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Živo branje
Literatura, znanost in humanistika
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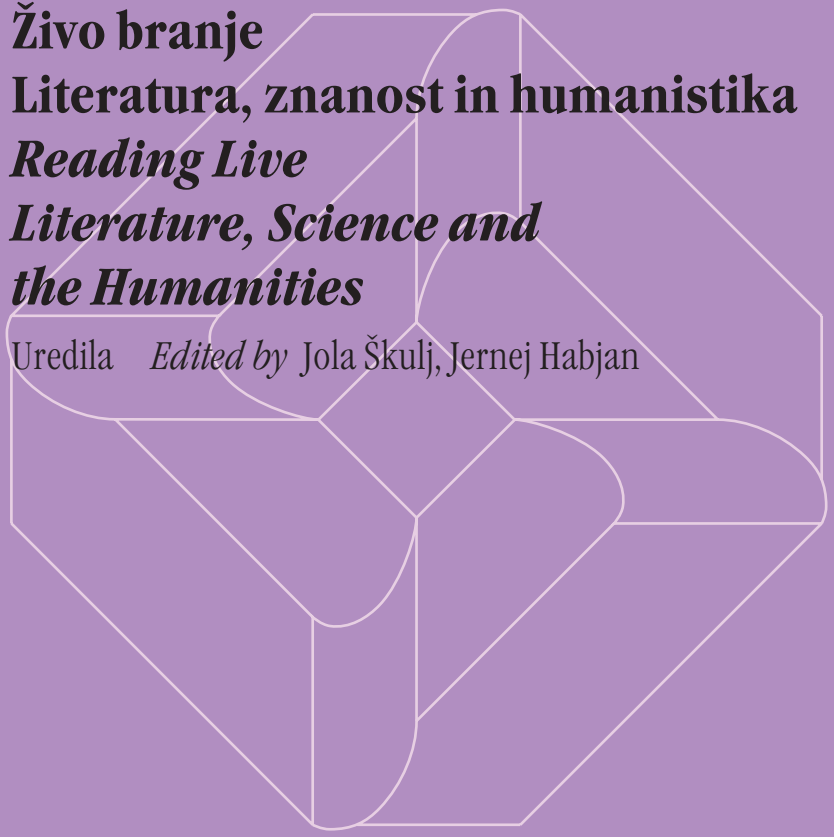
Uredila *Edited by* Jola Škulj, Jernej Habjan



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Živo branje: literatura, znanost in humanistika

Jola Škulj

Pričujoča posebna številka *Primerjalne književnosti* želi fokusirati ustvarjalna presečišča literature, znanosti in humanistike ter se hkrati v nekaterih navezavah ozreti, kako je vanje ujeta neposredna udeleženost tistega, ki se vpleta skozi branja, opazovanja ali motrenja, premišljevanja. V zelo radikalizirani obliki bi vprašanje lahko zaostrili in se spraševali, ali se subjektivno in dogajanje življenja samega vpisuje v tekstualna dekodiranja, v »objektiviteto« znanstvenega spoznavanja, v procese misli. Takšno soočenje literature kot ustvarjalne prakse ter pozicij »mehkih« in »trdih« znanosti je bilo v zadnjem obdobju že večkrat izpostavljeno, izšla je vrsta spisov s to tematiko pa tudi evropska znanstvena politika je njihovo zvezanost znala dejansko dojeti v tvornejših razmerjih, jo spodbujati in promovirati.[1] Zdi se smiselno, da prevpraševanje vezi teh vej človekovega ustvarjalnega uma izpostavimo tudi v slovenskem prostoru in opravimo tisto delo, ki terja odgovorno širšo konfrontacijo in nujno refleksijo stališč za tvornejšo domačo znanstveno politiko. Hkrati pa naj bi ta posebna številka *Primerjalne književnosti* tudi opozorila, da poezija (gr. *poiesis*) – kot snovanje in sinonim ustvarjalnih dejanj – ni tako marginalna, kakor se zdi v vsakdanjem begavem življenju in spregledovanju vsega nerabnega, pač pa nekaj precej bolj zavezujočega, saj se direktno in odkrito dotika nas samih, človekove neposredne eksistence v svetu. Resnična umetnost minuciozno raziskuje ta naš krhek in zagoneten biti v svetu, kakor znanost raziskuje svoj predmet.

Vzpostavljena tradicija dvojezičnih tematskih številk *Primerjalne književnosti* je nemara ustrezen kontekst, v katerem lahko slovenski raziskovalci t. i. »mehkih« znanosti spodbudijo kolege iz domačih »trdih« znanosti, da skupaj soočijo svoje poglede z drugimi evropskimi znanstveniki ter lastna videnja in spoznanja mednarodno promovirajo v aktualnih prizadevanjih za vzpostavljanje učinkovitejših *integriranih* znanj. Skupna presečišča interesov, ki poganjajo obstoj umetnosti literature, in neukinljivo porajanje vednosti, ki jo proizvajajo znanosti, se vpisujejo v pojavnost samega transgresivnega mišljenja (gl. Nowotny), zato je smiselno odpreti in premisliti inherenten tihi dialog znanosti, literature in humanistike prav v kontekstu nastajajočih »life sciences«.

Temeljno vprašanje se zdi, ali je vednost, ki jo razpira humanistika, komplementarnega pomena za znanja in razumevanja, ki jih razpirajo trde znanosti. To izhodiščno vprašanje se navezuje na misel, da nova para-

digma vednosti, pri Helgi Nowotny in njenih kolegih označena kot »Mode 2«, predstavlja odmik od znanstvene paradigme »Mode 1«, »opredeljene s hegemonijo teoretske ali brezpogojno eksperimentalne znanosti« (Helga Nowotny, Scott in Gibbons 179), in da jo odlikuje vse bolj poudarjen interes za refleksivnost in dialoški proces, predvsem pa zavedanje o neovrgljivo dejavni vlogi humanistike v produkciji znanja. Eden od bistvenih namenov je opozoriti prav na ta novi pogled na vlogo in pomen humanistike kot »najbolj angažirane med disciplinami« (188) in kot tiste, ki je zmožna ponuditi drugim znanstvenim disciplinam pojme refleksivnosti in analitičnega historičnega uvida.

Letošnja tematska številka slovenske stanovske komparativistične revije ima namen poseči v kompleksnosti literature in znanstvene misli ter opozoriti na teoretične predpostavke za soočanje znanosti, literature in humanistike. Zastavila bo vprašanja vzajemnih kognitivnih oporišč in nekaterih komplementarnih matric, zajetih v ključnih besedah – kompleksnost, inventivnost, mreženje; sistem, *autopoiesis*, semioza, narativnost, fokalizacija, identiteta, vloga jaza oziroma človeškega faktorja; itn. –, ki jih je izčrpno metodološko aktualizirala literarna veda, nanje pa se bistveno osredotočajo tudi današnja območja raziskav t. i. »trde« znanosti. Stališča, da problem jezika zadeva vse znanosti, niso bila izoblikovana šele z Lotmanovo semiotiko kulture, ampak otipljivo jasno izpostavljena že pri Heisenbergu (*Schritte über Grenzen*), to pa prelomna biologistična razumevanja kognicije (gl. Maturana in Varela) in jezika (gl. Thibault) zgolj potrjujejo. Nova pojmovanja kognicije odpirajo tudi opcijo drugačnega, preciznejšega umevanja dejstev in njihove historičnosti, hkrati pa, ko pripoznavajo refleksivnosti in dialoškemu procesu v izrekanju vednosti neodložljivo vlogo, se nov pogled odpre tudi na pomen humanistike v produkciji znanja.

Če je spoznavanje del naše lastne »žive« fenomenologije in so razbiranja sveta in interpretacije neizogiben izziv človekove avtopojetske adaptacije in našega identitetnega (samo)prevpraševanja, potem je komparativistični poseg s temo soočanja koncepcij v gotovo preveč apodiktično razmejenem binarizmu »trdih« in »mehkih« znanosti več kot smiseln za odgovorno samorefleksijo in suvereno osmišljevanje našega dela. Komparativistična zavezanost predmetu literature in kontekstu kulturnih praks je s svojimi konsistentnimi analitičnimi pristopi povsem vajena semiotsko razbirati kompleksnost in inventivnost v teksturi umetniškega sistema in interpretirati vlogo jaza oziroma človeškega faktorja v literarnih dejanjih, s tem pa historično misliti razloge za pojavljanje in spreminjanje umetniških in vednostnih matric. – Komunikacija prek institucionalnih meja raziskovalnih disciplin je nedvomno stimulativna sestavina pristnega in odgovornega raziskovalnega interesa, in literarna veda lahko s svojimi

teoretskimi in metodološkimi dognanji ter konceptualnim teritorijem pri tem resno prispeva k novi dejavni produkciji znanja. Prav konvergenten pristop k znanju pa ima lahko multiplikativne učinke.

Tak konvergenten pristop pripelje do prepričljivejših argumentov o pomenu obstajanja ustvarjalne prakse, kot je literatura, s svojo stopnjo aktualnosti pa učinkovito izpričuje in mednarodno promovira slovensko literarno vedo in utrjuje delo, ki se je začelo že z vključenostjo raziskav tukajšnje primerjalne literarne vede v vseevropski projekt ACUME 2.

OPOMBA

[1] Ne nazadnje se je tem problemom uspešno posvetil tudi vseevropski projekt »ACUME 2: Interfacing Sciences, Literature & Humanities« (2006–2009), ki sta ga koordinirala Vita Fortunati in Claudio Franceschi.

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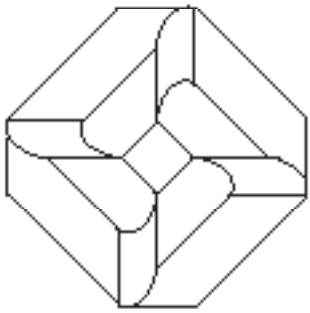
Razprave



Znanost in literatura: razmislek o interdisciplinarnosti in vrstah vednosti

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V zadnjih dveh desetletjih se vse bolj uveljavlja skupno področje »znanost in literatura«, ki začrtuje nova ozemlja onstran razmejene pokrajine »dveh kultur«. Kako v kulturi raziskovanja vse bolj prehajamo meje, se najlepše kaže v kognitivni literarni vedi. To sicer razmeroma mlado področje se lahko pohvali z opusom, ki je širok po obsegu in vsebinskem razponu ter že s svojo organiziranostjo nakazuje možnosti za večdisciplinarno raziskovanje. Proučili bomo interdisciplinarnost s stališča evolucijske literarne vede - podpodročja kognitivne literarne vede -, obravnavali politične in ideološke posledice opisa literature, ki izhaja iz njene prilagoditvene vrednosti, in predstavili zgodovinske značilnosti debate o znanosti in literaturi.

Ključne besede: znanost / kultura / literatura / kognitivna literarna veda / evolucijska literarna veda / interdisciplinarnost

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I

V zadnjih dveh desetletjih se vse bolj uveljavlja skupno področje »znanost in literatura«, ki začrtuje nova ozemlja onstran razmejene pokrajine »dveh kultur«. Ta duh konstruktivne interdisciplinarne izmenjave se je leta 2003 izrazil v posebni številki revije *Modern Language Notes*, naslovljeni *Literature and the History of the Sciences* (Literatura in zgodovina naravoslovja), ki je oznanila, da dandanes obstajajo »komplementarne težnje v literarni vedi in v zgodovini naravoslovja, ki so očitno naposled dosegle metodološko konvergenco ali celo konsilienco« (Campe 515). Optimistični namig na novo metodološko pojmovanje, ki tli v oznanilu o »komplementarnih težnjah«, bi se vsaj v angleško govorečih profesorskih krogih še pred petdesetimi leti zdel malo verjeten, dandanes pa radi poudarjamo, da metode in pojmi iz literarne vede in naravoslovja konvergirajo kljub prepadu med njima; to jasno kaže, kako zelo je napredovala debata o »dveh kulturah«.

Kako v kulturi raziskovanja vse bolj prehajamo meje, se najlepše kaže v kognitivni literarni vedi. Čeprav je še razmeroma mlada, se lahko pohvali s širokim opusom, ki že s svojo organiziranostjo nakazuje možnosti za večdisciplinarno raziskovanje. Kognitivni pristopi se po obsegu in vsebini resda zelo razlikujejo – poznamo kognitivno poetiko, kognitivno stilistiko, kognitivno estetiko, kognitivno naratologijo, »evo« (evolucijsko) literarno vedo, »nevro« (nevroznanstveno) literarno vedo in druge interdisciplinarne študije, za katere bo treba šele iznajti formalni naziv –, a vsem sta skupni osredotočenost na kognitivno naravo književnosti in trdna vera, da lahko književnost osvetlimo z znanstvenimi metodami. To področje je vpeljal Mark Turner z raziskavo *The Literary Mind* (Literarni um; 1996), v kateri je kognitivne in psihološke procese bralnega dejanja osvetlil s pomočjo metod in pojmov kognitivnega jezikoslovja in nevroznanosti. Turner je ne le prenovil razmerja med dotlej ločenima vrstama vednosti, ampak je tudi na lastnem primeru pokazal, da je interdisciplinarnost neločljiva, in tako vzpostavil nova merila za povezovanje pojmov in metod dveh disciplin. Svoj pristop je povzel takole:

> Pri združevanju starega z novim, humanistike z naravoslovjem, poetika in kognitivna nevrobiologija ne smeta ustvariti znanstvenega križanca, temveč morata iznajti praktičen, ubranljiv, razumljiv, intelektualno koherenten vzorec, po katerem bo mogoče odgovarjati na temeljna in stalna vprašanja o kognitivnih orodjih umetnosti, jezika in književnosti. (Turner, »The Cognitive Study« 9)

Vsi poskusi na tem področju pa niso bili tako premišljeni. Že na današnji začetni stopnji nam predstavo o konvergenci kalijo epistemološka vprašanja, zlasti vprašanja evolucijske literarne vede. Za vstop v obravnavo teh problemov bomo proučili zbornik *The Literary Animal: Evolution and the Nature of Narrative* (Literarna žival: evolucija in narava pripovedi; 2005), ki sta ga uredila Jonathan Gottschall in David Sloan Wilson. V množici evolucijskih literarnih študij namreč izvrstno ponazarja poteze te šole, za nameček pa se jasno razmeji od utečene literarne vede, na katero so vplivale darvinistične ideje in v kateri so nekateri teoretiki, med njimi denimo Gillian Beer, pisali zelo prepričljivo in poučno (gl. Beer). Vprašali se bomo, s kakšnimi oblikami in metodami prenašamo evolucijsko vednost na literaturo, razmislili, kakšne politične in ideološke posledice ima opis literature, ki izhaja iz njene prilagoditvene vrednosti, in spremljali zgodovinske značilnosti debate o znanosti in literaturi. Pri »evo« literarni vedi nas namreč utegne najbolj presenetiti prav podobnost z argumenti iz preteklosti.

II

Evolucijska literarna veda izhaja iz predpostavke, da je jezik posebna in bistvena človeška lastnost, v kateri se skrivajo globoke resnice o človeški naravi. Pripovedi so navzoče v vseh človeških družbah, zato poskušajo evolucijski teoretiki dognati prilagoditveno vrednost literature tako, da literaturo opazujejo pod znanstvenim drobnogledom. »Prvič, za kaj gre pri literaturi?«; »Drugič, čemu literatura rabi?«; »Tretjič, kakšne so posledice za domnevno neznanstven predmet, kakršen je literatura, če se mu približamo z gledišča znanstvene discipline, kakršna je evolucija?« Okoli teh treh vprašanj se suče zbornik *The Literary Animal* (Gottschall in Wilson /ur./ xxv). S svojim pristopom do literature kot do predmeta resnega in trajnega znanstvenega raziskovanja urednika domnevno napravita velik korak v smeri interdisciplinarnosti, medtem ko večina znanstvenikov izloča »neznanstvene« vrste vednosti iz svojih raziskovalnih področij. V uvodu oznanita, da želita »izoblikovati en sam pojmovni okvir, ki bi poenotil raznorodne korpuse vednosti […], in zasukati trend skrajne specializacije vednosti, ki je nastopil zaradi odsotnosti skupnega pojmovnega okvira« (xvii). V istem duhu piše E. O. Wilson o možnosti, da bi evolucijska literarna veda premostila prepad med obema kulturama. Če se bodo naturalistične teorije izkazale za pravilne, piše, in bomo na biološke korenine lahko poleg človeške narave trdno navezali tudi najbolj izstopajoče literarne stvaritve te človeške narave, bo to eden največjih dogodkov v intelektualni zgodovini. »*Znanost in humanistika bosta združeni!*« (Gottschall in Wilson /ur./ vii)

»Evo« teoretiki torej trdijo, da je prirojena literarnost človeškega uma eden najosnovnejših delov naše kognitivne kompetence, s tem pa po vsem videzu prenavljajo dinamiko razmerja med literaturo in naravoslovjem ter ju postavljajo v enakopravnejši položaj. A kljub temu kmalu naletimo na trditve, ob katerih se moramo vprašati, ali enotni pojmovni okvir temelji na skupni ali zgolj na znanstveni vednosti. Wilson na primer pravi:

> Dandanes v literarni vedi vlada kaos, toda naturalistični (darvinistični) raziskovalci literature poznajo neprekosljivo strategijo, s pomočjo katere jo bodo lahko nadomestili. Zanje razmejitve med velikima vejama znanja – med naravoslovjem in humanistiko z družboslovjem – niso prelomna črta med dvema vrstama resnice. Pravzaprav zanje sploh niso črta, temveč prostranstvo pojavov, ki so zvečine že odkriti in čakajo, da jih bodo z združenimi močmi raziskali učenjaki z obeh strani. To pojmovanje ima to pomembno prednost, da se lahko empirično izkaže za pravilno, napačno ali v najslabšem primeru nerešljivo. (vii)

O ideji, da lahko doženemo literarno vednost s pomočjo empirične preverljivosti, ne bi bilo vredno zgubljati besed, če ne bi šlo za značilno

in celo deklarirano metodo evolucijske literarne vede. Kljub navidezni nepristranosti, s katero E. O. Wilson lahkotno odpiše neprimerljivost različnih vzorcev vednosti, še vedno ostaja sporno, ali smo se primerljivosti literarnega in evolucijskega raziskovanja lotili zadovoljivo ali vsaj ustrezno. Preden lahko spregovorimo o epistemološkem statusu umetniškega sporočanja in pod vprašaj postavimo epistemologije znanstvene racionalnosti, je vredno opozoriti, da je v današnji interdisciplinarni kulturi takšno združevanje obeh kultur pogosta poteza, ki jo je treba razlikovati od pristnih poskusov konsilience. Zdaj že redno poslušamo o post-»dvokulturnih« ali anti-»dvokulturnih« izjavah in o tem, da bi bilo treba pridobivati vednost z manj razdvajajočim pristopom. Iz teh oznanil dobimo vtis, da je bila ideja o dveh kulturah samovoljna doktrina ali teritorialen predpis za separatistične načine raziskovanja. Vendar ko jo je C. P. Snow (1905–1980) leta 1959 ubesedil v svojem cambriškem predavanju »The Two Cultures and the Scientific Revolution« (Dve kulturi in znanstvena revolucija; gl. Snow, *Two Cultures*), je zgolj odseval institucionalni in pojmovni prepad, ki je prevladoval na Zahodu sredi 20. stoletja. Če Snowov povzetek kratkomalo zavrnemo, ne da bi predlagali institucionalne in pojmovne spremembe, še več, ne da bi obe področji zasnovali bistveno drugače in pri tem segli globlje od površinskega sposojanja izrazov, dobimo kvečjemu retoriko ali kar mistifikacijo, pod katero se skrivata razlikovanje in institucionalna neenakost.

Res je, da vročekrvna debata, ki besni, že vse odkar je Snow tezo objavil, F. R. Leavis pa zavrnil, ni dopuščala veliko prostora za proučevanje, ali so razlike med kulturama res tako absolutne. Pred dvema letoma je Onora O'Neill v svojem lastnem cambriškem predavanju »Two Cultures Fifty Years On« (Dve kulturi petdeset let pozneje) opozorila, da domneve in metode, po katerih kulturi delujeta, nista tako daleč narazen; kot primera je navedla skupni metodi interpretacije in inference, ki težita k empiričnim resnicam in slonita na normativnih domnevah. Njena opažanja so umestna, kolikor v njih ubesedi današnjo težnjo h konvergenci. Vendar ne smemo zgubiti spred oči dejstva, da lahko debato o dveh kulturah po besedah Patricie Waugh (33) zasledimo že v klasični antiki, saj se suče okoli dveh načinov raziskovanja, ki vodita k dvema vrstama vednosti: k znanstveni, izmerljivi, in k estetski, neizmerljivi vednosti. Platonova ideja o intelektu, ki je estetiko razvpito zvedla na subjektivno emocionalnost, je v 20. stoletju našla ustreznico v Snowovem napadu na literarne intelektualce (natančneje, na modernistične pisce), zdaj pa se spet krepi v polemiki, ki jo je sprožila evolucijska literarna veda.

Toda vrnimo se k domnevni večvrednosti naravoslovne znanstvene metode. Evolucijski teoretiki zagovarjajo svoj način raziskovanja z apostolsko gorečnostjo, nič drugače kakor C. P. Snow pred dobrimi petde-

setimi leti, kvečjemu še s samozavestnejšim in bolj ozkogledim pozitivizmom. »Še nikjer na svetu ni nikoli nihče napisal literarnega teksta, ki bi bil zunaj dometa darvinistične analize,« zatrjuje Joseph Carroll v zborniku *The Literary Animal* (79). Takole nadaljuje:

> Darvinistična psihologija nam ponuja znanstveno utemeljen in sistematičen prikaz človeške narave. Prvič v naši intelektualni zgodovini se je zgodilo, da imamo takšno teorijo, toda po drugi strani je njen predmet – človeška narava – prav tista narava, ki že od nekdaj razvnema pisce in bralce. Zgodovinsko gledano pisci zvečine niso imeli dostopa do evolucijske razlage, kako se je človeška narava razvila do današnjega stanja, a so vendarle imeli globok intuitiven uvid v človeške motive in občutke. Danes pa lahko darvinistična družboslovna veda pomaga literarni vedi tako, da nam omogoči zavesten teoretski pristop k prvinskim silam, ki že od nekdaj ženejo vse ljudi in v temelju oblikujejo opažanja in razmišljanja vseh piscev in vseh bralcev. Darvinistična literarna veda nas lahko ponese nad površinske parafraze tradicionalne literarne vede, ne da bi nas prisilila v – pogosto napačne – redukcije, značilne za postmoderna pojmovanja človeške narave. (Carroll 103)

Toda kadar biološko usmerjene ideje o literarnem raziskovanju ne načenjajo epistemološkega statusa estetske vednosti, ne morejo veliko povedati o literaturi , zlasti o literaturi brez očitne prilagoditvene vrednosti.

Splošna zmeda ob vprašanju, kaj je literarna vednost, ima veliko opraviti z domnevami o literaturi, s katerimi se evolucionisti lotevajo svojih raziskav. Kakor vse znanstvenike jih zanima najsplošnejša raven. Seveda se tudi literatura ukvarja s človeškimi univerzalijami, vendar jih ubeseduje na enkratno svojstven način. Prav v tej svojstvenosti je bistvo literarnosti. S tem ne želim ugovarjati redukciji; če vodi postopek redukcije k večji objektivnosti v naravoslovju, vodi tudi k točnejšemu pogledu na pravo naravo sveta v humanistiki. A nekateri postopki redukcije nas pripeljejo naravnost v slepo ulico; in nekateri celo izzovejo neposredne napade na neznanstvene vrste vednosti.

Kakor je Snow napadal nepreverljive vrste vednosti in modernizem, intelektualno vpet v logično pozitivistično pravovernost, tudi evolucijski teoretiki v omenjenem zborniku in drugod obsojajo nepreverljive ideje družbenega konstruktivizma in postmodernizma. Joseph Carroll pravi:

> Obrat k teoretsko usmerjeni literarni vedi je bil resda odgovor na jasno izkazano potrebo, vendar so bili vse doslej v rabi močno nezadovoljivi teoretski modeli. Dekonstrukcija, marksizem, freudizem in foucaultovska politična kritika predpostavljajo ideje o človeški naravi, ki se ostro bijejo z darvinističnim pojmovanjem. Preostala vodilna šola, feminizem, pa ni enovita, koherentna teorija, pač pa obravnava specifične tematike – položaja žensk –, toda predstave, ki se kopičijo okrog te obravnave, pogosto prinašajo napačne ideje o človeški naravi, za povrh pa se je večina feminističnih teoretičark v zadnjih tridesetih letih pridružila kateri od vodil-

> nih teoretskih šol. Kot filiale postmoderne teorije vse te šole v temelju zavračajo idejo o prirojeni, biološko določeni strukturi v človekovem motivacijskem in kognitivnem sistemu […], ponujajo izkrivljene, popačene in za lase privlečene orise temeljnih motivov in urejevalnih načel literarnih tekstov. (Carroll 102)

Drži, da se poststrukturalističnim in postmodernističnim orisom občasno ni uspelo zadovoljivo spoprijeti s kategorijo naravnega. Nekatere smeri postmodernega epistemološkega relativizma so obravnavale znanstvene pojme in metode s skrajno skepso in tako zanetile desetletja trajajoče spore o epistemologiji in metodologiji, ki so dosegli vrhunec z »znanstvenimi vojnami« v devetdesetih letih (za očrt teh vojn gl. Norris). Vendar če neko stališče zavrnemo tako, da postavimo na laž vrsto pomanjkljivih argumentov, ki govorijo v njegov prid, nič ne pripomoremo k epistemološki združljivosti izmerljive, pozitivistično, in neizmerljive, estetske vrste vednosti.

Morda je bojeviti ton povezan z rušenjem pregrad med disciplinami in z gradnjo novih vzorcev. Toda ta polemika bržkone ni neodvisna od dejstva, da se je kognitivna znanost porodila iz biološke revolucije v petdesetih letih in da je biologija v svoji zdajšnji pojavni obliki spodrinila klasično fiziko kot »zgledna« disciplina, ki postavlja merila vsakršnega raziskovanja. Polemična retorika evolucijskih teoretikov, ki spominja na, rečeno z Leavisom, »tehnološko-benthamsko« redukcijo človeškega, značilno za Snowovo čezmerno razširitev naravoslovne epistemologije (gl. Leavis), se utegne zazdeti kot bojevito zatrjevanje znanstvene večvrednosti. Tudi hierarhizacija vednosti, ki jo predpostavlja »evo« literarna veda, spominja na Snowovo shemo dveh kultur, ki je naravoslovni način raziskovanja enačila s politično naprednostjo, literarno kulturo pa z izrojenostjo. »Določen tip umetnosti je postal tesno povezan z določenim tipom nečloveškosti,« je zatrdil Snow (Snow, *Recent* 6). Na povezovanju nazadnjaške in uživaške drže z literarnimi intelektualci in napredne drže pa z naravoslovjem temelji evolucijska literarna veda, v kateri ni mesta za »nerazvedrilno« modernistično in postmodernistično literaturo. Modernizem in postmodernizem je najglasneje obsodil Steven Pinker, ki je v knjigi *The Blank Slate* (Nepopisan list) sistematično napadel tiste oblike književnosti, v katerih ni našel nikakršne prilagoditvene vrednosti. Žal je takšna logika obarvala tudi zbornik *The Literary Animal*.

Za kaj torej po evolucijski logiki gre pri literaturi? Čemu je namenjena? Ob proučevanju literature »evo« raziskovalec literature ugotavlja, da je mogoče oblikovati različne hipoteze o prilagoditveni vrednosti literature, v podporo svoji misli pa navede razvedrilo, informiranje, simulacije, ki pripravljajo ljudi na dejansko odločanje, na nadomestno izpolnjevanje želja in na protidejstvene fantazije. Te vrednosti morda dejansko osvetljujejo literarna besedila, toda tu se ne želim ukvarjati s kakovostjo teh interpretacij.

Razpravljati želim o političnih in ideoloških posledicah predpostavke, ki neposredni poveže literaturo in uporabno vrednost ter obenem zanemari formalne poteze, ki so konstitutivne za literaturo. Kaj je namreč literatura, če ni forma? Literatura je relevantna prav zato, ker je ne moremo preliti v enostavnejši jezik, tj. ker obstaja zgolj kot nedeljiva celota, ki ima vselej simbolni pomen. Seveda potekajo pod naslovom branja in pisanja številne tako ali drugače povezane dejavnosti, ki brez izjeme prispevajo k izkustvu književnosti, tako da utegneta med njimi imeti vlogo tudi razvedrilo in zbiranje informacij. Vendar ideja, da že samo razvedrilo pojasnjuje literaturo, ni zgolj nepopolna, ampak kratkomalo zgrešena. Nerazvedrilne literature je brez dvoma dovolj, da resno omaje idejo o človeški naravi, na kateri temeljijo te naravoslovne hipoteze. V razvedrilu ne bi niti najbolj zakrknjeni empiricisti videli zadostnega merila za vrednotenje in doumevanje književnosti, zlasti če razvedrilo pojmujemo kot pasivno sprejemanje informacij. Naslednji problem pri enačenju literature z razvedrilom je zanemarjanje zveze med umetnostjo in ideologijo. Ali nekatere oblike književnosti, zlasti enolična žanrska književnost, tako ljuba »evo« teoretikom, utrjujejo povsem določene načine gledanja? So nekatere literarne oblike simbolne upodobitve družbenih razmerij? Če literatura zrcali družbo, ali jo zrcali zgolj delno in ali ta nepopolnost zakriva temeljna protislovja v družbi? Skratka, kakšen epistemološki status ima velika tradicija negativne dialektike v literaturi? Literatura ni zgolj zrcalo, temveč tudi odklanja, zavrača in negira. Marsikdaj velikopotezno zavrača obstoječe stanje, negira sedanjost; pogosto nam tudi pokaže, kaj bi nemara lahko postali.

Prilaščanje in parodiranje književnosti utegneta imeti posledice, usodnejše od psevdoliterarnih trditev o prilagoditveni vrednosti pripovedi. Nekateri evolucijski teoretiki so bili (kakor pred njimi Snow) splošno sprejeti kot vpliven in avtoritativen glas znanosti v svetovnem merilu; njihove neodarvinistične nevromitologije bodo vplivale ne le na prihodnjo usmeritev kognitivizma, ampak tudi na javne intelektualce, katerih mnenja se oblikujejo v znanstvenih diskurzih. V jedru debate o literaturi se ne skriva nič manj kakor predstava človeštva o samem sebi, tesno povezana z družbeno strukturo vrednot, pri čemer ta debata poteka že vsaj dve stoletji.

Manj znano, a relevantno predhodnico polemike Snow–Leavis najdemo v 19. stoletju v različici Huxley–Arnold, iz katere sta izhajala tako Snow kakor Leavis. Matthew Arnold (1822–1888) je leta 1882 v svojem cambriškem predavanju »Literature and Science« (Literatura in znanost) zavrnil – resda bolj uglajeno in spoštljivo – trditve T. H. Huxleyja (1825–1895), ki je v eseju »Science and Culture« (Znanost in kultura) dal naravoslovju prednost pred tradicionalno klasično izobrazbo. Arnold je razmišljal takole:

> Če moramo torej humanistiko ločiti od naravoslovja in izbrati eno ali drugo, po svoji najboljši vesti sodim, da bi veliki večini človeštva – vsem, ki nimajo izjemnega in neustavljivega daru za študij narave – bolj koristila odločitev za humanistično izobrazbo kakor za naravoslovno. Humanistika bo nagovorila njihovo bit ob številnejših priložnostih in jim omogočila polnejše življenje. (Arnold 70)

Kot kaže zgornji primer, sta na podlagi Arnoldove ideje, da nam daje življenje literatura in zgolj literatura, naravoslovno večvrednost ovrgla tako Arnold sam kakor Leavis. Arnoldova misel, da je humanistika (»humane letters«) ločena od naravoslovja, v splošnem poglablja razpoko, ki je med vrstami vednosti zazevala z vznikom evropskega razsvetljenstva v 17. in 18. stoletju. Jasni in vzajemno izključujoči se kategoriji vednosti, kakršni očrtata Snow in Leavis, pa sta značilni šele za 19. stoletje. O znanstvenikih, do 19. stoletja znanih kot »prirodopisci« (»natural philosophers«), je veljalo, da poleg sveta narave proučujejo tudi človeško kulturo. Še več, sodeč po *Oxfordskem angleškem slovarju* se je kategorija »znanosti« (»science«) v ožjem, omejenem pomenu besede, v katerem se nanaša zgolj na fiziko ali naravoslovje, medtem ko teologijo in metafiziko izključuje, v angleščini pojavila šele v tridesetih letih 19. stoletja.[1]

Med izjemno pestrimi posledicami te genealogije je za naše razmišljanje najpomembnejša hierarhija vednosti, ki nastaja s takšno kategorizacijo. Že od romantike naprej zlahka naletimo na primere, ko si kategorija znanosti lasti zanesljivo, objektivno vednost; vse odtlej debata o dveh kulturah hočeš nočeš poteka tako, da humanistika nenehno brani vrednost estetske oblike vednosti (gl. Collini). Od tod hudo neravnovesje v stopnjah njune legitimnosti in potreba humanistike po večnem samoopravičevanju. To samoopravičevanje pa poteka predvsem na dva načina. Prva možnost je, da humanistika teži k statusu naravoslovja in se tankovestno ogiba nepreverljivim problemom, kakršni so pomen, vrednost in intenca; najbolj znan, čeprav nikakor ne edini predstavnik te metode je bilo »novo kritištvo«. Druga možnost pa je, da zagovarjamo obstoj in vrednost posebne estetske, neznanstvene vrste vednosti ali, z drugimi besedami, metode moderne estetike. Kot je zapisal Terry Eagleton (16), »estetika […] vznika iz spoznanja, da sveta zaznave in izkustva ne moremo preprosto izpeljati iz abstraktnih univerzalnih zakonov, temveč zahteva ta svet sebi primerno govorico in kaže lastno, četudi manj kakovostno notranjo logiko«. Zato bi morala sleherna interdisciplinarna raziskava zastaviti vprašanje, ali so intelektualne metode in merila, ki jih prevzemamo iz naravoslovja, sploh primerni za diskurz, utemeljen prav na nečem, česar ne moremo izpeljati iz naravoslovnih vrst vednosti. Konvergenca transdisciplinarnih razsežnosti ni mogoča brez korenite preobrazbe opisanih podedovanih kategorij, saj je problem epistemološke kompatibilnosti v nasprotnem primeru le

stežka rešljiv. Če pa zgornji kategoriji izbrišemo in se odločimo za mitično tretjo kategorijo, ne ravnamo nič manj dvomljivo, kot če bi ju odvrgli na smetišče zgodovine, saj se takšni domnevno ozki spori v resnici sučejo okoli globljih vprašanj.

Prednosti naravoslovja resda utegnejo utemeljiti prihodnjo konsilienco naravoslovja in humanistike, vendar se bomo pri doseganju tovrstnega višjega razumevanja morali ob soočanju z naravoslovno redukcijo literarnosti nenehno zavzemati za pomen estetske vednosti. Nekatere resnice o človeškem izkustvu je mogoče posredovati zgolj v estetski obliki – to pa je že prepričljiv argument za to, da ohranimo pokrajino dveh kultur razmejeno, četudi se obenem upiramo okoliščinam, v katerih je ta razmejitev nastala.

Prevedla Nada Grošelj

OPOMBA

[1] V nemški tradiciji razločevanje med *Geisteswissenschaften* (ali *Literaturwissenschaften*) in *Naturwissenschaften* nima posledic za kategorijo *Literatur*, saj je ta povsem izvzeta iz *Wissenschaften*.

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Kompleksnost, literatura, znanost: o diskurzu in dialogu

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Globlji vpogled v zapleten poetološki sistem modernizma, obdobja, ki se je izgrajevalo v ključnih historičnih prelomih, nanovo valoriziralo vlogo jezika in odkrilo ključen pomen gledišča v literaturi ali slikarstvu, pa tudi v znanosti (prim. Heisenberg), pomika vlogo humanistike v novo osvetljavo, tako da ne preseneča, da so jo v ponovnem pretresu znanosti kot enega od petih konkretnih kontekstov za novo produkcijo znanja in za uspešnost znanstvenih politik izpostavljali tudi v epistemoloških predpostavkah (Nowotny idr.). Literatura je vitalen segment žive pojavnosti in branja so neposreden izziv človeške avtopoetske adaptacije in identitetnega prevpraševanja. Razprava se osredotoča na dvoje temeljnih svojstev, na autopoiesis in njen smisel v poiesis, ter na potencial, ki ga imajo besedila v kompleksni življenjski dinamiki.

Ključne besede: literatura / humanistika / znanost / jezik in zavest / modernizem / samoreferenčnost / samorefleksivnost / dialog / Maturana, Humberto R. / Heisenberg, Werner / Jakobson, Roman / Lotman, Juri / Thibault, Paul J. / Nowotny, Helga

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> Jezik je bil past, ampak vsa izkušnja je bila čudovita šola, v kateri je bilo mogoče odkriti, kako je bil kdo nem, gluh in slep. Preprosto je biti ujet v lasten ego, pa vendar, če komu uspe doseči vsaj neko stopnjo osvoboditve iz *tega*, začne poslušati in njegov jezik se začne spreminjati: le tako je potem mogoče izreči nove stvari.
> (Maturana o svoji izkušnji maja 1968, ko je čilska univerza vstopila v revolucionarne razmere, Maturana in Varela: xvi)
>
> Tehnologija je […] čudna stvar. Z eno roko prinaša darila, z drugo pa te zabode v hrbet.
> (C.P. Snow, *New York Times*, 15. marec 1971)

Znanosti in umetnosti so inventivne instance, ki potrjujejo in porajajo potenciale človeškega mišljenja skozi zgodovino in podeljujejo moč novim pomenom. *Transgresivno mišljenje* in *transgresivna kompetenca*[1] sta učinkovito obsežena v obeh, prav tako kot sta vpletena v procese kateregakoli pisanja

in procesa branja. Področja umetnosti in literature predstavljajo podobno kakor znanosti del človeškega kapitala. Vsak diskurz, pa naj bo literaren ali znanstven, nas zapleta v transgresivne[2] operacije; pravzaprav odpira problematiko *transgresivne kognicije* (Perkins). Mark Turner celo trdi, da je »um v svojem bistvu literaren« (5) in da je »pripovedna domišljija – zgodba – temeljni instrument misli« (4).[3] Takšna stališča nas nagovarjajo ne le k premisleku temeljnih nalog, ki jih ima lahko humanistika v prihajajoči družbi znanja, ampak nas hkrati silijo k temu, da poskrbimo za bolj precizne vpoglede (in na novo razdelane pojme, da posežemo) v bistvene prvine realnosti sveta in človeka. Vrsta epistemoloških idej izpostavljenih in izčrpno razčlenjenih pri Maturani in Vareli ter pri Nowotnyjevi je spodbudila in podprla moja nedavna razmišljanja o kompleksnosti, literaturi in znanostih.

Tihi dialog med različnima metodološkima tradicijama – *dveh kultur*[4] (v pomenu dobro znanega predavanja C. P. Snowa iz leta 1959) – in čvrsta vzajemna igra znanosti, literature in humanistike sta odmevala že v zgodnjih modernističnih premikih v umetnosti ter spodbujala k kompleksnejšim prijemom in izraznim načinom za zajemanje dejstev o svetu ter človekovem bivanju v njuni *začasni* resničnosti, pa tudi za podajanje samih faset *konflikta* in *protislovja*. Modernistična umetnost je bila pravzaprav zmožna v svoje postopke vgrajevati in izraziti ta latentni dialog. Navidez obrobno pripombo Nowotnyjeve, izrečeno v pogovoru s Hansom Ulrichom Obriestom (gl. Obrist), »da se vmesniki [*interface*] pogosto začnejo pojavljati zaradi kontroverz«, torej o tem, da obstajajo nasprotnosti oziroma spornosti, je tu vredno omeniti, ker nakazuje boljše razumevanje, kaj leži v ozadju modernističnih preoblikovanj. Modernistična umetnost dejansko promovira (in skozi umetniške postopke tematizira) resnico kot *postajanje* (gl. Škulj, »Landscape«). Za modernističnimi matricami, (ki naznačujejo značaj kompleksnosti, kaosa, modeliranja, »mreženja« itn.), lahko prepoznamo sistem vednosti, ki manifestira določene tendence premagovanja binarizma (kot logike izključevanja[5]). Od tod naraščajoči interes za *topološke* prikaze, ki jih najdemo v modernističnih novih umetniških obrazcih ter v znanstvenih preobratih tistega časa; oboje lahko prepoznamo kot ustvarjalni odziv *mislečega uma*[6] v zgodnjem 20. stoletju. Takšne težnje, ki ležijo pod površjem umetnosti in znanosti, so ob prelomu preteklega stoletja, nakazovale zgodnje napovedi, da je to, kar se dogaja, preobrat od disciplinarnega načina produkcije znanja v bolj transdisciplinarno, ki zaposluje *skopičen vpogled* (Spivak) ali dvojno-usmerjen vidik predstavljanja, in se zaveda, da je vloga *opazovalca del opisovanega pojava* (Maturana). To je očitno rezultiralo v preboju *transgresivnega mišljenja* v sodobnih tokovih znanosti in v znanstvenih politikah.[7] V intervjuju z Obristom se je Nowotnyjeva zavzela za idejo, da »stvari prezentiramo vizualno« – ker »videnje« in »po-

doba« odpirata drugačne ustvarjalne prostore – in lahko tako zaobjamemo *dinamično* vednost, samo problematiko (nerazrešenost) v procesu (Obrist).[8] Kot močna zagovornica kontekstualizirane vednosti in promotor ideje o odmiku od *zanesljive* vednosti[9] – ta je prenehala biti definirana v univerzalističnem smislu in je postala zavezana posamičnemu kontekstu – k *družbeno robustni vednosti*, zagovarja transformacijo znanosti globoko v njenem epistemološkem jedru. Njen koncept

> družbene robustnosti je relacijski, ne relativističen ali (še manj) absolutna ideja. […] družbena robustnost je v pomembnem smislu *prospektivna* [takšna, ki predvideva]; zmožna se je ukvarjati z neznanimi in neslutenimi konteksti. […] [I]n navsezadnje, družbeno robustna vednost ima močno empirično dimenzijo; je predmet pogostega testiranja, povratne informacije in izboljšav, ker je nekaj *nedovršenega*. (Nowotny, Scott in Gibbons, *Re-Thinking Science* 167)

Njen raziskovalni kredo je razkrit v misli Roberta Musila, citirani v intervjuju: *je gibanje, ki je podprto z občutkom možnega*. Modernistično dispozicijo je v tem besedišču prav lahko razpoznati. Modernistična matrica,[10] ki je, kot je v kasnejšem dunajskem predavanju komentiral Husserl, odgovor na krizo zavesti, je nedvomno spodbudna. Občutljiva za kompleksnost in »človeški faktor«, je ta umetnost sprožala nove uvide v realnostne principe. Prav tako je ustvarjala mnogo bolj dialoški odziv človekovega samorazumevanja. Na vrhuncu modernizma se je tudi znanost sama začela zavedati pomembnosti ubeseditvene vloge jezika, kot je to komentiral Werner Heisenberg, Vpliv posaussurovskih pojmovanj je precej očiten.

Komunikacija prek institucionalnih meja lahko nudi svež zagon veljavnim, tehtno utemeljenim in odgovornim raziskovalnim interesom. Literarne raziskave lahko zaradi svojih teoretskih in metodoloških pomikov ter konceptualnih teritorijev resno prispevajo k novi produkciji vednosti v transdisciplinarnih pristopih.

Možno je spomniti na vzorčni primer vrednega dialoga med literarnimi vedami in »trdo« znanostjo. Ko je komentiral zgodnejše temeljne poglede Humberta Maturane na *Biologijo kognicije* (1970), je njegov mlajši raziskovalni sodelavec Francisco J. Varela, ki je skupaj z njim napisal ključno knjigo *Avtopoetičnost in kognicija: Uresničenje živega* (1972), pripomnil: »Če zares krožna organizacija zadošča za okarakteriziranje živih sistemov kot enot, potem bi bilo to mogoče izraziti tudi z bolj formalnimi sredstvi.« (Maturana in Varela xvii) Pojem *autopoiesis*, ki sta ga uvedla, da bi z njim poimenovala »dinamično avtonomijo, lastno živim sistemom« (xvii), se nanaša na krožno organizacijo ali samoreferencialni sistem kot ključni koncept za razumevanja organizacije živih sistemov. Oznaka ima svojo predzgodovino v literarni vedi, četudi se Maturana, ki v uvodu zapiše o

tem, kako je prišel do svoje konceptualne iniciative, pravzaprav ni zavedal pogosto omenjene strukturalistične ideje o *samoreferencialnosti*, *nase se nanašajočem sporočilu* ali o *rekurzivni referenci* in *korolarnih potezah poezije*, o čemer je razpravljal Jakobson (370–371), tj. o temeljnem organizacijskem principu *poetske funkcije*, kot je bila izčrpno premišljena v semiotskih razpravljanjih o literaturi.[11] Maturana je ponudil naslednjo razlago o moči besede »poiesis«, na rabo katere je povsem po naključju naletel v literarnih študijah.

> Bili smo nezadovoljni z izrazom »krožna organizacija« in iskali smo besedo, ki bi sama izrazila osrednjo potezo organizacije živega, ki je avtonomija. V takšnih okoliščinah sem nekega dne, ko sem se pogovarjal s prijateljem (Joséjem Bulnesom) o njegovem eseju o *Don Kihotu iz Manče*, v katerem je analiziral don Kihotovo dilemo, ali naj sledi pot orožja (*praxis*, akcija) ali poti črke (*poiesis*, ustvarjanje, produkcija), in njegovo slučajno izbiro poti *praxis* [akcije], odlagajoč sleherni preizkus s *poiesis*, prvič razumel moč besede »poiesis« in iznašel besedo, ki smo jo potrebovali: *autopoiesis*. To je bila beseda brez zgodovine, beseda, ki bi lahko neposredno pomenila, kar se dogaja v sami avtonomiji živih sistemov. Nenavadno, pa vendarle ne presenetljivo, se je iznajdba te besede izkazala, da ima veliko vrednost. Izjemno je poenostavila težavne naloge govorjenja o organizaciji živega, ne da bi padel v vedno razprto past in ne rekel ničesar novega, ker bi jezik tega ne dopuščal. Ni mogoče zbežati iz potopljenosti v tradicijo, toda z ustreznim jezikom se lahko orientiramo drugače in morda iz nove perspektive generiramo novo tradicijo. (Maturana in Varela xvii)

Citat nas opozarja ne le, kako se znanost, literatura in humanistika morda utegnejo v presečiščih vzajemno soočati, ampak predvsem, kako elegantno in preprosto je lahko svet in živa bitja v njem zajeti v integriranem pogledu na znanje. Maturanova raba termina *autopoiesis* ponazarja, kako deliti in ponovno uporabiti relevantno znanje. Ali bi lahko rekli, da sta semiotika literature in fenomenologija živih sistemov globoko v svojem epistemološkem jedru mnogo bolj medsebojno povezani, kot pa si običajno domišljamo oziroma dopuščamo? Pritrdilen odgovor nedvomno namiguje na neizogibno vpletanje naše historične eksistence.

Autopoiesis dobesedno pomeni »samokreacija« (gr. *auto*, »sam«; *poiesis*, »ustvaritev, produkcija«) – in po razlagi slovarja *Babylon* – implicira »proces, po katerem se organizem ali organizacija sama proizvaja s ponavljanjem reprodukcijskega procesa in se konstantno rekreira (/ponovno vzpostavlja/ kakor celice ali organizmi)«. Ujemajoč pogled na *korolarni* ali *nase se nanašajoči* znak v pesniškem sporočilu kot bistveni element literarnega diskurza je v literarni vedi krožil od zgodnjih razpravljanj praškega lingvističnega kroga (Mukařovsky, Jakobson) sredi tridesetih let 20. stoletja. Ko je razčlenjeval koncepcijo nase usmerjenega ali *refleksivnega* [sebe razmišljajočega] poetičnega sporočila, je Jakobson v *Sklepnem poročilu* na simpoziju o lingvistiki in

poetiki v poznih petdeseti letih izjavil: »*[P]oetičnost ni dopolnilo diskurza* z retoričnim okraševanjem, *ampak celovito prevrednotenje diskurza* in slehernih njegovih komponent.« (377; poud. J. Š.) Semantični problem se pokaže, da je v svojem bistvu strukturna zadeva, ki označuje bistveni značaj ali organizacijski princip literarnega, samo razločevalno specifiko verbalne umetnosti.

