledge and Skills: A New Framework for Assessment* (OECD 49), which was presented as a collaborative effort of the European scientific community. In the chapter on ‘Change and growth’ – growth, of course, and not decline – the authors classify natural phenomena as follows: ‘Every natural phenomenon is a manifestation of change. Examples are: organisms changing as they grow, the cycle of seasons, the ebb and flow of tides, cycles of unemployment, weather changes and the Dow-Jones index.’ (OECD 49)

So, the cycle of unemployment is explicitly said to be a natural phenomenon. The same goes for the Dow-Jones industrial index: it is, for OECD, a natural phenomenon. Cycles of unemployment and the stock market, too, are said to be governed by the same laws of physics that regulate tides and atmospheric processes.

This bizarre classification, this mathematisation of society, this naturalisation of society, is one of the leading ideological *sophistries* today. This ideology is, within economics and business studies, ideology *as* science, ideology presenting itself as science. It is, as Martin Klanjšek said, *the spontaneous science of economists*. Economics and business are presenting themselves *as* mathematical in order to create an impression that the laws of the free-market neoliberalism are eternal and objective. As Philip Mirowski thoroughly demonstrates, to this day economics has been trying to portray itself as *deterministic social physics*. This has been going on at least since the formulation of neoclassical economics (Pareto, Walras, Jevons, Fisher), which has been relying heavily on the nineteenth-century Hamiltonian formalisms in physics. Mirowski puts forward a devastating critique of such uncritical usage of physical metaphors in the scope of neoclassical economics and its legacy. One of his major points is that neoclassical economists have been uncritically constructing some sort of an inconsis-

tent econophysical chimera by merely rigidly translating Hamilton's equations from physics to economics. The beauty of Hamilton's equations is that they deterministically predict the dynamics of the system *for which they hold* (that is, *not* for the stock market) for all times ad infinitum. But as Mirowski points out, this deterministic Hamiltonian metaphor makes no sense without some sort of analogy to the conservation laws (such as the law of conservation of energy), which – in physics – follow directly from Hamilton's equations (if certain conditions of symmetry are met). The neoclassical economists never formulated any conservation laws in the field of economics, thus crippling their 'theory' beyond repair. When acclaimed physicists and mathematicians such as Laurent, Planck, Helmholtz, Volterra and Gibbs challenged them to justify the economic usage of the physical metaphor, they responded with nonsense and incomprehension (Mirowski 279). Incapable of confronting these issues regarding their over-simplified deterministic mathematised 'theory' of society, they were left high and dry as quantum mechanics shattered the deterministic roots of classical physics (Mirowski 275).

It should be clear that what we are dealing with here is *not* a scientific usurpation of humanism or philosophy; it is rather the opposite: science itself is being illegitimately converted into some sort of econometric statistical black magic which might be called *economystics*, with the sole purpose of supporting the illusion of transparency of free-market capitalism. Moreover, the situation did not improve over time: economics gradually lost all memory of the illegitimate neoclassical instrumentalisation of physics, which gave the mathematical newspeak a life of its own as a recognised part of the discourse of economics. This is what enables the neoliberal economists and businessmen of today to disqualify all their opponents as reactionary subjects who – like the Catholic Church in Galilean times – cannot seem to come to terms with the Copernican revolution of modern mathematised economics. (This naturalistic worldview of society might also be the reason why the right-wing leaders of today oppose the welfare state – whether they know it or not, they perceive the welfare state as an artificial, almost genetic intervention into the social Darwinist fabric of society, allowing the unnatural survival of those unfit to survive. Their *political state* ought to be a *state of nature*, that is, a state with every man for himself, a state with no free lunches and no free rides, a Spinozist state in which might makes right. It is interesting to note that these same proponents of *social Darwinism* are often the most radical creationist opponents of *biological Darwinism*.)

To my view, most of what I have claimed suggests that we need *more* philosophy *and more* science, not less. As Louis Althusser has put it in his

Philosophy and spontaneous philosophy of scientists, the practice of philosophy consists of demarcations of the *ideological* from the *scientific* in the indistinct reality of *both*. And today we are perhaps more than ever dealing with an indistinct reality of both.

NOTES

¹ This article is a result of the project 'J7–4175 (A): The Structure of the Void (basic research project)' financed by the Slovenian Research Agency.

² We can identify a dominating materialist element in the spontaneous philosophy of science of the great physicist Richard Feynman, the founder of modern quantum electrodynamics. Feynman was the first to acknowledge the partiality of his work in the field of physics by stressing that he does not 'feel frightened by not knowing things. By being lost in the mysterious universe without having any purpose, which is the way it really is, as far as I can tell, possibly. It doesn't frighten me'. Albert Einstein's spontaneous philosophy, on the other hand, adheres much more closely to idealistic tendencies. He was satisfied by the partiality of answers that contemporary physics offered. One of his questions in relation to quantum mechanics was whether or not quantum mechanics is a 'complete description of reality', that is, whether or not it tells us everything that *can* be told about nature.

WORKS CITED

- Althusser, Louis. *Philosophy and the Spontaneous Philosophy of the Scientists, and Other Essays*. Ed. Gregory Elliot; trans. Ben Brewster et al. London and New York: Verso, 1990.
- Bunta, Aleš. 'Saving Private One'. *Filozofski vestnik* 31.3 (2010): 7–17.
- Gödel, Kurt. 'A Remark About the Relationship between Relativity Theory and Idealistic Philosophy'. Gödel, *Collected Works: Volume II*. Ed. Solomon Feferman et al. Oxford: Oxford University Press, 1990. 202–207.
- – –. 'Some Observations About the Relationship between Theory of Relativity and Kantian Philosophy'. Gödel, *Collected Works: Volume III*. Ed. Solomon Feferman et al. Oxford: Oxford University Press, 1995. 230–260.
- Ličer, Matjaž. 'Gödlovo pojmovanje časa in Badioujeva razklenitev konstruktivizma'. *Filozofski vestnik* 31.3 (2010): 17–31.
- OECD. *Measuring Student Knowledge and Skills: A New Framework for Assessment*. Paris: OECD Publications Service, 1999.
- Pais, Abraham. *Subtle is the Lord: The Science and the Life of Albert Einstein*. Oxford etc.: Oxford University Press, 1982.
- Macherey, Pierre. 'Althusser and the Concept of the Spontaneous Philosophy of Scientists'. Trans. Robin Mackay. *Parrhesia* 6 (2009): 14–27.
- Mirowski, Philip. *More Heat than Light: Economics as Social Physics, Physics as Nature's Economics*. Cambridge, New York and Melbourne: Cambridge University Press, 1989.
- Spinoza, Benedict de. 'Ethics'. Spinoza, *Complete Works*. Ed. Michael L. Morgan; trans. Samuel Shirley et al. Indianapolis (IN): Hackett Publishing Company, 2002.