Modernistične invencije so sprožale, kot je bilo že večkrat ugotovljeno, poglaviten razcvet obsežnih teoretskih razpravljanj o literarnih pojavih (ruski OPOJAZ, tj. *Obščestvo izučenija POètičeskogo JAZyka*, Bahtinov krog, praški lingvistični krožek, Ingardnova literarna fenomenologija, novo kritištvo, strukturalizem itn.) in naposled spodbudile začetne korake k semiotskemu preučevanju literature in umetnosti. Prelomni Saussurevi lingvistični pogledi so botrovali temeljitemu prevpraševanju sistemskih parametrov literature in besedilnosti in v obtok je prišla ideja literarne znanosti (nem. *Literaturwissenshaft*), besedna zveza, ki jo mnogokrat zasledimo tudi pri Jakobsonu in kasneje pri Lotmanu. Literatura, ki je manifestirana v materialnosti jezika, je bila prepoznana kot kompleksen,[12] precej rafiniran raziskovalni predmet. Vendar je ravno ta kompleksnost odpirala vztrajen interes za dojemanje temeljnih vprašanj, kot so, kaj je literatura, zakaj obstajajo literarni pojavi, kako naj identificiramo jedro njene literarnosti (tj. *poetičnosti* v Jakobsonovem smislu), kako naj razjasnimo njen modus eksistence. Zgodovinski zaris pomikov v teoretskih razmišljanjih o literaturi v preteklem stoletju nudi presenetljivo podobo.

Modernistični preboj se je dogodil kot rezultat mnogih kriz – jezika, kulture (Beebe, Bradbury in McFarlane, Calinescu, Luft) ter subjekta (jaza) ali identitete (Le Rider). V dveh svojih zgodnejših objavljenih razpravah (Škulj, »Landscape«; Škulj, »Modernizem«) sem problematiko razložila v kontekstu Husserlovih izpeljav o krizi evropske zavesti. Modernizem je bil nedvomno manifestativna kriza reprezentacijskih modusov. Njegovi kompleksni poetološki obrazci ter na novo izumljen model narativnosti z vpisom bralca (gledalca, opazovalca) v ustroj pojasnjujejo modernistično zavedanje o *vlogi konstrukcijskega dejanja* v bralnem procesu. Semioza je mikrokozmos človeškega dejavnika in zavesti (prim. Thibault). Modernistične invencije v poeziji ali romanu se ukvarjajo s samimi območji reinterpretiranih identitet.

Istočasno je jezik postal neizbežno vprašanje v »trdih« znanostih in pri Heisenbergu najdemo spoštovanja vredno pripombo, da se same besede, ki se nanašajo na opis atomske ravni, izkažejo za problematične. Zavedajoč se vloge jezika, je zapisal:

> Kvantna mehanika nam je naložila celo še bolj resne zahteve. Morali bi se v celoti odreči objektivnemu opisu narave – v Newtonovem smislu, po katerem se definitivne pomene pripisuje tako bazičnim navzočnostim v sistemu, kot so prostor,

> hitrost, energija; in namesto tega bi morali beležiti deskripcijo opazovalnih točk, zanje pa so edina gotovost verjetnosti nekaj rezultatov. Same *besede*, uporabljene pri opisu atomske ravni, se potem izkažejo za problematične. Lahko govorimo o valovanjih in delcih, pri čemer si moramo zapomniti, da se ne ukvarjamo z dualističnim, ampak s povsem v enoto spojenim opisom fenomenov. *Pomen starih besed je izgubil preciznost*. (Heisenberg, *Schritte über Grenzen*; nav. po Lotman 270)

V svoji semiotski teoriji kulture ima Lotman (269) daljnosežno pripombo, da »vprašanje jezika zadeva vse znanosti« in nas spomni na spremembe v moderni znanosti. Trdi, da se je ta

> oddaljila od naivnega pogleda, po katerem smo običajne metode zaznavanja in posploševanja podatkov imeli za veljavne, in je bil problem pozicije tistega, ki opisuje, v odnosu do sveta, ki je opisovan, komajda upoštevan; odmaknila se je stran od stališč, po katerih je znanstvenik gledal realnost »s pozicije resnice«, v svet relativnosti. (270)

Mit znanstvenika kot zunanjega opazovalca in zanesljive »objektivne« vednosti se je tako sesul. Troje poudarkov v Heisenbergovem citatu je bistvenih za moderno znanost. Prvič, znanost mora vključiti »opis opazovalnih točk«; drugič, »edine gotovosti so verjetnosti«, in tretjič, »nimamo opravka z dualističnim, ampak s povsem *v enoto spojenim* opisom fenomenov«. Še najpomembnejše pa je, da »moderna znanost od nuklearne fizike do lingvistike vidi *znanstvenika kot znotraj sveta, ki je opisovan, in kot del tistega sveta*« (Lotman 270).

Pri Maturani je mogoče najti podobne izjave. Ko opozarja na kognitivno funkcijo opazovalca, poudarja svoje globoko zavedanje o vlogi jezika v znanosti: »*Vse, kar je izrečeno, izreče opazovalec.* V svojem diskurzu opazovalec govori drugemu opazovalcu, kar bi lahko bil tudi on sam. […] Opazovalec je človeško bitje, torej živ sistem, in vse, kar se nanaša na živa bitja, se nanaša tudi nanj.« (Maturana in Varela 8; poud. J.Š.) »*Opazovalec je živ sistem in razumevanje kognicije kot biološkega pojava mora upoštevati opazovalca in njegovo vlogo v njem.*« (9) Maturanova misel o vlogi opazovalca v znanstvenem diskurzu, kakor da »govori drugemu opazovalcu, ki bi bil lahko tudi on sam«, je v soglasju z Lotmanovo pozicijo, da sta »predmet in opazovalec po pravilu opisana v različnih jezikih, in je potemtakem *problem prevajanja* univerzalna znanstvena naloga«. Lotman (270) nas v nadaljevanju spomni na Platona, ki je »definiral misel kot *dialog* duše s seboj, [vendar] je domneval, da naj bi bil pogovor izpeljan v enem jeziku«. Dandanes se semiotika zaveda dejavne vloge *subjekta* (jaza) in njegove povezanosti z zavestjo.[13] In ker subjektu (jazu) pripisujemo, da ima *narativno identiteto* (Ricoeur), se njegov fluiden, vedno spremenljiv, *odgovornostni* faktor nenehno vpisuje v rabo jezika in v vsak označevalni akt.

Maturana (9) zatrjuje, da »opazovalec istočasno opaža entiteto, ki jo preučuje (organizem, v našem primeru), in univerzum, v katerem leži (okolje organizma). To mu omogoča, da neodvisno vzajemno deluje z obema ter da ima interakcije, ki so nujno zunaj domene interakcij opazovane entitete«. Thibault (2–3) nas v svojem uvodnem poglavju opomni, da je drugost prvobitna prava vrednost, ki motivira odnos jaz-drugi in dejavnost upomenjenja.

Dialoški proces ima tako tudi povsem jasen učinek v predstavljanju znanstvene vednosti. Pojasnjevalna izjava o znanstvenih dejstvih je opazovalčev *konstrukt* kot kompleksna obsežnost, oblikovana iz številnih raziskanih aspektov; ta izjava vpleta tudi opazovalčev kod, njegovo lastno kompleksno in heterogeno podobo sveta. Sodba o znanstvenih dejstvih je rezultat pripravljalne analize. Ustvari (izzove oziroma prikliče) jo tisti, ki opazuje/raziskuje v raziskovalnem procesu, in ni nikoli kaj absolutnega. Dejstvo je relativno (resnično do določene stopnje) in njegovo razumevanje je v Lotmanovem smislu *prevod*. Takšna ideja razumevanja kot *prevoda* priznava raziskovalčevo navzočnost – *interferenco mislečega bitja*, *interferenco ustvarjalne zavesti* (Lotman 233) – in zavedanje »kako ta navzočnost prizadene opis« (Lotman 271).

Ko upoštevamo Lotmanove komentarje o vlogi prevajanja v razumevanju, je prav, da v zaključku citiramo še dva odlomka o novi paradigmi produkcije znanja »Mode 2«, ki razkrivata pozicijo, kakršna pušča za seboj tip vednosti »Mode 1« – »okarakteriziran s hegemonijo teoretične ali, v vsakem primeru, eksperimentalne znanosti« (Nowotny, Scott in Gibbons, »'Mode 2' Revisited« 179). Prvi citat se nanaša na *refleksivnost* in *dialoški proces*, medtem ko drugi opozarja na *vlogo humanistike* v produkciji znanja. Argumenti za eno od karakteristik novega modusa znanosti in enega od konkretnih kontekstov znanosti dajejo močno podporo tukajšnjemu razpravljanju.

> Četrta značilnost vednosti »Mode 2« je, da je *izjemno refleksivno*. Raziskovalnega procesa ne moremo več označiti kot »objektivno« raziskovanje naravnega (ali družbenega) sveta, ali kot hladno in redukcionistično prevpraševanje arbitrarno definiranih »drugosti«. Namesto tega nastaja *dialoški proces*, intenziven (in morda brezkončen) »pogovor« med raziskovalnimi udeleženci in raziskovalnimi predmeti – do takšne mere, da je temeljni besednjak raziskovanja (kdo, komu, kaj, kako) v nevarnosti, da izgubi pomenljivost. Rezultat tega je, da morajo tradicionalni pojmi »odgovornosti« postati korenito revidirani. Konsekvenc novega znanja (predvidljivih in nehotenih) ne moremo smatrati, kot da so »zunaj« raziskovalnega procesa, ker okoliščine problema, ki ga raziskujemo, vplivajo na izbiro obravnave in raziskovalni zaris, pa tudi na končne rabe. (Nowotny, Scott in Gibbons, »'Mode 2' Revisited« 187; poud. J.Š.)

Ko Nowotnyjeva s soavtorji razpravlja o specifičnih kontekstih sodobnih znanosti, komercializaciji raziskovanja, razvoju masovnega visokega

izobraževanja, globalizaciji, potencialu preoblikovanja inštitucij in upravljanju znanja »Mode 2«, se zdi, da je najpomembnejše, da je izpostavila vlogo humanistike.

> Tretji kontekst je bila *vloga humanistike* v produkciji znanja. Za ustaljen pogled so humanistične vede najbolj nepristranske discipline, najbolj odmaknjene od nadlog aplikacije in kontekstualizacije. Njihove »rabe« so skoraj povsem ponotranjene. Naše mnenje v knjigi *Nova produkcija znanja* spodbija takšno stališče. Namesto tega vidimo humanistiko kot *najbolj angažirano* med vsemi disciplinami, ne le zato, ker udejanja pretakanje v kulturno industrijo (na primer skozi romane in popularno zgodovino), ampak zato, ker z lahkoto (in nepreklicno) uteleša *pojme refleksivnosti*, do katerih so naravoslovne in celo družbene znanosti nezaupljive. (Nowotny, Scott in Gibbons, »'Mode 2' Revisited« 188; poud. J.Š.)

Skozi omenjene komentarje je mogoče na kompleksnosti, ki so inherentne literaturi, in na presenetljive kvalitete, zanimive in privlačne, da pritegujejo misel ter literarne vede nagovarjajo k raziskovanju, pogledati skozi drug zorni kot. Če izhajamo iz pogledov Maturane in Nowotnyjeve, so literarne vede dragocena komponenta nove produkcije znanja. Dialog in vzajemno razumevanje »dveh kultur« – odkrivajoč potenciale, zakopane v skupno paradigmo preiskovanj, kot so ideja kompleksnosti, ustvarjalnega, »mreženja«, človeškega faktorja, pa tudi sistem, avtopoetičnost, samoreferenčnost, samorefleksivnost, narativizacija, fokalizacija itn. – nazorno utemeljuje potrebo po *integrirani* vednosti, istočasno pa tudi potrjujejo, zakaj je bil obsežen vseevropski projekt ACUME 2, ki je soočal poglede »trdih« znanosti, literature in humanistike dragocen korak k novi produkciji vednosti, saj je naš smisel *bivanja* in naša človeška pogojenost po pravilu vedno vpisana v katerokoli spoznavanje.

OPOMBE

[1] Pojme najdemo pri Helgi Nowotny (»Transgressive«), ki je razpravljala tudi o »Potencialu transdisciplinarnosti« kot eni od karakteristik t. i. »Mode 2« produkcije znanja in ki je soavtorica dveh temeljnih knjig *The New Production of Knowledge* (1994) in *Re-Thinking Science* (2001).

[2] »Transgresija meje se nanaša na mentalne poteze, ki prečkajo meje preteklih praks in konvencij in na nepričakovane načine povezujejo skupaj akademske discipline tako, da redefinirajo ne le načine, ampak pogosto sam problem ter izzivajo ustaljena prepričanja o mejah možnega.« (*Invention* 9)

[3] Literarni um po Turnerju (4–5) ni kaj postranskega, ampak je za misel nekaj temeljnega. Zatrjuje, da je sam *jezik otrok literarnega uma*. »Pripovedna domišljija – zgodba – je temeljni instrument misli. Umska kapaciteta je odvisna od nje. […] Literarna sposobnost je nepogrešljiva za človeško kognicijo na sploh. Je prvobiten način, v katerem je um pravzaprav literaren.«

[4] *Two Cultures* je naslov vplivnega predavanja znanstvenika in romanopisca C. P. Snowa z britanske univerze Cambridge (gl. Snow). V njem je Snow poudaril, da ukinjena možnost komunikacije med »dvema kulturama« – znanostmi in humanistiko – predstavlja v moderni družbi največjo oviro za razreševanje svetovnih problemov. Kot usposobljen znanstvenik, ki je bil hkrati uspešen pisatelj, je bil Snow pravi človek za zastavitev takšnega vprašanja. Oznaka *dve znanosti* se je ustalila v splošnem leksikonu kot skrajšano poimenovanje razlik med dvema naravnanostma. To sta (1) naraščajoč konstruktivističen pogled na svet, ki je preplavil humanistiko, po katerem je znanstvena metoda videti kot zapredena v jezik in kulturo; in (2) znanstveno naziranje, po katerem lahko opazovalec še vedno objektivno ustvarja nepristranske observacije o naravi, takšne, ki niso kulturno zapredene. »Besedna zveza vztrajno živi kot neprecizna popularna okrajšava za razpoko – stvar nerazumevanja s pridihom sovražnosti – ki je zrasel med znanstveniki in literarnimi razumniki v modernem svetu.« (Gl. http://www.physicsdaily.com/physics/The_Two_Cultures)

[5] Sama logika izključevanja, kot jo Husserl komentira v razpravljanju o krizi evropske zavesti, je inherentna napačno razumljeni racionalnosti in razumu.

[6] To frazo najdemo v Goethejevem *Faustu* (Goethe 101).

[7] Prim. stališča Nowotnyjeve ali pa poročilo Komiteja za preučevanje invencije, ki je bil sponzoriran kot Lemelson-MIT program in s strani National Science Foundation (*Invention*).

[8] Modernistične matrice so bile sposobne zaobjeti protislovja realnosti in resnice. Spacialna forma, kot jo je v svojem zgodnjem analitičnem razbiranju modernizma teoretsko formuliral Joseph Frank (gl. Frank), je bila zmožna predstaviti pripovedovano realnost skozi mnogotere perspektive, skozi sopostavljen niz prezentiranih situacij v procesu.

[9] »Zanesljiva vednost je vednost, ki ima visoko verjetnost, da je resnična, ker je bila njena verodostojnost upravičena z zanesljivimi metodami. Zanesljivo vednost včasih poimenujejo upravičeno resničnostno prepričanje, da bi razlikovali zanesljivo vednost od prepričanja, ki je napačno ali neupravičeno ali celo resnično, pa vendarle neupravičeno.« (Schafersman)

[10] Ko se je soočal z zavestjo o nenehnih protislovjih realnosti in resnice o njej, je modernizem s svojim bauelairovskim čutom za *neposrednost življenja*, bežeči trenutek, *sedanjost v njeni neposredni danosti*, v čisti trenutni kvaliteti, tj. kvaliteti kontingenčnosti, demonstriral skozi poteze naključnosti in fragmentarnosti v imaginističnih, futurističnih, eksresionističnih, konstruktvističnih, dadaističnih ali nadrealističnih obrazcih svojo zmožnost, da zajame odprtost in negotovost v procesu stvarjanja *poiesis*. Prim. tudi porajajočo novo izkušnjo humanistične informatike (Aarseth, »From Humanities Computing«) in poteze e-tekstualnosti; njihova *logika transfinitnega* tudi potrjuje svoje lastne izvore v modernistični matrici (Aarseth, *Cybertext*, Skulj, »A Dynamic«).

[11] S stališča semiotike je literatura *vzpostavljajoči*, razvijajoči se sistem.

[12] Literatura brez dvoma manifestira poteze kompleksnih sistemov, za katere velja, da jim je *težko določiti meje* in da je odločitev o tem končno odvisna od *opazovalca*; literatura obstaja kot *odprt sistem*; literatura ima kot sistem *spomin* in zgodovina literarnega sistema je pomembna zanjo; obstaja kot *dinamični sistem*; izkazuje obnašanje *vzpostavljajočega* se sistema; njeni sestavni deli utegnejo sami biti kompleksni sistemi itn. Literatura obstaja kot kompleksen modus sistemskih interakcij v večdimenzionalnem sistemskem okolju.

[13] Thibault je v svoji knjigi *Agency and Consciousness in Discourse: Self-Other Dynamics as a Complex System* (2006) preučeval načine, v katerih sta delovanje in zavest izzvana skozi transakcije med jazom in drugim.

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Vmesniški pristop k raziskovanju prek meja

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Članek obravnava tri teme: nujno potrebo po integriranih študijah; pojem »vmesnika«, kakor se je uporabljal v evropskem projektu »Acume 2: Interfacing Science and Humanities« pri problematiziranju statične ideje »vpliva«in zagovoru vmesnika kot izomorfizma dveh področij, ki v odgovor na svojo problematiko istočasno *razvijata nova teoretska orodja; ter metodologijo in izsledke dveh vzorčnih študij, ki so ju izpeljali tako naravoslovci kakor humanisti: študije spomina in študije biokompleksnosti.*

Ključne besede: integrirane študije / mreženje / vmesnik / potujoči koncepti / kompleksni sistemi / spomin / biokompleksnost

UDK 001.3

> Znanost je oblika poezije […], v kateri sinergistično sodelujeta domišljija in razum.
> (P. B. Medawar, *The Hope of Progress*, 1971)

Tako progresivni kot konvencionalni pisci se strinjajo z ugotovitvijo, da smo priče globoki in daljnosežni »krizi humanistike« (Nussbaum). Evropski raziskovalni svet, njegovi ustrezniki v posameznih državah in druge ustanove, na primer Evropska znanstvena fundacija, poudarjajo, da bo identiteto in namen humanistike treba temeljito pretresti. Za povrh ima neoliberalno upravljanje univerz še slabše posledice za humanistiko kot za druge vede, kajti slednje so po vsem videzu bolj produktivne in tekmovalne, bolj združljive s podjetništvom, raziskovanjem in razvojem ter z neskončnimi vajami v vrednotenju raziskav.

Ko se strokovnjaki za primerjalno književnost soočajo s kompleksnimi pojavi, značilnimi za našo »planetarno« družbo, poudarjajo, da se mora humanist otresti svojega pradavnega strahu pred drugimi vedami, saj bi mu te zlahka ponudile nove interpretativne modele in hevristična orodja (Bassnett). Vede, kakršna je primerjalna književnost, se pod pritiskom kompleksnih problemov, ki jih prinašajo s sabo migracije, pospešena akulturacija, gibanja globalnega kapitala in razpršenost medijev in informa-

cijskih omrežij, že od osemdesetih let 20. stoletja vse bolj vprašujejo o svoji identiteti. Številni strokovnjaki ugotavljajo, da potrebuje primerjalna književnost nove vzorce, in kljub različnim pristopom se vsi zavedajo, da bo treba sprejeti izziv kompleksnosti; še več, poiskati bo treba teoretične in praktične rešitve za študij in pouk svetovne književnosti (Simonsen in Stoutgaard-Nielsen /ur./; Ascari; D'haen, Domínguez in Thomsen /ur./; Benvenuti in Ceserani). Če se hočemo osredotočiti na nove strategije, s katerimi bi premagovali humanistično krizo identitete, nujno potrebujemo nekaj ključnih besed; mednje sodijo mreženje, novi epistemološki vzorci in nove perspektive, preseki ali vmesniki med tradicionalnimi humanističnimi vedami in novimi področji, kot so študije spolov, postkolonialne študije in študije novih medijev, ter vpliv tehnologije na humanistično mišljenje in prakso.

V prispevku bom obravnavala naslednje teme:

1. Nujno potrebo po *integriranih študijah*. Današnji krizi v humanistiki je poleg finančnih težav botrovalo spoznanje, da kompleksnost sodobnega sveta zahteva nove pristope in metode. Kompleksnost našega današnjega kulturnega okolja lahko razumemo zgolj s pomočjo integrirane vednosti. Znanost in humanistika namreč nista več ločeni področji, temveč komplementarni in integrirani domeni: znanost mora upoštevati epistemološke in etične plati, humanistika pa priznavati nove znanstvene dosežke. Takšna praksa bi lahko koristila tako znanosti kot humanistiki.

2. *Pojem vmesnika*, kot smo ga pravkar začrtali.

3. *Vprašanje, ali je vmesnik metafora ali metodologija*. S pomočjo koncepta vmesnika iščem interdisciplinarna stična področja, ki tvorijo prvo linijo vsake vede. Na njih prihaja do kontaminacij in križanj, zato pa tudi do novih kognitivnih vzorcev.

4. Vzorčni študiji *spomina* in *biokompleksnosti*, izpeljani s pomočjo koncepta vmesnika.

Ad 1. Nujna potreba po *integriranih študijah*. Če želimo gojiti integrirano kulturo, moramo preseči stari spor med dvema kulturama in razgraditi stereotipe, ki jih reproducirajo tako znanstveniki kot humanisti. Ob branju C. P. Snowa (gl. Snow) se vprašujemo, ali so ti stereotipi o razlikah med humanisti in znanstveniki celo po skoraj petdesetih letih še vedno živi v javnem mnenju; ali javnost v znanstvenikih še vidi optimistične, napredne, levičarske liberalce, ki iščejo navdih v prihodnosti, v humanistih pa pesimistične, desničarske konservativce, ki se oklepajo preteklosti?

Italijanski matematik Piergiorgio Odifreddi je pred nedavnim zatrdil, da so »obstoječe kulture in vzorci zgolj različni obrazi intelektualnega podviga, ki jih vse presega, ker posamič ponujajo zgolj strukturno, družbeno

in zgodovinsko omejena gledišča« (Odifreddi 53). Vprašanje integrirane kulture je tesno povezano s potrebo po zrušenju interdisciplinarnih pregrad, ki jih še vedno varujejo univerze, pa tudi osnovne in srednje šole. Pred umetnimi pregradami je pogosto svaril že Ludovico Geymonat, pionir filozofije znanosti v Italiji, češ da so meje zato, da jih prestopamo. Dandanes se zavedamo, da razkosan tip kulture naši modernosti ne zadostuje več in da s preveč specializiranim znanjem ne moremo zajeti kompleksnosti modernega sveta; za ključna vprašanja, ki se porajajo ob tehnološkem in znanstvenem razvoju, od atomske energije pa do genskega inženiringa, je pri analizi potrebna jasnost, kakršno nam omogoča zgolj integrirana vednost.

Zastopniki različnih ved so zahtevali korenito reformo poučevanja v šolah in na univerzah z utemeljitvijo, da se iz čezmerne razdrobljenosti znanja poraja nevarna predstava o znanju kot o nizu ločenih, nepovezanih področij. Tu lahko navedemo filozofa Edgarja Morina in tudi Paola Daria, inženirju, ki se zanima za robotiko. Po Morinovih besedah naši vzgojnoizobraževalni sistemi ločujejo predmete in drobijo stvarnost, s tem pa nam onemogočajo, da bi razumeli svet in se zavedeli temeljnih problemov, ki zahtevajo transdisciplinarni pristop (gl. Morin). Podobno misel je zapisal Dario (263): »Dandanes se mora tehnologija stopiti s humanistiko, ta pa se mora usmeriti k inovativnosti in se radovedno in dojemljivo odpreti spodbudam tehnologije. Model inženiringa pod vodstvom znanosti terja visoko raven ustvarjalnosti in zmožnosti za *reševanje problemov*.«

Binarno nasprotje med znanostjo in književnostjo poskušajo raziskovalci že od sedemdesetih let 20. stoletja razgraditi s študijami o njunem medsebojnem razmerju in v ta namen iščejo morebitne kognitivne vzorce, ki bi bili skupni obema področjema. Pri iskanju sorodnosti med kulturama so opazili, da obe seka jezik. Torej je poleg književnosti tudi znanost diskurz z istimi vrstami retoričnih strategij, literarnih tropov in spremenljivih pomenov kot druge oblike pisanja. V sijajnem eseju iz leta 1968 je L. J. Jordanova, ugledna zgodovinarka znanosti, zapisala: »Naš glavni predmet preučevanja je jezik – posrednik sleherne misli, dejanja in izkustva. Osredotočamo se pretežno na diskurze, ki so lastni tako znanosti kot književnosti«. (Jordanova 17)

V tej zvezi lahko omenimo, da so dela Carla Levija, kemika, pesnika in izjemnega romanopisca, in Itala Calvina, pisatelja, vselej očaranega nad znanostjo, geometričnimi proporci, simetrijo in *ars combinatoria*, prava zakladnica trditev, da znanost in književnost še malo nista ločeni dejavnosti, temveč imata številne skupne značilnosti. Tudi Stefan Collini v svoji nedavni izdaji Snowovega dela poudarja, da se je od Snowovega časa predstava o fiziki že spremenila: nekoč je ta predmet veljal

> za najtršo vseh »trdih znanosti«, vedo, ki je po tradiciji ponazarjala, kako z rigorozno deduktivno analizo peščice splošnih zakonitosti, potrjenih ali ovrženih s kontroliranimi eksperimenti, lahko spoznamo in celo napovemo fizikalne lastnosti vesolja. Ta model pa je tako imenovana »nova fizika« zadnjih dvajsetih let prikrojila na dva sorodna načina. Prvič, njena odkritja o naravi snovi ali o izvoru vesolja po vsem videzu vzpostavljajo nepredvidljivost, odprtost (Collini xlvii).

Novo pojmovanje fizike se ujema z našo predstavo o svetu humanistike in književnosti.

Če želimo razumeti, v čem se svetova stikata, moramo znova pretresti nekatere klišeje o znanstvenih in pesniških jezikih, zlasti topos, po katerem so prvi denotativni in transparentni, drugi pa konotativni in nejasni. Take puhlice lahko za začetek ovržemo z analizo rabe metafor v obeh kulturah; pravzaprav je metaforika postala kar ena od osrednjih tem v analizah razmerja med književnostjo in znanostjo (Black; Cornell Way; Swinburne). Kdor zna metafore uporabljati ali jih ustvarjati, s čimer dokazuje visoko stopnjo ustvarjalnosti, se živo zaveda, kako pomembne so za pridobivanje vednosti, saj nam odpirajo epifaniji podoben uvid v stvarnost. Metafora je sredstvo pomenske obogatitve, ki je skupno znanstvenim in pesniškim jezikom in obojim omogoča, da izvirno kartirajo svet. V tem pogledu sta sposobna »potujitve« oba, znanstvenik in pesnik: oba znata pogledati na stvarnost z očmi tujca in v svetu okoli nas odkriti skrite povezave, ki nasprotujejo naši intuiciji. Z metaforami redno pojasnjuje naravne pojave marsikatera naravoslovna veda, denimo imunologija.

Prav tako se pojavljajo trditve, da si znanstvenik pri »modeliranju« (matematizaciji) sveta prizadeva vsrkati vse njegove brezštevilne lastnosti in ustvariti model, v katerem bi nad kvalitetami stvarnosti prevladala kvantifikacija, medtem ko se umetnik posveča detajlom in posamičnostim. A tudi to nasprotje je vprašljivo, ker opisi posamičnosti in drobcev nimajo nikakršne umetniške in splošne vrednosti, če vsaj med vrsticami ne nakažejo neke vizije sveta – z drugimi besedami, modela. Modeliranje sveta torej ni značilno zgolj za znanost, ampak tudi za književnost. Kot nas Calvino opomni (78–79) v predavanju o eksaktnosti (»Esattezza«), je »to vez med formalnimi odločitvami literarne kompozicije in potrebo po kozmološkem modelu […] najti tudi pri avtorjih, ki tega ne povejo izrecno. […] Poezija je velika sovražnica naključja, čeprav je tudi sama njegova hči.«

Naslednja lastnost, s katero sta obdarjena tako pesnik kot znanstvenik, je eksaktnost: v pesnikovem primeru gre za neskončno iskanje prave besede, v znanstvenikovem pa za natančnost pri opazovanju in opisovanju naravnih pojavov.

Calvinu (65) pomeni eksaktnost predvsem troje:

1. natanko določen in izdelan načrt literarnega dela;

2. evokacijo jasnih, izrazitih, zapomnljivih vizualnih podob; v italijanščini imamo pridevnik, ki ga v angleščini ni, *»icastico«*, iz grškega *eikastikós*;

3. kar se da natančen jezik v leksiki in v podajanju miselnih in predstavnih odtenkov.

Druga pomembna misel se nanaša na današnjo predstavo o razmerju med kulturo in znanostjo, ki bi moralo biti kompleksnejše od Snowove predlagane različice. Filozofi znanosti, na primer, so veliko prispevali k boljšemu razumevanju znanstvene metode; pomislimo samo na idejo Thomasa Kuhna, da do znanstvenih sprememb ne pride nujno z vztrajnim kopičenjem vednosti v stabilnih parametrih, temveč se anomalije v gradivu kopičijo, dokler ne nastopi sprememba kot »pretrgan skok« ali »vzorčni premik«. Poleg tega so sociologi znanosti pokazali, da znanstveno vednost vzpostavljamo na osnovi kulturno spremenljivih norm in praks; to pomeni, da je znanost zgolj ena od obstoječih množic kulturnih dejavnosti, da izraža svetovno usmerjenost posamezne družbe prav toliko kot njena umetnost ali religija in da je prav tako neločljiva od ključnih vprašanj politike in morale. V znanosti torej vidijo »družbeni konstrukt«. S tega gledišča je treba pretehtati tudi diskurz o ustvarjalnosti: kdor pozorno spremlja velike prelomnice v znanstveni misli in tehnoloških inovacijah, ne more zanikati, da so najustvarjalnejše prakse porušile vse pregrade med vedami.

Ko raziskujemo razmerje med humanistiko in znanostjo (povezave, sorodnosti, razlike, vprašanja in probleme) onkraj podedovanih klišejev, vznikne ideja o vzajemnih vplivih, ki spodbuja bolj dinamično predstavo o »delovanju vmesnika« (»interfacing«). Zato moramo izhajati iz priznanja, da med področjema vlada izomorfizem (Hayles) in da pri odzivanju na svoje naloge marsikdaj istočasno razvijeta nove modele in strategije za raziskovanje kompleksnih znanstvenih in kulturnih (umetnostnih, književnih) pojavov. Ideja izomorfizma pa ni več povezana s tradicionalnimi idejami vzroka in učinka, temveč kaže na istočasnost, zato moramo opustiti predstavo, da eno področje vpliva na drugega ali ga pogojuje. Izomorfizem nakazuje skupna odkritja; obe domeni istočasno razvijata nove raziskovalne modele, ki nato postanejo analoška ogledala sveta v nenehnem razvoju. Pod vplivom te ideje preučujemo naravoslovne in humanistične vede skupaj, ker z medsebojnim delovanjem lahko sprožijo novo dinamiko na številnih področjih vednosti.

V zadnjih dveh stoletjih so se vzgojnoizobraževalne teorije razvijale okoli predstav o ločevanju in izbiri: na eni strani so stale humanistične, na drugi naravoslovne vede. Dandanes pa zahtevajo učenci in študentje nove izobraževalne modele, v katerih bi se zrcalili kompleksnost in vzajemnost sveta, zaznamovanega z drugačnim pojmovanjem vednosti in še zlasti s hitrim razvojem novih družbenih matrik. Ob razvoju novih družbenih pojavov, kakršni so globalizacija, spreminjanje politične sfere in razvoj

novih »medijskih pokrajin« (»mediascapes«), so namreč začeli nastajati novi vzorci, ustrezen vzorec, ki lahko sproži nove hevristične posledice, pa v tem spremenljivem kontekstu po vsem videzu ponuja ideja »vmesnika« ali »delovanja vmesnika«. Za nameček nas že sama ideja »delovanja vmesnika« privede k mikavnemu konceptu »kompleksnosti«, prav tako metafori, ki nakazuje izmenjavo in vzajemno prepletanje, in predvsem h konceptu »mreženja« (»networking«), torej novih strategij za opazovanje in potemtakem oblikovanje sveta. Pojem mreženja ne nakazuje zgolj novega načina za transverzalno raziskovanje med različnimi vedami, ampak tudi nov način konceptualiziranja in upodabljanja »stvarnosti«. Mreženje je v samem temelju kompleksnosti; gre za nov epistemološki vzorec, skupen tako znanosti kot humanistiki.

Obe domeni morata med drugim priznati dejstvo, da se moramo soočiti s položajem kulture v nenehnem razvoju. Med že obstoječa utelešenja tega priznanja sodijo novi univerzitetni programi na medicinskih univerzah, inženirskih fakultetah in drugih naravoslovnih ustanovah, ki ponujajo predmete s področij književnosti, umetnosti in filozofije, kot tudi takšne, ki spodbujajo ustvarjalnost. Pa tudi v humanistiki najdemo plodovito uporabo naravoslovnega raziskovanja in znanja: od bolj praktičnih načinov uporabe, kakršno je snovanje novih ved v humanistiki (pomislimo na »humanistično informatiko«, ustvarjanje novih infrastruktur, digitalnih arhivov, podatkovnih baz itn.), pa do novih teoretičnih dosežkov, ki združujejo literarne/literarnovedne teorije z naravoslovnimi modeli raziskovanja (od »teorije polja« do teorije kaosa). Še drugi zanimivi primeri prihajajo iz družboslovja, ključnega akterja pri razvoju novih raziskovalnih smeri in novih konceptov, ki rušijo pregrade in spodbujajo interdisciplinarne pristope. Dober primer je antropologija, ki uporablja naravoslovno idejo »gostega opisa« (»thick description«) kratkomalo za analizo kulture. Sledeč podobnim vzorcem so humanistični strokovnjaki v zadnjih dveh desetletjih začeli ponovno razmišljati o ideji »književnih pojavov«, pri čemer književnosti niso jemali kot zaprt, ampak kot kompleksen sistem – kot omrežje dogodkov.

Ad 2. *Pojem vmesnika.* V drugi točki bom poskusila raziskati pojem »vmesnika«, kot se je uporabljal v delovni hipotezi evropskega projekta »Acume 2: Interfacing Science and Humanities« v moji koordinaciji.

Kaj pomeni angleški izraz za »vmesnik«, *interface*, ni težko razumeti, če ga tolmačimo kot skovanko iz predpone *inter* ali *intra* (»med /dvema ali večimi/«) in korena *face* (»površina«, »obraz«, »stična točka«). Ni pa ga mogoče pojasniti enovito.

Pomenska polja, pri katerih je mogoče uporabiti izraz »vmesnik«, segajo od informacijske tehnologije (IT) do geografije, od kemije do me-

taforike. Najprej so ga uporabili v IT; tu ni pomenil zgolj stične točke, ki omogoča komunikacijo, ampak tudi sámo metodo komunikacije. Tega izraza –kot na dlani gre za krovni izraz, ki bolj namiguje kot opisuje – ne bom uporabljala zgolj kot preprosto metaforo, temveč kot metodološko izvorno točko. Za začetek bomo torej poskusili predlagati nekaj opredelitev izraza »vmesnik«.

V računalništvu oziroma IT je vmesnik vez, del strojne opreme, ki fizično povezuje različne komponente; pomislimo zgolj na USB (Universal Serial Bus) vhod pri računalniku. Obenem pa je vmesnik tudi del programske računalniške opreme, se pravi program, ki omogoča interakcijo, prevod med dvema jezikoma, in tako dovoljuje uporabniku, da komunicira s strojem. Strogo vzeto je vmesnik med človekom in strojem na primer program, ki nam omogoča, da uporabljamo svoj namizni ali prenosni računalnik. Z drugimi besedami, vmesnik je vozel, minimum v širši kompleksnosti, poleg tega pa tudi opis izmenjave, specifikacija omejitev, ki veljajo za neko dejavnost. Sleherna izmenjava informacij torej predpostavlja navzočnost vmesnika in ta pojem ni namenjen poimenovanju, ampak prikazovanju.

Lahko na primer preučimo vmesnik med človekom in tehnološkim objektom. Ima tu vmes res prste vmesnik (če si smem privoščiti besedno igro)? Če je odgovor pritrdilen, moramo v njiju videti ločena in neodvisna sistema, ker med biološkim, človeškim, in ne-biološkim, ne-človeškim prostorom prihaja do nenehnih izmenjav. Primere slednjega vidimo na umetniških upodobitvah umetnega bivanja, najbolj pa v medicinskih tehnologijah, kjer po zaslugi računalniške tomografije in rentgena človeški prostor postane »čitljiv«.

Bolezni ali zdravju dobesedno sledimo s pripomočkom, po zaslugi katerega postanejo sledi očitne in zaznavne očem zdravnika, ki jih je nato zmožen prebrati. Vmesnik torej ne deluje zgolj v odmevnih primerih, ko pride do križanja med mehanskim in organskim, ampak tudi kot posrednik, kot komunikacijska rešitev med dvema akterjema, ki se sporazumevata, in celo kot nov jezik, izumljen prav za to komunikacijo. Za primer spet lahko vzamemo računalniško tomografijo, tehniko medicinskega slikanja: na osnovi tomografske analize, pridobljene tako, da pacienta obsijemo z laserskim žarkom, se izračuna tridimenzionalna rekonstrukcija tkiv. Pri tem zelo pogostem diagnostičnem postopku gredo sporočila skozi večkratno »posredovanje«, ko potujejo od pacientovih simptomov do diagnostika. Ta uporabi instrument analize in oblikuje končno poročilo na osnovi podatkov, pridobljenih iz slikanja pacientovega telesa, torej podatkov, ki jih zdravnik raztolmači in nato določi terapijo. Ne gre za golo diagnozo: različne stopnje postopka zajamejo različne ravni, ko postane pacientovo telo

omrežje, mnogoter sistem s fiziološko, organsko, psihološko in eksistencialno razsežnostjo. Vmesnik se nahaja tudi v sistemskem jedru medicinskega znanja kot končno srečevališče med epistemologijo (vsem, kar vemo o človeku in njegovem delovanju) in kulturo (načinom, kako gledata na bolezen subjekt sam in družba, kako si bolnik predstavlja posamezno bolezen, kako jo opisuje drugim ali kako jo opisujejo drugi). Vmesnik torej ni metafora, ampak metodološki pristop: gre za vprašanje zaznave, kako komunicirata dva sistema, človek in tehnologija, ter na kakšni ravni in kako se iz tega opazovanja lahko izluščijo vzorci: strukture, kontinuitete ali diskontinuitete.

Tu sta ključnega pomena temeljni študiji N. Katherine Hayles in Edwarda O. Wilsona (gl. Hayles; Wilson). Oba avtorja, humanistka (ki zdaj dela tudi pri ITC) in biolog, se zavedata potrebe po sodelovanju med obema področjema ter predlagata nove metode in vzorce vednosti.

Haylesova navezuje literarni znak ali znake na naravoslovne teorije; teorijo polja ali pojem polja predlaga kot sežetek novega načina, kako opazovati sočasno stvarnost s pomočjo obojega, znanstvenega raziskovanja ter umetniškega in literarnega uvida. Zanimivo in značilno za njeno knjigo je dejstvo, da se izogiba poenostavljenim in predvidljivim opazkam v slogu »znanost vpliva na književnost in jo odpira novemu podobju« ali »nova znanstvena odkritja nudijo književnosti nove modele izraza«. Namesto tega predlaga bolj poglobljeno opazovanje in novi pojem polja uvede v kompleksnejšem okviru. Predvsem opaža, da sta na prelomu med 19. in 20. stoletjem obe sferi vednosti, humanistika in znanost, začeli predlagati podobne načine raziskovanja, ki so se vse bolj oddaljevali od atomistične (kartezijanske) ideje vednosti in se približevali holistični predstavi, ki jo Haylesova dojema kot teorijo polja. Ti novi načini raziskovanja so temeljili na dveh bistvenih predpostavkah:

1. Vse stvari so povezane, vendar ne po urejeni, hierarhični logiki, temveč zaradi istočasne skupne navzočnosti.

2. Posledica tega je, da se jezik, ki jih izraža, nujno nanaša sam nase.

Pod temi pogoji se opazovanje zaplete: sleherna tradicionalna predstava o razliki med opazovalcem in opazovanim, ki je za atomistično (kartezijansko ali linearno) opazovanje bistvenega pomena, odpade, saj zdaj oba akterja pripadata istemu polju opazovanja in vzajemno vplivata drug na drugega:

> Po atomističnem nazoru vrzeli med subjektom in objektom ne »kontaminirajo« krožni paradoksi samonanašalnosti, ker stvarnost domnevno lahko razčlenimo v posamične ločene komponente. Zato atomisti predpostavljajo, da z jezikom lahko opredelimo razmerje med subjektom in objektom na formalno eksakten način. Nasprotno pa pojem polja predpostavlja, da so te komponente med sabo povezane s pomočjo posredniškega polja. Kadar je jezik del posredniškega polja (tj.

> sredstvo, s katerim opišemo razmerje med subjektom in objektom), je tudi sam soudeležen pri medsebojni povezanosti, ki jo, kot trdi, obenem opisuje. Če priznamo pojem polja, zato priznamo tudi, da samonanašalnost jezika ni naključna, temveč bistvena posledica, ki izvira iz tega polja. (Hayles 41)

Pojem polja je torej gledišče, na katerem temeljita tako znanstveno kot umetniško raziskovanje; kot smo že omenili, ga ne moremo več razlagati kot preprosto razmerje med vzrokom in učinkom, saj ga istočasno zaznavata obe polji. Haylesova poudarja, kako pomembno je opazovati to novo idejo v luči kompleksnega kulturnega ozadja, ki se nenehno spreminja:

> Večja verjetnost je, da se nam bo pojem polja izrisal podrobno in izčrpno, če bomo opazovali oboje skupaj, književnost in znanost, ne zgolj eno ali drugo. […] Točnejši in ustreznejši model za takšen vzporedni razvoj bi bil poljski pojem kulture, družbena matrika, ki bi jo tvorila […] »mnenjska klima«, pod vplivom katere se je z nekaterimi vprašanji zanimivo ukvarjati, medtem ko so druga nezanimiva ali nepomembna. (Hayles 10–22)

Ideja »konsilience«, ki jo raziskuje Wilson, predlaga, da bi obe kulturi združili in s tem celovito zajeli tako kulturne kot naravne procese: »Konsilienca [je] konsilienca vednosti, ki nastopi, ko transdisciplinarno povežemo dejstva in na njih utemeljeno teorijo, s čimer ustvarimo skupni temelj za razlage.« (Wilson 8)

Ad 3. *Vmesnik kot strategija: nova metoda pristopanja k literarni vedi*. Haylesova predlaga novo metodo literarne analize, ki bi bila osnovana na matematičnih modelih. Po njeni temeljni hipotezi je sprememba znanstvenega vzorca v dvajsetem stoletju prinesla novo konceptualizacijo stvarnosti, ta pa ni vplivala le na znanstveno okolje, temveč tudi na družbo, kulturo in umetnost. Vendar ne govorimo o preprostem vplivanju med znanstvenim in med umetnostnim ali družbenim okoljem; revidirati moramo sam pojem »primerjave«. Ne gre več za to, da prilagajamo naravoslovno metodo literarni vedi in uporabljamo metafore, ampak da vidimo obe področji vednosti kot neločljivo prepleteni, soudeleženi v »kozmični mreži«, ki povezuje celovito, mnogoplastno vesolje znanosti, tehnologije in umetnosti. Po besedah Haylesove sta nam teoriji kaosa in kompleksnih sistemov v dvajsetem stoletju priskrbeli raziskovalne modele in miselna ogrodja (*brainframes*),[1] ki jih lahko prenesemo na vsa študijska področja. Z drugimi besedami, staro verigo vzrokov in učinkov moramo nadomestiti s hkratnimi, ne-posledičnimi razmerji in s področji izomorfizma, na katerih vzajemno delujejo različne ravni in gradiva.

Haylesova nas torej vabi, naj preoblikujemo pojem »primerjave«. Zdaj ne postavljamo po dveh ali več besedil na isto raven, ampak ohranjamo

njihove meje prožne in odprte za tematske konstrukcije, jezike in strukture iz sodobnega »diskurza«, ker na ta način med ljudmi, tehnologijo in umetnostjo poteka neprekinjena vez.

Izhajajoč iz študij posameznih primerov je evropski projekt »Acume 2« poskusil pokazati, kako nekateri koncepti, metafore in pripovedi ob selitvi iz ene vede v drugo dobijo nove pomene, s tem pa izzovejo nove konfiguracije znanj in odprejo nove meje vednosti. V poskusu, da bi razumeli rekonfiguracijo vednosti, ki je posledica te selitve, so postali izrazi kot »prilaščanje«, »prevajanje« in »ponovno vrednotenje« ključne besede. Zato je bil eden od pomembnih uvidov projekta, da pri selitvenem procesu ne smemo izgubiti spred oči različnih zgodovinskih in nacionalnih kontekstov.

Koncepti, metafore in pripovedi niso zgolj najpomembnejša teoretična in analitična orodja univerzitetnega diskurza, ampak ponujajo tudi kritične vmesnike med naravoslovjem, književnostjo in humanistiko ter na osnovi skupnega jezika omogočajo debato, raziskovanje in dinamično izmenjavo. Pogosto pa se pomen in operativna vrednost konceptov, metafor in pripovedi, celo tistih, ki se nam zdijo samoumevni, razlikujeta od ene vede, univerzitetne in nacionalne kulture ali zgodovinske dobe do druge. Koncepti, kakršni so »komunikacija«, »koda«, »kompleksnost«, »življenje« in »sistem«, metafore, kot so »kriza«, »omrežje«, »telo« in »tekst«, in kulturne pripovedi, kot so »evolucija«, »staranje« in »digresija«, ki se skrivajo v jedru tako naravoslovja kot humanistike, niso enoznačni, trdno vzpostavljeni koncepti. Ne: ko potujejo sem in tja med univerzitetnimi konteksti in vedami, so dinamični in izmenljivi. Zato so »potujoči koncepti« (»travelling concepts«), kot jih je posrečeno poimenovala Mieke Bal (Bal).

S premikom proti rigoroznejši transdisciplinarnosti sta se okrepila dinamična izmenjava konceptov med različnimi vedami ter prevajanje konceptov v metafore in pripovedi. Ob stalnem medpodročnem prilaščanju, prevajanju in ponovnem vrednotenju so koncepti, metafore in pripovedi dobili nove pomene, to pa je sprožilo reorganizacijo prevladujočih redov vednosti in odprlo nova raziskovalna obzorja. Ker se moramo o njihovih pomenih v vsaki vedi potemtakem vedno znova dogovarjati, lahko potujoči koncepti, metafore in pripovedi spodbudijo samorefleksiven pristop k transdisciplinarnemu študiju kulture.

Ad 4. Pojem transdisciplinarnih študij. Tu bi želela predstaviti dve knjigi, *Memoria e saperi: Percorsi transdisciplinari* (Agazzi in Fortunati /ur./) in *Biocomplexity at the Cutting Edge of Physics, Systems Biology and Humanities* (Castellani idr. /ur./), ki sta plod naših prizadevanj, da bi eksperimentirali s konceptom vmesnika; s to strategijo naj bi pristopili k epistemološkim

vzorcem, ki bi si jih potencialno lahko delili znanost in humanistika. Obe knjigi sta se rodili iz ideje transdisciplinarnosti. Medtem ko vede pri interdisciplinarnih študijah delujejo druga ob drugi in se vsaka posveča skupnemu vprašanju v okviru lastnih kompetenc, se pri transdisciplinarnih študijah raziskovalne metode – in zato tudi meje med vedami – zasnujejo na novo.

Naša prva knjiga raziskuje najsodobnejše študije spomina na šestih disciplinskih makro področjih: v družboslovju, biomedicinskih vedah, umetnosti, medijih, humanistiki in religiologiji. Vsa področja se sekajo s »ključnimi besedami« iz konceptualizacije spomina, ki se je oblikovala v zadnjih dvajsetih letih; vsako področje se mora torej soočiti s ključnimi besedami, ki sestavljajo skupni vzorec za vso paleto ved:

1. evolucija;
2. individualni in kolektivni spomin/i;
3. spomin in travma;
4. spomin kot dinamičen proces;
5. kontekst;
6. spomin in informacije;
7. spomin in pozaba.

Ideja transdisciplinarnosti je zgrajena na dinamični kombinaciji navpičnosti (makro področij) in vodoravnosti (skupnih ključnih besed). Tradicionalna disciplinarnost tako ostaja obvezni preskusni kamen (za oboje, pisce in bralce), vendar je »revidirana« s pomočjo skupnih ključnih besed, ki pridobijo izrazito hevristično relevantnost.

Drug primer našega sodelovanja z naravoslovci je knjiga, nastala na osnovi seminarja, pri katerem smo raziskovali vzorec »biokompleksnosti« kot možen hevristični model za tolmačenje kompleksnih sistemov v drugih vedah. V tej knjigi pomeni biološka kompleksnost izziv in potencialni vzorec za druga področja vednosti, ki se ukvarjajo z ne-biološkimi »kompleksnimi sistemi« (na primer s književnostjo). Model biokompleksnosti služi kot vzorec, kako opazovati kompleksne sisteme v humanistiki in znanosti: od biologije do ekonomije, od književnosti do fizike. Temeljna ideja knjige se glasi, da je z nekaterimi koncepti mogoče poudariti skupne značilnosti celega niza kompleksnih sistemov, čeprav so ti na videz raznorodni in pripadajo različnim področjem vednosti. Pojem biološke kompleksnosti, denimo, zna priti prav pri raziskovanju literature, če jo obravnavamo kot kompleksen sistem. Potrdilo se je, da je v humanistiki vzorec biokompleksnosti uporabno analitično orodje; z globalnega gledišča književnih sistemov namreč začenjamo pri primerjalni književnosti in v postkolonialnih študijah raziskovati predstavo, po kateri so evropske in transevropske literature in kulture kompleksni sistemi, ki vzajemno delujejo v sistemu omrežij. Če hočemo preučevati literaturo z globalnega

gledišča, moramo zaradi kompleksnosti predmeta poseči po modelih iz drugih ved, na primer po kvantitativnih zgodovinskih grafih, geografskih zemljevidih in genealoškem drevesu iz evolucijske teorije; zgolj tako bomo razpoznali razmerja, strukture in oblike književnih makro sistemov.

Najnaprednejše konceptualizacije biološke kompleksnosti predpostavljajo naslednje značilnosti živih organizmov:

1. Žive organizme sestavlja velika množica elementov, ki delujejo vzajemno in se organizirajo v funkicionalna in dinamična *omrežja*.

2. Živi organizmi imajo različne *ravni* ali *plasti kompleksnosti*, od molekul do podceličnih organelov in naposled do *celice*. Ta temeljna enota živih organizmov ni le vzorčen kompleksni sistem sama po sebi, ampak je tudi zidak na višjih ravneh organizacije, ker je zmožna proizvesti množico različnih tkiv in organov, iz katerih se v končni fazi oblikuje enkratno telo.

3. Različna telesa (organizmi) se organizirajo v *združbe*, te pa tvorijo ekološke sisteme, ki so še kompleksnejši – sisteme, kjer v dinamičnem ravnovesju sobiva na stotine ali celo na tisoče vrst.

4. Živi organizmi so sistemi z lastno *evolucijsko zgodovino*, ki pogojuje njihovo strukturo in funkcionalne zmožnosti ter prinaša s sabo množico *omejitev*.

5. Nastali so z odbiranjem *glede na prilagojenost* – odbiranjem, ki optimizira omrežja s strukturnega in funkcionalnega gledišča ter poteka na vseh omenjenih ravneh kompleksnosti, od molekul in celic pa do organizmov.

6. Organizirani so v *module*, tj. v skupke omrežij z jasno določeno funkcijo. Moduli so s *povezavami* organizirani v supramodularne organizacije.

7. Živi organizmi so *dinamični*, *odprti* in *nelinearni sistemi*, ki jim vladajo *naključna odstopanja in motnje*.

8. Zanje je značilno pojavljanje *nepričakovanih lastnosti in funkcij*, kot sta simbolni jezik in zavest.

9. Zmožni so *učenja* in *pomnjenja* na vseh ravneh, od molekularne vse do najvišje ravni biološke organizacije z najbolj prefinjenimi kognitivnimi funkcijami vred.

10. Vedênje vsakega elementa je določeno s *kontekstom*: vsakega od elementov pogojujejo vsi drugi, saj tvorijo neprekinjen interaktiven in dinamičen sistem.

Ti knjigi dokumentirata prednosti pristopa, ki problematizira tradicionalne razlike med vedami in kaže, da se dozdevno nezdružljive vede ubadajo s podobnimi metodološkimi problemi, ki jih lahko analiziramo s skupnim naborom instrumentov. Za znanstvene ustanove – na primer za univerze, še vedno organizirane v skladu z vizijo, ki ne odslikava današnje dinamike vednosti – to ni zanemarljiva lekcija. Vzorčni študiji spomina in

biokompleksnosti torej kažeta, da bi morali oporekati tradicionalnim delitvam, ki ne morejo izkoristiti hevrističnih in epistemoloških potencialov transdisciplinarne metode.

Naj sklenem svoj prispevek z dvema mislima, ki emblematično povzemata delovno hipotezo moje raziskave o kompleksnosti v književnosti in znanosti. Po besedah Itala Calvina (53) je »funkcija literature komunikacija med tem, kar je drugačno […], s tem da te drugačnosti in razlike ne zabrisuje, temveč jo poudarja«. Ilya Prigogine (74) pa je zapisal: »Medtem ko je klasična znanost privilegirala red in stabilnost, se dandanes zavedamo temeljne vloge odstopanj in nestabilnosti na vseh ravneh opazovanja […], [kar kaže na] mnogoterost izbire in omejeno predvidljivost obzorij.«

Prevedla Nada Grošelj

OPOMBA

[1] Miselno ogrodje (*brainframe*) je struktura, namenjena fiziološkemu, kognitivnemu in čutnemu sprejemanju in interpretaciji stvarnosti, ki jo ustvarjajo in določajo informacijske tehnologije. Kot trdi ta model, komunikacijska sredstva spreminjajo miselno konfiguracijo udeležencev v komunikaciji. Pojem je razvil Derrik de Kerckhove, študent Marshalla McLuhana, sama pa ga v prispevku uporabljam na nekoliko prikrojen način: za povzročitelje sprememb v ogrodju štejem pravzaprav vse tehnologije in naravoslovne vede z njihovimi vzorci vred.

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Negovanje netrivialnega[1]

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V članku poskušamo opozoriti na potrebo po vnovičnem zaupanju v individualnost, kompleksnost in intimnost neposrednega doživljanja. Pokažemo, zakaj toka zavesti ne moremo opazovati s standardi klasične (analitično-redukcionistične) paradigme. Predlagamo uravnoteženje intersubjektivne resničnosti redukcionističnih teorij z intimno resničnostjo Gestalta *zavedanja, na katero – morda bolje kakor kdorkoli – opozarjajo pisatelji, pozorni zasledovalci toka zavesti.*

Ključne besede: kognitivna znanost / doživljanje / tok zavesti / individualnost / soudeleženost

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Uvod

Znanost že od nekdaj poganjata dva motorja, dva kreativna nemira: radovednost in strah pred negotovostjo. Tok znanstvenega razkrivanja sveta je seveda bistveno zaznamovan z mnogimi drugimi vplivi – predvsem z ekonomskimi –, vendar sta oba kreativna nemira bistvena. Nemir radovednega otroškega iskanja nas sili, da zapuščamo udobje znanega, sili nas k čudenju, k priznanju, da ne vemo in da ne razumemo. Nemir zaradi slutnje neskončne zapletenosti vesolja in naše izgubljenosti v tem nepreglednem procesu pa nas žene v urejanje, poenostavljanje, pojasnjevanje in – če smo v tem res uspešni – v poskuse napovedovanja.

Če opazujemo zgodovinski tok znanstvenega prizadevanja, se zdi, da se oba nemira stalno prepletata. V nekaterih obdobjih prevladuje eden od njiju, kar pa hitro ustvari potrebo in s tem prostor za drugega. Na področju raziskovanja duševnosti v tem trenutku prevladujejo poskusi urejanja, poenostavljanja in razlage. Hkrati pa neučinkovitost nekaterih tako pridobljenih rezultatov opozarja na potrebo po negovanju kompleksnosti, četudi za ceno teoretske jasnosti.

Kognitivna znanost

Še pred nekaj desetletji je bilo razmišljanje o teoretskih modelih delovanja duševnosti omejeno na filozofske špekulacije in nekatere psihološke parcialne modele (Freud, Piaget, James). Zanimivo je, da se preskok ni zgodil kot posledica kakšnega empiričnega odkritja. Dramatično (in nepričakovano) spremembo je prinesla nova skupna metafora, model, ki je omogočil interdisciplinarno povezavo vseh raziskovalnih disciplin, ki se na tak ali drugačen način dotikajo z duševnostjo povezanih fenomenov.

Skupna metafora – kognicija kot procesiranje informacij – izhaja iz kibernetike in danes težko razumemo revolucijo v razmišljanju, ki jo je sprožila. Podobno kakor računalniki procesirajo informacije (tj. vhodne impulze v skladu s programom prevedejo v izhode), je naloga kognicijskih sistemov prevajanje dražljajev (tj. vhodnih impulzov) v vedenje (tj. v izhode sistema).

T. i. informacijskoprocesni oziroma računalniški model kognicije je nenadoma omogočil skupno koncepcijo o tem, kaj se dogaja v »črni škatli« duševnih procesov. Iz te skupne koncepcije je zrasla nova znanstvena disciplina: kognitivna znanost.

V osemdesetih letih prejšnjega stoletja je bil razcvet računalniške tehnologije skupaj z novo metaforo za delovanje kognicije vir velikega zanosa. Zmožnost računalnikov, da v nekaj sekundah opravijo naloge, ki so bile celo za najbistrejše ljudi skoraj nerešljive, je zbudila splošno vero, da smo izumili orodje, s katerim bomo lahko ne le modelirali kognitivne procese, temveč tudi presegli inteligenco njihovih samih ustvarjalcev računalnikov. To obdobje je dodobra zaznamovalo iskanje (računalniških) algoritmov, ki bi lahko simulirali inteligenco. Šele ko se je izkazalo, da razumnost računalnikov ne raste proporcionalno z njihovo zmogljivostjo (oziroma da sploh ne raste), so se raziskovalci začeli resneje ukvarjati z vprašanjem, kaj sploh je inteligenca.

Konec desetletja ni prinesel ne zadovoljivega odgovora na to vprašanje ne računalnikov, ki bi jim lahko pripisali »razum«. Izkazalo se je, da je resda mogoče precej preprosto algoritmično definirati nekatera opravila, ki nam veljajo za znak visoke inteligence oziroma ki jih pripisujemo »ekspertom«, na primer ugotavljanje diagnoze iz znanih simptomov, izračun zapletenih diferencialnih enačb ali igranje šaha. Za veliko bolj nerazumljive pa so se izkazale operacije, ki jih v našem vsakdanjem življenju navadno sploh ne opazimo: proces spoznavanja okolice in odzivanja nanj, učenje jezika in dodeljevanje pomena, ki je računalnikom seveda povsem nedosegljivo. Dermot Furlong in David Vernon sta leta 1994 ugotovila tole:

> Če natančneje pomislimo, je res nenavadno pa tudi zgovorno, da je umetna inteligenca predmet resnih raziskav, ne da bi prej raziskali področje umetnega življenja – inteligenco vendar pripisujemo zgolj živim sistemom. So znanstveniki s področja umetne inteligence na tihem računali, da bo, ko bo njihov posel končan, sistem umetne inteligence že kar živ sistem? (98)

Na začetku devetdesetih let so nekateri raziskovalci začeli opozarjati, da je kognitivna znanost, utemeljena na informacijsko-procesnem modelu, v krizi (gl. Winograd in Flores; Varela, Thompson in Rosch; Furlong in Vernon). Tem raziskovalcem je skupno, da so podvomili v primernost analitično-redukcionističnega modela za raziskovanje duševnih procesov, zavesti in življenja, medtem ko je bila večina kognitivnih znanstvenikov na tihem prepričana, da je izhod iz zastoja v nadaljnji specializaciji študija kognitivnih pojavov in s tem naposled v enotni teoriji, ki da bo zadovoljivo odgovorila tudi na širša vprašanja.

Kot naročeno, je v devetdesetih letih prvenstvo umetni inteligenci prevzela nevroznanost, ki je z novimi, neinvazivnimi metodami opazovanja živih možganov lahko prvič v zgodovini začela klinično raziskovati duševne procese. To je zasenčilo predstavo, da raziskovalce kognicije druži le skupen model. Celo dejstvo, da gre zgolj za model, se je pomaknilo v ozadje. Kljub nekaterim poskusom novih metafor (konekcionizem, utelešena kognicija) je ideja zavedajočega se bitja kot procesorja zunanjih dražljajev ostala temeljni (in vse bolj samoumeven) koncept.

Problem redukcije

Kognitivna znanost je torej obdržala računalniško metaforo kot skupni model, analitično-redukcionistično metodo pa kot ustrezen raziskovalni pristop. Na duševnost lahko gledamo z vidika kemije, biologije, filozofije, antropologije ali računalniškega modeliranja. Na primer kemik se bo lotil kemijskih procesov v živem organizmu. Seveda mu ne bo uspelo opisati celotnega (kemičnega) dogajanja na mah, zato se bo osredotočil le na določen kemičen proces v določeni vrsti organizmov. Takšno razbitje problema na preprostejše komponente je glavni adut analitično-redukcionističnega pristopa: če je sistem preveč zapleten, da bi ga razumeli, ga razdelimo na manjše in preprostejše dele. Če se izkaže, da so ti deli še zmerom preveč zapleteni, jih spet razdelimo – in tako naprej, dokler ne dobimo delov, ki so dovolj preprosti, da jih lahko razumemo in opišemo.

Ackoff (8) označuje redukcionizem kot »doktrino, da so vsi objekti, njihove lastnosti ter naše izkustvo in znanje o njih sestavljeni iz osnovnih nedeljivih delov«. Tiha predpostavka takšnih pogledov je, da pot do spozna-

nja proučevanega objekta ali pojava (nujno) vodi skozi raziskavo »osnovnih« delov. Redukcionistična predpostavka opravičuje (in celo spodbuja) poenostavitev opazovanega sistema (pojava, objekta). To razstavljanje v manj zapleteno entiteto je lahko fizično ali smiselno, vsekakor pa ne zmore brez simplifikacije – postopka zanemarjanja »nebistvenih« lastnosti. Fiziki lahko tako v eni potezi spremenijo Zemljo v »točkasto maso«.

Prednost analitično-redukcionističnega pristopa je ta, da vedno prinese rezultate. Če se lotimo drobljenja opazovanega sistema, slej ko prej pridemo do sistema, s katerim znamo ravnati. Nerodno je le to, da rezultati včasih nimajo nobene zveze z začetnim problemom. Že Wittgenstein je zaslutil, da je moč analize enostranska: celoto sveta (»vsega, kar se primeri«) lahko z analizo razstavimo in tako pridemo do »dejstev«, v nasprotni smeri pa ne gre – iz posameznih dejstev ne moremo sestaviti celostnosti sveta. Lahko sicer naberemo ogromno podatkov o posameznih delih in zelo poglobimo znanje o njih. Vsak detajl skriva neskončno novih možnosti za še bolj specializirano raziskavo. Na tej ravni lahko poiščemo vzročno-posledične odnose in identificiramo ustrezne količine in/ali pojave. A cena je pogosto v tem, da začetni problem postane nekakšna legenda, s katero vsakdanje raziskave nimajo nobene zveze.

Spoznavanje novih delov sveta, četudi na račun drobljenja »celotne slike«, seveda ni nič slabega. Težava je v tem, da raziskovalce rado zamika, da bi iz rezultatov poenostavljenih raziskav sklepali na začetni problem. Takšen postopek dobro deluje v naravoslovju, na področju raziskovanja duševnosti pa ne.

Poskusov sklepanja na celoto iz (sicer dobro metodološko obdelanega) drobca je nešteto. Oglejmo si dobro znane Libetove eksperimente (gl. Libet), na podlagi katerih so mnogi kognitivni nevroznanstveniki (gl. npr. Wegner) sklepali, da svobodna volja ne obstaja. Libet je v svojih poskusih primerjal čas, ko so se udeleženci poskusov »odločili«, da bodo pritisnili gumb, s časom sprožitve možganske aktivnosti, ki označuje pripravo motorične aktivnosti (v tem primeru premika prsta). Poskusi so pokazali, da se možganska aktivnost začne precej pred pojavom zavestne odločitve. Ti poskusi so celoten spekter človeškega odločanja (ki sega od delno voljnih kretenj do kompleksnih dolgoročnih življenjskih odločitev) reducirali na »odločitev« o tem, kdaj bo udeleženec pritisnil gumb (celo to, da ga bo pritisnil, je bilo odločeno s tem, da je pristal na sodelovanje pri eksperimentu).

S katere perspektive opazuje kognitivna (nevro)znanost?

Leta 1971 je Heinz von Foerster na pol za šalo, na pol zares zapisal svoj t. i. »prvi teorem«: »Bolj temeljen ko je problem, ki ga ignoriramo, večje so možnosti za slavo in uspeh.« (von Foerster, »Responsibilities« 1) Naj se zdi ta trditev sliši še tako cinična, drži. Na primer kognitivna nevroznanost dosega skokovit napredek zgolj zato, ker se je odpovedala spraševanju o osnovah fenomena, ki ga raziskuje, se pravi, o tem, kaj je zavest, kaj je doživljanje in kakšen je odnos med doživljajskim in telesnim.

Zanemarjanje vprašanja odnosa med doživljanjem in telesnim, t. i. »težkega problema«, še posebej bije v oči, saj naj bi bila osnovna naloga kognitivne nevroznanosti prav raziskovanje nevroloških korelatov doživljajskih procesov, tj. procesov, ki so imanentno subjektivni. Na eni strani razlagalne vrzeli imamo fiziologijo, ki se dobro razume z analitično-redukcionistično metodo. Na drugi strani pa je doživljanje, živo človekovo izkustvo, vsebina zavesti – intimno in po definiciji subjektivno področje, ki se izmika posploševanju, še bolj pa analizi.

Doživljanje ni lastnost, ki bi jo lahko zadostno opredelili s končnim številom diskretnih empiričnih parametrov, ampak se kaže kot kompleksen, (vase) sklenjen in zato ireduktibilen fenomen. Doživljanje je *Gestalt*, več kot preprosta vsota sestavnih delov. Še več, dinamičen *Gestalt* je, ki ga ne moremo »zamrzniti« v trenutek. Kot pravita Furlong in Vernon: »Napaka pri aplikaciji znanosti na probleme življenja in duha je v tem, da analitični redukcionizem, ki zaznamuje gledišče opazujoče zavesti, ni sposoben ujeti posebnosti organizacije, ki so lastne živim zaznavajočim bitjem.« (96)

Kljub temu pa znanost nenehno poskuša zanemariti temeljni problem – subjektivnost in ireduktibilnost doživljanja –, saj se v skladu s von Foersterjevim »prvim teoremom« to zdi edina pot naprej. Zgodovina raziskovanja duševnosti niha med neuspešnimi poskusi redukcionističnega raziskovanja doživljanja (kakršen je propadli projekt nemškega introspekcionizma z začetka 20. stoletja) in poskusi zanemarjanja obstoja (oziroma epistemološke samostojnosti) polja zavesti (kar velja za behaviorizem in seveda v nevrologiji priljubljeno razlago doživljanja kot epifenomena). Ker je, kot rečeno, osnovna naloga nevrološko podprte kognitivne znanosti ravno iskanje fizioloških korelatov doživljanja, se ne moremo povsem odreči raziskovanju doživljanja. Zato je kognitivna znanost polna poskusov prevajanja doživljajskega *Gestalta* na oprijemljivejše enote, bodisi na vedenje ali pa na fiziologijo.

Antonio Damasio v svoji veliki teoriji čustev priznava pomembnost doživljajske (prvoosebne) perspektive. Vendar je v nasprotju s fiziološko

perspektivo nikdar ne poskuša sistematično raziskati in pojasniti njene povezave z ostalimi (fiziološkimi) sestavinami.

Drug sodoben zgovoren poskus tlačenja neulovljive kompleksnosti doživljanja v pregledne kategorije, dostopne tretjeosebni perspektivi, so poskusi afektivnega računalništva, novega cvetočega področja umetne inteligence. Profesor Nicu Sebe poroča o velikem uspehu novega algoritma za interpretacijo slik, s katerim naj bi mu uspelo dešifrirati čustva Mone Lize: natančna razdelitev čustev Mone Lize je v skladu z novim programjem takšna: 83% sreče, 9% gnusa, 6% strahu in 2% jeze. Seveda je samoumevno, da profesor Sebe objavlja v najvišje indeksiranih znanstvenih revijah.

Primerjajmo to z odstavkom iz *Gospe Dalloway*:

> »Se še spominjaš jezera?«, je rekla nenadoma pod pritiskom čustva, ki jih je zajelo srce, ji stiskalo grlo in ustnice v čudnem krču, ko je izgovorila besedo »jezero«. Bila je otrok, ki trosi racam krušne drobtine, stoječ med očetom in materjo, v istem času pa odrasla ženska, ki prihaja k staršem tja k jezeru, držeč vse svoje življenje v rokah, in ko se jim je bližala, je življenje postajalo v njenih rokah vse večje in večje, dokler ni postalo célo življenje, popolno življenje, in položila ga je prednje in rekla: »To sem naredila za njega! To!« In kaj je naredila iz njega? Res, kaj? je premišljevala, ko je to jutro sedela zraven Petra in šivala. Ozrla se je v Petra Walsha; njen pogled, ki je premeril ves ta čas in vse to čustvo, se ga je boječe dotaknil, obvisel solzen na njem, potem pa vstal in zletel proč kakor kak ptič, ki se dotakne veje in vstane in odleti. Preprosto si je obrisala oči. (Woolf 73).

S temi primeri sem poskusil pokazati obstoj dveh področij: področja, ki ga lahko uspešno raziskujemo z analitično-redukcionističnim pristopom, in področja, ki se takemu pristopu izmuzne, kakor drobna mivka steče skoz sito. V nadaljevanju želim natančneje pokazati, v čem je razlika med področjema, ki ju bom z von Foersterjevo pomočjo imenoval trivialno in netrivialno. Pokazati želim, da sta ti dve »področji« v resnici dve stališči, s katerih lahko opazujemo svet.

Trivialno

Za zdaj odmislimo zadnji pomislek o »področjih« in si oglejmo razliko med trivialnim in netrivialnim, kakor da bi se pojavi zares delili na trivialne in na netrivialne.

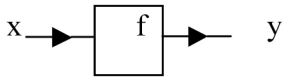
Trivalni sistemi so tisti, ki si jih lahko predstavljamo kot »stroje« (v Turingovem pomenu), ki predelujejo (procesirajo) vhode v izhode. Takšne sisteme lahko torej modeliramo tako, da poiščemo t. i. prehodno funkcijo (*transfer function*) med neodvisnimi in odvisnimi spremenljivkami (vhodi in izhodi), kar je, kot rečeno, temeljni metodološki princip naravoslovne zna-

nosti. Rečeno v računalniškem izrazju, prehodno funkcijo običajno zamenjujeta pojma algoritem ali program, ki zajameta zapis zaporedja korakov, ki jih mora stroj narediti, da se bo adekvatno odzval na dražljaj. Opisljivost z metaforo stroja je zelo pomembna lastnost sistema. Tisti sistemi, ki jih lahko opišemo s primernim strojem, so tudi kandidati za obdelavo z analitično-redukcionistično metodo.

Občutki gotovosti, zanesljivosti in nezgrešljivosti, ki jih zbuja razlagalna shema vzrok – operator – posledica, so postali ključni za zahodno filozofsko in znanstveno misel. V različnih disciplinah ima ta shema različna imena. V fiziki gre za shemo vzrok – naravni zakoni / posledica, v biologiji za dražljaj – organizem – odziv, v nekaterih delih psihologije pa za shemo motivacija – osebnost – vedenje. Zgodovina sheme sega vsaj do Aristotelovih logičnih silogizmov, zlasti do sheme deduktivnega sklepanja: velika premisa – mala premisa – sklep.

Z vpeljavo matematike je naravoslovno-matematična paradigma (sodobna shema je: x – f – y) izostrila svoje orodje opisa, zato ni več le deskriptivna, ampak omogoča tudi napovedovanje. Prav možnost napovedovanja je omogočila naravoslovju tako skokovit napredek in mu prinesla današnjo moč.

Prenosna funkcija je lahko tudi mnogo bolj zapletena; lahko je celo nelinearna. Ne glede na zapletenost pa jo lahko predstavimo s preprostim diagramom:



Slika 1: Trivialni sistem

V splošnem za določitev prehodne funkcije nekega trivialnega sistema potrebujemo toliko preskusov, kolikor je razločljivih vhodnih stanj.

Trivialni sistemi so (a) neodvisni od časa (ahistorični) in zgodovine interakcij, (b) analitično določljivi in zato *napovedljivi*.

Von Foerster pravi:

> Ni težko razumeti velike naklonjenosti zahodne kulture trivialnim strojem. Navedel bi lahko ogromno primerov trivialnih strojev. Ko kupimo avto, z njim dobimo tudi trivializacijsko potrdilo, ki nam zagotavlja, da bo avto ostal trivialen stroj vsaj naslednjih 100 ali 1000 milj ali naslednjih pet let. In če avto nenadoma postane nezanesljiv, ga peljemo k trivializatorju, ki ga bo spravil nazaj v red. Naša ljubezen do trivialnih strojev gre tako daleč, da svoje otroke, ki so običajno zelo nepredvidljiva bitja, pošiljamo v trivializacijske institucije, zato da njihov odgovor na vprašanje »koliko je 2 krat 3?« ne bi bil »zeleno« ali »toliko sem jaz star«, ampak »6«. (von Foerster, »Uncle» 8)

Netrivialno

Razumemo torej lahko veliko hrepenenje po trivialnem (ponovljivem, napovedljivem), tako v vsakdanjem rokovanju s svetom, kot v znanstvenem diskurzu. Zanimivo pa je, da nihče – niti znanstveniki, ki posvečajo ves svoj kreativni potencial trivializaciji – ne mara jemati sebe kot trivialen stroj. Ko sem se pogovarjal s kolegom računalničarjem, ki se ukvarja z avtomatičnim prepoznavanjem čustev s slik (kakor omenjeni profesor Sebe), se je strinjal, da procentualna razdelitev čustev nima za njegovo vsakdanje doživljanje nobenega pomena.

Tudi von Foerster opaža to neskladnost:

> Če povprašam prijatelje, se jim zdi, da so podobni netrivialnim sistemom, in nekateri tako mislijo tudi o drugih. Ti prijatelji in vsi ostali ljudje, ki naseljujejo svet, predstavljajo temeljni epistemološki problem, kajti svet, obravnavan kot velik netrivialen sistem, je odvisen od zgodovine, analitično nedoločljiv in nenapovedljiv. Kako naj pristopimo k njemu? (von Foerster, »Through« 8)

Von Foerster našteje tri strategije pristopa k temu epistemološkemu problemu: (a) ignoriranje problema, (b) trivializiranje sveta in (c) razvijanje epistemologije netrivialnosti.

Najbolj priljubljeno metodo, (a) smo že omenili. Po priljubljenosti ji sledi (b), metoda, ki jo von Foerster imenuje »Laplacova rešitev«, saj naj bi »Laplace izločil iz svojih teorij vse elemente, ki bi utegnili povzročati težave: sebe, svoje sodobnike in druge netrivialne nadloge«, in nato proglasil vesolje za trivialen stroj.[2]

Če priznamo obstoj imanentno netrivialnih sistemov, se s tem odpovemo možnosti poznavanja pravil transformacije, prenosne funkcije, naravnih zakonov itn. Zveza med vzrokom in posledico je pri netrivialnih sistemih analitično nedoločljiva. Sam koncept linearne vzročnosti (vzrok – operator – posledica) je brez pomena. Če jemljemo svet kot netrivialen sistem, vsekakor velja Wittgensteinova propozicija 5.1361:

> 5.1361 Na prihodnje dogodke ne moremo sklepati iz sedanjih. Vera v vzročno zvezo je praznoverje.

Je torej možno, da linearna vzročnost kot razlagalni princip velja v določenih delih sveta, v drugih pa ne? Vsekakor velja pri strojih, ki smo jih zgradili, in pri pojasnjevanju dovršnega dela narave, tj. tistega, ki ga zajemajo naravoslovne znanosti. Pri gradnji strojev smo namreč izbrali omrežje, v katerem so relacijska vprašanja tipa »Zakaj Y, ko X?« odločljiva. Brž ko analiziramo sistem, ga *naredimo* trivialnega; izbrali smo (trivialne)

aksiome in na njihovih temeljih zgradili omrežje. Drugače rečeno: izbrali smo perspektivo, s katere je videti le trivialno področje. Izbira načina opazovanja oziroma raziskovanja določa, kaj bomo videli.

Čar perspektive, ki omogoča analizo in napovedovanje, je nedvomen: vodi nas

> do tega, da plačujemo za zagotovilo o trivialnosti naših ur, avtomobilov, letal … Nevarno postane, ko zahtevo po trivialnosti razširimo na soljudi, na naše otroke, na družine in na večje socialne sisteme, s tem ko zmanjšamo število njihovih izbir, namesto da bi ga povečali. (von Foerster, »Through» 9)

Pri znanosti je podobno. Naravoslovni pristop spoznavanja sveta je eden vrhuncev človeškega razuma. Poskusi odrekanja takemu pristopu in celo poskusi njegove kritike so nesmiselni in neutemeljeni. Nevarno postane tedaj, ko se ravnamo po analitično-redukcionistični paradigmi tudi pri problemih, ki jim ta ni kos – na primer pri opazovanju toka doživljanja.

Trivialnost je le približek. Kjer ta približek deluje, deluje tudi naravoslovni pristop. Trivializacija je podobno kakor Newtonova mehanika v fiziki zelo uspešna idealizacija, ki funkcionira v večjem delu »uporabnega« sveta. Zagotavlja varnost in stabilnost – in seveda konsenz o tem, kaj je »res» in kaj ne.

S te plati lahko na klasično (analitično-redukcionistično) znanstveno metodo gledamo kot na sito, ki ločuje trivialno od netrivialnega. Iz množice vseh naših interakcij z okoljem izbira le tiste, ki ustrezajo njenim merilom. Znanstveni postopek torej ni toliko metoda raziskovanja resničnosti, kolikor postopek za izbiro področij, ki jih je mogoče trivializirati.

Udeleženosti pri opazovanju toka zavesti

Sredi 20. stoletja se je fizika znašla na robu trivialnega sveta: Heisenberg je ugotovil, da meritve vplivajo na izid eksperimenta in da zato nikoli ne moremo natančno poznati vseh lastnosti opazovanega delca. Ta ugotovitev (Heisenbergovo načelo nedoločenosti) in še nekatere druge lastnosti sveta najmanjših delcev so dodobra razburile fizike. Pokazale so na možnost, da kvantnih delcev niti teoretično ne moremo dokončno poznati, opisati in napovedovati ter da je predstava o neodvisnem opazovalcu iluzija.

Fiziki so se »težavi« ognili z izbiro nove perspektive: posamezni delci so neulovljivi, vedenje velikih skupin pa je ponovljivo in predvidljivo, tj. trivialno. Po t. i. københavnski interpretaciji je najbolje obravnavati kvantni svet statistično. Temu dogovoru so tedaj nasprotovali Einstein in mnogi drugi vodilni znanstveniki, in še danes mnoge jezi ideja, da je vedenje

kvantnih delcev nenapovedljivo. A ker statistični pogled na kvantno fiziko očitno deluje (fiziki lahko nadaljujejo delo po ustaljenih metodah, ne da bi se morali spraševati po globljih epistemoloških osnovah svojega početja), za tovrstne neudobne ideje ni veliko prostora v uglednih fizikalnih revijah.

Družboslovci, ekonomisti in psihologi so hvaležno sprejeli københavnsko rešitev: kjer je to le mogoče, se z uporabo statistike ognejo izmuzljivosti opazovanja individuov, subjektivnega.

Ne smemo pa pozabiti osnovnega motiva fizikov za uvedbo statistične interpretacije, namreč spoznanja, da je opazovalec udeležen v opazovanem sistemu. V družboslovju je ignoriranje raziskovalčevega vpliva na raziskovano mnogo težje in predvsem neskončno manj uspešno. Raziskovanje toka zavesti pa se statistični interpretaciji celo povsem upira. Vsako dejanje opazovanja je vzrok spremembe polja doživljanja; v tem polju je vpliv opazovanja neposreden: opazovanje je le dodatna oblika toka zavesti.

Kako povleči ločnico med trivialnim in netrivialnim? Do kod je približek trivialnega še sprejemljiv? Ločnica poteka na meji med tistimi deli, ki jih lahko uspešno opišemo kot od opazovalca ločene, in onimi, ki ne dopuščajo več takšne idealizacije. Netrivialno področje se začenja tam, kjer opustimo približek, ki ga je izračunal distancirani opazovalec, in sprejmemo stališče udeleženca. S tem pa sprejmemo tudi soodgovornost za svet, saj sta vsako dejanje in celo vsaka odločitev za perspektivo opazovanja dejanje kreacije.

Negovanje netrivialnega

Težnja po trivialnem izhaja iz želje po predvidljivem, varnem, urejenem svetu. Kot sem omenil na začetku, je težnja po urejanju, razumevanju, postavljanju v odnos, tj. težnja po trivializaciji, ena od glavnih pogonskih sil znanstvenega napredka. Strah pred negotovostjo nepredvidljivega je prav tako pomemben kakor njegov komplement: radovednost in čudenje netrivialnemu toku doživljanja, ki teče skoz zavest in ki *je* zavest.

Nasprotna pola se dopolnjujeta, zato je zelo pomembno, da sta čimbolj uravnotežena: izbruhi žive, pogumne, subverzivne radovednosti morajo biti pomirjeni z modro in konservativno težnjo po urejanju. Pomirjeni, a ne zatrti. Ravno zgodovina znanstvenega prizadevanja nas uči skromnosti, in sicer tudi ob skokovitemu napredku katere od disciplin. V najboljšem primeru lahko proizvedemo delovno teorijo (prehodno funkcijo), ki povezuje *nekatere* podatke o opazovanem sistemu – o sistemu, ki smo ga skonstruirali z izbiro perspektive opazovanja.

V časih skokovitega napredka (ki smo mu prav zdaj priča na področju kognitivne nevroznanosti) se zdi, kot da nekoliko prevladuje konservativni

pol. Vse prehitro pozabimo na velika vprašanja, ki smo jih morali zanemariti, da smo prišli do (delnega) uvida; prehitro verjamemo, da nam je uspelo urediti in razumeti opazovani delček sveta.

Kako naj ohranimo zavedanje, da je trivialno le približek? Bi se morda morali zateči k umetnosti? Morda nas lahko literarnovedne raziskave toka zavesti spomnijo na polnost in nedeljivost doživljanja.

S tem ne želim reči, da bi lahko branje Joycea zamenjalo raziskave doživljanja. Od umetnikov ne smemo pričakovati sistematičnega proučevanja resničnosti. Umetnik je neodvisen od omejitev resničnosti in od sistematičnosti raziskovanja. Njegova svoboda izhaja iz njegove predanosti ustvarjalnemu gonu.

Sistematično proučevanje resničnosti je znanstvenikov način iskanja svobode: njegova vztrajna in neomajna zvestoba empiričnim podatkom ga osvobaja zmede. Zatočišče išče s tem, ko poskuša postaviti mnenja in osebna stališča v oklepaje (v čemer ni nikdar povsem uspešen).

Vsakdo naj torej ostane predan svojemu iskanju, svojemu načinu doseganja svobode. Kot znanstvenik pa vendarle slutim, da književnost prinaša pomemben nauk: nauk o netrivialnosti doživljajskega sveta, o kompleksnem, nedeljivem, prelivajočem se *Gestaltu*, o samonanašajoči se naravi zavesti in o naši nepreklicni odvisnosti od naše osebne zgodovine.

Nekatera branja pa prinašajo še en opomin: da doživljajska pokrajina sega precej dlje od utrjenih poti, ki jih ubiramo v vsakdanjem življenju. Na vprašanje »Kako je biti človek?« nismo še niti resno začeli odgovarjati. Udobje trivialnega, ki ni bilo še nikoli tako mamljivo kakor prav zdaj – v obdobju funkcionalno usmerjene družbe –, nas z jeklenimi sponami drži v vsakdanjem, avtomatičnem, znanem. Sili nas verjeti, da poznamo svet in sebe.

Sleherno opozorilo, da obstajajo doživljajske pokrajine zunaj utečenega toka, je dragoceno; še več, življenjskega pomena je, in sicer ne glede na njegov vir. Vsak poskus pobega iz doživljajske trivialnosti je bojevniška gesta.

> [P]ot bojevnika je tako zelo nevarna zato, ker je ravno nasprotna življenjskemu položaju sodobnega človeka. Sodobni človek je zapustil kraljestvo neznanega in skrivnostnega ter se ustalil v kraljestvu funkcionalnega. Obrnil je hrbet preroškemu in zmagoslavnemu svetu in namesto tega sprejel svet dolgočasja. (Castaneda 116)

Podobno je s potjo umetnika – pričevalca o človeškem doživljanju, poročevalca o človeški kompleksnosti, nelinearnosti, netrivialnosti.

OPOMBI

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[2] Laplace leta 1814 piše: »Nadčloveškemu bitju, ki bi mu bila znana stanja vseh delcev […] nič ne bi bilo negotovo; prihodnost in preteklost bi mu bila razkrita.« (von Foerster, »Through» 9)

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Znanost in ideologija: od spontane filozofije znanstvenikov do spontane znanosti ekonomistov[1]

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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 zvedljivti 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 bliže 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 najglobljи 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 skoz 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 zgleda 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 Kuhnovo 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 razsvetljujoče, 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 spontanih 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 *izkustvom 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 deterministčnih 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 diskvalicirajo 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 zastonjkarstva, 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.

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Filozofija in »interdisciplinarnost«

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Razprava analizira težaven odnos humanistike do znanstvenega mišljenja ob odsotnosti filozofskega sistema vednosti, ki bi lahko služil kot skupni okvir različnih režimov mišljenja. Ko filozofija pristane na konsenz, da ni več mogoča kot sistem, izumi različne oblike »interdisciplinarnosti«, ki ji omogočajo preseči partikularnost posameznih disciplin mišljenja.

Ključne besede: humanistika / filozofija / ontologija / estetika / znanost / interdisciplinarnost

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Uvod

Znanost se humanističnim disciplinam zastavlja kot problem, saj prinaša vztrajno negotovost glede odgovora na vprašanje, ki ga lahko po Heideggerju formuliramo takole: »Kaj je mišljenje?« Humanistika se s tem problemom praviloma sooča v skladu z eno od dveh temeljnih strategij: bodisi privzame določen ideal znanosti, po katerem naj bi se ravnala, da bi tudi sama postala znanost,1 bodisi definira nezvedljivo specifičnost svojega načina ali objekta mišljenja, ki naj bi ga znanost ne mogla nadomestiti ali ustrezno obravnavati. To klasično alternativo med »vulgarnim« pozitivizmom in »naivnim« humanizmom dopolnjujejo poskusi njenega premoščanja: našteli bi lahko vrsto zahtev po oblikovanju humanističnim disciplinam lastne znanstvenosti, ki ne bi bila zgolj približevanje nekemu zunanjemu idealu in s tem »posnemanje« znanstvene metodologije, temveč oblikovanje določenega načina mišljenja, ki bi se »strukturno« ujemal z moderno znanostjo. Takšna zahteva je bila posebej odmevna v althusserjevskem marksizmu in v lacanovski psihoanalizi.2 Pogosto srečamo tudi mnenje, da sta sodobna humanistika in sodobna znanost morda divergentni v svojih metodah, a konvergirata v ugotovitvah: na primer spoznanja relativnostne teorije in kvantne mehanike naj bi se ujemala z novo ontološko podobo »odprtosti« ali »necelosti« sveta, ki jo prinaša humanistika. Drugo vrsto premoščanja klasične alternative povzema načelo »interdisciplinarnosti«: različne znanstvene in humanistične discipline

lahko sodelujejo pri proučevanju specifičnega objekta, pri čemer razcep med različnimi načini mišljenja postane dobrodošel, saj omogoča širše in bolj poglobljeno spoznanje.

Ob premisleku o premoščanju razcepa med različnimi režimi mišljenja se lahko vprašamo, ali se mišljenje kot problem zastavlja tudi znotraj same znanosti. Če se, če si mora tudi znanost priti na jasno glede tega, da misli (gl. Riha 97), postane vprašanje mišljenja skupno vprašanje humanistike in znanosti. Tako znanost kakor humanistika se lahko ravnata po svoji želji, da mislita, ali pa glede te želje popustita in se prepustita drugim vodilom, prva imperativu rentabilnosti, druga pa imperativu kulturno-ideološke koristnosti (gl. Riha 106, 111). Takšna postavitev skupnega vprašanja mišljenja bi seveda zahtevala izstop iz filozofskega konteksta, v katerem je to vprašanje zastavljeno pri Heideggerju – njemu je namreč jasno, da znanost ne misli in ne more misliti.3 Toda zakaj mora filozof znanosti odreči zmožnosti mišljenja? Škandal, ki ga znanost povzroči v območju humanistike, je v tem, da pokaže, da »*misel ni enako smisel*« (Riha 106). Po drugi strani pa humanistika vse do danes vztraja, da je prav smisel tisti proizvod, s katerim lahko družbeno upraviči svoj obstoj, na kar kaže tudi promocijsko geslo, ki ga je nekaj časa uporabljala Filozofska fakulteta v Ljubljani: »Humanistika ima smisel.«

Filozofska diskreditacija znanosti ima svoj notranje-filozofski predpogoj, ki je tesno povezan tudi s težavami premostitve prepada med nezvedljivimi režimi mišljenja. Strogo gledano se pri Heideggerju filozofija o resnici znanosti ne izreka več iz meta-pozicije filozofskega sistema, iz pretenzije filozofije po univerzalni vednosti, ampak se izreka zato, ker resnico misli po vzoru nekega drugega »partikularnega« področja mišljenja oziroma ker misli »pod pogojem« (če naj uporabimo izraz Alaina Badiouja) neke druge zunanjosti filozofije, namreč umetnosti. Heideggerjeva filozofija preverja konsekvence, ki jih ima mišljenje umetnosti, predvsem pesništva, za mišljenje nasploh. Ideal mišljenja je zato ideal umetnosti, ki je prepoznan kot diametralno nasprotje ideala znanosti. Nerazmerje med tema režimoma mišljenja, nemožnost sleherne komplementarnosti med njima, je pravzaprav posledica nemožnosti metafizične filozofije, ki ni več zmožna priskrbeti meta-vednosti, ki bi mišljenju zagotavljala enotnost. Preprosto rečeno, filozofija ni več mogoča kot sistem, ki bi služil kot skupni okvir različnih disciplin mišljenja.

Naš namen ni načenjati že dodobra prežvečene teme »konca velikih zgodb« – saj filozofsko (samo)kritiko univerzalizma, kot bomo videli, dopolnjuje nič manj pomembna kritika partikularizma ločenih miselnih disciplin –, temveč prek vprašanja o problematičnem položaju post-sistemske filozofije ponuditi modele mišljenja povezav med različnimi režimi

mišljenja. Tako znanstvene kakor humanistične discipline mišljenja lahko vprašanje »interdisciplinarnosti« (v širšem pomenu besede) obravnavajo kot sekundarno, saj imajo svoj objekt in specifične metode, s katerim ta objekt proučujejo, kar pomeni, da lahko načeloma obstajajo kot samostojne. Nasprotno pa je za filozofijo, ki strogo gledano nima svojega objekta in ki naj ne bi bila več mogoča kot sistem, to vprašanje ključno, saj zadeva sámo možnost njene prakse. V nadaljevanju se bomo tako ukvarjali z načini, na katere različne filozofije pojmujejo prehode in kroženje konceptov med različnimi disciplinami mišljenja.

Konec sistemov?

Filozofija je v času po Heglu večinoma pristajala na konsenz, po katerem ni več mogoča v obliki spekulativnega sistema.4 Zato je morala na novo definirati odnos do svoje zunanjosti, se pravi, do nekega mišljenja, ki ga ne poseduje oziroma ki se ne dovrši v njej sami. Nove možnosti svojega obstoja je filozofija našla tako, da se je umestila na obrobje katere od partikularnih vednosti/praks, zato da bi ponudila premislek njihovih metodoloških temeljev in univerzalizirala njihove učinke na mišljenje. Toda to lahko privede do pojava, ki ga je Badiou (*Manifest* 101–105) poimenoval »prešitje« filozofije z enim od njenih pogojev (pozitivizem prešije filozofijo z znanostjo, marksizem s politiko ipd.) – tj. z določenim režimom mišljenja, ki ga določena filozofija prepozna kot resničnega –, kar navsezadnje vodi v samoukinitev filozofije.

A hkrati s kritiko univerzalizma filozofija v 20. stoletju goji tudi kritiko partikularizma: pogosta je kritika »privatizacije« ali »parceliranja« vednosti (predvsem humanistične in družboslovne) na posamezne jasno razmejene discipline. Četudi je ta filozofija kritična do svoje sistemske metafizične tradicije, ki teži k univerzalni vednosti, naj bi bilo prepoznanje resničnega mišljenja še zmerom stvar filozofije in ne posameznih strokovnih ved. Kot smo videli pri Heideggerju, je filozofija tista, ki zatrdi, da je poetično mišljenje tudi resnično mišljenje in da se v njegovi luči znanost izkaže za nemišljenje. Z gledišča posamezni strok pa filozofija ne glede na svoj deklarativni imanentizem objekte vednosti še vedno »reducira« na koncepte, ki jih vnaprej oblikuje sama, ali pa uporablja znanstvene koncepte za svoje namene na »zgolj metaforičen« način. Dobro znano je nelagodje umetnostnih zgodovinarjev ob filozofskih komentarjih umetnin ali posmeh znanstvenikov ob filozofskih (zlo)rabah znanstvenih konceptov. Kakšna pozicija tedaj preostane filozofiji, če nasprotuje tako univerzalni in neomejeni kakor partikularni in omejeni vednosti?

Ontološki obrat

Pri Heideggerju kot najostrejšemu kritiku filozofije kot metafizike nalogo mišljenja resnice v veliki meri prevzame umetnost. V uvodu k izboru svojih spisov o Hölderlinovi poeziji (*Razjasnjenja* 9) zapiše, da ti komentarji niso »prispevek k literarnozgodovinskemu raziskovanju in estetiki«, ampak izvirajo »iz nujnosti mišljenja«. V kontekstu naše razprave se zastavlja vprašanje, zakaj literarna zgodovina in estetika ne moreta zajeti te nujnosti. Prva je ne more zajeti zato, ker poezijo proučuje zgolj kot objekt, ne doseže pa bistva poezije, v katerem lahko po Heideggerju najdemo drugačno vrsto mišljenja, ki presega (metafizično in s tem tudi znanstveno) epistemološko načelo adekvatnosti med spoznanjem in njegovim objektom. Literarna zgodovina morda lahko prinese resnično spoznanje o poeziji kot o partikularnem bivajočem objektu, vendar prezre, da pesništvo prinaša novo paradigmo mišljenja biti in s tem resnice. Na drugi strani estetika kot filozofska disciplina sicer lahko obravnava pesništvo glede na pojem resnice, a ta pojem je filozofski, metafizičen pojem in ne izhaja iz pesništva samega. Šele tista filozofska misel, ki presega metafiziko in s tem estetiko, se lahko povzpne na raven pesništva in pre-misli njegovo misel. Hölderlinova poezija ni izbrana kot poljuben zanimiv objekt, ampak kot model mišljenja: ob njej bomo šele zmožni dojeti, kaj pravzaprav pomeni misliti: »Da bi to izkušanje [Hölderlinove poezije] mislili zadevi primerno, da bi prevprašali področje, na katerem igra – temu dozdajšnje mišljenje še ni doraslo.« (182) Po Heideggerju moramo bit misliti izhajajoč iz govorice, »bistvo govorice [pa je] treba razumeti iz bistva pesništva« (41). Na tem mestu nastopi Hölderlin, saj v svojih pesmih »pesni bistvo pesništva« (34). Ob Hölderlinovi poeziji torej lahko zastavimo vprašanje pesništva, ki nas vodi do vprašanja govorice in s tem do vprašanja biti.

Prav zaradi ključne vloge pesništva se Heideggerju zastavi vprašanje odnosa med filozofijo in umetnostjo oziroma med mišljenjem (*Denken*) in pesništvom (*Dichten*). Mišljenje in pesništvo sta dva načina približevanja skupnemu in vzajemnemu izvoru govorice in biti: »Vsako bistveno upovedovanje sliši nazaj v to zastrto soslišje povedi in biti, besede in reči.« (Heidegger, *Na poti* 254) In vendar je njuno sorodstvo problematično. Ta načina »bistvenega upovedovanja« nista medsebojno prevedljiva brez ostanka. Ni naključje, da Heidegger ravno s tem vprašanjem sklene svoj spis »Kaj je filozofija?«: »Med obema pa je hkrati prepad, zakaj 'prebivata na najbolj razdvojenih vrheh'.« (*Izbrane* 407) Med filozofijo in poezijo torej obstaja moment nerazmerja in zato ju ne smemo združevati v »kalni mešanici«, temveč ju moramo misliti kot vzporednici, ki »se režeta v ne-skončnem« (Heidegger, *Na poti* 205). Obenem pa ju ne moremo misliti

ločeno, saj je njuna bližina »sama tisto dogodje, iz katerega sta pesnjenje in mišljenje šele napoteni v lastno svojega bistvovanja« (206).

Filozofija in umetnost sta torej povezani ob vprašanju biti, ki ima po Heideggerju nalogo, da dopolnjuje vednost s smislom in usmerja človekovo delovanje. Ne gre torej zgolj za podobnost po analogiji ali za naknadno »interdisciplinarno« povezavo. Če partikularnih ved in znanosti ne povezuje temeljno vprašanje, vednost ostaja zgolj »razkrojena mnogoterost disciplin« (Heidegger, *Izbrane* 116). Filozofija se mora zato postaviti po robu mnoštvu partikularnih disciplin, ki jih povezuje zgolj tehnični odnos subjektov volje do objektov sveta.

Pomena umetnosti za filozofijo potemtakem ne smemo obravnavati zgolj na podlagi domnevnega jezikovnega obrata filozofije, temveč vsaj v tolikšni meri iz njenega »ontološkega obrata«. Prav ta tudi po Badiouju (*Deleuze* 27) zaznamuje filozofijo 20. stoletja in utrjuje Heideggerjev pomen v njej: »To stoletje bo zagotovo znano kot ontološko. Ta usmeritev je veliko bolj bistvena kakor 'jezikovni obrat', ki mu ga pripisujejo.« To ugotovitev potrjuje tudi drugi pomemben ontološko-estetski projekt v nemški filozofiji 20. stoletja. V mislih imamo Theodorja W. Adorna, po katerem filozofsko mišljenje umetnosti prav tako pogojuje nekakšno ontološko vprašanje: vprašanje o nekem realnem, ki se v konstituciji realnosti nujno izgubi: »Mišljenje se lahko v odnos do umetnosti postavi zgolj na podlagi tega, da nekaj v realnosti – nekaj za tančico, ki jo razobeša medsebojna igra institucij in lažnih potreb – objektivno zahteva umetnost, in sicer umetnost, ki govori v imenu tistega, kar tančica skriva.« (Adorno, *Aesthetic* 24) Naloga mišljenja se je prebiti do tistega, kar je na objektu več od njega samega: »Ta 'več' mu ni vsiljen, ampak ostaja imanenten kot tisto, kar je bilo iz njega izrinjeno.« (Adorno, *Negative* 161) To zahteva tudi prekoračitev delitve med partikularnimi disciplinami, ki objekt reducirajo na to, kar zgolj je.

A v nasprotju s Heideggerjem se umetnosti in filozofiji pri Adornu vsiljuje še tretji člen: politika. Tako umetnosti kakor filozofiji je namreč skupen njun ambivalentni družbeni položaj: njuna distanca do družbe, njuna avtononomija, je po eni strani sama družbeni proizvod, posledica zmagoslavja buržoazije in kapitalizma, po drugi strani pa nosi obljubo možnosti drugačnega sveta, v katerem bo človeštvo emancipirano od »lažnih potreb«, torej od družbenih antagonizmov. Tisti »več«, do katerega se mora prebiti mišljenje in ki onemogoča delitev na discipline, je »več« obljube emancipacije, se pravi, nekaj, kar še ne obstaja. Ta »več« je tudi tista resnica, v kateri »konvergirata« filozofija in umetnost (Adorno, *Aesthetic* 172). Resnica, ki kroži po umetnosti, filozofiji in politiki, je postajajoča resnica, ki se lahko udejanji šele z emancipacijo: »Pojavitev neobstoječega, kot da

bi to obstajalo, motivira vprašanje po resnici umetnosti. Zgolj v tej obliki umetnost obljubi tisto, česar ni; objektivno, čeprav krhko, zabeleži zahtevo, da mora biti neobstoječe – če se pojavlja – tudi možno.« (109)

Da bi mišljenje ostalo zvesto tej obljubi, se mora odreči tako univerzalizmu kakor partikularizmu, saj oboje ostaja podrejeno načelu identitete, ki ga mora filozofija po Adornu nujno preseči. Partikularizem sicer premaga hegemonijo univerzalnosti, a zapade identitarnemu fetišizmu partikularnih entitet. Obe poziciji mora zato preseči »negativna dialektika«, ki lahko misli tisto, kar je na stvareh neidentično. Negativna dialektika odgovarja na »poziv k povezovanju izjav brez sistema, ki je poziv k mišljenjskim modelom«; »negativna dialektika je skupek analiz modelov« (Adorno, *Negative* 29). Takšno mišljenje misli reči v širšem kontekstu, a jih hkrati ne podreja »splošnemu super-konceptu« (prav tam). Kar smo pravkar ohlapno poimenovali širši kontekst, je po Adornu pravzaprav vpetost reči v družbene antagonizme in njihova utopična razsežnost.

Tudi pri Gillesu Deleuzu najdemo različico takšne ontološko-politične enotnosti mišljenja. Poglavitna karakteristika biti je namreč po Deleuzu njena »enoglasnost«: »Enoglasnost biti pomeni, da je bit Glas, ki se izreka, in se izreka v enem samem 'smislu' o vsem, o čemer se izreka.« (Deleuze, *Logika* 172) Filozofska misel se mora tako prebiti do te ontološke enotnosti, vzpostaviti ravnino mišljenja, ki bo omogočala prehajanje konceptov med različnimi problemskimi polji. V knjigi *Mille plateaux* tako na primer najdemo pojmovno dvojico molarno/molekularno, ki izvira iz kemije, a ji Deleuze in soavtor Félix Guattari namenita ključno vlogo pri razpravljanju o politiki, psihoanalizi, jezikoslovju itn. Prav tako se skoz celotno knjigo pojavlja geološki pojem plasti, razvit v poglavju o »geologiji morale«. Takšno povezovanje problemskih polj je mogoče v modernem tipu knjige, v »knjigi-miceliju«, ki jo Deleuze in Guattari ločita od klasične »knjige-korenine«. Knjiga-micelij ni osredinjena okoli subjekta ali objekta, ampak katerokoli svojo točko povezuje s katerokoli drugo. Zato se ne sprašujemo več, kaj knjiga pomeni, ampak kako funkcionira in s čim se povezuje: »Ko pišemo, je edino vprašanje, s katerim drugim strojem se lahko cepi literarni stroj in s katerim se mora cepiti, da bi deloval.« (Deleuze in Guattari, *Mille* 10)

Če želimo razumeti, kaj omogoča takšno prehajanje konceptov, se lahko obrnemo na *Logiko smisla*, v kateri Deleuze definira mišljenje tako, da podobe »idealne igre« brez pravih pravil iz Carrollove *Alice v čudežni deželi* združi z Mallarméjevim verzom »Vsaka misel je met kock.«

> Idealne igre, o kateri govorimo, ne more uresničiti kak človek ali kak bog. Samo misliti jo je možno, in še to le kot nesmisel. Pa vendar je prav to sama dejanskost mišljenja. To je nezavedno čistega mišljenja. […] Misel, ki oddaja neko porazdelitev singularnosti. To so vse tiste misli, ki komunicirajo v eni sami Dolgi misli, ki

> vse oblike oziroma figure nomadske porazdelitve priredi svojemu premeščanju, povsod vdihne naključje in vsako misel razveji. (Deleuze, *Logika* 66–67).

Koncepti lahko prečkajo meje disciplin, ker obstajajo na ravni, ki je prvotnejša od teh meja. Na ravni virtualnega obstaja ena sama misel, v kateri je mogoča komunikacija med problemi in koncepti. Strogo rečeno, mišljenje ni univerzalen skupni element, ki omogoča splošno enotnost smisla. Enotnost se vzpostavi šele na ravni »nesmisla« ali »nezavednega čistega mišljenja«, ki ga lahko dosežemo šele z njegovo virtualizacijo. To mišljenje pa je obenem že neposredno politično: »Zaradi te igre, ki je samo v mišljenju in ki nima drugega rezultata kot umetniško delo, sta lahko mišljenje in umetnost dejanska in zmoreta zmotiti dejanskost, moralnost in ekonomijo sveta.« (67)

Ne smemo prezreti, da Deleuze v nasprotju s Heideggerjem in Adornom znanosti podeli digniteto mišljenja: filozofija, umetnost in znanost so njegove tri discipline mišljenja (gl. Deleuze in Guattari, *Kaj je filozofija?*). Badiou (*Deleuze* 9) mu sicer očita, da gre pri njegovi rabi znanstvenih konceptov (Badiou ima v mislih predvsem matematiko) zgolj za metafore. Toda vnaprejšnji odgovor na ta očitek najdemo na tistih straneh *Razlike in ponavljanja*, kjer Deleuze prav na primeru matematike reflektira svojo metodo prehajanja konceptov med različnimi miselnimi polji:

> Tu ni nobene metafore razen metafore, ki je kosubstancialna Ideji, in sicer metafora dialektičnega prenosa oziroma 'diafore'. V tem je pustolovščina Idej. Ni matematika tista, ki se aplicira na druga področja, dialektika je tista, ki za svoje probleme, zavoljo njihovega reda in pogojev, ustoliči neposredni diferencialni račun, ki ustreza obravnavanemu področju in ki je svojstven obravnavanemu področju. (Deleuze, *Razlika* 290)

Filozofija torej ne aplicira konceptov enega področja na druga področja, temveč oblikuje »ideje«, ki svoje ime in osnovno logično matrico sicer lahko najdejo na primer v nekem matematičnem konceptu, vendar se ta ideja na vsakem področju udejanja povsem neodvisno. Deleuze na tem mestu pravzaprav loči med dvema momentoma klasične definicije metafore: *prenos* pomena loči od *načela* tega prenosa, ki je načelo podobnosti oziroma analogije. Filozofsko mišljenje, ki mora doseči »eno samo Dolgo misel« onstran delitev na discipline, prenaša ideje, toda načelo tega prenosa ni podobnost, temveč sámo postajanje ideje, ki je »neposredna na vsakem področju« (314).

Od ontološke do metaforične skladnosti

Zdi, se da ima filozofija pri Deleuzu dvojno vlogo: po eni strani je ena od disciplin mišljenja, po drugi pa sama vmesnost disciplin, kraj postajanja čiste misli, manifestacija njene enotnosti. Deleuze tako lahko piše o literaturi, filmu, matematiki, geologiji, biologiji, klasikih filozofije, kapitalizmu itn., a vendar piše vseskoz o isti stvari – skoz metonimično drsenje tem in problematik se konstituira konsistenca serije konceptov, ki tvorijo Deleuzovo filozofijo. Takole njegov postopek in lastno razmejitev od njega opiše Jacques Rancière:

> Deleuze po mojem spada med tiste filozofe, ki so želeli razširiti filozofijo, ji dati konstitutivno vlogo pri tem, kar obravnavamo kot njene objekte, zato da bi vstopila v – oziroma da bi v svoje osrčje postavila – svojo lastno zunanjost. Določa torej bistveno orientacijsko točko za mojo namero, ki pa je, nasprotno, v tem, da filozofija izstopi iz same sebe, da njene postopke, propozicije, argumente in opise vključimo v topografijo razširjenega teritorija miselnih izumov, kjer bo srečala stavke pisateljev, montaže režiserjev, a tudi jezikovne in miselne izume, s katerimi se v misli poskušajo tisti, ki ne štejejo za mislece. (Rancière, »Politique« 174)

Lahko bi rekli, da je Deleuzova metoda »centripetalna«: filozofija se lahko poljubno širi – govori lahko o vsem, toda le zato, da bi pridobila nove koncepte, s katerimi bi potrdila svojo ontologijo. Rancièrova metoda pa bi bila, nasprotno, »centrifugalna«: filozofske teze izvzame iz okrilja filozofije, da bi jih soočila z nefilozofskimi tezami. Medtem ko je po Deleuzu vsako mišljenje mogoče vključiti v filozofsko mišljenje, je po Rancièru vsako mišljenje, tudi filozofsko, mogoče odvezati od »telesa«, ki ga je proizvedlo, torej od njegove eksplicitne intence, prvotnega konteksta in zmožnosti, ki naj bi avtorizirale njegovega nosilca. Vsako misel je mogoče soočiti s katerokoli drugo – to po Rancièru zahteva epistemološka predpostavka enakosti, ki pomeni tudi že specifično politiko epistemologije:

> Da bi razumeli zastavek emancipacije, moramo ukiniti delitev na discipline. Ta epistemološka zahteva je tudi politična zahteva. Če misel postavimo kot nekaj, kar zanika ločitve med filozofsko argumentacijo, zgodovinsko razlago in literarno izjavo, jo tudi definiramo kot zmožnost kogarkoli. V osnovi obstajata dve logiki: ta, ki deli misel na pridržane kompetence, domene specialistov, ki jo fragmentirajo po razlikah, ki služijo kot valuta načelne neenakosti, in tista, ki vidi v misli nedeljivo zmožnost, podobno v vseh svojih izvajanjih, misel, ki jo lahko kdorkoli deli s komerkoli. Sam v filozofiji vidim predvsem zmožnost deklasifikacije in redistribucije teritorijev, dodeljenih disciplinam in kompetencam. Filozofija pravi, da misel pripada vsem. (167–168)

Rancière svojo nalogo misleca vidi v izoblikovanju diskurza, ki omogoča ohranjanje – in prispeva k nadaljnjim verifikacijam – enakosti kot predpostavke. Zato se je posvetil, kot pravi, »konstituiranju sfere intelegibilnosti za to egalitarno moč« (Rancière, »La Méthode« 515), ki deluje ne le neposredno v politiki, temveč tvori tudi meta-politiko drugih praks. Rancière se v ta namen loti raziskav na zelo različnih področjih – v politiki emancipacije, pedagogiki, estetiki, zgodovinopisju, epistemologiji –, pri čemer na isto ravnino postavlja tekste klasikov filozofije in literature, tekste sodobnih sociologov in zgodovinarjev pa tudi tekste, ki so jih napisali proletarci 19. stoletja, ki so noči namesto za reprodukcijo svoje delovne sile porabili za »kulturno« dejavnost (gl. Rancière, *La nuit*).

Če razpravljamo o odnosu filozofije do njene zunanjosti, naposled ne moremo niti mimo Badiouja in njegove teorije pogojev. Četudi je Badiou znan po svoji reafirmaciji možnosti filozofije v današnjem času, ne smemo prezreti, da hkrati nadaljuje delo njene dekonstrukcije. Badiou namreč filozofiji odreče tako zmožnost mišljenja biti kakor zmožnost izrekanja resnice. Bit lahko misli le matematika (torej znanost), natančneje, teorija množic, resnice pa se lahko dogajajo znotraj omejenega števila praks: v praksi politike, umetnosti, znanosti in ljubezni. Kakšna naloga torej sploh še preostane filozofiji? Filozofija ustvarja »poenoten konceptualni prostor«, v katerem »ima mišljenje dostop […] do *svojega* časa« (Badiou, *Manifest* 87–88). Misliti svoj čas pomeni misliti prelomne dogodke, ki odpirajo postopke resnice, ki definirajo ta čas. Filozofija tako izumlja koncepte, s katerimi je mogoče misliti »*hkratno možnost*« (87) sodobnih resnic, tj. misliti resnice kot mogoče istočasno. Te resnice tvorijo »pogoje« filozofskega mišljenja. Toda ker dogodki obstajajo le kot izginuli, eksistenca resničnostnih postopkov pa je zaradi polemične in prelomne narave resnic obsojena na negotovost, jim filozofija, s tem ko potrjuje in razglaša njihovo eksistenco, nudi »zavetje« (prav tam). Naloga filozofije je dvojna: po eni strani mora izdelati koncept resnice, ki bo na ravni resnic njenega časa, po drugi pa mora afirmirati eksistenco resnic kot takšnih in s tem negirati sofistično pozicijo, za katero obstaja zgolj mnoštvo mnenj.

Na prvi pogled morda ni povsem jasno, zakaj Badiou poudarja, da mora filozofija misliti resnice iz različnih domen hkrati in skupaj. Za to obstajata vsaj dva razloga. Prvi je v Badioujevem prepričanju, da se mora filozofija ogniti »prešitju« s katerim od njenih pogojev, saj to ustavi »svobodno igro«, potrebno za »intelektualno kroženje med resničnostnimi postopki« (Badiou, *Manifest* 101). Pri tem moramo paziti, da »svobodne igre« ne razumemo napačno, na primer kot zahtevo po avtonomiji *domen*, v katerih so možne resnice (v smislu Lyotardovih jezikovnih iger); razumeti jo kaže kot *možnost skladnosti* med resnicami v različnih domenah. Ne gre na

primer za to, da bi morala biti umetnost načelno neodvisna od politike – nasprotno, dopustiti moramo možnost, da lahko neka umetniška in neka politična resnica konvergirata. Nasprotovanje prešitju prav tako ne pomeni nasprotovanja vsakršni naddoločenosti filozofije s katerim od njenih pogojev. Že sam pojem »pogoja« pravzaprav pomeni naddoločenost, saj si filozofija prizadeva ravno za to, da ne bi nič omejevalo učinkov posamezne resnice na mišljenje.

S predpostavko o možni skladnosti resnic smo pravzaprav odkrili tudi že drugi pomen »hkratne možnosti«. A vendarle ostaja nejasno, kako to možnost misliti. Že v zgodnejšem delu *Théorie du sujet* najdemo širok »tematski repertoar«, ki ga tvorijo politična teorija, logika in matematika, zgodovinske okoliščine, psihoanaliza, literatura in teater, bog, klasična filozofija … V knjigi se morajo pojaviti vse naštete teme, zato da bi se lahko prebili do prenovljenega pojmovanja dialektike, osredinjene okoli kategorije subjekta. V ta namen je treba soočiti tudi avtorje, ki so vsak po svoje prispevali k dosedanjemu razvoju dialektike. Badioujev seznam mislecev, ki jih bo upošteval, je prav tako širok in se ne omejuje na filozofe: med njimi so Hegel, Hölderlin, Mallarmé, Lacan, Pascal, Rousseau, Marx, Engels, Lenin, Mao … (Badiou, *Théorie* 12) Oliver Feltham metodo te knjige označi kot »dialektično pletenje« (129). Metafora pletenja označuje Badioujevo metodo, ki je po Felthamu tudi sama metaforična, ko na primer »podaljšuje metaforične substitucije, ki so že pri delu v Mallarméjevi umetnini, z dodajanjem [Badioujevih] lastnih označevalcev kot nadaljnjih metafor« (130). Filozofski označevalci označujejo dialektično matrico, ki jo Mallarmé razvije v sonetu, da bi jo lahko soočili z dialektično matrico, ki jo razvije na primer neka politična organizacija. Filozofski koncepti so morda res produkti čistega mišljenja, toda njihova produkcija temelji na izpeljevanju implikacij miselnih izumov v različnih domenah (v politiki, matematiki, poeziji ipd.) – oblikujejo prizorišče, ki omogoča prevedljivost med miselnimi presežki.

Takšen postopek Badiou ohrani tudi v kasnejši teoriji pogojev. Filozofija resnic ne povezuje v sistem, tudi zgolj našteva jih ne – filozofskim konceptom prej »ustreza metafora prostega kroženja« (Badiou, *Manifest* 88). Zaradi tega kroženja lahko matematika nastopi kot ontologija – koncepti teorije množic postanejo ontološki koncepti, vendar le ob intervenciji filozofije, ki izjavi: »matematika je ontologija«. S tem pa se kroženje še ne ustavi. Spoznanja o biti lahko srečamo na primer tudi v Mallarméjevem sonetu (Badiou, *Pogoji* 108–129). Prav tako lahko filozofija »registrira politični pogoj v skladu s parametri ontologije« (Badiou, »Očrt« 250). To kroženje omogoča »metaforična skladnost« (Badiou, *Être* 111), ki jo filozofija vzpostavlja med svojimi pogoji. V sklepu moramo zato opo-

zoriti, da v nasprotju s Heideggerjem, Adornom in Deleuzom pri Rancièru in Badiouju filozofskega kroženja konceptov ne omogoča več »enoglasnost« biti, temveč je povezava med temi koncepti »zgolj metaforična«, vendar v prenovljenem, afirmativnem smislu.

K novi paradigmi sistematičnosti

V tem pregledu smo ugotovili, da se filozofija niti tedaj, ko se odreče svoji klasični sistematični podobi, ne more odreči določeni obliki univerzalnosti svojih konceptov oziroma njihovi veljavnosti v različnih vednostih oziroma praksah. Filozofski koncepti resda niso več mesto, v katerem bi mišljenje, ki se sicer lahko začenja zunaj filozofije, prišlo do svoje dovršitve. Toda ko se filozofija umesti na obrobje neke vednosti ali prakse, preverja širše konsekvence neke vednosti oziroma nekega dejanja, ki je na tem mestu oziroma ki se je tod izvršilo. Preverja torej, katera spoznanja niso omejena le na objekt posamezne vednosti, ampak jih je moč »podaljšati« tudi zunaj njenih meja. Področje delovanja filozofije je torej vmesni prostor prehajanja konceptov med različnimi diskurzi. Ko se filozofija odreče sistemu, svojih konceptov *ne aplicira* več na objekte neke partikularne vednosti ali prakse, temveč *povezuje implikacije* posameznih spoznanj in dejanj, ki jih privzema kot singularne miselne modele. Da pa bi filozofija lahko izpolnila to nalogo, mora zatrditi povezljivost in prevedljivost med miselnimi disciplinami, kar pomeni, da se mora prebiti do nove paradigme univerzalnega dometa svojih konceptov.

Ta paradigma vsebuje tri momente. *Prvi* je filozofsko prepoznanje neke resnice ali nekega izjemnega primera mišljenja znotraj nekega področja, mišljenja, ki naj bi imelo širše konsekvence. Na podlagi njegovih implikacij filozofija izumlja filozofske koncepte, kar je *drugi* moment, moment »čiste« misli. Sledi *tretji* moment, eksplikacija: filozofija poskuša s svojimi koncepti pojasniti stanje na nekem drugem področju in na njem poiskati primere mišljenja oziroma resnice, ki bi bili ekvivalentni primerom z izhodiščnega področja. Tri momente prikazuje spodnja preprosta shema:

$$\text{misel}_x \rightarrow (\text{implikacija}) \rightarrow \text{filozofski koncept} \rightarrow (\text{eksplikacija}) \rightarrow \text{misel}_y$$

Pri tem pa je pomembno, da se področje, s katerega prihaja posamezna resnica, izmenično znajde tako na mestu *x* kakor na mestu *y*, tako da filozofija v nekem trenutku preverja njegove implikacije, v drugem pa mu eksplicira svoje koncepte. Brez te vzajemnosti pride do prešitja in s tem blokade filozofskega kroženja.

Opozoriti moramo, da se proces prenosa konsekvenc konceptov na druga področja razlikuje od priljubljenega pojma interdisciplinarnosti. Pri tem pojmu gre za dopolnjevanje spoznanj več strok, pri čemer vsaka pri pridobivanju svojih spoznanj ostaja v lastnih metodoloških mejah in pri lastni definiciji svojega objekta. Rezultati se zato združeni naknadno in nimajo notranje medsebojne povezave. Proces, ki smo ga skušali opisati, pa, nasprotno, prinaša intervencijo, ki lahko spremeni metodološko paradigmo neke vede in način, na katerega ta definira svoj objekt. Filozofija je po svojem bistvu »interdisciplinarna« na prav ta, radikalnejši način: na podlagi določenega miselnega modela se lahko spremenijo same koordinate njenega mišljenja.

OPOMBE

[1] Pojem »ideal znanosti« si izposojamo pri Jeanu-Claudu Milnerju, ki komentira Freudov scientizem. (Milner 39–40)

[2] V zvezi z lacanovsko psihoanalizo lahko navedemo Milnerjev komentar: »Kar zadeva analitično operacijo, znanost nima vloge idealne točke – ki bi bila morebiti oddaljena v neskončnost. Strogo povedano, znanost ni zunanja, nasprotno, inherentno strukturira sámo materijo njenega [psihoanalitičnega] objekta.« (41)

[3] »Znanost torej ne misli; s svojimi metodami v tem smislu sploh ne more misliti. S pomočjo fizikalnih metod na primer ne moremo reči, kaj je fizika. O tem, kaj je fizika, lahko mislimo le na način filozofskega vprašanja.« (Heidegger, *Konec* 139)

[4] Mnogi avtorji so smisel filozofije videli ravno v refleksiji njenih omejitev in s tem omejitev moči mišljenja nasploh. Ugotovitev o mejah pa se lahko hitro sprevrne v zapoved: mišljenje ne le je omejeno, temveč *mora* biti omejeno. S tem filozofija najde še eno možnost svojega obstoja: postane etični diskurz kot diskurz imperativa omejitve. Etika – predvsem kolikor je poudarjen njen negativni moment preprečevanja zla – funkcionira kot niz pravil, katerega naloga je, da omejuje moč radikalnega mišljenja: filozofijo kritizira v njeni zahtevi po univerzalnosti, znanost kritizira v njenem učinkovanju na biološko realno, opozarja na zločine »totalitarnih« režimov, v katere se izteče radikalna politika, ipd. Etični diskurz je simptomatičen, ker izhaja iz kritike zunanje pozicije sistematičnega mišljenja, hkrati pa obnavlja to zunanjost, ko se določenim praksam vsiljuje kot niz normativnih omejitev, ki ne izhajajo iz njih samih

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Transgresivnost v znanosti, literaturi in humanistiki

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Pojem transgresivnosti se prvič pojavi v zgodnjem novem veku in odtlej ga najdemo v pravnih, teoloških, filozofskih in (literarno)znanstvenih diskurzih. Večinoma se nanaša na pojave, ki prestopajo meje običajnega, se odmikajo od pričakovanih praks oziroma so v nasprotju s temeljnimi komunikacijskimi, družbenimi ali moralnimi konvencijami. Njegov pomen še ni izostren, vendar ni dvoma, da je transgresivnost povezana s funkcijskimi razsežnostmi kognitivnih in družbenih sistemov. Vzpostavljanje, obvladovanje in odpravljanje nekonvencionalnih stanj sodi namreč med temeljne mehanizme, ki zagotavljajo prilagodljivost v kompleksnih okoljih. Ti se v različnih družbenih sistemih, kakršni so znanost, humanistika in literatura, kažejo na različne načine.

Ključne besede: transgresivnost / literarni sistem / humanistika / epistemologija / kontingenca

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Uvod

Dostopni svetovi so bolj ali manj predvidljivi. Stabilna stanja in ponavljajoče se procese, ki to predvidljivost zagotavljajo, najdemo povsod: v nas, ki okolje opazujemo, in v okolju samem. Stabilnost določa meje pričakovanega, omogoča orientacijo in zagotavlja preživetje. V naravoslovnih, kognitivnih in družboslovnih znanostih so mehanizmi vzpostavljanja tovrstnih stanj opisani s pojmi habitualizacije, asimilacije, akomodacije, konvencionalizacije, shematizacije, kanonizacije ipd.

V kolikšni meri strukture dostopnih svetov izhajajo iz spoznavnih sistemov samih in v kolikšni meri so, nasprotno, določene z okoljem, je vprašanje, ki bi zahtevalo posebno obravnavo. Bolj nas bo zanimala zmožnost sistemov za premišljanje in preseganje norm, načel in mehanizmov lastnega delovanja. Pojem transgresije se bo torej nanašal na sistemsko samorefleksijo o kriterijih identitete, pozornost pa bo posvečena naslovnim področjem: znanosti, literaturi in humanistiki. Poskušali bomo odgovoriti na vprašanje o funkcijah transgresij.

Znanost

Področje znanosti se je v večtisočletnem razvoju spreminjalo, vendar je vseskoz ostajalo v znamenju elaborirane racionalnosti (prim. Ede in Cormack 199). V zgodnejših obdobjih so se v različnih konstelacijah prepletali matematični, metafizični, hermenevtični in empirični diskurzi, v zadnjih dvesto letih pa se je univerzalnost razkrojila, kriteriji znanstvenosti pa zaostrili. Ključna je postala povezanost treh kriterijev: teoretičnosti, empiričnosti in uporabnosti. Odtlej se kot znanstvena dejavnost oziroma disciplina uveljavi tista, ki (a) temelji na abstraktnih, logično zgrajenih pojmovnih sistemih, (b) s pomočjo teh sistemov organizira metodično pridobljene empirične podatke in (c) na podlagi tako pridobljenih teoretično-empiričnih modelov ponuja preverljive in ponovljive rešitve družbeno relevantnih problemov. Za uveljavljanje teh kriterijev poskrbi ustrezna institucionalna infrastruktura. Po tej poti se znanost sčasoma vzpostavi kot sorazmerno avtonomen družbeni sistem s specifičnimi pravili in družbenimi funkcijami.

Z osamosvajanjem znanstvenega sistema se spreminja tudi literarna veda. Težnje po zaostrovanju znanstvenih kriterijev so opazne vsaj od pozitivizma 19. stoletja naprej in se okrepijo s t. i. kulturnim obratom v drugi polovici 20. stoletja. Najizrazitejše so v študijah, ki se preusmerjajo od samih literarnih tekstov h kontekstom literarne komunikacije, pri tem pa v imenu preverljivosti ugotovitev uporabljajo metode naravoslovnih in družboslovnih disciplin (prim. Dović 11–20). Na tem polu literarne vede smo danes priča širokemu naboru interdisciplinarnih povezav.

Zaradi svoje pragmatičnosti empirične znanosti niso naklonjene transgresivnemu mišljenju. V težnji po čim večji uporabnosti rezultatov vso pozornost usmerjajo k reševanju problemov v opazovalčevem okolju, premisleki o izhodiščih in omejitvah lastne dejavnosti pa se z njihovega gledišča zdijo odvečni ali celo moteči. Ker temeljni znanstveni kriteriji izhajajo iz osnovnih mehanizmov racionalnosti (kavzalnih povezav, koherentnih struktur, konsistentnih modelov), bi problematizacija teh privedla do stika z iracionalnim, kar je za znanstveno mišljenje nesprejemljivo.

Največ samorefleksije zmorejo diskurzi, ki se naslanjajo na spoznavna izhodišča konstruktivizma. Osrednji pojmi tu izhajajo iz kibernetičnih konceptov samoreferencialnosti, krožnosti, zaprtosti in samoorganizacije (Glasersfeld 198–219). V tej zvezi je zlasti zanimiv pojem opazovalca drugega reda. Predmet opazovanja postane prav opazovanje samo, razmerje med opazovalcem in njegovim okoljem pa se odmakne od naivnega realizma. Toda konstruktivistična samorefleksija praviloma prevzame status realistične perspektive in zato ne vodi nujno do refleksije o mejah znanstve-

nega spoznanja ali do transgresivnosti. Razen tega ostaja konstruktivizem večinoma na ravni spoznavne teorije in je le redko vgrajen v raziskovalno prakso.

Nenaklonjenost transgresijam ne pomeni, da je znanost predvidljiva in konformistična. Nasprotno, med njenimi maksimami sta kreativnost in inovativnost, ki že po definiciji vključujeta preseganje znanega in odmik od konvencionalnosti. Vendar se tovrstni odmiki, kamor spadajo razvoj novih metod, modelov, tehnologij, konceptov, paradigem in interdisciplinarnih povezav, odvijajo v okviru sistemske logike. Sistem jih bodisi sprejme kot učinkovite strategije reševanja problemov in jih vzpostavi kot novo normo bodisi jih zavrže. Omejenost znanstvenega spoznanja pa večinoma ostaja slepa pega znanstvenega diskurza.

O transgresijah bi lahko govorili kvečjemu v primerih, kjer kriteriji znanstvenosti zgubljajo ekskluzivno vlogo. To se največkrat zgodi pri stikih med različnimi družbenimi sistemi, na primer med znanostjo na eni strani ter ekonomijo, politiko, pravom, religijo ali umetnostjo na drugi. Sistemi lahko v stičnih prostorih izpolnjujejo svoje funkcije na način simbioze ali hegemonije.[1] So pa v vsakem primeru tudi medsistemske povezave večinoma normativno urejene, zato je njihova transgresivnost le navidezna.

Literatura

Kakor znanost je tudi literatura na eni strani vpeta v vsakokratne družbene kontekste in se skupaj z njimi spreminja, na drugi strani pa vseskozi ohranja trajne funkcionalne značilnosti. Od ostalih diskurzov se razlikuje po tem, da razvija tiste potenciale pisne kulture, ki izhajajo iz dekontekstualizacije komunikacijskih procesov. Kot je znano, pisava ločuje komunikacijo od telesa, vzajemnega opazovanja komunikacijskih partnerjev in skupnega komunikacijskega konteksta. Na ta način širi prostor avtonomije pri konstruiranju smisla in izostri zavest o tem, da so referenčni okvir komunikacije kognitivno proizvedeni modeli sveta. Ker so ti modeli arbitrarni in nedostopni zaznavi, skriptografske in tipografske tradicije spodbujajo uvide v interaktivno naravo diskurza o družbeno sprejetih verzijah dejanskega sveta. Tovrstne potenciale najizraziteje razvijajo fikcijski in večpomenski teksti, ki s slabljenjem referencialnih in konsenzualnih komunikacijskih konvencij krepijo mehanizme dekontekstualizacije in vzpostavljajo prostor alternativnih modelov sveta.

Vendar takšna nekonvencionalnost še ni transgresija. V primeru literature so kršitve komunikacijskih konvencij vgrajene v diskurzivno logiko

in so sčasoma same postale norma. To pomeni, da jih udeleženci v literarnem sistemu pričakujejo, pri čemer nista bistvena ne obseg njihovega udejanjenja ne področje sistema, ki ga obsegajo. Možnosti so tako rekoč neomejene: lahko gre za poigravanje z estetskimi postopki, pripovednimi strategijami, koncepti časa in prostora, žanrskimi shemami, intertekstualnimi povezavami itn. (prim. Juvan 14).

Podobno kakor pri znanosti lahko tudi pri literaturi o transgresiji govorimo šele v primeru, ko postane vprašljiva sama identiteta sistema. Literarni diskurzi presegajo lastne identifikacijske kriterije, ko prevzemajo funkcije drugih sistemov, med katerimi je tudi znanost. Literarno konstrukcijo alternativnih svetov lahko na primer razumemo kot izostritev zavesti o interaktivni, arbitrarni in konstruirani naravi slehernega diskurza o realnem svetu. Tej izkušnji je mogoče pripisati spoznavne funkcije onstran kategorij, ki vzpostavljajo identiteto sistema. Je komplement tistim znanstvenim spoznanjem, ki pravi, da so vsi dostopni svetovi – realni in imaginarni – iz iste snovi: iz kemičnih in električnih procesov v možganih.

Kadar izkušnja nepresežne arbitrarnosti svetov zbudi slutnjo tistega, kar je presežno in nearbitrarno, pa lahko dobijo literarne transgresije tudi metafizično razsežnost.

Humanistika

Humanistika ne vzpostavlja tako jasnih norm in konvencij lastnega delovanja kakor empirične znanosti in literatura. Na eni strani je zaznamovana s težnjo po objektivizaciji svojih predmetnih področij (večinoma so to mišljenje, jezik, umetnost in kultura), na drugi strani pa je zanjo značilna visoka stopnja samorefleksivnosti in večperspektivnosti. Postopke verifikacije nadomešča logika t. i. hermenevtične argumentacije, pri tem pa samorefleksivnost in večperspektivnost nista niti v funkciji preverljivosti in uporabnosti (kakor v primeru empiričnih znanosti) niti v funkciji semantične odprtosti (kakor v primeru literature). Medtem ko empirične znanosti iz logike svojega diskurza izločajo transgresije, literarni sistem pa jih v logiko svojega diskurza vključuje kot svojo temeljno konvencijo, se zdi, da je humanistika vseskoz v prehodnem oziroma transgresivnem prostoru med opisi zakonitosti v opazovanih področjih in refleksijami o zakonitostih lastnega opazovanja.

Latentna in neobvladana transgresivnost privede med drugim tudi do konfliktnega razmerja med humanistiko in empiričnimi znanostmi. Ko s hitrim vzponom naravoslovja in družboslovja »trdi« standardi znanstvenosti prevzamejo prevladujoč in ekskluziven položaj, postanejo discipline,

ki teh standardov ne dosegajo, marginalizirane, in sicer tako ekonomsko kakor simbolno. Situacija se je zaostrila zlasti v sedemdesetih in osemdesetih letih 20. stoletja, ko sta empirična in humanistična paradigma nastopali v antagonističnih vlogah. V zadnjih desetletjih se krepijo težnje po njunem zbliževanju, vendar se humanistične študije še zmeraj težko odpovejo obrambni drži. Težave so na videz nerešljive: prevzemanje empiričnih metod ogroža identiteto humanistike, zavračanje teh metod pa njen ugled.

Pot do rešitve problema gre najbrž iskati v odpravljanju vrednostne asimetrije: humanistika naj se zgleduje po empiričnih znanostih v tistih razsežnostih, v katerih so te znanosti učinkovitejše (zlasti v pragmatični sintezi teoretičnosti, empiričnosti in uporabnosti), vendar naj potencialov samorefleksivnega in večperspektivnega mišljenja ne razume kot epistemoloških pomanjkljivosti. Dodatna spodbuda v tej smeri prihaja tudi iz uporabnih znanosti samih, ki v zadnjem času odkrivajo pomen hermenevtičnih metod pri vrednotenju empiričnih podatkov (Hladnik 329). Res je, da »empiriki« hierarhičnega razmerja med paradigmama še zdaleč niso pripravljeni preseči, vendar bi zagovornikom humanistike koristilo ravno to, da bi pozornost preusmerili k spoznavnim prednostim samorefleksivnega in transgresivnega mišljenja in zaostrili zavest o tem, da je premislek o mejah lastnega mišljenja pomemben dejavnik v ekonomiji orientacijskih strategij.

Humanistične discipline bi najbrž morale priznati, da z empiričnimi znanostmi ne morejo tekmovati na področju pragmatičnega reševanja družbeno relevantnih problemov, in se obenem zavedati, da razvijajo spoznavne potenciale, ki v disciplinah, osredotočenih izključno na predmete svojega opazovanja, ostajajo nerazviti. Z vključitvijo opazovalčeve perspektive v elaborirane opise okolja namreč humanistika spodbuja ne le temeljni premislek o pojmu družbene relevantnosti, temveč omogoča tudi več kot zgolj intuitivne vpoglede v razmerja med arbitrarnimi in nearbitrarnimi razsežnostmi sveta. Ti vpogledi omogočajo učinkovitejše obvladovanje kontingence in ne spodbujajo njenega izrivanja iz logike opazujočega diskurza.

Sinergijo med empiričnim in samorefleksivnim pristopom bi lahko ponazorili z drobnim primerom s področja orientacijskih strategij. Kot je znano, empirična znanost izhaja iz domneve, da se kognitivni sistemi razvijajo s povečevanjem kompleksnosti centralnega živčnega sistema. Visoka stopnja kompleksnosti ima na videz nasprotujoča si učinka: omogoča prilagodljivost pri orientaciji v okolju, hkrati pa privede do avtonomije oziroma funkcionalne zaprtosti sistema. Prilagodljivost se kaže v širokem naboru orientacijskih strategij, avtonomija pa se nanaša na lastnosti sistemov, da sami razvijajo kriterije vrednotenja svojih lastnih procesov

(Roth, »Gehirn« 178). Ob tem se postavlja več vprašanj. Kaj nam lahko orientacijske strategije povedo o svetu, če vemo, da imajo svoj izvor v sistemih, ki imajo dostop le do lastnih stanj? Kaj lahko na podlagi zgornjih ugotovitev rečemo o mejah spoznanja? Natančneje: kdo je subjekt spoznavnih procesov in kaj je njihov objekt?

Nevrobiologija in samorefleksija v tej zvezi prihajata do iste ugotovitve: pojma subjekta in objekta je treba na novo določiti. Koncept jaza ni primeren za vlogo nosilca kognitivnih procesov. Subjekt je kvečjemu nasledek kognitivne samoorganizacije. Enako velja za konstrukt svobodne volje (Roth, *Fühlen* 494–544). Čeprav neradi priznamo, smo to vedeli že od nekdaj. Sleherno naše dejanje je v celoti določeno z dejavniki, ki jih nismo sami izbrali in na katere nimamo nikakršnega vpliva. Kakor nismo izbrali svojega telesa, nismo izbrali okolja, v katerem smo zgradili svoj svet, in prav tako ne izbiramo svojih lastnih želja. Izvir moči ni v nas samih. Na podoben način se razkroji tudi predmet našega spoznanja: že dolgo vemo, da zaznave lahko primerjamo le z drugimi zaznavami, ne pa z okoljem (Schmidt 13). Vemo tudi, da je svet dostopen izključno v modusu kriterijev, ki so imanentni spoznavnemu procesu. Vse, kar je z njimi nezdružljivo, ostaja nedoumljivo.

Ko domislimo pojem kognitivne avtonomije, se na mestih, na katerih smo pričakovali stebre sveta, razkrijeta praznina in nemoč. Povezava med empirično refleksijo in kognitivno samorefleksijo nas je pripeljala do brezna odsotnosti. Če ne prej, je zdaj, v jedru problema, nastopil trenutek, v katerem slišimo glas pesnika, odposlanca nedoumljivosti: »Toda kjer je nevarnost / raste tudi Rešilno«. (Hölderlin, *Patmos*) In kaj je »Rešilno«? Čas je za končno transgresijo.

Iz brezna odsotnosti zraste zavest o tem, da obstoj sveta ni samoumeven. Odsotnost niča postane enako nedoumljiva, kakor je nedoumljiv nič sam. V stiku s praznino se dotaknemo sile, ki je zanikala neobstoj. Moč, iz katere smo, prepoznamo takrat v vsem, kar obstaja. Ko smo se odrekli moči, smo se odrekli nemoči. To je epistemologija ljubezni. Končna transgresija nas je privedla do roba sveta in tam smo v drugem našli temelj svojega obstoja.

Kakor vsako čustvo je tudi ljubezen povezana s telesom, z izkušnjo življenja. Z njo je vsako branje živo. Znanost, humanistika in literatura jo brez težav vgradijo v svoja izhodišča kot etično držo. Če spoznanje izhaja iz evolucije, potem lahko evolucija izhaja iz takšnega spoznanja.

OPOMBA

[1] Očiten primer simbioze je poljudna znanost, hegemonija pa je značilna za politične in ekonomske manipulacije z znanostjo.

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Peirceova teorija raziskave kot poetološki model: primer literarnega realizma

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Članek predstavi filozofijo Charlesa Sandersa Peircea kot most med področjema t. i. eksaktnih znanosti ter humanistike in umetnosti. S pomočjo Hansa Vilmarja Gepperta in njegove teorije literarnega realizma, tj. njegove peirceovske »realistične semiotike«, članek odkrije znanstveno metodologijo pod krinko poetološkega vzorca. Geppertova uporaba semiotike pri raziskavah literarnega realizma in komunikacije nasploh ponuja dva izvirna uvida: poleg ponovnega ovrednotenja historičnega realizma 19. stoletja vzpostavlja Peirceova teorija raziskovanja kot pragmaticistični odgovor na neposredno soočenje s krizo komunikacije živ poetološki model, uporaben tudi za današnje umetnosti. Dialog med znanostmi ter humanistiko in umetnostmi tako postane spet mogoč.

Ključne besede: semiotika / realizem / znanost / humanistika / Peirce, Charles Sanders / Geppert, Hans Vilmar

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Semiotika in stroji

Oddaljen odmev razmisleka Charlesa Percyja Snowa o »dveh kulturah«, o kulturi (naravoslovnih) znanstvenikov in kulturi (literarnih) intelektualcev, ki ju loči prepad obojestranskega nerazumevanja, je tudi problematika semiotičnega statusa pojavov mehanskega izvora. Zastavlja se vprašanje, kako človek interpretira znake, ki jih je naredil stroj v okvirih tehnološkega procesa, utemeljenega na znanstvenih dognanjih in algoritmih, ki sami porajajo nove znake, in sicer večinoma brez človeškega posredovanja ali nadzora.

Espen J. Aarseth obravnava kibertekst kot novomedijsko besedilnost, ki jo izdelujejo »besedilni stroji«.[1] Glavna lastnost kibernetičnega teksta, ki delno uhaja avtorjevemu nadzoru, s tem ko ponuja pravzaprav neskončen nabor možnih branj na podlagi določenih pravil, ki so sama neločljivi del besedila, je t. i. »prag med signalom in znakom«. Izhodni podatki sa-

mourejevalnega besedilnega stroja so razcepljeni na dva dela: na materialni signal, ki je izvzet iz znakovnega, in na znakovni učinek, ki deluje na uporabnika-bralca. V nasprotju na primer s kinematografskim medijem, kjer je dvojnost filmskega traku in filmske projekcije povsem trivialna, je v kibertekstu odnos med (skrito) računalniško kodo in ravnijo sporočila »arbitraren«. Sporočilni del kiberteksta delno uhaja avtorjevemu nadzoru in s tem zapušča območje medčloveške komunikacije.[2] Po Aarsethu (22, 29, 31) se semiotični vidiki kiberteksta nanašajo na dvoje: na opazovanje človeškega dojemanja sistema, tj. načinov, kako uporabnik pretvori signale v pomenonosne znake, in na implicitno teleologijo, tj. na namene konstruktorja besedilnega aparata, ki jih lahko razberemo na primer z analizo algoritmov. Novomedijski umetnik in teoretik David Link (85) sklepa podobno kakor Aarseth: uporabnik besedilne pustolovske igre se mora bodisi naučiti »jezikovne inkompetence« (*Sprach-Inkompetenz*) ali pa sprejeti »umsko omejenost« (*Behinderung*), da lahko komunikativno vstopi v svet (besedilnih) računalniških iger. To nedoločnost v komunikaciji pojasnjuje dejstvo, da računalnik, ki je v osnovi Turingov stroj, ne deluje na ravni predstavljenih informacij, ampak na predsemiotični stopnji, kjer je homogena materialnost umetno ločena v različna stanja.[3]

S problemi, na katere je pokazala umetniška praksa novomedijske besedilnosti, se srečujejo tudi raziskave v digitalni humanistiki. Prvi »Pamflet« Stanfordskega literarnega laboratorija, ki ga vodita Matthew Jockers in Franco Moretti, samokritično pretehta rezultate računalniške kvantitativne analize literarnih žanrov:

> [Računalniško generirana] podoba žanra [tj. diagramatična predstavitev variacij v zbirki podatkov] je bila očitno tudi nepopolna, saj nam razlikovalne lastnosti lahko povejo vse, kar potrebujemo, da bi razločili oblike drugo od druge, hkrati pa zelo malo o notranji strukturi vsake od teh oblik. Če bi vsi moški v občinstvu nosili roza obleke, vse ženske pa modre, bi jih barve *popolnoma* ločevale, ne bi pa povedale *ničesar* o njih. […] [P]ridobitev je torej za zdaj primerjalna, ne pa kvalitativna: *večja* jasnost namesto jasnosti drugega tipa. (Allison 18, 24)

Rezultati računalniške analize[4] ne odkrivajo novih pomenov v podatkovni zbirki romanov (tj. vhodnih podatkov), pač pa s kvantitativno širšim pregledom predmeta raziskave pripomorejo k »*večji* jasnosti«. Problem nesemiotičnega procesiranja informacij ostaja potemtakem kljub relevantnosti kvantitativno povečanega obsega analize[5] nerešen.

Aarseth poskuša pojasniti delovanje semiotičnih in nesemiotičnih učinkov kibernetskih sistemov s konceptom emergentnih lastnosti. Vendar se po Aarsethu (40, 124) emergentno obnašanje algoritmičnega literarnega teksta ne razlikuje povsem določno od preproste napake v delovanju ki-

bernetskega sistema.[6] Tako ostaja koncept emergentnih lastnosti potencialno uporaben pri pojasnjevanju (dis)kontinuitete med fiziko, kemijo in biologijo, medtem ko opomenjanja na ravni družbe in kulture ne moremo razložiti z apolitičnim konceptom diskontinuitete med različnimi redi realnosti. (Sistemska teorija in radikalni konstruktivizem jemljeta dinamiko družbenih odnosov kot dejstvo, s tem pa jo tudi reducirata na »nepomembno« vprašanje; foucaultovska tradicija predstavlja nasprotni argument.)[7]

Kaj je znak?

Vprašanje semiotičnih ravni različnih umetnih in naravnih pojavov sega nazaj k definiciji znaka. Strukturalistična semiologija od Saussurja naprej razume (lingvistični) znak kot dvojnost znaka in referenta, dvojnost, ki se zrcali v odnosu med označevalcem in označencem (tj. med označevalnim izrazom in mentalno predstavo referenta). Povezava med elementoma je arbitrarna in konvencionalna. Saussurjevska tradicija predpostavlja sistemski kod, tj. *langue*, ki je vselej že navzoč pri interpretaciji določenega znaka. Zato »naravni« znaki, tj. označujoče oblike, ki jih niso izdelali ljudje,[8] pravzaprav ne obstajajo. Če algoritmi naključno ali nerazumljivo producirajo pojave, ki jih lahko prepoznamo kot znake, ki naj bi jih interpretirali ljudje, te entitete niso zares znaki, pač pa zgolj »brezpomenske« materialnosti.

A to ne drži: pomislimo na primer na znanstvene raziskave, ki že po definiciji vnašajo pomene v naravne pojave. Zato potrebujemo alternativno koncepcijo znaka, ki jo najdemo v tradiciji semiotike, ki jo je osnoval Charles S. Peirce. Po Peirceu je znak tisto, kar je interpretirano kot znak (Geppert, *Der realistische Weg* 40, 80). Na primer značilen indeksikalni znak je dim, ki označuje ogenj. Povezava med znakom in objektom ni konvencionalna (na primer prek *langue*), ampak je posledica obstoječega dejstva, ki se potrjuje v interpretaciji. Peirceovski znak je trojna relacija med reprezentamenom (tj. znakom), objektom in interpretantom, ta pa je ireduktibilna enota, ki jo sestavlja nov znak, ki interpretira osnovni znak.[9] Peirce, ki je delal na področjih kemije in geodezije, tj. ki je bil po poklicu znanstvenik, predlaga semiotično teorijo, ki je uporabna pri raziskovanju naravnih pojavov. Znaki lahko nastanejo na kakršen koli način, tudi, kot rečeno, z računalniško napako.

Pragmticizem, semiotika in teorija znanstvenega raziskovanja

Semiotika se poveže s teorijo raziskave in pragmaticizmom v Peirceovih spisih iz obdobja po letu 1902 in v njegovi tretji, zadnji razlagi znakov iz

let 1906–1910 (Atkin). Semiotika postane, kot pravi Burch, tesno povezana s standardno koncepcijo znanstvene metode, ki je metoda gradnje hipotez, izpeljave posledic iz teh hipotez in nato eksperimentalnega preverjanja teh hipotez (ekonomika raziskovanja vedno usmerja ta proces). V tem obdobju je Peirce vse bolj pojmoval svoje tri tipe logičnega sklepanja kot faze ali stopnje znanstvene metode. Na primer abdukcija je v njegovi razširjani in posplošeni definiciji sklepanje, ki provizorično sprejema in vodi v razlagalno hipotezo, da bi jo nato preverilo. Abdukcija je logična izpeljava razlage ali vsaj nečesa, kar pojasnjuje oziroma naredi pričakovano neko informacijo, ki je bila prej »presenetljiva«, v okvirih v danem trenutku dostopne vednosti. Dedukcijo pa je Peirce začel obravnavati kot izpeljavo sklepov o tem, katere opazovanju dostopne pojave je mogoče pričakovati, če je hipoteza pravilna. Indukcija pa je dobila pomen celotnega procesa eksperimentiranja in interpretacije, ki poteka kot podpora preverjanju hipoteze.

»Presenetljiv« pojav je torej začetna točka vsake znanstvene raziskave. Sproži »abduktivno« sklepanje, ki ponudi hipotezo, ki ji sledi dedukcija in nato najdražji del raziskave, testiranje (Peirceova indukcija). Peirce pravzaprav izenači abdukcijo s pragmaticizmom v celoti in z ekonomiko raziskave – če namreč hipoteze ni mogoče preveriti, ne nastane nova vednost, to pa z vidika pragmaticizma falsificira hipotezo (gl. »Abduction« v *The Commens Dictionary*). V tej luči se pokaže, da je v primerjavi s saussurjevsko semiologijo Peirceov model znaka vsekakor primernejši za razlago različnih semiotičnih in potencialno predsemiotičnih področij, kolikor so relevantna za človeška dejanja. V okviru Peirceove teorije se slavni »dve kulturi« pravzaprav spojita.

Peirceova pragmaticistična teorija znakov kot poetološki model

Je mogoče Peirceovo semiotiko, ki je, kot je bilo pokazano, usklajena z njegovo znanstveno metodologijo, prenesti na umetniško dejavnost? Oglejmo si primer, ki eksplicira strukturno skladnost med Peirceovo pragmaticistično semiotiko in (implicitno) poetiko literarnega realizma 19. stoletja. Povezava z znanstveno teorijo raziskovanja, ki stopi v ospredje v Peirceovih poznih spisih, potemtakem ponudi možni odgovor na zagato ustvarjanja pomena z znaki, ki so neodvisni od vnaprej danega koda. Nečloveški (proto)znaki – naravni in tisti, ki jih izdelujejo aparati – se torej (potencialno) znova vključijo v kulturo prek posredovanja velike romaneskne tradicije.

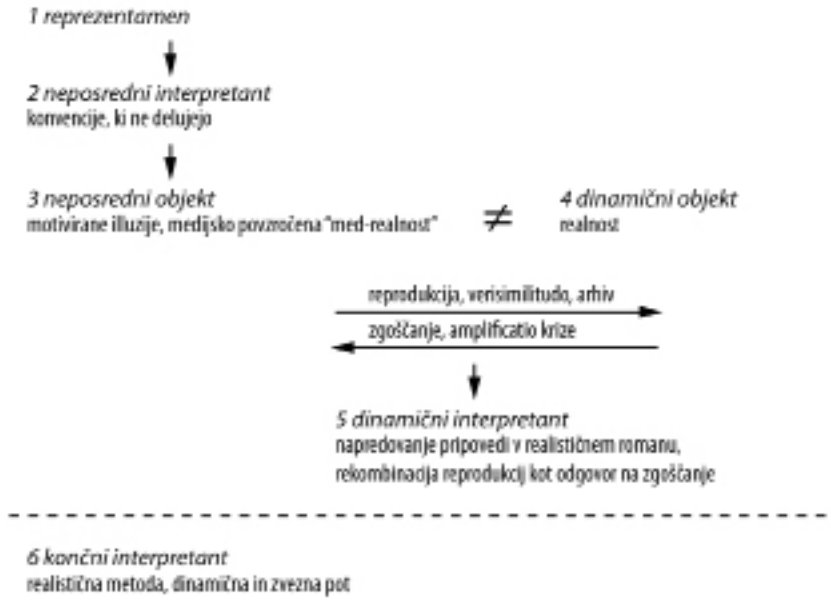
Nemški komparativist Hans Vilmar Geppert v monografiji *Der realistische Weg* (*Realistična pot*, 1994) prepričljivo pokaže na podobnost med Peirceovim pragmaticizmom in literarnim realizmom 19. stoletja,[10] kot se razkriva na ravni njunih teoretskih ogrodij. Upoštevati je treba, da sta oba pojava zgodovinsko sočasna, da črpata iz istih virov, pri čemer pa Peirceova misel ni neposredno vplivala na realistične avtorje in teoretike literature 19. stoletja. Poskus povezave Peirceove tradicije z realizmom, ki bi hotel zasnovati splošno veljavno »logica utens«[11] na področju semiotike, se nujno sooči z dvema izzivoma. Najprej je treba upoštevati uvide dekonstrukcije, ki je podvomila o teoretski neprotislovnosti pojmovanj »realnosti« na področju humanistike. Drugi izziv pa je v tem, kako razložiti t. i. »realistični« način pisanja, ki ga običajno povezujemo z načelom *verisimilitudo* itn. Oba potencialna problema morata biti zadovoljivo rešena, če želimo predlagati Peirceovo semiotiko kot (realistično) diskurzivno prakso, ki je aktualna tudi danes in ki presega zgolj zgodovinsko podobnost med dvema diskurzivnima regularnostma v 19. stoletju.

Realistična semiotika

Peirceovski odgovor na uvide dekonstrukcije je v tem, da jih selektivno »vključi« v celoto pragmaticistične teorije znaka. Geppert (*Der realistische Weg* 79) opozori na podobnost med peirceovsko neskončno semiozo in Derridajevim konceptom »razlîke«, a doda, da »bi bilo za Peircea nesmiselno resnico načelno odriniti v 'odsotnost'; četudi ni nikoli neposredno 'navzoča', zlasti ne v katerem od sistemov […], ni dosegljiva na noben drug način kakor skoz jezik-znake«.

Pragmaticizem je oblika semiotike, ki dobi svoj pomen in *raison d'être* tedaj, ko običajni znaki odpovedo, ko – kakor v znanostih – nastopi »presenetljiv« pojav in zahteva razlago ali ko se – kakor v literarnem realizmu – ljudje soočajo z neposredno krizo znakov, torej ko pride do nasilnega trka znakov in dejanskosti. Odgovor dekonstrukcije je nesmiseln – neuporaben –, saj zgolj potrdi *status quo* krize. Po Peirceu je pomen znaka človeška navada (utemeljena v skupnosti in izrecno zasnovana kot trajno veljavna). Če je potreben nov in vsaj potencialno splošno veljaven odnos do dejanskosti, ga je treba nekako rekonstruirati, četudi vpričo kupa ruševin, ki ga gleda Benjaminov angel zgodovine. Slavni »Peirceov princip«[12] se glasi takole: »Preudarite, katere učinke, katerih praktično relevantnost si je mogoče zamisliti, pripisujemo objektu našega pojma. Tedaj je naš pojem teh učinkov celota našega pojma objekta.« (Peirce 96, 129) Pomen presenetljivega fragmenta je njegov interpretant (učinki, katerih praktično relevantnost si je mogoče zamisliti), ki je nujno potreben v dani situaciji.

Po Geppertu (*Der realistische Weg* 54, 152) je literarni realizem umetnost interpretanta, ki se poraja iz neposredne izkušnje semiotične – in potemtakem eksistencialne – krize. Peirceov šeststopenjski model znaka – reprezentamen, neposredni interpretant, neposredni objekt, dinamični objekt, dinamični interpretant in končni interpretant – Geppert takole prevede v model realizma kot »poti«. Na začetku »realistične poti« stoji neposredni interpretant kot prva interpretacija reprezentamena, znaka. To so disfunkcionalne konvencije, ki povzročajo neposredni objekt, tj. »motivirane iluzije«, kakršne so na primer avtodestruktivna pričakovanja Eme Bovary o svetu.[13] Medijsko povzročena »med-realnost« – v krizi, ko ne učinkuje, kot bi morala – silovito trči ob dano stanje sveta, ob dinamični objekt. Kriza je »ojačana« (*amplificatio*) prek reprodukcije in zgoščanja kulturnih kodov, ki so na voljo, in njihovih učinkov v junakinjinih iluzijah – in učinkujoč nanje. Dinamični interpretant[14] je pripovedni lok realističnega romana. Sestavlja ga množica neposrednih interpretantov s pripadajočimi neposrednimi objekti v eksperimentalnih rekombinacijah. Prav kombiniranje neučinkovitih kulturnih kodov v nove razpostavitve utemeljuje realistično *verisimilitudo*: realizem ne reproducira dejanskosti, pač pa diskontinuirani arhiv kulturnih kodov (na primer kakor ga opisuje Foucaultova arheologija). Končni interpretant je metoda sama, tj. realizem, ki je nujno dinamična pot, ne pa na primer statična prostorska konstelacija.[15]



Slika 1: Peirceov šeststopenjski model znaka in vzporedna shema diskurza literarnega realizma

Peirceove nadaljnje semiotične distinkcije omogočajo še podrobnejšo eksplikacijo realističnega diskurza, kar še dodatno podkrepi analogijo med realizmom in pragmaticizmom. Na ravni reprezentamena – gre za različne načine dojemanja znaka[16] – so za realizem značilni sinznaki, posamezni edinstveni konkretni pojavi, ki zahtevajo razlago. Ker se Peirce zaveda, da so znaki vsepovsod – saj sprejema Kantovo transcendentalno enotnost apercepcije, ki pokriva področje znakovnega –, so pravi nezakodirani pojavi pravzaprav zelo redki. Pogosteje so singularni znaki replike legiznakov, tj. znakov, ki temeljijo na kodih. Za realizem je značilno, da »izkorišča« oziroma »izrablja« (»verbraucht«) obstoječe kode. Realizma ni mogoče kodirati, ker ne izdeluje novih legiznakov (kakor na primer literarni simbolizmi): legiznak *in potentia* je urejen arhiv sinznakov, ki se upira poenotenju. Geppert govori o »retrosemiozi«, da bi poudaril neenovito regularnost arhiva kodov kulture, ki jih literatura reproducira.[17]

Indeksi, ki jih kot del Pierceove najbolj znane triade ikona – indeks – simbol določa eksistenčna vez med znakom in objektom, so značilni pojav realističnega diskurza. V nasprotju z ikono, ki je podobna objektu, indeks ne temelji na značilnostih reprezentamena, in v nasprotju simbolom, ki je odvisen od svoje interpretacije v interpretantu, ni odvisen od česa drugega. Indeks mora biti presenetljiv, da bi se sploh ločil od brezpomenske dejanskosti, ki ga obdaja. V realističnem diskurzu simboli – na kodu temelječe konceptualizacije objektov – »degenerirajo« v ikone, tj. v podobe neogibne krize. Edini način, ki bi omogočal interpretacijo napake v delovanju sistemskih urejenosti objektov, je ta, da napako privzamemo kot ikonični znak disfunkcionalnosti kot take. V realizmu dejanskost ni vnaprej privzeta, pravzaprav je resničnost manifestacija nesprejemljivih interpretacij, ki zahtevajo popravke. V tej situaciji indeksi stopijo v vlogo »vektorjev pozornosti«, katerih naloga je, da krmarijo mišljenje skoz krizno ikonično razpršitev arhiva simbolov. Indeksi ponudijo izhod. »Metonimizacija metafore« in »realistični mediji« sta značilna realistična pojava: na primer denar ni več del simbolnega reda, ampak začne označevati edinstveno in konkretno situacijo, ki je del kontinuitete sveta. Realističen je tok dejanskosti skoz čas, ne pa njen odsev (ki je po Geppertu zgolj ikona krize). Realistični simbol ne obstaja, mogoč je le simbol *in potentia* kot večsmerni indeks. Red v omrežju indeksov je ikoničen, dodatno pa je premeščen na metapoetično raven: Geppert imenuje to semiotično premestitev »metaforična alegorija«, katere osrednji primer je podoba (realistične) »poti«.[18]

Geppert ugotavlja, da je realizem umetnost interpretanta. Zato odnos realističnega znaka do, kot ga Peirce imenuje, »{Končnega/Neposrednega} Interpretanta«,[19] nikoli ni zagotovljen ali celo dan vnaprej. Realizem sestavljajo propozicije, ki jih je mogoče potrditi ali zanikati. Realistični mediji

so trditve o dejansko obstoječem, ki so kot take neposredno aktualne. Dicent znaki[20] so del zvezne verige izpeljav. Realistični argument, tj. znak z vidika pravilnega ali nepravilnega sklepanja,[21] je »nepopolna indukcija«, progresivno preverjanje hipotez iz Peirceove teorije raziskovanja. »Pozni realizem« praviloma zaide v *aporije*, brezizhodne situacije, a pri tem ne prestopi meja z drugimi načini delovanja znakov.

»Pragmatična pripoved« in pozni realizem

Prikaz tega, kako Geppert interpretira realistične romane s peirceovsko metodo, presega okvir tega članka. »Pragmatična pripoved« (*pragmatisches Erzählen*) se namreč dotika vseh razsežnosti realističnega teksta. Geppert ugotavlja celo regularno semiotično gibanje v samih naslovih realističnih romanov, na primer dinamično kontinuirano gibanje pomena, zakodiranega v urejeni par rdeče in črne barve v naslovu Stendhalovega romana. Nekakšna vzvratna perspektiva se osredotoča na »pozni realizem«, ki je po Geppertu na robu realističnega diskurza. Pokažemo lahko, da je Dickensov roman *Hard Times* (Trdi časi*,* 1854) arhiv glasov v Bahtinovem smislu, tj. arhiv glasov junakov in različnih pripovedovalcev (Vaupotič). Geppert ugotavlja komunikativno diskontinuiteto v odnosu med umetnino in bralcem v Dickensovem romanu *Our Mutual Friend* (Naš skupni prijatelj, 1864–1865), kjer skoraj vso prvo polovico romana bralec ne ve dovolj, da bi lahko razumel motivacijo junakov (Geppert, *Der realistische Weg* 463). Tako je tudi bralec ločen od glasov v romanu – postavljen jim je ob bok. V poznorealističnem romanu je vsak glas avtonomen, enakovredno postavljen poleg vseh ostalih, nemogoče ga je reducirati in vklopiti v poenotujoč sistem, kakor na primer to poskuša Zola v svoji shemi naturalizma. Roman postane prostor razpršitve, ki se postavlja nasproti poenotenju in celo gibanju.

To na videz nasprotuje Geppertovi tezi, da se prostorska razpršitev, ki je znak krize, urejeno spreminja v pragmaticistično kontinuirano zaporedje, ki je podobno znanstvenemu raziskovanju. Tako ostaja Geppertov model večznačen, ko ga poskušamo uporabiti kot odgovor, ki bi bil aktualen tudi danes. Roman je zvezna pot od krize h krizi, pri čemer so vse krize porojene iz retrosemiotične konstelacije disfunkcionalnih kodov. Pomen nastaja skoz alegorijo, kot jo enigmatično pojasni Walter Benjamin:

> Kakor mater zaživi v svoji polni moči šele tedaj, ko se krog otrok, spodbujenih z občutjem njene bližine, sklene okoli nje, tudi ideje zaživijo šele tedaj, ko se okoli njih zberejo ekstremi. Ideje oziroma, če naj uporabimo Goethejev izraz, ideali so faustovske »matere«. (Benjamin, *Ursprung*)

Videti je, da je pozni realistični roman, na primer *Hard Times*, hkrati uprostorjen arhiv in linearna pripoved – linearno napredovanje je vsiljeno v arhiv glasov, ki pa je prepojen z dinamičnimi silami (Adorno jih je označil za »magične«),[22] ki zahtevajo konkretne in hkrati pragmatične odgovore.

OPOMBE

[1] Aarseth ne omejuje kiberteksta na računalniško manipulacijo teksta, saj upošteva vse vrste mehaničnih besedilnih strojev, celo na primer *Cent mille milliards de poèmes* (Sto tisoč milijard pesmi, 1961) Raymonda Queneauja.

[2] Koncept arbitrarnosti tu ni uporabljen v strogem saussurjevskem smislu, saj kibertekst ni nujno družben pojav.

[3] »Čeprav lahko računalnik predstavlja vse mogoče vrste medijev, se pravi, tudi zapisano besedilo, ne deluje na ravni predstavljene informacije, temveč na predhodni, čisti in zato brezpomenski razliki med bivajočim in ničem.« (44) »Števila v […] [Turingovi] konstrukciji ne določajo količin stanja, temveč opisujejo in umetno razpirajo nekaj enakega. Nič in ena si stojita v identiteti identitete in razlike nasproti, kakor tudi sovpadata v enem, kar je v nasprotju z običajno matematiko, v kateri je treba ločevati med nič in ena. Kdor postavlja stroj v polje numeričnega, zgreši eno od poant turingovske iznajdbe.« (45)

[4] Ena tovrstnih metod je analiza osnovnih komponent v biologiji (gl. Cavalli-Sforza, Menozzi in Piazza 39 isl.).

[5] Kvantitativni preskok v hitrosti procesiranja informacij, ki je nastopil z računalnikom, je sam eden od »obrazov« dvojnosti signala in pomena. Ljudje lahko zdaj vidimo vzorce, ki jih prej nismo mogli videti in zato tudi ne vključiti v naše razumevanje sveta. Kvantitativni prispevek se s tega vidika preobrača v kvalitativnega, in sicer na primer z redefinicijo človeka skoz »tehno pogled« (gl. Bovcon).

[6] To nejasnost je najti tudi v razliki med ontološkim in epistemološkim emergentizmom oziroma med »močnim« in »šibkim« emergentizmom (O'Connor in Wong).

[7] O emergentizmu in semiotiki gl. tudi Brier (1916 isl.).

[8] Ekokritični pristop poskuša razširiti polje zavesti na neljudi, na primer na domače živali, kar pa zgolj premakne točko razcepa med semiotičnim in nesemiotičnim.

[9] »Znak ali reprezentamen je nekaj, kar nekomu nekaj pomeni v nekem oziru ali možnosti. Nekoga nagovarja, tj. v mislih tega človeka ustvari ekvivalenten ali morda razvitejši znak. Ta znak, ki ga ustvari, imenujem *interpretant* prvega znaka. Znak nekaj označuje, namreč svoj *objekt*. Stoji namesto tega objekta, a ne v vseh pogledih, ampak v odnosu do neke ideje, ki sem jo včasih imenoval *temelj* za reprezentamen. 'Idejo' je treba tu razumeti v platoničnem smislu, kakor jo pogosto razumemo v vsakdanjem govoru: v smislu, ko rečemo, da nekdo dojame idejo nekoga drugega ali da se nekdo, ki se spomni, o čem je razmišljal pred časom, spomni iste ideje, in da ima nekdo, ki nadaljuje z razmišljanjem o nečem, recimo vsaj za desetinko sekunde, kolikor se misel v tem časovnem intervalu strinja sama s seboj, *podobno* vsebino, se pravi, isto idejo in ne novo idejo v vsakem trenutku tega intervala.« (»A Fragment«, CP 2.228, c. 1897 v *The Commens Dictionary*).

[10] Geppertova konceptualizacija literarnega realizma ne vključuje naturalizma.

[11] T. i. »uporabljana logika« kot nasprotje pojma *logica docens*, logike, ki je priučena s študijem (gl. »Logica utens« v *The Commens Dictionary*). Peirceovska formulacija je primerljiva s Foucaultovim pojmom diskurzivne formacije.

[12] Tako ga je poimenoval avtor izraza »pragmatizem« William James (Hookway).

[13] Po Geppertu (*Der realistische Weg* 129) Barthesov »učinek resničnosti« (»éffet du réel«) reducira celoto realističnega diskurza na eno samo sestavino. »Ta učinek pa nastaja le tedaj, ko se v pripovednem znaku izolira eno samo posamično denominativno […] nanašanje na objekt. Druge funkcije, na primer zgodovinske konkretizacije, pa tudi funkcije refleksije, kritike, napredovanja, 'porabljanja' kodov ga ukinjajoč presegajo [heben ihn auf].«

[14] Geppert ga imenuje »aktualni interpretant«, da bi poudaril razliko v odnosu do dinamičnega objekta in s tem olajšal branje teksta.

[15] Na tem mestu se razkrije razlika med Peirceom in Foucaultom: foucaultovska prostorska razpršitev arhiva postane v Peirceovi semiotiki nesprejemljiva podoba krize, ki zahteva odločen korak po zbrani »poti«.

[16] Triada: kvaliznak – sinznak (token) – legiznak (tip). Razlaga vseh kategorij bi presegla namen tega članka.

[17] Arhiv brez strogo sistematičnega reda je skladen s Foucaultovo zasnovo pojma arhiva v *Arheologiji vednosti*.

[18] V poslovilnem predavanju na Univerzi v Augsburgu *»Prodigium« und Chaos der »Zeichen in der Welt«. Wilhelm Raabe und die Postmoderne* Geppert pokaže na možnost alegorične imaginacije, podobne postmodernističnim diskurzivnim postopkom (razume jo v pomenu zgodnjega Benjamina), na sami poetični ravni.

[19] Uporabljen je, kot da bi bil hipotetično pravzaprav neposredni interpretant, čeprav je postavljen v oddaljeno prihodnost kot nekakšna heglovska *Aufhebung* celotne semioze.

[20] Triada odnosov znaka do končnega interpretanta: rem – dicent – argument.

[21] Geppert navede triado znakov z vidika pravilnosti logične izpeljave: abdukcija – indukcija – dedukcija.

[22] »[T]eološka motivacija imenovanja reči z njihovimi imeni teži k naivni predstavitvi golih dejstev. Če bi se izrazili drastično, bi bilo mogoče reči, da je […] [Benjaminova] razprava na križišču magije in pozitivizma.« (Adorno 129)

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Nečloveški intervali: radijske sinteze Filippa Tommasa Marinettija[1]

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Filippo Tommaso Marinetti v radijskih sintezah (sintesi radiofoniche) *iz leta 1933 z izmenjavo zvokov, šumov in pavz raziskuje pojmovno in senzorično gostoto brezžične komunikacije, pri čemer uvaja kompleksno rabo prekinitev in intervalov. V tem članku analiziramo teoretske implikacije Marinettijeve prelomne uvedbe teh* vmesnosti *v kontekstu razprav o infra-reprezentacijskih umetnostnih metodah z začetka 20. stoletja. Tehnizacijo estetske produkcije, za kakršno se zavzema Marinetti, nato umestimo v polje postbergsonovske vitalistične epistemologije in jo postavimo nasproti Deleuzovi transcendentalni interpretaciji avantgardističnih praks prekinitve.*

Ključne besede: estetika / umetnost in tehnologija / Marinetti, Filippo Tommaso / Bergson, Henri / Deleuze, Gilles / radijska performativnost / umetnost intervalov / tehnološki vitalizem

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V tem članku želimo s pomočjo analize Marinettijevih radijskih sintez (*sintesi radiofoniche*) iz leta 1933 osvetliti krhek in spremenljiv odnos med tehniko in literaturo.[2] Upamo, da bo to enigmatično delo provokativno izpostavilo pojme življenjskega procesa, literarne transgresivnosti in performativnosti, ki jim je bil posvečen vileniški simpozij »Literatura, znanost in humanistika«.

Tovrstna obravnava Marinettija ima to prednost, da je njegovo delo imuno proti skušnjavam umetniške avtonomnosti in presega konvencionalni dualizem esteticizma in tehnicizma, saj zavrača tako razlikovanje med umetnostjo in tehnologijo kakor razlikovanje med ekspresijo in akcijo. Marinetti namreč preseganja zevi med umetnostjo in znanostjo ni formuliral v smislu zgolj še ene postsimbolistične, romantične estetske infinitizacije in absolutizacije umetnosti. Nasprotno, avantgardam je naložil precej radikalnejšo nalogo, spremembo paradigme in epistemični prelom: iznajdbo umetnosti-dejanja, uglašene z »življenjem materije«.

Dober primer tovrstne drže so prav radijske sinteze, saj s privzemanjem nenavadne govorice »tehnološkega vitalizma« odpravljajo heteroge-

nost množične komunikacije in pojmovnega eksperimentiranja, s tem pa se umeščajo v še neraziskano umetniško prakso, kjer prekinitve in povečanje energetskih tokov zamenjajo umetniške žanre in pesniška načela. V primerjavi z drugimi Marinettijevimi radijskimi izvajanji z radijsko dramo *Violetta e gli aeroplani* (*Teatro* 638–656)[3] vred pa imajo radijske sinteze to pomembno prednost, da so abstraktne in programske ter tako razkrivajo Marinettijev nekonvencionalen pristop k tehnologiji.[4]

Po Arndtu Niebischu pri futuristični rabi radia ne gre za estetsko iznajdbo, temveč za nov odnos z »živčevjem poslušalcev«: »radijske sinteze ne razvijejo razvejane pripovedi, ampak udejanjajo povsem minimalistično estetiko, utemeljeno na izmenjavi zvokov, šumov in tišin […]. [M]arinetti z radijskimi sintezami ne poskuša delovati na kritični um poslušalstva, pač pa na živčevje poslušalcev« (343–344). S sklicevanjem na Wolfa Kittlerja Niebisch simbolno funkcijo tradicionalne umetnosti poveže s komunikacijskim hrupom, ki predpostavlja prejemnikovo hermenevtično dekodiranje, Marinettijeve medialne prakse pa s signalno tehnologijo, ki je kakor v Artaudovem gledališču krutosti neposredno povezana s čutnim aparatom: »'Signal' kot nasprotje 'simbola' je semiotična kategorija, ki ne zahteva interpretacije, temveč sproža reflekse.« (344)

Kot je Marinetti razglasil v manifestu *La radia*,[5] je izrecni zastavek ukvarjanja z radijskim prenosom ustvarjanje povsem nove medialne topologije in recepcijske modalnosti:

> Nova Umetnost, ki se začne, kjer se gledališče, film in pripoved končajo […]. Neznansko razširjenje prostora […] Čisti organizem radijskih senzacij […]. Umetnost brez časa ali prostora, brez včeraj in jutri […]. Odstranitev pojma ali spoštovanja občinstva, ki je vselej celo na knjigo vplivalo tako, da jo je popačilo in poslabšalo (Marinetti in Masnata 294–295).

Zamenjava standardnega samostalnika *radio* z igrivim novorekom »radia« namiguje na razkorak med običajno družbeno rabo tehnologije in umetniško sabotažo. Medtem ko je radio normalizirano komunikacijsko orodje, zahteva »la radia« popačenje estetskih kategorij in izkustvenih navad:

> *La radia* odpravi 1. prostor ali prizorišče v gledališču, tudi v futurističnem sintetičnem gledališču (dejanje, ki se razvija na nepremični, stalni sceni) in filmu (dejanja, ki se razvijajo v izjemno hitrih in na moč spremenljivih hkratnih in vselej realističnih scenah) 2. čas 3. enotnost dejanja 4. dramski značaj 5. občinstvo, razumljeno kot množični samooklicani sodnik, sistematično sovražen in pohleven, vselej retrograden, vselej sovražno nastrojen do sleherne novosti.« (Marinetti in Masnata 293–294)

Timothy Campbell (x) je na sledi prelomnega proučevanja zgodovine medijske povezljivosti iztrgal pojem »brezžičnega« iz »sive cone med telegrafijo in skromnimi genealogijami zgodnjega radia« in poudaril vpliv Marinettijevega privzemanja logike komunikacijskih medijev na literarne strukture. Četudi se Campbellove analize osredotočajo zgolj na Marinettijeve literarne manifeste in na *parole in libertà*, pa njegov opis vznikajočih praks »brezžičnega pisanja« posredno zajema tudi medialni kontekst Marinettijevih radijskih eksperimentov. V poznih dvajsetih letih temeljne spremembe v medijski povezljivosti poleg same narave radijskega predvajanja na novo opredelijo tudi odnos med govorcem in poslušalcem, izmenjavo med tehnologijami zapisa in zvokom, hierarhijo arhivskih sledi in govorjenega jezika: »Brž ko so frekvence v glasovnih prenosih in tehnološke zmožnosti shranjevanja podatkov sovpadle, je bilo mogoče zvoke izrezati in jih pomešati v montažo, s tem pa dobiti pomembne časovne učinke, zlasti na področju časovne obdelave.« (Campbell xii) »Brezžično pisanje« je postalo odvisno od modulacije frekvenc, mašinskega spajanja in razporejanja, telesnih vmesnikov.[6]

Radijske sinteze in manifest *La radia* so nastali v času burnih razprav o vplivu radijskega predvajanja in novih komunikacijskih tehnologij na tradicionalne estetske prakse, kot so gledališče in literarne recitacije iz poznih dvajsetih in zgodnjih tridesetih let (gl. Brecht). Walter Benjamin je v komentarjih o Bertoltu Brechtu izpostavil tehnološke implikacije Brechtovega epskega gledališča – »Oblike epskega gledališča ustrezajo novima tehničnima oblikama, kinu in radiu. Na ravni sodobne tehnike je.« (Benjamin, »Poskusi« 223) – in poudaril temeljite spremembe v naravi estetske zaznave, ki jih je Brecht vpeljal z metodo prekinitve, loveč trenutek, »ko se masa diferencira v sklopu razprav, […] ko se zlagana, zastrta totaliteta 'publike' začenja razgrajevati« (226–227).

Kakor Marinettijeva »radia« je epsko gledališče »nova umetnost«, ki implicira nenavadne prostorsko-časovne odnose in spremenjen odnos do občinstva. Vendar so v nasprotju z Marinettijevo vitalistično govorico »radijskih občutkov« Brechtove prekinitve in *Verfremdungseffekt* utemeljeni v pedagoški in humanistični marksistični *episteme*, kar obenem pojasni Benjaminovo dobro znano obsodbo Marinettijeve futuristične senzibilnosti (Benjamin, »Umetnina« 166 isl.).

Kakor v Brechtovem epskem gledališču je osrednja značilnost sintez medsebojna igra akustičnih fragmentov in prekinitev, intervalov in mej. To je logika Marinettijeve »radia«, ki ustreza futuristični nereprezentacijski rabi medijev: govorica *sintesi* ne predpostavlja simbolov in retoričnega podajanja pomena, pač pa potujitveno prakso povezljivosti, suspendiranih gibanj in spletanja odnosov med številnimi prvinami: pokrajino signalov in *stimulai*, proces spajanja in razporejanja ekspresivnega materiala.

Najpomembneje pa je, da menjavanje intervalov in prekinitev v sintezah meri na kontinuiteto polja intenzivnosti, vitalistično logiko zgoščanja in razširjanja. Kajti razlika med akustičnimi intervali in prekinitvami, ki istočasno ločujejo in povezujejo različne segmente sintez, ni razlika v naravi, temveč razlika v stopnji, ki jo je mogoče povečati ali zmanjšati, jo pospešiti do točke absolutne spremenljivosti ali jo oklestiti do umirjenosti ponavljanja. Onkraj videza nepremostljive heterogenosti osnovnih akustičnih substanc in iracionalnih prekinitev lahko opazimo nastajanje subtilne estetike vmesnosti, tehnološko produkcijo novih zaznavnih intervalov.

Stati intermomentali

Za razumevanje osrednje vloge, ki jo Marinetti pripiše intervalom in prekinitvam, se je treba ozreti k debati o časovnem izkustvu prisotnosti z začetka 20. stoletja. Po Henriju Bergsonu –ključni referenci pri Marinettiju in avantgardah nasploh – se za iluzorno hipnostjo sedanjosti skriva dejanskost trajanja, raztegljivih skladov časovnih odsekov. Te enote imajo časovni razpon; trajajo, ker so vrinjene med imanentne polarnosti virtualnega in aktualnega, med brezmočno preteklost in dejavno sedanjost. Ti skladi trajanja so tenki, vendar gosti, saj nenehoma najedajo samoprisotnost hipne in nedimenzionalne sedanjosti.

Evklidske prostorske navade človeškega razuma in zaznavanja so privilegirale reprezentacijo – mimetično reprodukcijo prisotnosti, utemeljeno na iluziji o nečasovnem odnosu s predstavljeno rečjo –, Bergson (183) pa se, nasprotno, osredotoči na infra-reprezentacijske intervale in prevprašuje neprostorsko nedimenzionalnost: »Razum si prizadeva, da bi v živi gibljivosti reči oznamoval resnične ali mogoče postaje, zapisuje odhode in prihode; samo to je pomembno za človekovo misel, kadar naravno deluje.«

S privzemanjem Bergsonovega pojma intervala Anton Giulio Bragaglia utemelji *fotodinamismo*, pionirsko tehniko avantgardne fotografije, na pojmu medhipnih stanj (*stati intermomentali*). Po Bragagliju je namen fotografije v tem, da razkriva nereprezentacijsko naravo intervalov, ki sestavljajo vsakdanje kretnje, in sicer z razblinjanjem iluzije o hipnosti momentk (*snap-shop potography*).[7] Tudi Duchampov pojem *infra-mince* (infra-tenek) je različica bergsonovske estetike intervalov. V posthumnih zapisih o *Velikem steklu* Duchamp (št. 135) Marcel Duchamp v bergsonovskem jeziku napade hipnost sedanjosti »=v vsakem hipu trajanja (?) so / reproducirani vsi prihodnji in predhodni trenutki – Vsi ti pretekli in prihodnji trenutki / torej soobstajajo v sedanjosti, ki / v resnici ni več tisto, kar običajno imenujemo / trenutna sedanjost, temveč / nekakšna sedanjost mnogoterih razširitev

–«. Vizualnost tradicionalne umetnosti je neločljivo povezana z mitom o »hipni sedanjosti« – o sedanjosti produkcije in recepcije podob, interpretacije in komunikacije pomenov, marketinga in okusa umetnin –, Duchamp pa, nasprotno, s privzemanjem bergsonovske logike infra-reprezentacijskih intervalov transformira umetnine v neumetniške tekste »mnogoterih razširitev«: v »infra-tenke« predmete, v tekste, ki ne pripadajo reprezentaciji in ki zavzemajo paradoksno prostorskost trajanja. Takšna je narava »readymadeov« – aporetičnih reči v zaznavni in pojmovni »tenkosti« nereprezentacijskih intervalov.

Pri kontekstualizaciji Marinettijeve konstrukcije zvočnih intervalov pa moramo upoštevati tudi razvoj eksperimentalne fiziologije. Psihofiziološki eksperimenti so s pomočjo tehničnih naprav, kakršna je »kronoskop«, predstavljen v spisu Wilhelma Wundta *Grundzüge der physiologischen Psychologie* (Načela fiziološke psihologije) iz leta 1874, želeli izmeriti »fiziološki čas« – psihofiziološki interval med dražljajem in odzivom nanj – in s tem problematizirati hipnost zaznave in misli. Na simbolistične pisce, slikarje in skladatelje, kot sta Debussy in Janáček, je izkustveno območje, ki ga je razprlo odkritje nehipnih zaznavnih mehanizmov, naredilo močan vtis (gl. Steege). Kaj se dogaja med temi kratkimi, a gostimi intervali? Marinettijeve *sintesi radiofoniche* so torej le eden od primerov te subtilne umetnosti vmesnosti.

Prekinitve

Marinettijevo prvo radijsko sintezo, *Un paesaggio udito* (Akustična pokrajina), sestavljajo trije skladi zvokov: prasketanje ognja, pljuskanje vode in žvižganje kosa:

> *Akustična pokrajina*
> Žvižganje kosa, ki zavida prasketanju ognja, se je končalo s šepetajočim žlobudranjem vode
> 10 sekund pljuskanja.
> 1 sekunda prasketanja.
> 8 sekund pljuskanja.
> 1 sekunda prasketanja.
> 5 sekund pljuskanja.
> 1 sekunda prasketanja.
> 19 sekund pljuskanja.
> 1 sekunda prasketanja.
> 25 sekund pljuskanja.
> 1 sekunda prasketanja.
> 35 sekund pljuskanja.
> 6 sekund žvižganja kosa. (Marinetti, »Radio Syntheses« 416)

Prasketanje traja vselej eno sekundo, pljuskanje pa sledi dramatičnemu *crescendu* in *decrescendu* (10, 8, 5, 19, 25, 35 sekund), ki se konča z nenadnim žvižgom kosa. Ta sinteza predstavlja osnovne prvine Marinettijeve radijske govorice: četudi je mogoče te tri zvoke napačno interpretirati kot raznovrsten material, med katerim obstaja vrstna razlika, pa v resnici delujejo le kot razlike v stopnji čustvene intenzivnosti. Marinetti za doseganje tega učinka transformira pljuskanje v ponavljajoče se prekinjanje, v pet enosekundnih izsekov. Te prekinitve so hkrati časovni vezniki in modulatorji stopnje intenzivnosti pljuskanja. Namesto točkastega toka heterogenega materiala zdaj doživljamo spoj akustičnih ponovitev in variacij.

V drugi sintezi, *Dramma di distanze* (Drama razdalj), so menjavajoče se pojavitve zvočnih krajin iz oddaljenih geografskih področij in okolij – iz vojaškega, razvedrilnega, vsakdanjega mestnega in podeželskega življenja, religije – spojene brez opaznih prekinitvenih intervalov in sledijo strogemu pravilu enajstsekundnih ponavljajočih se enot:

Drama razdalj
11 sekund vojaškega marša v Rimu.
11 sekund plesanja tanga v Santosu.
11 sekund igranja japonske verske glasbe v Tokiu.
11 sekund živahne kmečke glasbe na podeželju v okolici Vareseja.
11 sekund boksarskega dvoboja v New Yorku.
11 sekund uličnega hrupa v Milanu.
11 sekund neapeljske ljubezenske pesmi, odpete v hotelu Copacabana v Rio de Janeiru. (417)

V tem primeru je skupna prvina radijski medij, tekoča nepretrganost radijskih valov. Radijsko predvajanje »razprostre prostor«, vendar na umeten način, s spajanjem in moduliranjem razlik. Gre za logiko intermedialnosti, za moč povezljivosti radijskega prenosa.

V tretji sintezi, *I silenzi parlano fra di loro* (Tišine se pogovarjajo med seboj), postane Marinettijev medialni konstruktivizem odkrito kompleksen, saj se razlikovanje med intervali in prekinitvami zamegli: je tišina tista, ki prekinja zvoke, ali obratno?

Tišine se pogovarjajo med seboj
15 sekund čiste tišine.
C, d, e na flavti.
8 sekund čiste tišine.
C, d, r na flavti.
29 sekund čiste tišine.
G na klavirju.
C na trobenti.

40 sekund čiste tišine.
Otrokov uau.
11 sekund čiste tišine.
Osupli oooooh enajstletne deklice. (418)

Ker se skladi tišine ter glasbenih in človeških zvokov spreminjajo v skladu s *crescendom* in *desrescendom* časovnih vzorcev – 15, 8, 29, 40, 11 sekund »čistih tišin« –, je vse težje razlikovati med ponovitvami in variacijami, med modulacijami in kvalitativno različnimi segmenti glasbil. Zaradi abstraktnosti tišin in singularne konkretnosti človeškega glasu prav tako ni mogoče določiti vrstnih razlik med oblikami in vsebinami, med strukturnimi in tematskimi prvinami. Jasno je le, da je treba dojeti razlike v stopnji čustvenega življenjskega prostora, ki ga konstruira »la radia«. Pride namreč do paradoksnega obrata: tišina ni več prazno ozadje, zapolnjeno s polnostjo medijske komunikacije – nasprotno: domnevna zmagoslavna učinkovitost med seboj povezanih globalnih mrež sloni na krhki podlagi virtualnih tišin, ki »se pogovarjajo med seboj« in podirajo meje človeške in tehnološke komunikacije.[8]

Battaglia di ritmi (Bitka ritmov) še okrepi menjavanje prekinitev in intervalov, tišin in zvokov:

Bitka ritmov
Previdna in potrpežljiva počasnost, izražena s kapljanjem vodnih kapelj, najprej odrezanih in nato ubitih z
letečo elastičnostjo, ustvarjeno z *arpeggi* klavirskih not, najprej odrezanih in nato ubitih z
glasnim zvonjenjem električnega hišnega zvonca, najprej odrezanega in nato ubitega s
tat rum ta trak ključa v ključavnici, ki mu sledi
enominutna tišina. (419)

Tu vsak akustični segment najprej »odreže« in nato »ubije« naslednjega. To pomeni, da vsak sklad sprva deluje kot prekinitev, nato pa kot gost interval. Poleg tega je lahko akustični segment »počasen« ali »elastičen«, »glasen« ali »tih – kapljanje vode, *arpeggi* klavirja, triminutna tišina[9] –; vsi torej kažejo raznolične med seboj prepletene prostorske in časovne značilnosti. Med prekinitvami in intervali, tišinami in zvoki, ni nobene vrstne razlike, povrh pa so tudi kakovost in količina, čas in prostor, tehnološko združeni, spojeni z mašinskim izvajanjem »radie« ter kot skrivnostno polje pulziranja naslovljeni na poslušalce.

Peta sinteza, *La construzione di un silenzio* (Grajenje tišine), razgrinja temelje Marinettijevega topološkega konstruktivizma:

Grajenje tišine
1. Zgrádi zid na levi s tušem na bobnih (pol minute).
2. Zgrádi zid na desni s trobljenjem – kričanjem – tramvajskim cviljenjem prestolnice (pol minute).
3. Zgrádi tla s klokotanjem vode v ceveh (pol minute).
4. Zgrádi stropno teraso čiv čiv ščriv vrabcev in lastovic (dvajset sekund). (420)

Tu se Marinetti ogne vsakršnemu razlikovanju med intervali in prekinitvami. Ker je razlika med njimi razlika v stopnji, predstavljajo intervali in prekinitve zgibe, pripomočke za zgibanje in oblikovanje časovno-prostorskih pojavov. Zato je vsak akustični material – tuš z bobnom, cviljenje avto-tramvaja, klokotanje vode, ptičji ščebet – uporabljen kot sklep, točka preobrata za gradnjo idealnega »infra-tenkega« umetnega okolja: tišine.[10]

Entre-deux

Sintesi so zvočni kolaži, konstruktivistične montaže, spoji tišin in akustičnih *objects trouvés*, prežeti z modernistično občutljivostjo na neposredovane pojmovne strukture in *readymade* material. Kot take se ravnajo po minimalistični kubistični estetiki in utirajo pot radijski glasbi Johna Cagea ter *musique informelle*. Vendar se zaradi svojega osrednjega prizadevanja za izražanje rež in rezov vpisujejo tudi v posebno vejo avantgardnega eksperimentalizma, ki je od Bertolta Brechta do Jean-Luca Godarda poudarjala rabo zevi in prekinitev:

> V ospredju epskega gledališča je […] prav prekinjanje nekega ravnanja. […] [N] jegova poglavitna funkcija [je] v določenih primerih v tem, da prekinja dejanje – daleč od tega, da bi ga ilustriralo ali podpiralo. Pri tem ne gre le za dejanje soigralca, temveč tudi za lastno dejanje. Lastnost retardacije, ki jo imajo prekinitve, epski značaj okvira, to je torej tisto, kar iz gestičnega gledališča dela epsko gledališče. (Benjamin, »Poskusi« 220)[11]

V Deleuzovi ontologiji »iracionalnih rezov« – utemeljeni na Godardovi filmski teoriji, ki neposredno črpa iz Brechtovega potujitvenega učinka – je Benjaminovo tolmačenje Brechtovih prekinitev radikalizirano, saj postane osrednje orodje za rekonstrukcijo logike modernega filma. Kakor Marinetti je tudi Gilles Deleuze imun proti Brechtovemu marksističnemu humanizmu in pedagoškim načelom; svoje pojmovanje »vmesnosti«, *entre-deux*, utemelji na povsem vitalističnem terenu. V njegovi dvodelni študiji o filmu argumenti kulminirajo v teoretizacijo »metode iracionalnih rezov«, ki porajajo »reže med podobami«. V Rohmerjevih, Dryerjevih, Bressonovih in Godardovih filmih »ne gre več za vprašanje povezovanja

in pritegovanja podob. Nasprotno, zdaj šteje reža med podobami, med dvema podobama« (Deleuze, *Cinema 2* 179–180).

Deleuzu gre za specifično gibanje: ne za premikanje, ampak za proces postajanja, za moč transformacije, katere gonilna sila je v »transcendentalnem polju«:

> Kaj je transcendentalno polje? Razlikuje se od izkustva pa tudi na noben objekt ne napotuje in prav tako ne pripada kakemu subjektu (empirični reprezentaciji). Zato se kaže kot čisti nesubjektivni tok zavesti, neosebna predrefleksivna zavest, kvalitativno trajanje zavesti brez sebe […]. Transcendentalno polje določa ravnina imanence, ravnino imanence pa določa neko življenje. (Deleuze, »Immanence« 4)

V transcendentalnem polju je življenje »neko življenje«, dogodki se zgodijo pri absolutni hitrosti v praznem času, v nereprezentacijskem trajanju nečloveškega intervala: »To nedoločno življenje sámo nima trenutkov, pa naj ti še tako tičijo drug ob drugega, temveč ima le medčase [des entre--temps], medtrenutke.« (5)

Deleuze se pri razvijanju kompleksne logike vmesnosti, pojmovanih kot *organum* vitalističnih umetniških praks, vsaj na videz ravna po Marinettiju. A Deleuze ostro razloči prekinitve od intervalov, saj rezom in prelomom pripiše nalogo povezovanja končnosti in transcendentalnega polja, tj. povezovanja aktualnega in virtualnega. Zaradi te arhitekturne funkcije pa po Deleuzu prekinitve niso intervali, pa tudi med seboj niso izmenljivi. Z rezanjem in prodiranjem v empirično ravnino spajajo in razdvajajo segmente. Toda njihova moč izhaja iz intenzivnega polja, ki ga ne smemo zamenjevati z vsakdanjim zaznavnim izkustvom. Po Deleuzu so prekinitve vmesnosti, pojmovane kot čista moč diferenciacije transcendentalnega polja.

Zato Deleuzovi opisi vmesnosti predpostavljajo topologijo prekinitev, ki ni združljiva z Marinettijevimi menjavami rezov in intervalov. Deleuzova logika »iracionalnih rezov« je metoda prečenja imanence in transcendence, absolutnega življenja in relativnih trenutkov: čistega, votlega, intenzivne Zunanjosti in nečistega teritorija svetnih pojavov. Bežiščnica in ne interval. (Deleuze in Parnet 37, 39)

Deleuzovska vmesnost je avtonomen in nekomensurabilen rez, ki ni koordiniran z začetki in konci drugih skladov življenja; ni izmenljiv z intervali. In v tem je po Deleuzu logika avantgardne umetnosti in filma:

> Moderna podoba ustvari kraljestvo »nekomensurabilnosti« ali iracionalnih rezov: to pomeni, da rez ni več del prve ali druge podobe, prve ali druge sekvence, ki ločuje in razdvaja […]. Interval je osvobojen, reža pa postane neodpravljiva in samostojna. (Deleuze, *Cinema 2* 277)

Transcendentalna nedimenzionalnost deleuzovskih vmesnosti zahteva teologijo Zunanjosti, ontološke Praznine, na kateri slonijo vse operacije iracionalnega rezanja:

> Zaradi metode VMESNOSTI: »vmes med dvema dejanjema, med dvema afekcijama, med dvema percepcijama, med dvema vizualnima podobama, med dvema zvočnima podobama, med zvočnim in vizualnim« […], je čisto vse podvrženo spremembi […]. Celota se torej zliva s tistim, kar Blanchot imenuje »sila razpršitve Zunanjosti« ali »vrtoglavica razmikanja«: s tisto praznino, ki ni več gonilni del podobe in ki bi ga podoba prečila za svoje nadaljevanje, temveč je radikalno postavljanje podobe pod vprašaj. (180)

Lahko bi si poskusili predstavljati, kako bi Deleuze pristopal k Marinettijevim *sintesi radiofoniche*: njihove »prvinske« prekinitve, njihovo rabo neobdelanih zvokov in nepredvidljivih rezov bi s tega vidika utegnili razumeti kot dokaz iracionalne režne moči, kot sled absolutne svobode postajanja, kot znak za bežiščnico, ki pelje k višjemu življenju mašinskih intervalov, k življenju »duhovnega automatona«.

Pa vendar gostota Marinettijevih tišin – ki nikoli niso praznina in ki nikdar ne proizvedejo »vrtoglavice razmikanja« – in gosta dimenzionalnost rezov v sintezah – z nenehno menjavo intervalov in prekinitev – nakazujeta, da v nasprotju z deleuzovskimi vmesnostmi Marinettijevi intervali *so* »del ene ali druge sekvence, ki ju ločujejo in razdvajajo«. Zato obravnava narave sintez zahteva vitalistično, a podeleuzovsko pojmovanje vmesnosti, in sicer na temelju take topologije intervalov, ki nam bo omogočila zajeti in izraziti Marinettijevo netranscendentalno geometrijo prekinitev. To pomeni, da moramo razviti resnično vitalistično kritiko, ki bo mogla razvozlati govorico »radia«.[12] Žal je naš cilj še precej oddaljen. Imamo pa Marinettijeve *sintesi* in nekaj drugih hermetičnih predmetov, ki spodbujajo k utemeljevanju prihodnje teorije o njihovem osupljivem umetniškem življenju.

Prevedla Varja Balžalorsky

OPOMBE

[1] Ta članek je predelana različica članka Luisetti, »A Vitalist Art«.

[2] S*intesi radiofoniche* iz leta 1933 je pet kratkih eksperimentalnih radijskih kompozicij iz Marinettijevega poznega futurističnega obdobja, ki časovno sovpadajo z njegovim manifestom *Manifesto futurista della radio*, znanim tudi kot *La radia*. Partitura *sintesi radiofoniche* je bila prvič objavljena avgusta 1941 v časopisu *Autori e scrittori* in nato v Marinetti, *Teatro* 629–637, nedavno pa jih je v angleščino prevedel Jeffrey T. Schnapp (Marinetti, »Radio Syntheses«). Sam Marinetti radijskih sintez ni nikdar izvedel, leta 1978 pa jih je posnel skladatelj Daniele Lombardi; posnetek je dostopen tudi na zgoščenki *Musica Futurista: The Art*

of Noises 1909–1935 (LTM Recordings, 2006) in na spletni strani http://www.futurismo.altervista.org/audio.htm (7. maj 2012). Za podatke o drugih izvedbah *sintesi radiofoniche* gl. Fisher, »Futurism« 245.

[3] O zgodovini italijanske radijske estetike gl. De Benedictis.

[4] Marinettijevo eksperimentiranje s posnetim zvokom se začne leta 1914 z nizom pesniških recitacij, posnetih v nekem londonskem studiu. Njegovo zanimanje za radijski medij sicer sega že v začetke futurizma, v prakso pa preide v drugi polovici dvajsetih let. Leta 1926 med turnejo po Južni Ameriki Marinetti večkrat zaporedoma nastopi na brazilskih in argentinskih radijskih postajah. Tem nastopom je nato sledilo šestnajst let zelo živahnega sodelovanja z leta 1928 ustanovljenim Italijanskim nacionalnim radiem (EIAR), ki je obsegalo vse od deklamiranja aeropesmi, komentiranja osrednjih dogodkov, na primer vrnitve letalske eskadrilje Itala Balba iz ZDA avgusta 1932, do rednega predvajanja radijskega glasila o dejavnostih futurističnega gibanja (Marinetti, »Radio Syntheses« 415). O Marinettijevem in futurističnem ukvarjanju z radiem nasploh gl. Fisher, »Futurism« 229–262.

[5] *Manifesto futurista della radio*, ki ga je Marinetti napisal skupaj s Pinom Masnato, je bil objavljen 22. septembra 1933 v italijanskem časopisu *Gazzetta del popolo*. V *Futurismo* (1. oktobra 1933) se pojavlja kot *Manifesto della radio,* v *Autori e scrittori* (avgusta 1941) kot *La radia, Manifesto futurista dell'ottobre 1933*. Danes je dostopen tudi v Marinetti, *Teatro* 769–774, in v Marinetti in Masnata 292–295. Manifestu je leta 1935 sledila štiriinštirideset strani dolga razlaga Pina Masnate, odlomki katere bodo v angleškem prevodu objavljeni v reviji *Modernism / Modernity* 19.1 (2012). O tej Masnatovi razlagi gl. Fisher, »New Information«.

[6] Timothy Campbell (91) opozarja na Marinettijevo literarno »stimuliranost brezžičnih funkcij« in na pomanjkljivosti njegovega »prenosa čutnih podatkov v pisni ustreznik«. Sam pri obravnavi Marinettijeve medialne logike ne dajem prednosti literarnemu polju.

[7] O bergsonovskih intervalih v Bragaglijevem *Fotodinamismo futurista* gl. Luisetti, *Una Vita* 119–138. Bragaglia (34) omenjeni odlomek o intervalih navaja iz Bergsonovega »Uvoda v metafiziko«.

[8] Marinettijeve radijske sinteze se zgledujejo pri manifestu Enza Ferrierija o radiu kot ustvarjalni sili iz leta 1931. Ferrieri, ki je leta 1929 postal umetniški vodja Italijanskega radia, je »avtor prodorne misli, da paradoksna moč radia pravzaprav izvira iz tišin« (Fisher, »New Information«).

[9] O tej triminutni tišini gl. De Benedictis (66).

[10] Za vlogo tišine kot minimalne »vključene enote razporejanja«, »potrebne za pridružitev enega zvoka drugemu«, gl. Campbellov komentar Sergijevega merjenja vrzeli med enotami vznemirjenja (70–72).

[11] O strukturnih sorodnostih med Brechtovim epskim gledališčem in Marinettijevimi gledališkimi tehnikami gl. Coda.

[12] Zaradi hegemonije transcendentalnih paradigem v zahodni misli in estetiki bi vitalistični kritiki nemara koristilo, če bi se ozrla k Vzhodu, denimo h kitajski misli in umetnosti, kjer »subtilna«, suspendirana kompleksnost virtualnih, pa vendar realnih izkustev ter imanentnih zevi med prisotnim in odsotnim že dolga stoletja predstavlja težišče filozofskih in umetniških praks: »Obstajajo številna gledišča, s katerih subtilno postane dostopno izkustvo. V estetiki je to na primer izvrsten okus komaj zaznavnega, bodisi v zvoku bodisi v podobi, v prehodnem stanju med tišino in zvočnostjo v glasbi ali med praznino in polnostjo v slikarstvu, ko sta zvočna in slikovna realizacija komajda zaznavni ali tik pred tem, da se razblinita […]. Od tod izvirajo prav vse kitajske prakse.« (Jullien 25)

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Kulturalistična ideologija v literarni teoriji: od »kritične« teorije performativa do »topične« koncepcije performativnosti

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Stari prepad med humanistiko in naravoslovjem pravkar cinično premošča neoliberalno podrejanje tako humanistične kakor naravoslovne teorije ekspertni vednosti, v humanistiki zlasti kulturnim študijem, med ključnimi viri katerih je koncepcija performativnosti. Članek oriše proces, ki vodi od Austinove prototeoretske »nomotetične« izključitve literature iz teorije performativa do ideološke »idiografične« utemeljitve koncepcije performativnosti pri J. Butler na literaturi.

Ključne besede: literarna teorija / teorija govornih dejanj / performativnost / kulturni študiji / ideologija / neoliberalizem / performativnost

UDK 82.0:316.7

Obravnavali bomo institucionalne učinke teorije performativnosti. Institucionalni okvir te teorije, univerzitetne in raziskovalne ustanove v centru stagnirajočega severnoameriškega sistemskega akumulacijskega cikla, je trenutno ena strateških tarč neoliberalnih varčevalnih ukrepov. To, kar je sprva videti kot politika zmanjševanja sredstev za humanistiko v prid naravoslovju, je zgolj humanistična projekcija politike odpovedovanja teoriji – bodisi humanistični ali pa naravoslovni – v imenu ekspertne vednosti, nasprotja teorije: naravoslovje je vse bolj poblagovljeno za produkcijo reči, humanistika pa za produkcijo ljudi, ki jo vse bolj ogroža produkcija reči. Naravoslovje nadomeščajo informacijske tehnologije, t. i. vojaško-industrijski kompleks in farmacevtska industrija, humanistiko (in družboslovje) pa upravljanje s človeškimi viri, območni in kulturni študiji. Prepad med humanistiko in naravoslovjem, ki ga je postulirala vsaj že Aristotelova *Nikomahova etika* (gl. Knjigo VI; prim. Yu 8–23), tako

brezsramno premošča kapital. Poblagovljenje kognitivne produkcije presega to razliko med humanistiko in naravoslovjem tako, da jo v vsakem od obeh polov podvaja kot razliko med teorijo in ideologijo. Ta razlika, ta manko, ne pa kak pozitiven predikat, danes združuje humanistiko in naravoslovje.

V pogojih komodificirane kognitivne produkcije institucija univerze postavlja uslužbence in uslužbenke pred zahtevo, da napravijo svoje produkte kvantifikabilne, objavljive v hegemonih, vse bolj profitnih (Peekhaus; Striphas; Sterne 1861–1863) revijah, učbenikih in *readerjih*, ki postajajo »prostor publiciranja, ki ga zahteva korporativizirana univerza« (Discenna 1845; prim. Peekhaus 582, 592, 594, 587, in Striphas 9–10). To zahtevo so domačini postmoderne poblagovljene kognitivne produkcije reflektirali, subjektivirali in legitimirali z geslom *Publish or perish!*, *Objavi ali odidi!* (ki je kritično odmevalo v Lyotardovem geslu /8/ »bodi operativen […] ali izgini«, v kontekstu akademskega objavljanja pa so ga analizirali na primer Waters, DuBoff, Drew 66). Kakor *Denar ali življenje!*, kar je Lacanov (198) model odtujitvene alternative, ta alternativa med objavo in zginotjem odtuji svojega naslovljenca v institucijo: *Objavi!*, označevalec, ki je v opoziciji le s svojo odsotnostjo, *odhodom*, tako da označuje označevalec kot tak, objavo, interpelira naslovljenca kot subjekt vednosti, verige označevalcev, ki jih prazni označevalec, *Objavi!*, označuje in obvladuje.

Univerza potemtakem izenačuje ekspertno vednost z objavami v hegemonih revijah, alternative vednosti pa z ne-bitjo. Med temi alternativami je teorija kot ekstremna alternativa veliko bolj marginalizirana kakor preprosto idiosinkratična odsotnost vednosti, kar je drugi ekstrem. Kajti prav tisto poblagovljenje, ki naddoloča univerzo, postavlja teoretsko prakso pred neko drugo alternativo: teorijo je mogoče prakticirati bodisi v univerzitetni instituciji bodisi v vse bolj bežnem prostem času prekariziranega kognitivnega delavca in delavke; teorija je tako primorana izbrati ravno tisto institucijo, ki je sama primorana izenačiti teorijo z ne-bitjo.

Koncepcija kulturnega prevajanja kot hegemono pojmovanje kulture

V humanistiki teorijo v veliki meri nadomeščajo kulturni študiji, ki ostajajo »na robu« med korporativizacijo akademske sfere, četudi »imajo na voljo edinstvena teoretska in analitična orodja za raziskovanje razmerij med mediji, institucijami, državnimi aparati in občinstvi« (Striphas 18); natančneje, če naj se ognemo tehnološkemu determinizmu in rešimo protislovje, moramo reči, da so na robu zato, ker, kot Thomas Discenna (1844)

pokaže na primeru komunikologije, »osredotočenost na kulturo predpostavlja zanemarjanje problematike dela«.

V primeru literarne vede so raziskovalci soočeni z dilemo sprejemanja bodisi kulturalizacije bodisi marginalizacije. Kot značilen institucionalen okvir ima tudi ta dilema strukturo izsiljene alternative, saj sili literarno teorijo, da se bodisi odpravi ali pa spremeni v kulturne študije. Kolikor literarna teorija sprejema to dilemo, išče nišo v kulturaliziranem branju literarnosti, ki literarnost zvede na tekstualni postopek in dopolnjuje s t. i. družbenim kontekstom, kot da ta ni zgolj nov tekst, kar pomeni, da je to dopolnilo zgolj heglovska *Verstellung* problematike teksta. Ta kompromis med literarnostjo in kulturo pelje literarno teorijo v slabo neskončnost odkrivanja domnevno literarnih potez v neliterarnih diskurzih in navsezadnje v brisanje meje med literarnim in svojim lastnim diskurzom.[1]

Kakor vsaka izsiljena alternativa ta dilema formalno podreja teorijo, imanentno mišljenje, ideologij, domnevni očitnosti prave izbire v dilemi; naša dilema pa to počne tudi vsebinsko, saj sili teoretsko prakso sámo iz literarne vede. Vendar jo lahko suspendiramo, če opustimo institucionalno gledišče in ocenimo kulturne študije kot teoretsko, ne kot institucionalno prakso. Namesto zunanjega soočenja z institucionalno konkurenčnega gledišča kulturni študiji potrebujejo teoretsko analizo, ki bi zgrabila kot predteoretsko, ideološko – in zato institucionalno hegemono – prakso. S tem namenom bomo v referatu obravnavali pomembno epistemološko izhodišče kulturnih študij, teorijo performativnosti v artikulaciji Judith Butler. Vse od njene obravnave performativnosti in elaboracije Bhabhovega pojma kulturnega prevajanja je prevajanje, kot pravi Hito Steyerl, »model časa-prostora, geopolitičnih razmerij, postnacionalnih identitet in navsezadnje celo metafora za samo kulturo« (Steyerl). Poskušali bomo pokazati, da je ta popularizacija kulturnega prevajanja predteoretska, kolikor ji ne uspe analizirati zgodovinskih pogojev lastne obdelave svojega predmeta ter s tem reflektirati lastnega položaja izjavljanja in se vzpostaviti kot teoretska praksa.

Skicirali bomo proces, ki pelje od Austinove konstitutivne izključitve literature iz njegove teorije performativa do Judith Butler in njenega utemeljevanja lastne teoretizacije performativnosti na literaturi. Tako se bomo lahko vprašali, kako je moglo nekaj, kar se je začelo kot teoretski poseg v »nomotetično«, »kritično« ideologijo logičnega pozitivizma, končati kot »idiografična«, »topična« ideologija kulturne performativnosti Pri odgovarjanju na to vprašanje bomo kakor Judith Butler izhajali iz izrazito znanstvenega raziskovalnega programa same humanistike: iz antihumanističnega (proti-eksistencialističnega) strukturalizma.

Austinova znana ločitev družbenih učinkov literature od ilokucijske moči govornih dejanj je dokončno, nedialektično odpravljena v kulturnih

študijih. Družbene učinke literature kulturni študiji zajemajo s pojmom performativnosti. Največji vpliv je ta pojem dosegel v artikulaciji Judith Butler (Gorman 1999: 98; Miller 2007: 222). Njena analogija med performativno izjavo in umetniškim performerstvom je bila aplicirana (Sedgwick 2007: 23–29) – ali kvečjemu revidirana (Fischer-Lichte 2008: 37–41; Miller 2007: 233–235) – v najnovejših obravnavah družbenosti literature. Še več, celo Shoshana Felman mora svojo (»občudovanja vredno in občudujočo« / Cavell 1995: 53/) razpravo o Austinu in *Don Juanu* iz leta 1980 enaindvajset let pozneje brati skoz performativnost Judith Butler (Felman 2002: ix–x). Ne nazadnje o hegemoniji pojma performativnosti govori tudi dejstvo, da se je srečanje med literarno vedo, izhajajočo iz Austina, in kulturnimi študiji nedvoumno končalo v prid *studies*. Srečanje, ki sta ga nevede priredili Mary Louise Pratt in Judith Butler – prva je leta 1986 brez sklicevanja na kulturne študije speljala subjekt izjavljanja Austinovih performativov na zahodnega moškega moderne (Pratt 62),[2] druga je dve leti zatem brez omembe Austina zvedla performativ na performerstvo (Butler, »Performative« 519–522) – se je končalo s prehodom prve v kulturne študije (leta 2004 je Mary Louise Pratt skupaj z Ronom G. Manleyjem in Susan Bassnett celo napisala študijo *Intercultural Dialogue* /Medkulturni dialog/ za The British Council).

Austin s svojo teorijo performativa odkrije razred izjav, ki ne reproducirajo razlike med subjektom in objektom, ampak producirajo intersubjektivna razmerja. Tako odkrite performative ne le doda konstativom, ampak opazi, da lahko kakor performativi tudi konstativi pod določenimi pogoji opravijo dejanje, ki ga imenujejo. Zato razlikovanje med konstativi in performativi degradira v »posebno« teorijo performativa v okviru »splošne« teorije govornih dejanj (Austin 126). Po tej teoriji ima sleherna izjava lokucijsko moč izjavljanja stavka, ilokucijsko moč produkcije intersubjektivnih razmerij s tem izjavljanjem in perlokucijsko moč učinkovanja na nadaljnje izjavljanje. Glede na ilokucijsko moč, ki jo v posebni teoriji zajema pojem performativa, Austin klasificira govorna dejanja kot verdiktive, eksercitive, komisive, behabitive in ekspozitive.

Derrida prepozna v Austinovem konceptu ilokucijskih dejanj vse poteze lastnega koncepta znaka: neodvisnost od navzočnosti empiričnega sobesedila (referent, odpošiljatelj in prejemnik ter njuna kronotopa) in od strukturnega konteksta (označenec, predpostavljeni avtor in naslovljenec, metaforične in metonimične povezave znaka v tekstu, sam kod teksta) ter iz te neodvisnosti izhajajočo odvisnost od zgodovine uprizoritev. A vse te podobnosti Derrida jemlje samo kot ozadje načelne razlike, svoje lastne razlîke. Austinova lokucija naj bi ostala naključen izraz ilokucijske formule in ne njena strukturno nujna uprizoritev/sprememba. Austinova cena za to neodvisnost od lokucije pa naj bi bila odvisnost od enoznačnosti, ki naj

bi jo po Austinu zagotavljala konvencionalni kontekst in »resna« (Austin 9, 27) intenca. V to ceno naj bi bilo vključena tudi Austinova odprava vica, citata in literature kot »etioliranih«, »parazitskih« (31, 84 op. 2, 93), neuspelih govornih dejanj. Po Derridaju je možnost tega neuspeha, etiolacija, nujna možnost, zaradi katere je vsako govorno dejanje prekarno in s tem neredundantno.

Judith Butler, kot bomo poskušali pokazati, to nujno možnost napačno razume kot nujno aktualnost: po njej je vsako govorno dejanje vselej že etiolirano. Vsako govorno dejanje naslovljenec prej ali slej »estetsko uprizori« (Butler, *Excitable* 99), resignificira, reapropriira. Estetski diskurz, ki ga je Austinova »nomotetična« znanost mukoma izgnala iz teorije performativa, je zdaj v »idiografični« koncepciji Judith Butler enako mukoma povzdignjen na raven samega pojma performativa.

»Performativno protislovje« pravne institucionalizacije univerzalnosti

Judith Butler poskuša razviti teoretske argumente za institucionalizacijo univerzalnosti onstran pravne institucionalizacije. Pravo v njeni analizi (Butler, *Excitable* 88–90) nujno partikularizira univerzalnost, saj mora v imenu univerzalnih pravic in svoboščin sankcionirati (na primer cenzurirati) partikularistične izjave, ki onemogočajo izjavljanje svojim naslovljencem. (S pravnega gledišča na primer sovražni govor vnaprej diskreditira izjave njegovih naslovljencev; »coming out«, razglasitev homoseksualnosti, v vojski ogrozi družbeno vez med vojaškim osebjem; in pornografija prikazuje pripadnike in pripadnice določene družbene skupine kot nevredne izjavljanja.) Pravo bi namreč zašlo v »performativno protislovje« (88), če bi v imenu univerzalnosti zaščitilo te partikularistične izjave. Če naj se ogne protislovju, mora univerzalistično pravo ratificirati le univerzalistične izjave. Toda Judith Butler trdi, da pravo ravno z ogibanjem performativnemu protislovju zapade protislovju univerzalnosti, ki je v tem, da je univerzalnost prav proces ratifikacije, univerzalizacije neuniverzalističnih izjav.

Pri postuliranju univerzalnosti onstran pravnega pojma se Judith Butler sklicuje na Heglovo kritiko Kantove formalistične razločitve subjektivnih kategorij in objektivnega sveta. Hegel pokaže, da individuum participira na univerzalnosti, kolikor subjektivira objektivno sfero nravnosti, *Sittlichkeit*. Kajti kot odtujen v tej sferi družine, civilne družbe in države je lahko pripoznan v skupnosti ostalih subjektov nravnosti. Participacijo na univerzalnosti zagotavlja participacija na nravnosti. Ker pa Judith Butler sodobnost obravnava kot multikulturno, je po njenem univerzalno vzajemno pripo-

znanje mogoče zgolj prek prevajanja med kulturami, prek kulturnega prevajanja. Ko ni več mogoče ne univerzalizirati ene kulture ne najti skupne poteze vseh kultur, je univerzalizacija pripoznanja odvisna od kulturnega prevajanja. (Butler idr., *Contingency* 20–21, 24–45, 35, 172) Multikulturnost naj bi moglo zagotoviti le prevajanje med partikularnim in univerzalnim, politika prevajanja, ki bi pripoznala partikularne identitete, izključene iz realno obstoječe pravno institucionalizirane sfere univerzalnega, kot participirajoče na univerzalnem in s tem univerzalizirala sámo institucionalizirano univerzalnost. Politika kulturnega prevajanja je politika priznanja.

Judith Butler torej očitno izenači nravnost s kulturo. Samo tako lahko univerzalnost, ki ji pri Heglu daje materialno eksistenco nravnost, pogojuje s preseganjem kulturnih meja, ki naj bi bile značilne za sodobne družbe. Toda to izenačenje je že regresija v razmerju do Hegla. Pri njem namreč ne le nravnost univerzalizira tako abstraktno pravo kakor njegovo univerzalizacijo v moralnosti, temveč tudi v kraljestvu same nravnosti država univerzalizira družino pa tudi njeno univerzalizacijo v civilni družbi. Ko se tedaj Judith Butler vrača h kulturi, ko očita sodobni državi rigidnost, je njeno sklicevanje na *Fenomenologijo duha* in *Oris filozofije prava* neupravičeno (Butler idr., *Contingency* 172). *Pravna filozofija* sicer predvideva takšno vračanje od države k civilni družbi, saj univerzalizacija, ki poganja triado družina/civilna družba/država, ni preprosta negacija prvih dveh členov v tretjem (Theunissen 21, 25 isl.). Vendar tovrstno vračanje prav tako ni nevtralno, ni brez posledic za univerzalnost, saj se izkaže za regresijo, brž ko *Pravno filozofijo* beremo na ozadju *Fenomenologije*,[3] po kateri država civilne družbe ne negira, pač pa jo naddoloči, tako da je sleherna vrnitev v civilno družbo regresivna v razmerju do sfere države.

Judith Butler lahko prikaže kulturo kot univerzalnejšo kakor država, le če *Pravno filozofijo* interpretira mimo *Fenomenologije*, in sicer mimo njene črke (*Fenomenologija* nravnost podredi moralnosti, ne nadredi) in zlasti duha (dialektike). Negacijo družine in civilne družbe v državi reducira na medsebojno odvisnost vseh treh institucij nravnosti, da bi razkrila odvisnost državnega prava od družinskih in civilnodružbenih norm (na primer odvisnost pravne definicije univerzalnosti od homofobne patriarhalne politike /Butler, *Excitable* 62–63, 23, 22, 93/) in da bi nato mobilizirala to odvisnost države od kulture za boj proti hegemoniji pravne države (Butler idr., *Contingency* 174–175). A ta boj za dodelitev statusa pravnega subjekta identitetam, konstitutivno izključenim iz pravne definicije univerzalnosti, je videti le boj za globalizacijo pravno določenih razmerij kapitalistične eksploatacije. Njeno branje Hegla prezre, da je negacija (tako družine kakor civilne družbe v državi) ireduktibilna na medsebojno odvisnost (vseh treh sfer), saj je negirana sfera (na primer civilna družba, ki jo ona brani proti

državi) naddoločena z negirajočo (z državo). Zato je tudi njena zahteva po univerzalnosti kot procesu in ne kot sferi, institucionalizirani v pravni državi, naddoločena s sodobno državo, ki je ravno institucionalizirana regresija socialne in pravne države na raven subsidiarne in identitarne države.[4] Njen antietatizem je antietatizem sodobne države, njena regresija je regresija kot sodobna država. Ko brani civilno družbo, jo podreja logiki kapitala.

Na njeno teorijo performativnosti je bržkone prav toliko vplivalo Derridajevo branje Austinovega koncepta govornega dejanja, kolikor sama vpliva na sodobne debate o govornih dejanjih nasploh in o umetnosti posebej. Pa vendar se ji ob obravnavi sovražnega govora zdi Derridajev filozofski razmislek o pogojih možnosti govornih dejanj prav tako nezadovoljiv kakor Bourdieujeva sociologistična radikalizacija (Austinovega lastnega /Butler, *Excitable* 24/) konvencionalizma. A ta dvojna kritika še zdaleč ni disjunktivna sinteza, ki bi negirala same podmene, ki si jih nevede delita kritizirani opciji. Nasprotno, Judith Butler utaji opozicijo med njima, ko predlaga pojem »družbene iterabilnosti govornega dejanja« (147–152) in uporabi Derridajevo kategorijo iterabilnosti za svojo multikulturalistično kritiko nacionalne države.

Sovražni govor kot iterabilno govorno dejanje

Judith Butler verjame, da lahko sovražni govor njegov naslovljenec reartikulira z »estetsko uprizoritvijo« in drugimi transgresivnimi dejanji, ki ne potrebujejo državnega aparata. Še več, s tem ko cenzurira sovražni govor, državni aparat po njenem onemogoča to transgresivno uprizarjanje. To lahko verjame zato, ker sovražni govor interpretira kot ilokucijsko dejanje grožnje, dejanje, ki sproži temporalnost, ki naj bi jo sklenilo zagroženo dejanje kot perlokucijski učinek grožnje. Možnost subverzije sovražnega govora naj bi se skrivala v razkoraku med grožnjo in njenim udejanjenjem (11–12, 15, 40, 41, 101–102, 125–126), ki naj bi zagotavljal možnost ponesrečenosti, zastrelka grožnje (nav. d.: 69).[5]

Takoj moramo opozoriti, da so perlokucijski učinki grožnje ali na primer obljube manj institucionalno nadzorovani in s tem bolj prepuščeni izjavljalcu kakor perlokucijski učinki poroke ali razsodbe. Razlog je v tem, da enako velja za pogoje posrečenosti teh ilokucijskih dejanj, kakor jih klasificira Austin (25–33). Sovražni govor je produkt benvenistovske (299–308) delokutivne izpeljave verdiktiva: iz besede, ki metaforično designira svojega naslovljenca kot vsebujočega neko potezo (na primer nacionalno, spolno ali versko identiteto), je z redno, konvencionalizirano rabo izpeljan homonim, ki svojega naslovljenca designira kot naslovljenca te be-

sede. Sovražni govor svojega naslovljenca še zdaleč ne opisuje, ampak ga napravi dostopnega sovraštvu, naslavljanju s sovražnim govorom. Kakor *pozdraviti* pomeni zgolj »reči: 'Zdravo!'«, *Idiot!* ni diagnoza, pač pa pomeni »Rečem ti: 'Idiot!'«. Oseba, naslovljena z »Idiot!«, ni designirana kot nekdo, ki ustreza opisu, ki ga opravlja beseda *idiot* (kakršenkoli naj bi že ta opis bil), ampak kot nekdo, ki mu pravijo »idiot« (in ki kot tak ustreza edinemu pertinentnemu opisu).

Zato sta Austinova pogoja posrečenosti (A. 1) in (A. 2) v tem primeru zadovoljena po definiciji: obstaja konvencionalen postopek s konvencionalnim učinkom in udeležene osebe in okoliščine so ustrezne, saj jih retroaktivno konstituira sama izvedba postopka. S to izvedbo je grožnja tudi že izpeljana pravilno (B. 1) in v celoti (B. 2). Konvencionalističnim pogojem torej ni težko zadostiti. Preostala, intencionalistična pogoja – iskrenost govornega dejanja (Γ. 1) in poznejše ravnanje v skladu z dejanjem (Γ. 2) – pa lahko ostaneta neizpolnjena, saj niti brez njiju dejanje ni zastrelek, ampak le zloraba. Butler pozablja, da je lahko grožnja, izjava o razkoraku med ilokucijo in perlokucijo, kvečjemu izrabljena, ne zastreljana.

Ob odsotnosti cenzure lahko potemtakem grozi vsakdo. In tedaj lahko grožnjo udejanji – in pogoju (Γ. 2) zadosti – vsakdo, ki se v konkretnem razrednem boju znajde v zmagovalnem taboru. Se pravi, ko Butler svari pred cenzuro, prepušča naslovljence sovražnega govora razrednemu boju vladajočega razreda.

Upravičeno pravi, da je naslovljenčeva reartikulacija sovražnega govora mogoča samo v razkoraku med njegovo ilokucijsko moč in perlokucijskimi učinki, tj. v razliki med tem, kar sovražni govor napravi kot izjavljen, in onim, kar napravi kot razlog za poznejša dejanja (Butler, *Excitable* 39). In upravičeno tu prikliče Derridajev argument, da je možnost tega razkoraka nujna možnost, ki vsako govorno dejanje naredi za prekarno in s tem neredundantno. A medtem ko se Derrida zgolj odpove analizi institucionalnih pogojev aktualizacije te nujne možnosti, ona prepozna te pogoje prav v demontaži, odsotnosti institucije državne cenzure. Meni, da bo sovražni govor subvertiral že sam proces njegove necenzurirane diseminacije, saj je »iterabilen« v Derridajevem smislu, tj. ponovljiv in kot tak ranljiv za subverzijo. Zakon po njej (23–24, 41, 125–126, 69) odpravi razliko med ilokucijo in perlokucijo, ko sovražni govor (ilokucijo) opredeli kot ravnanje (perlokucijo) in celo argumentira za cenzuro ilokucije. S tem naj bi zakon odvzel identitetnim skupnostim brez države možnost, da bi govorno dejanje grožnje reartikulirale, še preden bi se zaprl razkorak med tem in zagroženim dejanjem (162).

A kot bi Judith Butler morala vedeti, prav neoliberalna demontaža nacionalne države trenutno preprečuje naslovljencem sovražnega govora, da

bi suspendirali njegove perlokucijske učinke. V položaju, ko naslovljenec nima več institucionalne zaslombe pred sovražno izjavo, ne smemo reči *Naslovljenčeva reartikulacija je mogoča, samo če* …, temveč *Samo naslovljenčeva reartikulacija je mogoča, če* …. K takšnemu položaju pa prispeva tudi sama. Ta napad pa ne pojenja niti v času ekonomske krize, v kateri multinacionalni kapital eksternalizira svoje stroške že v nacionalne države kot take: »Če nas nacionalna država varuje pred nasiljem, smo izpostavljeni nasilju nacionalne države, zato je zanašanje na nacionalno državo pri iskanju zaščite *pred* nasiljem zgolj zamenjava enega potencialnega nasilja z drugim.« (Butler, *Frames* 26)

Kulturno prevajanje kot utajitev rigidnosti sovražnega govora

Butler ne vidi, da se mora naslovljenec zanašati na možnost subverzije sovražnega govora v razkoraku med ilokucijo in perlokucijo šele potem, ko se je glavna sovražnost, odprava pravne in socialne države, že realizirala. Šele ko institucionalna sankcija ilokucijskega dejanja grožnje ni več opcija, postane suspenz perlokucijskih učinkov tega dejanja realna, celo edina opcija (ki seveda sploh ni opcija). A tedaj nimamo niti več institucionalnih sredstev za suspenz perlokucijskih učinkov dejanja grožnje (in edina opcija postane dobesedno ne-opcija). Se pravi, takoj ko moramo suspendirati perlokucijske učinke grožnje, je že prepozno za ta suspenz. Butler prezre, da lahko grožnji preprečimo udejanjenje le, če jo vnaprej obravnavamo kot že udejanjeno in jo zato zaustavimo. Njena politika dopuščanja diseminacije sovražnega govora, da bi bil estetsko subvertiran v svoji iterabilnosti (Butler, *Excitable* 144–145), utaji, da lahko zgolj institucije reartikulirajo rigidne designatorje, med katere, kot sama ve (28–31, 99), sodi tudi sovražni govor (v vseh možnih svetovih *Idiot!* pomeni le »Rečem ti 'Idiot!'«). Kot rezultat delokutivne izpeljave je sovražni govor inherentno institucionalen, vpisan v nacionalni jezik, zato ga je mogoče reartikulirati samo institucionalno. Rigidni designator ne more biti subvertiran brez preoblikovanja institucij, ki verovanju v objekt takega designatorja zagotavljajo materialno eksistenco. Reartikulacije brez institucije ni, zato je vsak napad na institucijo v imenu reartikulacije napad na samo reartikulacijo.

Zato mora Butler utajiti Derridaja: *iterabilnost* uporablja kot njegovo ime za spremenljivost pomena znamka (3, 82 op. 32) in ne za vztrajanje konvencionalnega pomena znaka kljub spremenljivosti izvirnega konteksta in intence izjavljalca znaka (za to vztrajanje gl. Colebrook 198–203). S parafrazo Mannonijevo formulacijo fetišističnega obrazca utajitve (Mannoni)

lahko njeno utajitev povzamemo tako: *saj vem, da je sovražni govor rigidni designator, ki označuje v vseh možnih svetovih, pa vendar verjamem, da ga je mogoče subvertirati brez in samo brez institucionalne intervencije*. Še več, medtem ko je po Derridaju pogoj možnosti govornega dejanja v potencialnosti ponesrečenja govornega dejanja, ona to potencialnost zaostri v aktualnost.: Derrida naj bi »v ponesrečenju performativa« (Butler, *Excitable* 151) – in ne v »možnosti, da je vsako performativno izjavljanje […] lahko 'citirano'« (Derrida 135) – videl »samo moč in zakon njegovega vznika« (Derrida 136; Butler, *Excitable* 151). Značilen je tudi tale prehod od »tveganja ponesrečenja« k »ponesrečenju«: »Derrida pravi, da obstajata konvencionalnost in tveganje ponesrečenja, lastni samemu govornemu dejanju […] – tj. ponesrečenje, ekvivalentno arbitrarnosti znaka.« (150)[6]

Le če je vsak primer sovražnega govora vselej že zastreljan, ga lahko naslovljenci reartikulirajo, ne da bi se morali zateči k institucionalni sankciji (Butler, *Excitable* 19, 69). Ta apropriacija Derridajeve dekonstrukcije Austina (3, 25, 32–34, 51–52, 144–145, 165 op. 3, 182 op. 32) je ideološka, primer sodobne ekspertne vednosti o posameznikovem upravljanju z družbenimi učinki identitetnih izjav je. V nasprotju z Derridajem Judith Butler zastavi vprašanje družbenih pogojev pomena izjave, a odgovor najde v iterabilnosti kot zakonu performativnosti (Butler idr., *Contingency* 27–29), se pravi, ravno v iterabilnosti, s postuliranjem katere se Derrida ogne samemu vprašanju. Njen odgovor na vprašanje o pogojih performativa je performativnost, tj. pogoje pojava izenači z njegovim bistvom, namesto da bi jih analizirala in se s tem ognila prav kontempliranju o skrivnosti tega bistva. Tavtološko odgovarja na vprašanje o pogojih za »tavtološko« (25–27) dejanje simbolizacije. Njena obravnava torej praktično reproducira svoj predmet – in zato je ideološka obravnava.

Odsotnost institucije v njeni obravnavi sovražnega govora na prazno ustreza dejanski odsotnosti institucij kot pogoja za posrečenost sovražnega govora. Njena obravnava tedaj reproducira svoj predmet. Ne vidi materialnih učinkov odsotnosti, ne vidi, da k posrečenosti groženj bistveno prispeva prav demontaža pravnih in socialnih aparatov, za katero se sama zavzema v imenu boja zoper grožnje. Ker ne vidi te negativnosti, odsotnosti institucionalnega sankcioniranja sovražnega govora, in se omeji na obravnavo navzočih institucij, pa ne le more, temveč tudi mora trditi, da ta obravnava ne zadošča (Butler, *Excitable* 13; prim. Butler idr. 14), in verjeti, da možnost subverzije sovražnega govora zagotavlja že iterabilna narava govora, dovzetnost govora za subverzijo v ponavljanju. Institucije torej ne analizira – in zato institucionalno logiko verovanja in utajitve prakticira. Ker zavrne pravno in socialno državo kot institutionalizirano družbeno vez, ki cenzurira sovražni govor, prispeva k promociji sovražnega govora na položaj

družbene vezi sodobnih identitetnih skupnosti. Domnevno esencialistično, naivno, totalitarno verjetje, da je brezrazredna družba mogoča, je s tem tako rekoč nadomeščeno z verjetjem, da so družbe že brezrazredne.

Sklep: od performativa k označevalcu, od izjave k instituciji

Medtem ko Derrida Austinovo možnost etiolacije, neuspeha performativa, radikalizira v nujno možnost, jo Judith Butler reificira v nujno aktualnost, v neogibno neinstitucionalno subverzijo institucije. A s tem ko verjame, da lahko individui sami obrnejo to nujno možnost v nujno aktualnost, s tem ko utaji institucionalno naddoločenost tega obračanja, reproducira ravno institucionalne prakse (utajitev, verovanje), ki so predmet njene kritike.

Namesto da se ravnamo na primer po Eve Kosofsky Sedgwick (23–29) ali Shoshani Felman (ix–x), ki sprejemata etiolacije Judith Butler, ali po J. Hillisu Millerju (233–235) in Eriki Fischer-Lichte (26–36), ki te etiolacije revidirata, bi torej morali zgrabiti etiolacije kot toge designatorje, prazne označevalce, ki jih je mogoče subvertirati le onstran obzorja atomiziranega naslovljenca, kar navsezadnje izhaja že iz Austinove zavrnitve logičnopozitivistične dvojice subjekt/objekt v prid intersubjektivnega modela komunikacije. Tako bi mogli konceptualizirati ne samo sovražni govor, ampak tudi govorna dejanja, kakršno je *Publish or perish!*, in s tem podeliti svojemu početju status refleksivne, teoretske prakse.

OPOMBE

[1] Za nedavni poskus rešitve koncepta literarnosti pred kulturalizacijo gl. Juvan 123–140.

[2] Stanley Cavell (52–57, 61–63, 75–77) pokaže, da Austin s konceptualizacijo govora kot dejanja zavrne metafizično ločitev besede od jaza. Austin (20–21) to metafizično hipokrizijo ilustrira z Evripidovim Hipolitom, ki prekliče dano obljubo, češ da je obljubil z besedami, ne pa tudi s srcem. Cavell (61–63) tako sklene, da je po Austinu jaz zgolj učinek dane besede. Nato se vpraša, kako je Austin mogel prezreti, da tudi sam siže *Hipolita* uprizarja nemožnost ločitve besede od jaza. Odgovorimo lahko kar na podlagi omenjenega Cavellovega sklepa: če bi Austin nemožnost odpravljanja učinkov dane besede razbral iz samega *Hipolita*, bi moral svojo kritiko Hipolitovih hipokritičnih poskusov tega odpravljanja odpraviti kot redundantno. Austin torej kritizira, prepoveduje nemogoče, paradigmatski primer prepovedi nemogočega pa je seveda prepoved incesta, ki vzpostavi subjekt označevalca. Se pravi, Austinov jaz, za katerega je preklic dane besede nemogoč in še prepovedan, je subjekt označevalca kot Lacanova narobna stran *cogita* – ne pa *cogito* kot pozitivna *res cogitans*, v katero Mary Louise Pratt substancializira izjavljalca govornega dejanja, ko ga predstavi kot austinovski lik zahodnega razsvetljenskega moškega (pot pa ji v literarni vedi utre Stanley Fish /243–244/, ki Austinu derridajevsko očita ideologijo referencialnosti).

[3] Kakor na primer v spremni besedi Jureta Simonitija (110) k Honnethu, ki kakor Judith Butler propagira Hegla prepoznanja in izrecno zavrne Heglov institucionalni pogled na nravnost (79–94). Prim. Laclauov očitek Judith Butler, da poenostavlja Heglovo dialektiko nravnosti (Butler idr. 296).

[4] V svoji kritiki koncepcije kulturnega prevajanja in njegovega verjetja, da zakon funkcionira z izključevanjem identitet iz svoje domene in da ga kot takega lahko univerzalizira boj teh identitet za pripoznanje, Rastko Močnik (206 op. 32) pravi: »univerzalno je artikulirano v pravnih terminih, abstraktno in formalno je. Vsebina, od katere je abstrahirano, ni ta ali ona identiteta – pač pa produkcijska razmerja in razmerja izkoriščanja«. Širšo obravnavo neoliberalnega obrata, značilnega za antietatizem drugega vala feminizma, poda Fraser 107–113.

[5] Za literarno cenzuro v tranziciji od socializma v postsocializem gl. Dović.

[6] Ta zamenjava nujne možnosti etiolacije z nujno aktualnostjo, »jezikovne iterabilnosti« z »družbeno iterabilnostjo« (Butler, *Excitable* 150, 152), omogoči Judith Butler, da ohranja svoje verjetje v individualistično reartikulacijo sovražnega govora. V razpravi z Laclauom in Žižkom verjame dobesedno: »[N]apadi naših sovražnikov lahko paradoksno utrdijo našo držo (upajmo)« (Butler idr., *Contingency* 158). Stavek se nadaljuje v istem registru verjetja: trdi, da je to »upanje« zlasti upravičeno, kadar se širša javnost ne poistoveti s sovražnimi napadi, a namesto analize pogojev za samo razliko med javnostjo in našimi sovražniki nam ponudi le vero v derridajevsko iterabilnost (157–158).

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Teoretska praksa v inovacijsko naravnanem raziskovalnem okolju

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Politični napad na čisto znanost in teoretsko produkcijo ogroža same temelje tako »mehkih« kakor »trdih« znanosti. Kakšne pozicije znanstveniki zavzemajo v odnosu do spreminjajočih se pogojev raziskovanja? Ogledali si bomo epistemološko pozicijo in samorefleksijo v znanstvenih praksah, materialne pogoje raziskovanja (zlasti založništvo in merjenje znanstvenega vpliva), odzive na zunanje zahteve in družbeno pozicioniranje znanosti.

Ključne besede: epistemologija / znanstvena praksa / topična metoda / materialni pogoji raziskovanja / založništvo / merjenje znanstvenega vpliva

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V tem članku bomo poskušali na novo osvetliti trdovratno tematiko morebitnih epistemoloških konvergenc med t. i. »mehkimi« in »trdimi« znanostmi: med humanističnimi in družbenimi vedami na eni strani ter naravoslovnimi vedami na drugi. Odnose med tema tipoma znanosti so doslej običajno razlagali na način razlik med togima sistemoma vednosti, med nomotetičnimi in idiografičnimi znanostmi. Politični napad na »čisto znanost« in teoretsko produkcijo nasploh je, se zdi, ogrozil same temelje obeh vrst znanosti.[1] Spreminja se tudi celotno raziskovalno okolje: od univerz, ki morajo sprejeti korporativno upravljanje in svoje delo preoblikovati v »storitve« za trg, do raziskovalnih institucij, ki morajo upravičevati svoje delo z inovacijami za podjetja. Vse te spremembe naj bi izboljšale globalno konkurenčnost države. Hkrati se pri odločanju o financiranju raziskav in pri zaposlovanju na univerzi uporabljajo pretirano kvantificirana merila pod pretvezo »znanstvene odličnosti«, t. i. mednarodne konkurenčnosti domačih znanstvenikov. Akademsko založništvo, ki je pomemben institucionalni okvir predstavljanja in izmenjave raziskovalnih rezultatov, so prevzele profitno usmerjene mednarodne korporacije, ki postavljajo svoje pogoje za dostop do publikacij. Zunanji pritiski postavljajo niz vprašanj, med drugim vprašanja o epistemološki poziciji in samorefleksiji v znanstvenih praksah, o razumevanju materialnih pogojev raziskovalnega dela,

o odzivih na zunanje pritiske in o družbenem pozicioniranju znanosti. Vsa ta vprašanja so tesno povezana: sposobnost znanstvenikov, da analizirajo materialne pogoje lastnega dela in da zavzamejo stališče do njih, je odvisna tudi od epistemološkega pozicioniranja. Ali če pogledamo z druge strani: če se znanstveniki niso sposobni spoprijeti s pogoji lastnega raziskovanja, katero drugo nalogo bi jim še lahko zaupali?

Proti-epistemologija v družbenih vedah

Izraza »nomotetična« in »idiografična znanost« je leta 1894 vpeljal Wilhelm Windelband v okviru svoje kritike pozitivizma, a sama razprava je veliko starejša in seže vse do Giambattiste Vica in njegove polemike s kartezijanstvom kot kritično metodo Modernih, nasproti katere je Vico postavil topično metodo Starih. Georg Henrik von Wright je opisal nomotetične znanosti kot raziskovanje dogodkov, ki so ponovljivi in predvidljivi; take dogodke lahko za nameček osamimo, z njimi eksperimentiramo in izpeljemo splošne znanstvene zakone. Idiografične vede pa proučujejo minljive dogodke, ki jih lahko pojasnimo le z opisom. Wright (6) je spomnil, da je Georg Simmel zgodovinopisje primerjal z gledališčem in opisal metodo proučevanja preteklih dogodkov kot empatijo. V moderni dobi je ugled nomotetičnega prijema povečal nastanek novih disciplin, ki so si prisvojile raziskovalna področja izvirno idiografičnih znanosti (na ta način je nomotetična sociologija prevzela raziskovalno področje zgodovinopisja). Rastko Močnik (188–191) celo trdi, da so družboslovne vede kompromisna formacija, ki je nastala pod pritiskom galilejevske paradigme na humanistiko. Napetosti med nomotetičnimi in idiografičnimi znanostmi pa izhajajo ne le iz rivalstva med znanstvenimi disciplinami, ki so bliže enemu ali drugemu prijemu, ampak so lastna tudi vsaki raziskavi ali znanstvenem delu. Uspeh vsake discipline ali raziskave je dejansko odvisen od primerne kombinacije obeh prijemov.

Idiografične znanosti so se na napetosti nedavno odzvale, kot je videti, s protinapadom, ki se opira na antropologijo Clifforda Geertza in njegov prijem »domačinskega pogleda« (»native's point of view«). Geertzeva perspektiva je bila sprejeta s širokim konsenzom v humanistiki po objavi knjige *The Interpretation of Cultures* (Interpretacija kultur) v letu 1973 in je imela podoben vpliv kakor Saussurova lingvistika (objavljena leta 1916) na strukturalizem.[2] Geertzeva teza, da lahko govorimo o družbah le z njihovim lastnim jezikom in da teoretski aparat onemogoča proučevanje dejanskega funkcioniranja družb, diskvalificira humanistično uporabo sociološkihprijemov ali »reificiranih« kategorij, kot so struktura, razred in

razredni boj. Sledi diskvalifikcije lahko najdemo povsod v humanističnih vedah: v literarni vedi, zgodovinopisju, kulturnih študijih ipd. V Geertzevi proti-epistemologiji so primerna teoretska orodja *izolirane in fiksne družbene reprezentacije*, ki naj bi bile edini sprejemljivi posrednik v znanstvenem proučevanju. Geertzev prijem zato onesposobi osnovno načelo v idiografičnih znanostih, ki ga je Vico poimenoval »topična metoda«, po kateri morajo biti koncepti v humanistiki sposobni, da zagotovijo srečanje različnih možnih perspektiv na določeno problematiko pa tudi prostor za soočenje in primerjavo teh perspektiv. Ni treba posebej poudarjati, da je tej »post-geertzevski« epistemologiji samoumeven pogled na družbo kot na konsistentno in pomirjeno skupnost, v kateri obstajajo kvečjemu »mehke družbene razlike« (Breznik 285). Kakor vidimo, je lahko epistemologija tudi politično stališče.

Končni učinek je ta, da se epistemologija Clifforda Geertza ni zmožna soočiti s »progresističnim« teleološkim pogledom, ki ga znanosti vsiljujejo ideologije o »inovacijah«, podpori industriji, ekonomski učinkovitosti ipd. Ko se je odpovedala topični metodi v raziskavi, si je onemogočila dialektično razumevanje človeških pojavov, ki je nedvomno najpomembnejši prispevek humanistike v izmenjavi med nomotetičnimi in idiografičnimi znanostmi. Topični ali dialektični prijemi so bili tudi trdna obramba pred teleološkimi ideologijami, ki zlahka spodnesejo znanstveno delo. Potem ko so se odpovedale tem prijemom, so humanistične vede postale dovzetne za »spontano ideologijo znanstvenikov« (če naj uporabimo Althusserjev koncept), ki se pogosto pokaže skoz idejo »napredka«.

Ideja napredka prispeva k razmeram, v katerih lahko kapitalistični interesi zasežejo znanstvene prakse, in trenutno to počnejo zelo uspešno.[3] Bili bi kratkovidni, če bi videli v ideologiji napredka zgolj »spontani« element znanstvenih praks;[4] ideologija napredka le v določenih situacijah vznikne kot spontana ideologija znanstvenih praks,[5] a je hkrati dominantna ideologija aparatov kapitalistične države: ideologija zagotavlja enotnost znanstvenih ideoloških aparatov in artikulira te aparate v odnosu do drugih aparatov kapitalistične države.[6] Državni aparati dosledno vsiljujejo to ideologijo in priganjajo k preusmerjanju znanstvenega dela v razvijanje inovacij za razvoj kapitalistične artikulacije produktivnih sil. Če si ogledamo najnovejšo administrativno stvaritev Evropske komisije, *Horizont 2020*, ali na primer najnovejšo slovensko raziskovalno strategijo, *Drzna Slovenija*, vidimo, da evropske in ustrezne nacionalne politike silijo znanost, da se preusmeri izključno na inovacije kot ekonomske faktorje za spodbujanje ekonomske »rasti« (pri čemer prikrivajo, da ekonomska rast dejansko pomeni varovanje in večanje profitov za kapitalske lastnike).[7] V tem okviru dobijo humanistične in družbene vede nalogo, da mirijo družbene konflikte – ki

izhajajo iz »inovativnega« prestrukturiranja delovnih procesov in nasploh iz izkoriščevalskih in represivnih odnosov, ki jih ustvarja prav gospodarska rast –, da se specializirajo za identitetne ideologije in da vzdržujejo družbeno kohezijo za akumulacijo kapitala.

Nove in stare revolucije

Materialni pogoji za raziskovalno delo, zlasti področje založništva, so postavljeni na novo, da bi ustrezali ideji napredka. Nastanek korporacij za založništvo, distribucijo in izmenjavo tiskanih del, ki zajemajo ves svet, je bil vsekakor velik korak naprej, a ta napredek še zdaleč ne zagotavlja dostopa do publikacij, lažjega kakor v Gutenbergovi kulturi tiska. Nasprotno, akademske publikacije (t. i. »akademsko elektronsko založništvo«) so običajno dostopne le članom in članicam univerz, ki si lahko privoščijo drage naročnine, niso pa dostopne vsem ostalim znanstvenim delavcem in »laikom«. Tudi dostop do literarnih in drugih tiskanih tekstov je vse bolj restriktiven, saj se postopoma opuščajo javno financirani kulturni programi. Novi model založništva sooblikuje določeno družbeno pozicijo znanosti, ki je očitno elitistična. Poleg tega založniški modeli narekujejo določeno »epistemologijo« (ki se osredotoča na novost, eksperiment in inovacijo), predpisuje raziskovalne teme (kot so družbena »kohezija«, »izključevanje« ali »identiteta«) ali, kot ugotavljata Bill Cope in Mary Kalantzis, celo prinaša »epistemološko motnjo« v znanstveno delo (gl. Cope and Kalantzis). Skrita struktura založništva dandanes v resnici »piše« znanstvene članke, romane in pesmi; uspešna je pri uveljavljanju norm med avtorji, saj zbuja videz nevtralnosti v odnosu do znanstvenih in umetnostnih praks ter deluje kot zdrava pamet, kot naravna sila, in ne kot rezultat človekovih odločitev in dejanj.

O novi revoluciji tiska, o elektronskem digitalnem založništvu, prevladuje prepričanje, da tehnološke možnosti utegnejo razširiti splošni dostop do publikacij in spodbuditi večjo družbeno enakost. S kratkim izletom v Gutenbergovo revolucijo tiska želim pokazati na zagate trmoglave vere v tehnološko determiniran razvoj. Moj primer poleg tega pokaže, da brez topičnega prijema ne bi mogli zgrabiti nepričakovanih družbenih korelacij.

Ozrimo se za hip nazaj v 15. stoletje, v čas Gutenbergove revolucije tiska. Francoski zgodovinar Christian Bec je na osnovi seznamov *Magistrato dei Pupilli* zbral podatke o firenških družinskih knjižnicah. »Urad za otroke« je kot varuh firenških sirot hranil podrobne sezname o družinskem premoženju. Seznami so zajemali tudi sezname knjig, zato je Bec lahko proučil, katere knjige so imela gospodinjstva. Sezname je razdelil na dve obdo-

bji, na prvo in drugo polovico 15. stoletja, med katerima je izumljen tisk. Odkril je, da so imele družinske knjižnice v prvi polovici 15. stoletja razmeroma malo knjig, a je bilo mogoče knjige najti po vseh gospodinjstvih ne glede na premoženjsko stanje gospodinjstva. Seznam najpogostejših knjig v firenških gospodinjstvih je presenetljiv: to so bili spisi v italijanskem jeziku (prevladujeta Dante in Boccaccio) in prevodi (zlasti Donatus), medtem ko verske knjige niso bile tako številne, kot bi morda pričakovali. V drugi polovici 15. stoletja so se knjižnice spremenile, kar zadeva število knjig ter priljubljene avtorje in naslove. Najpogostejši avtorji so bili Petrarka, Ciceron, Dante, Virgilij, Ovid, Boccaccio, Donatus in Tit Livij, izdani v latinščini, ki je bila seveda primerna za izobražene humaniste. V tem obdobju se je število majhnih družinskih knjižnic zmanjšalo, pojavile pa so se knjižnice s sto in več knjigami. Pomembno je, da je bila v Italiji v drugi polovici 15. stoletja tiskarska dejavnost najbolj razširjena in da je bilo na današnjem ozemlju Italije celo več tiskarskih preš kakor v Nemčiji, kjer so prvič uporabili to novo tehnologijo. Sámo mesto Firence je bilo v tem času na četrtem mestu v Evropi po številu novih tiskanih naslovov (Febvre in Martin). Četudi je bil dostop do tiskanih knjig v Firencah očitno enostavnejši kakor drugje, Bec sklene, da je imela po iznajdbi tiska večina Firenčanov slabši dostop do knjig kakor pred iznajdbo, ko so knjige ročno prepisovali. Samo bogati in dobro izobraženi posamezniki so si lahko privoščili tiskane knjige in neredko so jih kupovali zelo veliko, zlasti v latinskem jeziku. Vse ostale so ekonomska stratifikacija in finančne težave odvrnile od kupovanja knjig. Za nameček se je pojavila nova kulturna ovira: knjig, ki so jih tiskali v latinskem jeziku, večina ljudi ni znala brati.

Samuel K. Cohn ml., prav tako zgodovinar, je prišel do podobne ugotovitve, ko je proučeval naročila slik v oporokah. V prvi polovici 15. stoletja so mnogi naročili slike *post mortem*, volila pa so bila navadno majhne vsote. V zadnjih letih 15. stoletja pa so začela prevladovati naročila za velika freskarska dela, medtem ko so mala naročila skoraj zginila.

Ti ugotovitvi nasprotujeta trditvi Richarda Goldthwaita, da je Italija po zgubi gospodarskega prvenstva v volni in drugih osnovnih produktih zaostanek uspešno nadomestila z izvozom luksuznih dobrin. Po Goldthwaitu je višek renesančnega umetnostnega mecenstva dejansko trenutek, ko se je vzpostavila prva proto-kulturna industrija. O proto-kulturni industriji naj bi po Goldthwaitu lahko govorili zato, ker je bil delež premožnega prebivalstva v Firencah večji kakor v drugih delih Evrope. A to dejstvo lahko dokaže Goldthwaitovo tezo le, če firenški premožni sloj primerjamo s premožnimi sloji po Evropi: argument je veljaven samo, če družbo opazujemo od zgoraj navzdol. Če pa zamenjamo perspektivo, se pred našimi očmi pojavi velika množica zelo revnih ljudi. Revščina in pomanjkanje sta

bili v Firencah leta 1427 neprimerno obsežnejši kakor v Veliki Britaniji leta 1688 (ob domnevno brutalnih začetkih industrijskega kapitalizma) ali na primer leta 1962 (Cippola 5–17). Zato se nam zdi skoraj neverjetno, da bi lahko v visoki renesansi veliko ljudi sodelovalo na trgu kulturnih dobrin kot potrošniki. »Potrošnjo« kulturnih dobrin bi veliko bolje opisali kot »razkazovalno porabo« razmeroma majhne družbene skupine. Zato lahko sklenemo, da ni nujne korelacije med umetnostnim razcvetom in družbeno enakostjo; razni družbenoekonomski in kulturni faktorji (na primer ekonomske neenakosti, družbena stratifikacija in učena kultura v latinskem jeziku, ki ga večina ne zna) lahko spodbudijo protislovja med produktivnimi silami in produkcijskimi odnosi. Tehnološki razvoj utegne razširiti skupino tistih, ki jim tehnološki napredek lahko koristi, a hkrati utegne razlastiti mnoge druge, ki so že imeli korist od »socializacije« stare tehnologije. Na tem mestu moramo tudi opozoriti, da je ideja o nepovratnem in kontinuiranem »procesu civiliziranja« bržkone iluzorna: zgodovina družbe je v resnici polna prekinitev, medtem ko istočasni heterogeni procesi povzročijo re-kompozicijo in re-artikulacijo družbenih praks in institucij, o katerih ne moremo zagotovo trditi, da imajo karkoli opraviti z napredkom.

Elektronsko založništvo je bilo revolucionarna iznajdba, primerljiva z nastankom in širjenjem tehnologije tiska v 15. stoletju. Ker se še zmerom razvija, ne moremo napovedati vseh možnih založniških in distribucijskih modelov. A že zdaj je precej jasno, da nova tehnologija s pomočjo zunajekonomskih sil, kot je pravni sistem avtorskih pravic, vsiljuje nove produkcijske odnose, ki omogočajo zasebno prisvajanje tehnologije in njenih rezultatov za dobičke individualnih kapitalov. Kakor tisk pred petimi stoletji je tudi elektronsko založništvo nemara razširilo skupino tistih, ki jim možnosti nove tehnologije koristijo in zagotovo je nova tehnologija izboljšala medsebojno povezanost bralskih skupnosti. A kljub temu ta tehnologija ogroža splošni dostop do publikacij, ki so ga v kulturi tiska že zagotovile javne knjižnice, ki pa jih elektronsko založništvo postopoma uničuje. Elektronsko založništvo je namreč odpravilo institucijo »javnega posojanja«, ki je v preteklosti zagotavljala splošni dostop do tiskanih tekstov. Javne knjižnice smejo ponuditi svojim članom le še oddaljeni dostop do elektronskih publikacij, če plačajo visoko licenco. Imetniki avtorskih pravic pa imajo pravico, da omejijo dostop do publikacij za ožje skupine knjižničnih članov; imajo pa tudi pravico, da zahtevajo visoka nadomestila. Zato knjižnice neredko omejijo dostop do elektronskih zbirk (akademskih e-časopisov, e-knjig in e-baz podatkov) na izbrano skupino članov. To je bilo nepredstavljivo, dokler je bilo poslanstvo javnih knjižnic neločljivo povezano s splošnim dostopom.

Sklepe, ki jih izpeljemo iz raziskav, je odvisen, kot smo videli, od gledišč, ki jih zavzamemo. Ni objektivnega prijema ali kvantitativne baze podatkov, ki bi sama na sebi omogočila refleksijo brez teoretskega premisleka, ki se začne že z izhodiščno identifikacijo predmeta raziskave. Humanistika ne more proučevati človeških zadev, ne da bi upoštevala pluralnosti gledišč. Zato z odpravo topične metode tvegamo ideološko zaslepitev ali vsaj neprevidna poenostavljanja.

Znanost o znanosti in merjenje znanstvenega učinka

Verjamemo, da implicitna epistemološka pozicija, ki jo znanstvenim praksam tiho vsiljujejo sedanje regulacije akademskega in raziskovalnega okolja, zlasti metode domnevno objektivne evalvacije znanstvenega dela, povečuje nemoč znanstvenikov, jim vsiljuje določene epistemične odločitve in izključuje druge, onemogoča produkcijo teoretske *problématique* in zahteva obravnavo ideoloških problemov. To ima globoke družbene učinke: radikalno spreminja pogoje raziskovalnega dela, določa, kje in kako morajo znanstveniki objavljati znanstvene rezultate, in atomizira znanstvene skupnosti (Močnik 441–510). Vsemu navkljub so znanstveniki doslej le medlo protestirali proti tej regulaciji. To nas mora skrbeti, saj razkroj institucionalizacije znanstvene prakse kot posebnega družbenega področja odpravlja institucionalno ločitev znanstvenega dela od ideoloških praks in procesov. Produkcija *epistemološkega reza* je zagotovo stalna naloga vsake teoretske prakse: v sedanji situaciji, ko je epistemološki rez institucionalno onemogočen, je treba teoretske prakse izvajati *v kljubovanju* institucionalnim pogojem možnosti.[8]

Objektivna evalvacija znanstvenega dela zajema več postopkov: kvantifikacijo podatkov za merjenje znanstvenega učinka vsakega znanstvenika s številom publikacij in citatov; ocenjevanje akademskih revij s »faktorjem vpliva«; mednarodno ocenjevanje univerz; mednarodno merjenje inovativnosti; in mednarodno ocenjevanje znanstvene »kompetitivnosti«. Elektronsko akademsko založništvo in upravljanje informacij sta omogočili zbiranje in obdelovanje ogromne količine podatkov: ta tehnološka možnost sama je, zdi se, kar zadostni argument, da se indeks citiranosti in faktor vpliva uporabljata kot glavna elementa pri evalvaciji znanstvenega dela. A večina drugih argumentov govori proti takšnemu ocenjevanju, saj je delitev raziskovalnih sredstev in mest na univerzi postala odvisna od tega kontroverznega merjenja.

Ko so akademske revije začele izdajati elektronske izvode, so se pojavile številne možnosti zbiranja podatkov iz objavljenih člankov. Metodologijo

indeksa citiranosti, ki so jo prvič preizkusili v dvajsetih letih 20. stoletja,[9] je bilo zdaj mogoče uporabiti v zares širokem obsegu. Ne smemo pozabiti, da je akademsko založništvo profitno usmerjena industrija z najvišjimi profitnimi stopnjami v založniškem sektorju. Med petimi založniki z največjim prometom v letu 2009 so kar trije založniki akademskih revij (Reed Elsevier, Thomson Reuters in Wolters Kluwer). Ti so skoncentrirali dovolj revij, da so lahko izkoristili novo poslovno priložnost, tako da zdaj strankam poleg samih revij in člankov ponujajo tudi metapodatke o avtorjih, publikacijah, citiranosti in faktorjih vpliva. Zaradi dvojne funkcije skoraj monopolnih korporacij na področju akademskega založništva morajo avtorji z njimi sodelovati zaradi dveh razlogov: glavni merili ocenjevanja znanstvenega dela sta objave v revijah z največjim faktorjem vpliva in citati, ki jih avtor zbere v člankih drugih avtorjev, objavljenih v isti skupini revij. Avtorji se morajo zato boriti za objave v revijah z največjim faktorjem vpliva in zbirati citate svojih objav, če želijo (še naprej) delati kot raziskovalci ali predavatelji.

Ideja o merjenju citatov v znanstvenih člankih, knjigah in referatih je nastala v dvajsetih letih, sčasoma pa se je razvila metoda »diskretnega merjenja, ki ne potrebuje respondentovega sodelovanja in samo po sebi ne vpliva na odgovor (tj. je neodzivno)« (L. C. Smith, nav po. Bornmann in Daniel 45). Ta navedek izdaja željo informacijske znanosti, da bi izdelala objektivno merjenje znanstvenega učinka. Eugene Garfield, ki je ustanovil Institute for Scientific Information (Inštitut za informacije o znanosti), za nameček trdi, da ima ta metodologija korenine v zgodovini znanosti (in citira Kuhnovo knjigo *The Structure of Scientific Revolutions*) in njen blagoslov:

> Določene predpostavke, tako zgodovinske kakor sociološke, podpirajo idejo o »kartiranju« znanosti, s tem da se identificirajo ključni članki in dogodki z analizo citatov. Osnovna enota analize pri kartiranju so najbolj citirani dokumenti. Predpostavlja se, da so ti članki ali knjige pokazatelji ključnih znanstvenih idej ali dogodkov. Med njimi so teoretske formulacije, spekulativne hipoteze, eksperimentalni rezultati, postopki ali metode in kombinacije vsega tega. Dokumenti, ki so v določenem obdobju zelo pogosto citirani, dobijo poseben status pomembnih idej na njihovem področju. (Garfield idr. 181)

Citati lahko zagotovo delno nakažejo[10] ideje, postopke, metode in koncepte v tekoči znanstveni produkciji; za zgodovino znanosti so dragoceno orodje pri rekonstruiranju nevidnih šol in znanstvenih paradigem. Te metode so verjetno precej uporabne v komulativnih nomotetičnih znanostih, ki se opirajo na najnovejše eksperimente, postopke in odkritja. Če pa se o znanstvenem delu informiramo le na podlagi grobih statističnih kazalcev, nam grozita poenostavljanje podatkov, ki jih imamo na voljo,

in padec v empiricizma, tj. v prepričanje, da je vse, kar lahko ugotovimo, že v domnevno objektivni realnosti, ki da ne potrebuje nadaljnjega intelektualnega premisleka (kar je dejansko problem Geertzeve epistemologije). Tvegamo tudi implikacijo, da je znanstvena publicistika v določenem založniškem okolju s posebnimi odnosi moči in profitno usmerjenostjo zvesto ogledalo »znanstvene produkcije«. Takšno razmišljanje je očitno problematično.

Odgovorili pa moramo še na najpomembnejše vprašanje: kaj je znanstvena produkcija? Kaj loči znanstveno delo od ideologije in omogoča znanosti, da izvede »epistemološki rez«, ki loči znanstveno delo od ideoloških praks? Louis Althusser nas uči, da moramo t. i. realni predmet, *l'objet réel*, ki obstaja neodvisno od našega mišljenja, znati ločiti od t. i. predmeta znanja, *l'objet de la connaissance*, ki je rezultat našega mišljenja in obstaja neodvisno od realnega predmeta. Tu gre za procesa, ki pripadata različnim ontološkim ravnem: na eni strani nastajanje in življenje realnih predmetov poteka v realnosti z delovanjem naravnih in zgodovinskih sil; na drugi pa je predmet znanja proizvod našega mišljenja v skladu s specifičnimi kognitivinimi procesi, ki kot svoja orodja uporabljajo koncepte. Četudi lahko koncepti »reproducirajo« realne predmete, ne pripadajo istemu področju življenja kakor realni predmeti in opravljajo specifične funkcije v procesu produkcije predmetov znanja. Znanstvena praksa je tedaj specifična družbena produkcija, ki proizvaja predmete znanja, se pravi, teoretska produkcija (Althusser idr. 3–79). To je začetna formalna identifikacija znanstvene prakse, ki seveda potrebuje nadaljnjo izpeljavo. Poleg tega moramo tudi upoštevati, da obstajata dva različna miselna procesa: ideološko in znanstveno mišljenje. Zato moramo vpeljati koncept epistemološkega reza kot orodja, s katerim lahko ločimo znanstveno misel od ideološke. Epistemološki rez je torej konstitutiven element teoretske prakse.

Garfield in njegovi kolegi so uporabili empiricistični prijem kot bližnjico in predstavljajo podatke o citiranosti kot potencialno orodje raziskovanja in nadzora znanstvenih praks. Takole predstavljajo svoj vizionarski pogled: »Naš Inštitut za informacije o znanosti (ISI) deluje ob osnovni predpostavki, da lahko podatke o citiranosti uporabimo kot kazalce o sedanjih, preteklih in morda tudi prihodnjih dejavnostih na področju znanosti.« (Garfield idr. 179–180)

Na podlagi citatov in morebitne rekonstrukcije idej, paradigem, metod in konceptov (tj. znanstvenega kartiranja) lahko dobimo le faktografski opis intelektualnih dejavnosti. To je še vedno empiricističen projekt, ki pove malo ali nič o znanstveni in/ali teoretski produkciji. Lahko nas pouči o širjenju idej v znanstveni produkciji, a prav tako utegne ponuditi le sliko o zvezdnem sistemu v znanosti ali ujame na delu elitistično akademsko

mrežo. V okviru Garfieldove metode ne moremo določiti narave dejstev, ki nam jih njegova metoda daje na voljo. Zgodovina znanosti, vsaj kakor jo razumejo Garfield in kolegi, se omejuje na faktografski opis na račun proučevanja znanstvene produkcije. To proučevanje zahteva upoštevanje posebnosti neke znanstvene prakse in načina, kako ta praksa proizvede epistemološki rez, ki loči »pred-znanstveno« zgodovino določenega znanstvenega področja od same znanstvene prakse (Althusser 6–7). To so verjetno osnovni in nujni koraki k znanosti kot posebni družbeni produkciji predmetov znanja.

Podatki o citatih so čudovit grob material za nadaljnjo raziskovanje zgodovine znanosti, ne morejo pa biti sami sebi namen. A pogosto so obravnavani prav kot samozadostni. Podjetje Thompson Scientific & Healthcare vse od leta 1982, ko je kupilo Garfieldov Inštitut za informacije o znanosti, ponuja podatke o citiranosti in druge produkte (faktor vpliva in pozneje H-index) za ocenjevanje znanstvenega dela znanstvenikov, fakultet, univerz in držav. Sčasoma se je ponudba razširila: Elsevier ponuja SciVerse Scopus Database, Google pa je razvil Google Scholar s prostim dostopom. Pod vplivom dobro argumentirane kritike (gl. O'Segen; Cameron; Bornmann in Daniel) so podatke o citiranosti delno izboljšali: časovno omejitev zbiranja podatkov o citatih so podaljšali z dveh na pet let, H-index pa je spremenil faktor vpliva. Kljub temu pa so temeljni argumenti proti uporabi podatkov o citiranosti ostali prezrti.

Težko razumemo, da so znanstvene skupnosti tako zlahka sprejele podatke o citiranosti za ocenjevanje raziskovanja, ki so vprašljivi kot metoda in neprimerni za ocenjevanje raziskovalnega dela. To je presenetljivo zato, ker sama metoda v marsičem nasprotuje metodološkim premisam družboslovja: epistemološko je v nasprotju z osnovnimi pogoji znanosti kot družbene prakse; z vidika ljudi, ki jih zadeva, pa ogroža eksistenčne pogoje znanstvenega dela. Kot smo videli, indeks citiranosti združuje mnoge škodljive poteze: slabi epistemološko refleksijo v znanstveni produkciji (vprašanje topične metode, epistemološkega reza), onemogoča nadzor nad spreminjajočimi se pogoji dela (založništvo, metoda ocenjevanja) in spodbuja servilen odnos od zunanjih ideoloških zahtev in pričakovanj. Te poteze so sistematično povezane in škodljive tako za »mehke« kakor za »trde« znanosti. Vse znanosti v enaki meri izzivajo, da zahtevajo nazaj svojo družbeno vlogo ter da se hkrati družbeno in politično angažirajo. Kot smo videli, ni znanosti brez družbene in politične vpletenosti.

A kakšen je predlog na nasprotni strani? Oglejmo si sklepni argument, zakaj je indeks citiranosti vendarle primerna metoda za ocenjevanje raziskovanja, razvit v članku Bornmanna in Daniela »What do Citation Counts Measure?«. Avtorja podrobno predstavita argumente tako za indeks citira-

nosti kakor proti njemu. Članek skleneta z ugotovitvijo, da na mikro-ravni, na ravni lokalne znanstvene produkcije, res obstaja večja možnost, da citati na odsevajo znanstvenega vpliva citiranega dela. Avtorji naj bi ne nazadnje pogosteje citirali avtorje, ki jih osebno poznajo, in lahko si na primer pomagajo z vzajemnim citiranjem, zato po Bornmannu in Danielu zajemanje podatkov o citiranju na nižji agregatni ravni bržkone ne more prikazovati znanstvenega vpliva citiranih del. Toda na višji agregatni ravni naj bi popačenja zginila, saj »delo [...] obravnava relevantna znanstvena skupnost kot pomembno in ustrezno (kot jedro raziskovanja), na kar družbene spremenljivke in procesi ne vplivajo bistveno« (Bornmann in Daniel 70). Ta argument je prava akrobacija, saj dopušča, da iz več negativnih premis o lokalnih znanstvenih skupnostih izpeljemo pozitiven sklep o širši mednarodni znanstveni skupnosti, četudi predpostavljeno širšo znanstveno skupnost sestavljajo le razne lokalne znanstvene skupnosti. Na višji agregatni ravni, kjer institucionalna svetovna hegemonija zares deluje, naj bi zginila akademska potuha in hierarhični konformizem, vzniknila pa naj bi resnica. Resnica o odnosih moči, bi lahko dodali.

Namesto sklepa: znanost na borzi

Precej mogoč izid procesa, ki smo ga opisali, je znanstveno delo kot investicija na borzi. Založniki so spremenili akademsko založništvo v nekakšno borzo s sistemom kvanitifikacije in valorizacije enot, kot so publikacija, citat, zavrnitev članka, faktor vpliva, H-indeks ipd. Proces »listinjenja« spreminja ne-denarne vrednosti v kvantitativne vrednosti, ki lahko vstopijo v proces monetizacije znanstvenih podatkov. Kvantitativne vrednosti, ki nastanejo v tem procesu, avtorji zamenjujejo za mesta na univerzi, financiranje raziskav, nagrade in prestiž; nacionalni financerji jih uporabljajo kot merila pri razdeljevanju raziskovalnega denarja, za mednarodno primerjavo in uvrščanje na lestvici mednarodne »znanstvene kompetitivnosti«; založniki pa jih uporabljajo za izčrpavanje javnih virov za izobraževanje in raziskovanje. Zdi se, da sistem deluje dobro, saj agente poveže v mrežo vzajemnih obveznosti in ugodnosti. Založniki so tako ustvarili konsistenten sistem »denarne odvisnosti«, kjer sámo znanstveno delo nima ustrezne cene.

OPOMBE

[1] Sedanji predsednik vlade in minister za znanost sta nedavno ostro krčenje proračuna za javno visoko izobraževanje utemeljila z argumentom, da naj slovenske univerze bolje izkoristijo »notranje rezerve«, saj naj bi povprečen univerziteten učitelj delal od štiri do šest ur na teden.

[2] Claude Lévi-Strauss je leta 1950 (gl. Lévi-Strauss) oblikoval predlog, ki je zelo blizu Geertzevi ideji. Po Lévi-Straussu naj bi primeren prijem konceptualiziral Maussovo »totalno družbeno dejstvo« kot »durkheimovsko stvar« in hkrati »domačinsko predstavo«. Moramo poudariti, da je Lévi-Strauss predlagal izhod iz Geertzeve slepe ulice, še preden je Geertzu sploh postala problem.

[3] Uporabljamo sintagmo »kapitalistični interesi«, kolikor prav ti učinkujejo za »državnimi interesi«.

[4] V tem primeru bi sodile v »kumulativno« fazo znanstvene prakse med dvema »prelomoma« v znanstveni problematiki: to je značilna epistemična situacija v aplikativnih znanostih in v perifernih praksah tistih znanosti, kjer epistemične »prelome« pogojujejo večje finančne investicije. Aplikativne znanosti imajo kapitalistični interesi na splošno najraje, periferne prakse pa so politično in institucionalno prevladujoče na perifernih področjih (kot je Slovenija).

[5] Gl. zgornjo opombo.

[6] Althusserjevi tezi, da dominantna ideologija poveže različne ideološke aparate, lahko dodamo, da dominantna ideologija poveže tudi polja regionalnih aparatov, kakršen je znanstveni ideološki aparat v raznih oblikah materialne eksistence njegove (znanstvene) ideologije: univerze, akademije znanosti, inštituti ipd. Dominantna ideologija določa predvsem merila financiranja, načine financiranja (kjer vse bolj prevladuje financiranje »po projektih«, kar lajša nadzor), merila zaposlovanja (ki je vse bolj prekarno, kar onemogoči solidarnost med znanstveniki in te podreja zahtevam kapitala in države). Način, kako dominantna ideologija poveže znanstveno polje, je vse bolj v protislovju z logiko znanstvene prakse: zagovarja individualizem in tekmovanje, kjer so prakse kolektivne in kooperativne, zahteva kratkoročno uporabnost za kapital, kjer so prakse v osnovi dolgoročne in imajo lastna merila »uporabnosti«. V EU je integraciji dominantne ideologije skoraj uspelo izriniti teoretske prakse in njihove nosilce iz znanstvenih institucij (tudi z univerz) in iz sistema financiranja. (Gl. Breznik in Močnik.)

[7] Za več o slovenski raziskovalni strategiji gl. Žagar in Korsika (ur.).

[8] Sedanja tendenca znanstvenih in akademskih institucij, da bi odpravile institucionalizacijo epistemičnega reza, tj. ločitev teoretskih in ideoloških praks, uničuje »ločitev principa moči, principa zakona in principa znanja«, ločitev, ki je po Lefortu »prelomen dogodek«, konstitutiven element modernosti in njene politične emancipacije (Lefort 65 op. 8).

[9] Za prvo dokumentirano uporabo indeksa citiranosti gl. Gross in Gross.

[10] »Do določene mere« pravim zato, ker avtorji citirajo tekste zaradi različnih razlogov in citat ne odseva vselej znanstvenega vpliva teksta ali avtorja.

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O AVTORJIH IN AVTORICAH

Rok Benčin je doktoriral iz filozofije na Univerzi v Novi Gorici in je zaposlen kot asistent na Filozofskem inštitutu ZRC SAZU v Ljubljani. Ukvarja se z razmerjem med estetiko in politiko v sodobni filozofiji. Med osrednjimi avtorji, ki jih proučuje, komentira in prevaja, so Badiou, Rancière, Deleuze, Foucault in Adorno.

Maja Breznik je raziskovalka na Mirovnem inštitutu v Ljubljani ter docentka za področje kulturne zgodovine. Je avtorica knjige o renesančni gledališki praksi in ideoloških mehanizmih, o neoliberalnem kulturnem revizionizmu, o moderni evropski kulturi kot »danajskem daru« in o t. i. posebnem skepticizmu v umetnosti. Objavila je več knjig v soavtorstvu in člankov s področij kulturne zgodovine, sociologije kulture in kulturnih politik.

Vita Fortunati je redna profesorica angleške književnosti na Univerzi v Bologni. Ukvarja se z evropskimi, primerjalnimi in kulturnimi študijami. Osrednjo pozornost posveča študijam utopij, modernizmu, odnosu med besedo in podobo, interdisciplinarni obravnavi staranja, ženskim študijam, študijam spomina in nostalgije. Osrednjo vlogo v njenem raziskovanju igra interdisciplinarno gledišče, zlasti prehajanje med naravoslovjem in humanistiko.

Jernej Habjan je podoktorski raziskovalec na LMU v Münchnu in na Inštitutu za slovensko literaturo in literarne vede ZRC SAZU. Na Univerzi v Ljubljani je diplomiral iz rusistike in komparativistike ter doktoriral iz sociologije kulture. Objavil je knjigo (v slovenščini) in več znanstvenih člankov o svetovni literaturi, teoriji govornih dejanj, dekonstrukcionizmu in sodobni shakespearologiji.

Urban Kordeš je vodja srednjeevropskega študijskega programa Kognitivna znanost na Univerzi v Ljubljani. Je gostujoči profesor na Univerzi na Dunaju in na Univerzi Sigmund Freud. Na Univerzi v Ljubljani je doktoriral iz filozofije in diplomiral iz fizike. Prakticira in poučuje dialoško raziskovanje kot sredstvo za sistematično in odprto proučevanje subjektivnega.

Dejan Kos je izredni profesor nemške književnosti na Filozofski fakulteti Univerze v Mariboru. Objavil je dve znanstveni monografiji in več člankov ter poglavij o empirični literarni vedi, sodobni sistemski teoriji in nemški srednjeveški književnosti. Trenutno se posveča teoriji in praksi literarne zgodovine.

Matjaž Ličer je diplomiral iz fizike na astronomsko-geofizikalni smeri ljubljanske Fakultete za matematiko in fiziko ter na isti fakulteti doktoriral iz fizike kondenzirane snovi. Vzporedno s podiplomskim študijem fizike je absolviral študij filozofije na ljubljanski Filozofski fakulteti, na ZRC SAZU pa v okviru Primerjalnega študija idej in kultur na Univerzi v Novi Gorici pripravlja doktorat iz Badioujeve filozofije. Trenutno dela na Nacionalnem inštitutu za biologijo.

Federico Luisetti je docent italijanistike in komparativistike ter komunikologije na Univerzi Severne Karoline v Chapel Hillu. Doktoriral je iz komparativistike in italijanistike na City University v New Yorku ter iz filozofije na Univerzi v Torinu. Predava in piše o literarni teoriji in kontinentalni filozofiji, vizualnih in kulturnih študijih, poststrukturalizmu, biopolitiki in avantgardah.

Sowon S Park je predavateljica angleške literature na kolidžu Corpus Christi na Univerzi v Oxfordu. Predava viktorijansko in modernistično literaturo, žensko literaturo, kritično teorijo, moderno dramatiko itn. Ukvarja se s književnostjo britanskega sufražetskega gibanja, z vplivom evropskega modernizma na politiko in estetiko Daljnega vzhoda ter z odnosom med literaturo in drugimi vrstami vednosti.

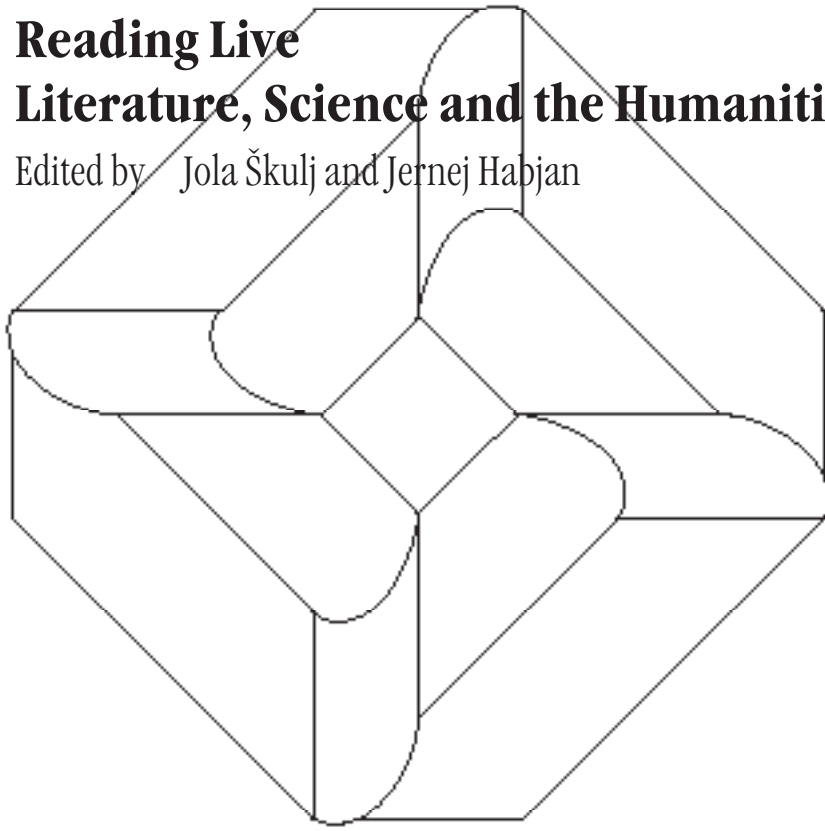
Jola Škulj je raziskovalka na Inštitutu za slovensko literaturo in literarne vede ZRC SAZU. Ukvarja se s teoretskimi, metodološkimi in primerjalnimi študijami literature, zlasti modernizma. Njena bibliografija obsega več kot 290 enot. Organizirala je več mednarodnih konferenc (o postmodernizmu, o Bahtinu, o literaturi in prostorih transgresivnosti). Je članica raziskovalnega komiteja AILC/ICLA, ustanovna članica REELC/ENCLS in članica uredniškega odbora *Primerjalne književnosti*.

Aleš Vaupotič predava svetovno literaturo in metodologijo literarne vede na Univerzi v Novi Gorici. Na Univerzi v Ljubljani je doktoriral iz primerjalne književnosti ter magistriral iz umetnosti iz videa in novih medijev. Raziskuje realistično literaturo 19. stoletja, realizem 20. stoletja, novomedijsko teorijo, teorijo diskurza in Peirceovo semiotiko. Kot umetnik deluje na področju videa in novih medijev.

Primerjalna književnost

Reading Live
Literature, Science and the Humanities

Edited by Jola Škulj and Jernej Habjan



Primerjalna književnost, Volume 35, Number 2, Ljubljana, August 2012, UDK 82.091(05)

Reading Live: Literature, Science and the Humanities

Jola Škulj

Focusing on the creative intersections between literature, sciences and humanities, this special issue of *Primerjalna književnost*, the journal published by the Slovenian Comparative Literature Association, will examine how these three fields of human creativity attract and reflect the immediate participation of those who become involved in them through readings, observations or reflections. More radically, the question might be sharpened to wondering whether the subjective, the process of life itself, is inscribed in textual decoding, in the 'objectivity' of scientific cognition, in the processes of thought. Recently, such confrontation between literature as creative practice on the one hand, and the positions of the 'soft' and 'hard' sciences on the other, has been repeatedly foregrounded and discussed in a number of published works; indeed, the European science policy has been able to grasp their interconnectedness in more productive relations, to encourage and promote it.[1] It seems only reasonable to rethink the links between these branches of the human inventive mind in the Slovenian milieu as well: to perform a task which demands responsible, large-scale confrontation and reflection on our viewpoints, if a more productive national science policy is to be achieved. At the same time, this special issue should serve as a reminder that poetry (*poiesis*) – as the *conception*, or *making* of, and synonym for creative acts – is by no means as marginal as it appears in our hectic everyday life, in our neglect of everything useless; indeed, it demands far greater commitment, for it touches, directly and openly, our own selves, the immediate human existence in the world. In fact, as minutely as researchers investigate their research objects, true art investigates our fragile and enigmatic being-in-the-world.

The established tradition of special bilingual issues of *Primerjalna književnost* ought to provide a suitable context in which Slovenian researchers in the so-called 'soft' sciences can engage in a dialogue with their colleagues in the 'hard' sciences to confront jointly their own views with those held by other European scientists, and to promote their own visions and findings internationally, in topical attempts at establishing more efficient *integrated* knowledge. The intersections of the interests sustaining the art of literature, as well as the irrepressibly burgeoning knowledge produced by the sciences, are inscribed in the phenomenology of what Helga Nowotny calls *transgressive thinking*, which is why it is in the context of the

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emerging 'life sciences' that it makes sense to open and reflect on the inherent tacit dialogue between sciences, literature and humanities.

It seems that the fundamental question to be raised is, can the knowledge unfolded by the humanities complement the skills and insights unfolded by the hard sciences? This preliminary question relates to the idea that the new paradigm of knowledge, labelled by Nowotny and her colleagues as 'Mode 2', represents a departure from the scientific paradigm 'Mode 1', 'characterised by the hegemony of theoretical or, at any rate, experimental science' (Nowotny, Scott and Gibbons 179), and that it is distinguished by an increasingly pronounced interest in reflexivity and in the dialogical process, but most of all by an awareness of the irrefutably active role played by the humanities in the production of knowledge. An essential aim is to point out the new view of the role and significance of the humanities as 'the most engaged of all disciplines' (188), capable of providing other scientific disciplines with the concepts of reflexivity and analytical historical insight.

The articles that comprise this issue of *Primerjalna kjniževnost* aim to dig into the complexities of literature and of scientific thought, pointing out the theoretical premises for confronting sciences, literature and humanities. They raise the issues of mutual cognitive bases and of complementary matrices encompassed in the key words – such as complexity, inventiveness, networking; system, autopoiesis, semiosis, narrativity, focalisation, identity, the role of the self, that is, of the human factor – which have been methodologically detailed in literary studies as well as in contemporary hard science. The views that the issue of language is relevant to all sciences did not take shape only with Lotman's semiotics of culture; rather, they are visibly highlighted as early as in Heisenberg's *Schritte über Grenzen*, and further corroborated by ground-breaking biologist understanding of cognition (Maturana and Varela) and language (Thibault). Moreover, the new conceptions of cognition offer a different, more precise understanding of facts and their historicity; through recognising the indispensable role played by reflexivity and by the dialogical process in the wording of knowledge, they open a new view on the significance of the humanities in knowledge production.

If cognition is part of our own 'live' phenomenology, if readings and interpretations of the world are an unavoidable challenge to the human autopoietic adaptation and rethinking of identity, then a comparativist intervention, confronting the conceptions in the overemphasised binarism of the hard and soft sciences, leads to responsible self-reflection and a confident attribution of meaning to our work. With its consistent analytical approaches, the comparative commitment to the issues of literature and to

the context of cultural practices is accustomed to reading semiotically the complexity and inventiveness running through the texture of art system, as well as to interpreting the role of the self, the human factor, in literary acts, and thus to considering historically the reasons for the emergence of and changes in the matrices of art and knowledge. Communication across the institutional borders of research disciplines is undoubtedly a stimulating component of a genuine and responsible research interest; literary studies, with its theoretical and methodological findings and its conceptual territory, can significantly contribute to a new, active production of knowledge. Indeed, a convergent approach to knowledge may have multiplicative effects.

This convergent approach leads to more convincing scientific arguments why a creative practice such as literature should continue to exist, while its degree of topicality efficiently attests and internationally promotes Slovenian comparative literary studies, consolidating the work that had begun with the inclusion of our research in this field in the aforementioned European project ACUME 2.

Translated by Nada Grošelj

NOTE

[1] These problems were, after all, successfully addressed by the European 2006–2009 project 'ACUME 2: Interfacing Sciences, Literature & Humanities', co-ordinated by Vita Fortunati and Claudio Franceschi.

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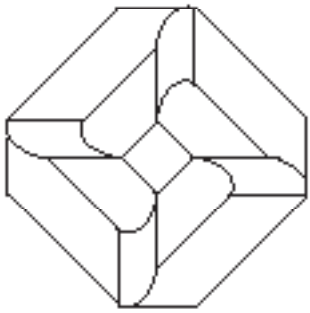
Papers



Science and Literature: Reflections on Interdisciplinarity and Modes of Knowledge

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The joint field of 'science and literature' has been gaining increasing prominence in the last two decades, charting new grounds beyond the divided landscape of the 'two cultures'. Of our increasingly border-crossing research culture, no field provides a better example than cognitive literary criticism. Though still relatively young, this area has already produced a body of work that is extremely wide-ranging in both scale and explanatory scope, illustrating through its very organization the possibilities of multidisciplinary enquiry. This paper will examine interdisciplinarity with reference to evolutionary literary criticism, a sub-field within cognitive literary criticism; a scrutiny of the political and ideological implications that follow from basing an account of literature on adaptive value will be given followed by a discussion of the historical lineaments of the science/literature debate.

Keywords: science / culture / literature / cognitive literary criticism / evolutionary criticism / interdisciplinarity

UDK 82.0:001.3

I

The joint field of 'science and literature' has been gaining increasing prominence in the last two decades or so, charting new ground beyond the divided landscape of the 'two cultures'. The *MLN* signaled this spirit of constructive interdisciplinary exchange in their special issue entitled *Literature and the History of the Sciences* (2003), which announced that there were now 'complementary tendencies in literary studies and the history of sciences, tendencies that seemed to eventually converge or even to coincide methodologically' (Campe 515). The hopeful note of methodological reconceptualisation inherent in the 'complementary tendencies' pronouncement would have seemed improbable fifty years ago, at least in

the Anglo-Saxon academic world; that such optimistic foregrounding of convergences, of both methods and concepts across the divide, is common today makes plain the very many advances the 'two cultures' debate has taken.

Of our increasingly border-crossing research culture, no field provides a better example than cognitive literary criticism. Still relatively young, cognitive literary criticism has already produced a body of work that is extremely wide-ranging, illustrating through its very organization the possibilities of multidisciplinary enquiry. Though cognitive approaches range widely in both scale and explanatory scope – cognitive poetics, cognitive stylistics, cognitive aesthetics, cognitive narratology, 'evo' (evolutionary) literary studies, 'neuro' (neuroscientific) literary studies and other interdisciplinary studies yet to be given a formal title – they have in common a focus on the cognitive nature of literature and a belief in using the methods of science to illuminate it. The study that opened up this field was *The Literary Mind* (1996) by Mark Turner: in it, Turner used the methods and concepts of cognitive linguistics and neuroscience to illuminate the cognitive and psychological processes at work in the act of reading. It has not only recalibrated the relations between previously discrete modes of knowledge but has demonstrated through its example that interdisciplinarity is inherent, setting new standards for bringing the concepts and methods of one discipline into a working relation with the concepts and methods of another. Turner sums up his approach:

> In combining the old and the new, the humanities and the sciences, poetics and cognitive neurobiology is not to create an academic hybrid but instead to invent a practical, sustainable, intelligible, intellectually coherent paradigm for answering basic and recurring questions about the cognitive instruments of art, language, and literature. (Turner, 'The Cognitive Study' 9)

Not all attempts in this field have been quite so judicious. Even at this inchoate stage, there are epistemic issues that trouble the notion of convergence, none more so than in the field of evolutionary literary criticism. To discuss the problems, I will examine *The Literary Animal: Evolution and the Nature of Narrative* (2005) edited by Jonathan Gottschall and David Sloan Wilson. Though there have been many evolutionary literary studies, this book illustrates the defining features of this school singularly well; and it is also clear in differentiating itself from long-established criticism informed by Darwinian ideas, in which critics like Gillian Beer, among others, have written powerfully and illuminatingly (see Beer). I will investigate the forms and methods that underpin this kind of application of evolutionary knowledge to literature, consider the political and ideological implications that

follow from basing an account of literature on adaptive value, and trace the lineaments of the debate historically. For perhaps the most striking feature of evo criticism is its striking similarity with arguments of the past.

II

Evolutionary literary critics begin from the premise that language is a distinct and defining feature of humans which holds profound truths about human nature. Looking at the sheer ubiquity of narratives in human societies, they attempt to understand the adaptive value of literature by using literature as an object of scientific scrutiny. 'First, what is literature about?'; 'Second, what is literature for?; 'Third, what does it mean for a seemingly nonscientific subject such as literature to be approached from the perspective of a scientific discipline such as evolution?' – these are three questions that underpin *The Literary Animal* (Gottschall and Wilson [eds.] xxv). In regarding literature as an object of serious and sustained scientific enquiry, *The Literary Animal* appears to take a big step forward towards interdisciplinarity, unlike the majority of scientific writing which excludes what it regards as non-scientific modes of knowledge from its field of investigation. The introduction announces that it seeks to 'provide a single conceptual framework for unifying disparate bodies of knowledge […] and reverse the trend of extreme specialization of knowledge that has taken place in the absence of a unifying conceptual framework' (xvii). In the same vein, E. O. Wilson writes about the possibility of evolutionary literary criticism to bridge the divide between the two cultures. If naturalistic theories are proved to be right, he writes, 'not only human nature but its outermost literary productions can be solidly connected to biological roots, it will be one of the great events of intellectual history. *Science and the humanities united!*' (Gottschall and Wilson [eds.] vii)

But if by proposing the inherent literariness of the human mind as one of the most fundamental parts of our cognitive capacity, 'evo' criticism appears to recalibrate the dynamics of the relationship between literature and the sciences and put them on a more equal footing, one is very soon confronted by assertions, such as E. O. Wilson's, which prompt the question of whether the single conceptual framework is based on a common ground of knowledge or a ground of scientific knowledge only. He writes:

> Confusion is what we have now in the realm of literary criticism. The naturalistic (Darwinian) literary critics have an unbeatable strategy to replace it. They do not see the divisions between the great branches of learning – the natural sciences on one side and humanities and humanistic social sciences on the other – as a fault

> line between two kinds of truth. They do not consider it a line at all but rather a broad expanse of mostly uncovered phenomena awaiting cooperative exploration by scholars from each side. This conception has the enormous advantage that it can be empirically proved to be either right or wrong or at worst, unsolvable. (vii)

The idea that literary knowledge can be established through empirical verifiability would not be worth serious consideration except that this is a typical, indeed declared, method of evolutionary literary criticism. And despite E. O. Wilson's veneer of impartiality, established through his breezy dismissal of the incommensurability of various paradigms of knowledge, it still remains a matter of dispute whether the commensurability of literary and evolutionary enquiry has been satisfactorily or even adequately addressed. Before the discussion on the epistemological status of artistic communication can be had, and challenges to the epistemologies of scientific rationality be made, it is worth pointing out that this kind of collapsing of the two cultures is a common feature in the present interdisciplinary culture which should be distinguished from genuine attempts at consilience. It is now commonplace to hear of post-'two cultures' or anti-'two cultures' proclamations and how one should embrace a less divisive approach to acquiring knowledge. In these announcements, it would seem that the two cultures idea was an arbitrary doctrine or a territorial prescription for separatist modes of enquiry. But when C. P. Snow (1905–1980) articulated this idea in his 1959 Cambridge Rede lecture, 'The Two Cultures and the Scientific Revolution' (see Snow, *Two Cultures*), he was merely reflecting the institutional and conceptual divide prevalent in the Western world in the mid-twentieth century. A simple rejection of Snow's summary without institutional and conceptual changes and without a fundamental reconceptualisation of both fields, one that goes beyond superficial term-borrowing, amount to little more than rhetoric, or even worse, a mystification that masks difference and institutional inequality.

It is true that in the heated and ferocious debate following on from Snow's thesis and F. R. Leavis's subsequent rebuttal, there was little room to examine whether the differences between the two cultures were quite so absolute. Two years ago, Onora O'Neill pointed out in her Cambridge Rede lecture, entitled 'Two Cultures Fifty Years On', that the assumptions and methods by which both cultures proceed are not quite so divided, giving as her examples the common methods of interpretation and inference aiming at empirical truths and relying on normative assumptions. O'Neill's observations are timely in that they express something of the current climate of convergence. But one should not lose sight of the fact that the two culture debate, as Patricia Waugh (33) has argued, can be dated back as far as classical antiquity, revolving as it does around two

modes of enquiry leading to two kinds of knowledge: scientific, quantifiable knowledge and the aesthetic, non-quantifiable knowledge. Plato's idea of intellect, which famously relegated aesthetics to subjective emotionalism, found its twentieth-century equivalent in Snow's attack on literary intellectuals (or more specifically, modernist writers) and is undergoing a resurgence again in current polemics produced by evolutionary literary critics.

But to return to the issue of the presumed superiority of the scientific method: just as C. P. Snow did fifty-odd years earlier, but with an even more confident and blinkered positivism, evolutionary critics, with evangelical zeal, champion their mode of enquiry. 'There is no work of literature written anywhere in the world, at any time, by any author, that is outside the scope of a Darwinian analysis', claims Joseph Carroll in *The Literary Animal* (79). He continues:

> Darwinian psychology provides a scientifically grounded and systematic account of human nature. This is the first time in our intellectual history that we have had such a theory, but the subject of this theory – human nature itself – is the very same nature that has always animated writers and readers. Most writers historically have not had access to the evolutionary explanation for how human nature came to be what it is, but they have nonetheless had a deep intuitive understanding of human motives and human feelings. What a Darwinian social science can now do for literary criticism is to give us conscious theoretical access to the elemental forces that have impelled all human beings throughout time and that have fundamentally informed the observations and reflections of all writers and all readers. Darwinian criticism can lift us above the superficial paraphrases of traditional criticism without forcing us into the often false reductions in the postmodern conceptions of human nature. (Carroll 103)

But biology-led ideas of what literary enquiry is, when they do not address the epistemological status of aesthetic knowledge, have little to say about literature, especially that with no discernable adaptive value.

A general confusion about what literary knowledge is has much to do with the assumptions about literature with which evolutionists begin their investigation. They are, like all scientists, concerned with the highest levels of generality. Literature is of course concerned with human universals but formulated in a uniquely specific way. The specificity is what constitutes the literariness. This is not an argument against reduction. If the process of reduction is a move in the direction of greater objectivity in the sciences, it is also a move towards a more accurate view of the real nature of things in the humanities. But some processes of reduction lead us straight up a dead end. And some lead to direct attacks on non-scientific modes of knowledge.

Evoking Snow's attack on non-verifiable modes of knowledge and modernism, the intellectual frame of which was logical positivist orthodoxy, evolutionary critics, in this volume and elsewhere, condemn non-verifiable ideas of social constructivism and postmodernism. Joseph Carroll argues:

> The turn to theory-driven criticism answered to a manifest need, but the theoretical models that have been used, up to now, have been painfully inadequate. Deconstruction, Marxism, Freudianism, and Foucauldian political criticism have all presupposed ideas about human nature that conflict sharply with the Darwinian conception. The other main school, feminism, is a less single, coherent theory than a preoccupation about a specific subject matter – the condition of women – but the notions that cluster around this preoccupation often entail false ideas about human nature, and most feminist critics over the past thirty years have affiliated themselves with one or other of the dominant theoretical schools. All of the schools, as subsidiaries of postmodern theory, have fundamentally repudiated the idea of an innate, biologically constrained structure in the human motivational and cognitive system […] offer[ing] distorted, skewed and strained accounts of the elemental motives and governing principles in literary texts. (Carroll 102)

That poststucturalist and postmodernist accounts have at times failed to adequately address the category of the natural is a valid point. Certain strands of postmodern epistemological relativism have treated the concepts and methods of science with extreme scepticism and consequently have produced decades of disputes over epistemology and methodology which reached a peak in the 'science wars' of the 1990s (for a delineation of which, see Norris). However, refuting a position by discrediting several flawed arguments in its favour does not encourage epistemic compatibility of the quantifiable, positivist and measurable and the non-quantifiable, immeasurable, aesthetic mode of knowledge.

The combative tone may have something to do with the process of breaking down barriers between disciplines and constructing new paradigms. But the polemics does not seem unrelated to the fact that cognitive science was borne out of the biological revolution of the 1950s and that within its current manifestation, biology has now superseded classical physics as the 'exemplary' discipline which sets the standard of all inquiry. Redolent of what F. R. Leavis called the 'technologico-Benthamite' reduction of the human in Snow's overextension of scientific epistemology (see Leavis), evolutionary critics' polemical rhetoric can seem like gung-ho assertions of scientific supremacy. The hierarchisation of knowledge presumed by evo criticism is, again, reminiscent of Snow's scheme of the two cultures which equated the scientific mode of investigation with political progressivism, and the literary culture with the degenerate. 'A certain type

of art has been intimately linked with a certain type of inhumanity' averred Snow (Snow, *Recent* 6). That a set of regressive and self-indulgent attitudes is associated with literary intellectuals, and a set of progressive ones with natural sciences, is the foundation of evolutionary criticism in which there is no place for 'non-entertaining' modernist and postmodernist literature. The most extended condemnation of modernism and postmodernism is Steven Pinker's *The Blank Slate*, which mounts a systematic attack on forms of literature from which he can find no adaptive value. Regretfully, this is a logic that informs *The Literary Animal*.

So what is literature about according to evolutionary logic? What is it for? Looking at literature, the evolutionary critic finds that various hypotheses could be made about its adaptive value, producing as evidence entertainment, circulation of information, simulations that prepare humans for actual decision-making, vicarious wish-fulfilment and counter-factual fantasy. These values may or may not illuminate literary texts but the quality of these interpretations is not a point I would like to pursue here. What I would like to discuss are the political and ideological implications of positing a direct link between literature and use value while passing over in silence the formal characteristics that constitute literature. For what is literature if not form? Literature has crucial relevance precisely because it is not paraphrasable into more basic speech and because it only exists as an indivisible whole whose meaning is always symbolic. Of course a large number of activities go on under the heading of reading and writing, activities which are connected in various ways and which all add up to the experience of literature, and among which entertainment and information gathering could play a part. However, the idea that entertainment in itself elucidates literature is not only incomplete but misconceived. There is certainly enough non-entertaining literature to constitute a formidable challenge to the idea of human nature upon which these scientific hypotheses are based. And even the most hard-boiled empiricists would regard entertainment an inadequate criterion for evaluating and comprehending literature, especially when the concept of entertainment revolves around passive reception of information. Another problem of equating literature with entertainment is that it ignores the relationship between art and ideology. Do some forms of literature, especially repetitive genre fiction on which 'evo' critics are so keen, reinforce certain ways of seeing? Are certain literary forms symbolic representations of social relations? If literature reflects society, is the reflection partial and does the partiality mask fundamental contradictions of that society? In short, what is the epistemological status of the great tradition of negative dialectics in literature? Literature does not merely reflect; it also refuses, rejects and negates. Literature is

often a great refusal of what is, a negation of the present. It is also often a proposal of what we can hope to become.

The misappropriations and parody of literature have potential consequences reaching far beyond pseudo-literary claims about the adaptive value of narratives. Some evolutionary critics, like Snow before them, have been widely accepted as a powerful and authoritative voice of science on a global scale, and their neo-Darwinian neuromythologies have a bearing not only on the future direction of cognitive science but on the public intellectuals whose opinions are informed by and produced within scientific discourses. If one looks closely, at the heart of this debate on literature is nothing less than humanity's model of itself, closely associated with society's structure of values, and this debate has been on-going for at least two hundred years.

A less well-known but pertinent antecedent of the Snow-Leavis controversy can be found in the nineteenth century, in the Huxley-Arnold version, which provided the point of reference for both Snow and Leavis. Matthew Arnold's (1822–1888) own Rede lecture of 1882, entitled 'Literature and Science', rebutted, albeit in a more gentlemanly and respectful manner, the claims made by T. H. Huxley (1825–1895), whose 'Science and Culture' promoted science over the traditional classical education. In his refutation of Huxley, Arnold argued:

> If then there is to be a separation and option between humane letters on the one hand, and the natural sciences on the other, the great majority of mankind, all who have not exceptional and overpowering aptitudes for the study of nature, would do well, I cannot but think, to choose to be educated in humane letters rather than in the natural sciences. Letters will call out their being at more points, will make them live more. (Arnold 70)

As this example demonstrates, Arnold's idea that literature is closely and exclusively involved with the giving of life is the premise on which both he and Leavis based their refutation of scientific supremacy. That 'humane letters' is separate from the natural sciences of which Arnold speaks is broadly a continuation of the fissure that opened up between types of knowledge in the seventeenth and eighteenth centuries with the advent of European enlightenment. But the clear and mutually exclusive categories of knowledge, as delineated by Snow and Leavis, are a distinctly nineteenth-century phenomenon. Scientists, called 'natural philosophers' prior to the nineteenth century, were understood to include in their study the culture of humans as well as the natural world. Indeed, the category of science, in English, in the narrow restricted meaning of the word as pertaining to the physical or the natural sciences to the exclusion of theo-

logical and metaphysical science, dates back no further than the 1830s according to the *OED*.[1]

Of the extremely wide range of implications arising out of this genealogy, the most pertinent to the present argument is the hierarchy of knowledge produced by such categorization. From the romantic period onwards, one can readily find the category of science assuming a special claim to reliable, objective knowledge and from then on the two cultures debate could not but proceed with the humanities continually defending the value of an aesthetic form of knowledge (see Collini). As a consequence, there has been a huge imbalance in their degree of legitimization which has pushed the humanities to a perennial self-justification. There have been two main approaches to this justification. One approach has been for the humanities to aspire to the condition of science, scrupulously avoiding non-verifiable questions such as meaning, value and intention; the New critics have been the most notable though by no means the sole practitioners of this method. The other approach has been to defend the existence and value of a specifically aesthetic, non-scientific kind of knowledge; in other words, the methods of modern aesthetics. As Terry Eagleton (16) has stated, 'aesthetics is born of the recognition that the world of perception and experience cannot simply be derived from abstract universal laws, but demands its own appropriate discourse and displays its own inner, if inferior, logic.' Thus any interdisciplinary research would need to address the question of whether the intellectual methods and standards adopted from the natural sciences are appropriate for a discourse founded on precisely that which cannot be derived from scientific modes of knowledge. A convergence of transdisciplinary proportions would require profound transformations of the inherited categories as described above, for it is unlikely that any attempt that does not achieve this will be able to resolve the issue of epistemological compatibility. Erasing the two categories in favour of a mythical third is no less a dubious gesture than relegating the categories to the waste heap of history, for there are more profound issues at stake in such apparently narrow disputes.

The scientific ascendancy may provide the foundation for consilience, but to reach that level of advanced understanding the significance of aesthetic knowledge will need to be continually reasserted in the face of scientific reduction of the literary. Certain truths about the human experience can only be communicated in aesthetic form which is one strong argument for preserving the divided landscape of the two cultures even as we try to resist the circumstances which produced it.

NOTE

[1] In the German tradition, the distinction between *Geisteswissenschaften* (or *Literaturwissenschaften*) and *Naturwissenschaften* does not affect the category of *Literatur*, which is outside of *Wissenschaften* all together.

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Complexity, Literature, Sciences: Initial Remarks on Discourse and Dialogue

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Deep insights into the complex poetic system of modernism, a period founded during key historical shifts when views on language (as a system of signs) and its crucial role were newly valorised and the idea of point of view became thought-provoking for literature and arts as well as hard sciences (say, for Heisenberg), help shed new light on the role of humanities, later discussed in the rethinking of sciences by Nowotny et al. as one of five concrete contexts for the new production of knowledge in effective science policies. Literature exists as a vital segment of our living phenomenology, and the process of reading texts is a direct encounter with our human autopoietic adaptation and our own identity questioning. Two points are considered: autopoiesis and its sense in poiesis, and the potential of discourses in complex life dynamics.

Keywords: literature / humanities / science / language and consciousness / modernism / self-reference / self-reflexivity / dialogue / Maturana, Humberto R. / Heisenberg, Werner / Jakobson, Roman / Lotman, Yuri / Thibault, Paul J. / Nowotny, Helga

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> Language was a trap, but the whole experience was a wonderful school in which one could discover how mute, deaf and blind one was. It was easy to be caught in one's own ego, but if one succeeded in attaining at least some degree of freedom from *it*, one began to listen and one's language began to change; and then, but only then, new things could be said.
> (Maturana on his experience of May 1968 when the University of Chile entered a state of revolution: Maturana and Varela xvi)

> Technology is […] a queer thing. It brings you gifts with one hand, and stabs you in the back with the other.
> (C.P. Snow, *New York Times*, 15 March 1971)

Both sciences and arts are, in essence, *inventive* instances, authorising and generating the potentials of human mind through history, and giving

power to new meanings. *Transgressive thinking* and *transgressive competence*[1] are effectively implicated in both, just as they are involved in any process of writing and reading literature. The spheres of the arts and literature are as much a part of human capital as are the sciences. Any discourse – literary or scientific – involves us in *transgressive*[2] operations; in fact, it opens up the issues of *transgressive cognition* (Perkins). Mark Turner even insists that 'the mind is essentially literary' (5) and that 'narrative imagining – story – is the fundamental instrument of thought' (4).[3] Such views bring to the fore not only a rethinking of the basic task the humanities can have in the coming knowledge society, but also to supply more detailed insights into (and newly elaborated concepts to grasp) the reality principles of the world and man. A range of epistemological ideas elaborated by Nowotny, and by Maturana and Varela, have both stimulated and supported my recent thoughts on complexity, literature, and sciences.

The latent dialogue between different methodological traditions – of the *two cultures*[4] (to echo a well-known lecture by C. P. Snow in 1959) – and the potent interplay of science, literature and the humanities has found an echo in early modernist shifts in the arts, calling for more complex schemes and notions in apprehending facts about the world and human existence in their *transient* actuality, as well as grasping the very facets of *conflict* and *contradiction*. Modernist art in actual fact encapsulates this very latent dialogue. The brief remark that 'interfaces often start to show because of controversies' made by Nowotny when interviewed by Hans Ulrich Obrist (see Obrist) is worthy of note here as it points to a better understanding of what lies behind modernist changes. Modernist art actually promotes (and thematises through its procedures) truth as *becoming* (see also Skulj, 'Landscape'). Behind the modernist matrix (indicating the character of *complexity*, chaos, modelling, 'networking', etc) can be identified the system of knowledge which manifests a certain tendency to overcome binarism (as a logic of exclusion[5]). Hence a growing interest in *tropological* accounts found in modernist new art schemes and in scientific shifts of that time: both can be identified as a creative response of the *thinking brain*[6] in the early 20th century. These trends underlying 20th century art and sciences give an early indication that what is happening is a shift from the disciplinary mode of knowledge production to a more transdisciplinary one, employing *scopic vision* (Spivak) or a double-oriented view of representations, aware that the role of 'the observer is part of the described phenomena' (Maturana). This visibly results in a breakthrough of the *transgressive thinking* in current trends of science policies.[7] In an interview with Hans Ulrich Obrist, Nowotny advocated the idea of 'presenting things visually' – since '*seeing*' *and the* '*image*' *open up other creative spaces* – and

thus grasping *dynamic* knowledge, the very issues in the process (Obrist).[8] As a strong supporter of contextualised knowledge and a promoter of the idea of moving from *reliable* knowledge[9] – which ceases to be defined in a universalistic sense and becomes tied to a particular context – to *socially robust knowledge,* she argues for transforming science deep in its epistemological core. Her concept of

> social robustness is a relational, not a relativistic or (still less) absolute idea. […] [S]ocial robustness, in an important sense, is *prospective*; it is capable of dealing with unknown and unforeseeable contexts. […] and last, socially robust knowledge has a strongly empirical dimension; it is subject to frequent testing, feedback and improvement because it is *open-ended.* (Nowotny, Scott and Gibbons, *Re-Thinking Science* 167)

Her research credo is revealed in Robert Musil's thought, quoted in her interview: *it is a movement that is supported by the sense of the possible*. A modernist disposition is easily recognizable in the vocabulary. The modernist matrix,[10] which was, as Husserl later commented in his Vienna lecture, a response to the crisis of consciousness, was definitely inspiring. Sensible of complexity and of 'the human factor', it triggers new insights into reality principles. It also generates a much more dialogic response of human self-understanding. At the peak of modernism, science as well became aware, as Heisenberg commented, of the seminal role of language. Post-saussurean impact was fairly obvious.

Communication across institutional boundaries can give a fresh impetus to valid and responsive research interests. Literary studies, due to its theoretical and methodological advances and its conceptual territory, can seriously contribute to the new production of knowledge in transdisciplinary approaches.

A model case of valuable dialogue between literary studies and 'hard' science can be given. Commenting on Humberto Maturana's earlier fundamental views on the *Biology of Cognition* (1970), his fellow researcher Francisco J. Varela who is co-author of the seminal book on *Autopoiesis and Cognition: Realization of the Living* (1972) observed: 'If indeed the circular organization is sufficient to characterize living systems as unities, then one should be able to put it in more formal terms.' (Maturana and Varela xvii) The idea of *autopoiesis*, which they introduced to refer to 'the dynamics of the autonomy proper to living systems' (ibid.), points to the circular organisation or self-referential system as a key concept to understanding the organisation of living systems. The notion has its prehistory in literary studies, although Maturana, who in his 'Introduction' to *Autopoiesis and Cognition* records how he came upon his conceptual initiative, was not

aware of the well-circulated structuralist idea of a *self-referential*, *self-focused message* or *recursive reference* and of a *corollary feature of poetry* as discussed in Jakobson (370–371), i.e. of basic organising principles of the *poetic function* well thought-out in semiotic studies of literature.[11] Maturana gives the following explanations about the power of the word 'poiesis' he come upon by chance in literary studies.

> [W]e were unhappy with the expression 'circular organization', and we wanted a word that would by itself convey the central feature of the organization of the living, which is autonomy. It was in these circumstances that one day, while talking with a friend (José Bulnes) about an essay of his on *Don Quixote de la Mancha*, in which he analyzed Don Quixote's dilemma of whether to follow the path of arms (*praxis*, action) or the path of letters (*poiesis*, creation, production), and his eventual choice of the path of *praxis* deferring any attempt at *poiesis*, I understood for the first time the power of the word 'poiesis' and invented the word that we needed: *autopoiesis*. This was a word without a history, a word that could directly mean what takes place in the dynamics of the autonomy proper to living systems. Curiously, but not surprisingly, the invention of this word proved of great value. It simplified enormously the task of talking about the organization of the living without falling into the always gaping trap of not saying anything new because the language does not permit it. We could not escape being immersed in a tradition, but with an adequate language we could orient ourselves differently and, perhaps, from the new perspective generate a new tradition. (Maturana and Varela xvii)

The quotation not only reminds us how science, literature and the humanities may perhaps interface, but above all how elegantly and simply the world and the living being in it can be grasped in an integrated view of knowledge. Maturana's use of the term autopoiesis exemplifies how to share and reuse relevant knowledge. Could it be said that the semiotics of literature and phenomenology of living systems are, deep at the epistemological core, much more interrelated than is usually assumed? The affirmative answer, no doubt, hints at an indispensable involvement of our own historical existence.

Autopoiesis literally means 'self-creation' (from the Greek αυτό [*auto*], 'self', and ποίησις [*poiesis*], 'creation, production') – and according to the *Babylon English-English Dictionary* – implies 'a process by which an organism or organization produces itself by repeating the reproduction process and constantly recreating itself (such as cells or organisms)'. A corresponding view of the corollary or self-referred sign in the poetic message as an essential element of literary discourse has been circulating since the early debates among the Prague Linguistic Circle (Mukařovsky, Jakobson) in the mid-thirties. In elaborating the idea of the self-oriented or *reflexive* poetic message, Jakobson in his 'Closing Statement' at a symposium on linguistics and poetics in late fifties explicitly stated: '*poeticalness* is *not a supplementation*

of discourse with rhetorical adornment *but a total re-evaluation of the discourse* and all its components whatsoever' (377; italics mine). A semantic issue turns out to be a structural matter, denoting the essential characteristics or organising principle of literariness, the very *differentia specifica* of verbal art.

As repeatedly stated, modernist inventions in literature gave a significant boost to extensive theoretical studies on literary phenomena (OPOJAZ, i.e. Obščestvo izučenija POètičeskogo JAZyka, Bakhtin's circle, the Prague Linguistic Circle, Ingarden's phenomenology, new criticism, structuralism, etc.) and finally prompted the initial steps towards the semiotics of literature and arts. The groundbreaking linguistic views of Saussure had an impact on the thorough examination of the systemic parameters of literature and the textual, and the idea of literary science (German *Literaturwissenshaft*) began circulating: one can find the phrase also in Jakobson and later in Lotman. Manifested in the materiality of language, literature was recognised as a complex,[12] rather tricky research subject. But this very complexity triggered a persistent interest in comprehending basic questions such as what literature is, why literary phenomena exist, how to explain the *differentia specifica* of literature in relation to ordinary language and to other schemes of art, how to identify the core of its literariness (i.e. *poeticalness* in Jakobson's sense), how to clarify its mode of existence. A historical outline of the advance of literary theoretical thoughts in the past century offers a remarkable picture.

The modernist breakthrough came about as a result of several crises – of language, of culture (Beebe; Bradbury and McFarlane; Calinescu; Luft), and of the self or identity (Le Rider). In two earlier articles, I discussed the issue in the context of Husserl's comments on the *crisis of consciousness* (Skulj, 'Landscape' 63–82; Škulj, 'Modernizem' 45–74). Modernism was, no doubt, a manifest crisis in *representational* modes. Its complex poetical schemes and reinvented narrative form with the inclusion of the reader in its structuring make clear modernist awareness of the *role of constructive act* through the reading process. Semiosis is a microcosm of human agency and consciousness (Thibault). Modernist inventions of poetry or the novel touch upon the very terrains of reinterpreted identities.

At the same time, language also became a vital issue in the hard sciences and Heisenberg made the noteworthy observation that *the very words applied to the description of the atomic level turn out to be problematic*. Aware of the role of language, he wrote:

> Quantum mechanics have placed even more serious demands on us. We have had altogether to renounce the objective description of nature – in the Newtonian sense, according to which definite meanings were ascribed to such basic features of system as place, velocity, energy; and in its stead we have had to put the description of observation points, and for them the only certainty are the probabilities of

> some of the results. The very *words* applied to the description of the atomic level then turn out to be problematic. We may talk of waves and particles, while remembering that we are not dealing with a dualistic, but with a fully unified description of the phenomena. *The meaning of old words has lost precision.* (Heisenberg, *Schritte über Grenzen*, 1973; qtd. in Lotman 270)

In his semiotic theory of culture, Lotman (269) makes the insightful remark that 'questions of language affect all the sciences' and reminds us of changes in modern science. He argues that it

> has moved away from the naive view according to which the normal methods of perceiving and generalizing data were held to be valid, and the problem of the position of the describer in relation to the world being described was barely accounted for; it has moved away from the view according to which the scientist looked at reality 'from the position of truth', into the world of relativity. (Lotman 270)

The myth of scientist as an external observer and of reliable 'objective' knowledge thus collapsed. Three points in Heisenberg's quotation are essential for modern science. First, that science has had to incorporate 'the description of observation points'; second, that 'the only certainty are probabilities'; and third, 'that we are not dealing with a dualistic, but with a fully *unified* description'. Yet the most important is that 'modern science from nuclear physics to linguistics sees *the scientist as inside the world being described and as a part of that world*' (Lotman 270; italics mine).

In Maturana one can find similar assertions. Pointing to the cognitive function of the observer, he emphasises his strong awareness of the role of language in science: '*Everything said is said by an observer*. In his discourse the observer speaks to another observer, who could be himself. […] The observer is a human being, that is, a living system, and whatever applies to living systems applies also to him.' (Maturana and Varela 8; italics mine) '*The observer is a living system and an understanding of cognition as a biological phenomenon must account for the observer and his role in it*.' (9) Maturana's thought on the role of the observer in scientific discourse as if he 'speaks to another observer, who could be himself', is in conformity with Lotman's position that 'the object and the observer are as a rule described in different languages, and consequently the *problem of translation,* is a universal scientific task'. He goes on to remind us of Plato, who 'defined thought as the *dialogue* of the soul with itself, [while making] the assumption that the conversation would be carried on in one language' (Lotman 270). Nowadays, semiotics is aware of the agency of the *self* and of its relation to consciousness.[13] And because the self is regarded as possessing *narrative identity* (Ricœur 1991), its fluid, ever-changing, *responsive* ingredient is continually inscribed in the language use and in any signification.

Maturana (9) asserts that 'the observer beholds simultaneously the entity that he considers (an organism, in our case) and the universe in which it lies (the organism's environment). This allows him to interact independently with both and to have interactions that are necessarily outside the domain of interactions of the observed entity'. In his introductory paragraph, Thibault (2–3) reminds us that alterity is the primitive intrinsic value that motivates self-other relations and meaning-making activity.

The dialogic process also clearly has effect in the representation of scientific knowledge. The explanatory statement about scientific facts is the observer's *construct* as a complex formed from a number of researched aspects; it also involves observer's code, his own complex and heterogeneous world picture. The account of scientific facts is a result of preparatory analysis. It is created by the observer/researcher in the research process and is never something absolute. A fact is relative (true to a certain degree) and its understanding is in Lotman's sense a *translation*. Such an idea of understanding as *translation* recognises the researcher's presence – the *interference of a thinking being*, the *interference of his creative consciousness* (Lotman 233) – and the awareness of 'how this presence affects the description' (271).

Considering Lotman's comments on the role of translation in cognition, two passages can be quoted in conclusion to disclose Nowotny's position on the new paradigm of knowledge production ('Mode 2'), leaving behind 'Mode 1' – 'characterised by the hegemony of theoretical or, at any rate, experimental science' (Nowotny, Scott and Gibbons, '"Mode 2" Revisited' 179). The first quote concerns *reflexivity* and the *dialogic process*, while the second points to *the role of the humanities* in the production of knowledge. Her arguments on one of the characteristics of new mode of sciences and on one of the concrete contexts of sciences offer strong support to our discussion.

> The fourth characteristic of 'Mode 2' knowledge is that it is *highly reflexive*. The research process can no longer be characterised as an 'objective' investigation of the natural (or social) world, or as a cool and reductionist interrogation of arbitrarily defined 'others'. Instead, it has become *a dialogic process*, an intense (and perhaps endless) 'conversation' between research actors and research subjects – to such an extent that the basic vocabulary of research (who, whom, what, how) is in danger of losing its significance. As a result, traditional notions of 'accountability' have had to be radically revised. The consequences (predictable and unintended) of new knowledge cannot be regarded as being 'outside' the research process because problem-solving environments influence topic-choice and research-design as well as end-uses (Nowotny, Scott and Gibbons, '"Mode 2" Revisited' 187; italics mine).

Discussing the specific contexts of current sciences, the commercialisation of research, development of mass higher education, globalisation,

the potential of refiguration of institutions and the management of Mode 2 knowledge, the most important, from my point of view, is that she highlights the role of the humanities.

> The third context was *the role of the humanities* in the production of knowledge. The conventional view is that the humanities are the most detached disciplines, furthest removed from the turmoil of application and contextualisation. Their 'uses' are almost entirely internalised. Our account in *The New Production of Knowledge* challenged that view. Instead we saw the humanities as *the most engaged* of all disciplines, not simply because they flow through into the culture industry (for example, through novels and popular history), but because they comfortably (and inevitably) embody notions of *reflexivity* which the natural, and even social, sciences distrust (Nowotny, Scott and Gibbons, "'Mode 2" Revisited'188; italics mine).

Complexities inherent to literature and the fascinating qualities, interesting and attractive, that our thoughts tend to concentrate on it and that prompt literary studies to research, are through the above comments seen from a different angle. In line with the views of Nowotny and Maturana, literary studies are a valuable ingredient in the new production of knowledge. The dialogue and mutual understanding between the 'two cultures' – exploring potentialities embedded in shared paradigms of investigation, such as the ideas of complexity, creativity, 'networking', the human factor, as well as the system, autopoiesis, self-reference, self-reflexivity, narrativisation, focalisation, etc. – demonstrate the need for *integrated* knowledge; it validate as well that the ACUME 2 project on interfacing 'hard' sciences, literature, and the humanities was a valuable step towards the new production of knowledge because our sense of *being* and our human condition are, as a rule, always inscribed in any cognition.

NOTES

[1] The notions can be found in Helga Nowotny ('Transgressive'), who also discussed 'The Potential of Transdisciplinarity' as one of characteristics of so-called 'Mode 2' knowledge production and who co-authored two seminal books, *The New Production of Knowledge* and *Re-Thinking Science*.

[2] 'Boundary transgression refers to mental moves that cross the boundaries of past practice and convention, tying together academic disciplines in unexpected ways, redefining not only means but often the problem itself, and challenging entrenched beliefs about the limits of the possible.' (*Invention* 9)

[3] The literary mind, according to Turner (4–5), is not peripheral but basic to thought. He claims that *language itself is a child of literary mind*. 'Narrative imagining – story – is the fundamental instrument of thought. Rational capacities depend upon it. […] It is literary capacity indispensable to human cognition generally. This is the first way in which the mind is essentially literary.'

[4] The *Two Cultures* (see Snow) is the title of an influential 1959 Rede Lecture at Cambridge University by British scientist and novelist C. P. Snow. He highlighted that the breakdown of communication between the 'two cultures' of modern society — the sciences and the humanities — was a major hindrance to solving the world's problems. As a trained scientist who was also a successful novelist, Snow was well placed to pose the question. The term *two cultures* has entered the general lexicon as a shorthand for differences between two attitudes. These are (1) the increasingly constructivist world view suffusing the humanities, in which the scientific method is seen as embedded within language and culture; and (2) the scientific viewpoint, in which the observer can still objectively make unbiased and non-culturally embedded observations about nature. 'The phrase has lived on as a vague popular shorthand for the rift—a matter of incomprehension tinged with hostility—that has grown up between scientists and literary intellectuals in the modern world.' (See http://www.physicsdaily.com/physics/The_Two_Cultures)

[5] The very logic of exclusion, as Husserl commented it, is inherent to wrongly grasped rationality and reason.

6 The phrase is borrowed from Goethe's *Faust* (Goethe 101).

[7] See also Nowotny's views, or the report of the Committee for study of invention, sponsored by the Lemelson-MIT program and the National Science Foundation (*Invention*).

[8] Modernist matrixes were capable of grasping contradictions of reality and truth. Spatial form (Frank) was able to represent the narrated reality from multiple perspectives.

[9] 'Reliable knowledge is knowledge that has a high probability of being true because its veracity has been justified by a reliable method. Reliable knowledge is sometimes called justified true belief, to distinguish reliable knowledge from belief that is false and unjustified or even true but unjustified.' (Schafersman).

[10] Confronting the consciousness of never-ending contradictions of reality and truth about it, modernism with its Baudelairean sense of the *immediacy of life*, of the fleeting instant, of *the present in its presentness*, in its purely instantaneous quality, i.e. quality of contingency, demonstrates through the features of fortuitousness and fragmentariness in Imagist, Futurist, Expressionist, Constructivist, Dadaist or Surrealist schemes, its unique ability to grasp the openness and uncertainty in the process of *poiesis*. Cf. also the emerging new experience of humanistic informatics (Aarseth, 'From Humanities Computing') and the features of e-textuality; their *logic of transfinite* confirms its own roots in the modernist matrix as well (Aarseth, *Cybertext*; Skulj, 'A Dynamic').

[11] In views of semiotics literature is an *emerging*, developing system.

[12] Literature clearly shows features of complex systems for which *the boundaries* are *difficult to determine* and the decision about it is ultimately made by the *observer*; literature exists as an *open* system; literature as a system has a *memory* and the history of literary system is important for it; it exists as a *dynamic system*; it exhibits behaviors that are *emergent*; its components may themselves be complex systems, etc. Literature exists as a complex mode of systemic interaction in a multidimensional systemic environment.

[13] Thibault explores the ways in which agency and consciousness are created through transactions between self and other (see Thibault).

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The Interfacing Approach to Investigation Beyond Boundaries

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The paper addresses the following three issues: the urgent need for integrated studies; the concept of 'interface' as it was used in the European project 'Acume2: Interfacing Science and Humanities' to question the static idea of 'influence' on behalf of the interface as isomorphism of two fields that have developed new theoretical tools simultaneously *by responding to their respective problematics; and the methodology and results of two case studies carried on by both scientists and humanists: a study of memory and a study of bio-complexity.*

Keywords: integrated studies / networking / interface / travelling concepts / complex systems / memory / bio-complexity

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> Science is that form of poetry […] in which imagination and reason act together synergistically. (P. B. Medawar, *The Hope of Progress*, 1971)

There is a clear consensus, put forward by progressive as well as mainstream publications, that the current 'crisis of the humanities' is deep and far-reaching (Nussbaum). The European Research Council, its national equivalents and, say, the European Science Foundation stress the need to discuss the identity and purpose of the humanities. At the same time, however, in the humanities, the consequences of the neoliberal, profit-oriented management of the universities are even more negative than in other academic fields, which seem more productive and competitive, more compatible with entrepreneurship, research and development, and endless research assessment exercises.

Faced with the complex phenomena characterising our 'planetary' society, comparative literary scholars stress the need for eliminating the humanist's age-old fear of other disciplines; they argue that these disciplines might very well furnish new interpretative models and heuristic tools (Bassnett). Under the pressure of complex problems of migration, the accelerated processes of acculturation, the movements of global capi-

tal, the diffusion of media and information networks, disciplines such as comparative literature have been since the 1980s increasingly questioning their own identities. Many scholars realise that comparative literature needs new paradigms; regardless of the differences in their approaches, they all share the awareness that they must not only accept the challenge of complexity, but also search for theoretical and practical solutions for studying and teaching world literature (Simonsen and Stoutgaard-Nielsen [eds.]; Ascari; D'haen, Domínguez and Thomsen [eds.]; Benvenuti and Ceserani). Some keywords are essential to focus on new strategies for overcoming this identity crisis of the humanities: networking, new epistemological paradigms and new perspectives, intersections, or interfaces, between the traditional disciplines of the humanities and the new fields such as gender studies, postcolonial studies and new media studies, and the impact of technology on the humanist thinking and practice.

In this article, I will address the following issues:

1. The urgent need for *integrated studies*. The current crisis of the humanities was brought about by financial problems but also by the awareness that the complexity of contemporary world demands new approaches and methods. Integrated knowledge is necessary to understand the complexity of our current cultural environment. Science and the humanities are no longer two separate spheres of knowledge, but two complementary and integrated ambits. Science has to take into account the epistemological and ethical issues, and the humanities need to acknowledge the new scientific developments. Both science and the humanities could benefit from such practices.

2. *The notion of interface* as sketched above.

3. *The question whether the interface is a metaphor or a methodology*. I use the notion of interface to locate the contact zones between disciplines, since they represent the disciplinary spearheads. From these contact areas, in which contaminations and hybrids emerge, new cognitive paradigms arise.

4. The case studies of *memory* and of *bio-complexity* using the notion of interface.

Ad 1. The urgent need for *integrated studies*. In order to foster an integrated culture, one needs to go beyond the old controversy between the two cultures, and to deconstruct the stereotypes reproduced by both scientists and humanists. Reading C. P. Snow (see Snow), one wonders whether, after almost fifty years, these stereotypes about the differences between humanists and scientists are still present in public opinion, which sees scientists as optimistic, progressive, left wing liberals who look into the future for inspiration, and humanists as pessimistic, right wing conservatives who dwell on the past.

The Italian mathematician Piergiorgio Odifreddi claimed recently that 'the existing cultures and paradigms are but so many faces of an intellectual enterprise that transcends them all, as each of them offers merely a structurally, socially and historically limited point of view' (Odifreddi 53). The issue of an integrated culture is intimately connected to the necessity of eliminating the fences between disciplines, which are still being protected by universities as well as primary and secondary schools. And Ludovico Geymonat, the pioneer of the philosophy of science in Italy, often warned against artificial barriers, saying that borders exist to be crossed. Today, there is an awareness that a parcelled type of culture is no longer adequate to our modernity, and that excessively specialised knowledge is unable to grasp the complexity of the modern world: the crucial questions raised by technological and scientific development, from atomic energy to genetic engineering, require a kind of clarity of analysis that only integrated knowledge can offer.

Various disciplines have demanded a profound reform of teaching in schools and universities, arguing that excessive fragmentation of knowledge transmits a dangerous vision of knowledge as a series of separate, rather than communicating, fields. Here, one may turn to the philosopher Edgar Morin, but also to Paolo Dario, an engineer interested in robotics. Morin argues that our educational systems separate subjects and fragment reality, rendering an understanding of the world impossible and preventing the awareness of fundamental problems that demand a transdisciplinary approach (see Morin). And Dario (263) writes: 'Today, technology must melt with the humanities, which should in their turn proceed in the direction of innovation and open up, with curiosity and receptiveness, to the stimuli of technology. The model of engineering guided by science requires a high level of creativity and *problem-solving* capacity.'

Since the 1970s, studies on the relationship between science and literature have tried to deconstruct this binary opposition by searching for potential cognitive paradigms common to both spheres. Striving to find affinities between the two cultures, these studies have noted that both are crossed by language. Not only literature, then, but even science is a discourse involving the same kinds of rhetorical strategies, literary tropes and unstable meanings as other forms of writing. In a beautifully written essay from 1968, L. J. Jordanova, an eminent historian of science, writes: 'Our primary object of study is language–that which mediates all thought, action and experience. We focus largely on the discourses common to science and literature'. (Jordanova 17)

In this respect, the works of Carlo Levi, a chemist, poet and extraordinary novelist, as well as of Italo Calvino, a writer constantly fascinated by

science, geometric proportions, symmetries and *ars combinatoria*, are rich with assertions that science and literature, far from being two separate activities, share many characteristics. Similarly, Stefan Collini, in his recent edition of Snow's work, stresses that the notion of physics has changed since Snow's times: from the notion of a subject considered

> [a]s the hardest of 'the hard sciences', a discipline traditionally taken to exemplify how rigorously deductive analysis of a few general laws confirmed or falsified by induction from controlled experiment, provided predictive knowledge of the behaviour of the physical properties of the universe. The so-called 'new physics' of the last twenty years has modified this model in two related ways. First [of all], its actual findings about the nature of matter or the origins of the universe appear to install unpredictability, open-endedness (Collini xlvii).

The new conception of physics harmonises with our notion of the world of the humanities and literature.

In order to understand this contiguity, it is necessary to rethink some of the clichés about scientific and poetic languages, particularly the *topos* according to which the former are denotative and transparent, and the latter connotative and ambiguous. One can start falsifying such commonplaces by analysing the use of metaphors in both cultures. The study of metaphors has indeed become one of the central themes of analyses of the relationship between literature and science (Black; Cornell Way; Swinburne). Those who know how to use metaphors, or are capable of inventing them, thus showing that they possess a high level of creativity, are very much aware of the fact that metaphors are a powerful instrument of knowledge, providing an epiphany-like insight into reality. A metaphor is a means of semantic enrichment that is shared by scientific and poetic languages and that renders them capable of producing original mappings of the world. In this respect, the scientist and the poet possess this power of 'estrangement', of looking at reality with a stranger's eyes, and consequently, of discovering counterintuitive and hidden links in the world that surrounds us. In fact, many sciences, such as immunology, regularly use metaphors to explain natural phenomena.

Furthermore, it is claimed that the 'modelling' (the mathematicisation) of the world aspires to soak up the world's infinite characteristics in order to produce a model in which the qualities of reality are surpassed in favour of quantification, while the artistic attitude is one of attention to detail and singularity. This opposition is questionable as well, since descriptions of singularities and fragments lack any artistic or universal value if they fail to at least implicitly propose a vision of the world, that is, a model. Thus, a modelling of the world is a feature of science as well as of literature. As Calvino (687–688) reminds us in his lecture on exactitude ('Esattezza'):

'The formal choices of each artist always presuppose a cosmological model […]; poetry is a great enemy of chance, although she herself is a daughter of chance.'

The other quality that both the poet and the scientist are endowed with is exactitude, the infinite quest for the right word, in the case of the poet, and for precision in the observation and description of natural phenomena, in the case of the scientist.

For Calvino (677), exactitude means above all three things:

1. A well calculated and defined plan of the work;

2. an evocation of incisive and memorable visual images (the Italian language offers here an adjective that is missing in English: *icastico*, from the Greek *eikastikos*).

3. A language as precise as possible, both in its lexicon and its nuances of thought and imagination.

Another important point concerns the current notion of the relation between culture and science, which ought to be more complex than the one proposed by Snow. Philosophers of science, for instance, have importantly contributed to a better understanding of the scientist's method; consider Thomas Kuhn's idea that scientific change does not invariably take the form of a steady accumulation of knowledge within stable parameters: anomalies in the evidence accumulate to the point at which change takes the form of a 'discontinuous jump' or 'paradigm shift'. Furthermore, sociologists of science have demonstrated that the constitution of scientific knowledge itself is dependent upon culturally variable norms and practices, which means that science is merely one set of cultural activities among others, as much an expression of a society's orientation in the world as the art or religion in this society, and equally inseparable from the key issues of politics and morality; science is thus seen as a 'social construct'. In this respect, the discourse on creativity should also be considered: those who watch closely the great watersheds in scientific thought and technological innovations cannot deny that the most creative practices have overthrown all disciplinary fences.

By investigating the humanities–science relationship (the links, affinities, differences, questions and problems) beyond inherited clichés, the idea of mutual influences arises that favours a more dynamic idea of interfacing. Therefore, the starting point must be the acknowledgement of the isomorphism of the two fields (Hayles), which, in order to respond to their own tasks, often simultaneously develop new models and strategies of investigating complex scientific and cultural (artistic, literary) phenomena. This idea of isomorphism is no longer linked to the traditional ideas of cause and effect, but instead implies simultaneity due to which one of the two fields is

no longer seen as influencing or conditioning the other one. Isomorphism implies joint discoveries, as both domains tend to develop, at the same time, new investigative models, which in their turn become analogical mirrors of a world in constant progress. This idea leads us to view sciences and the humanities together, since their mutual interfacing can trigger new dynamics in various fields of knowledge.

During the last two centuries, theories of education developed around the ideas of distinction and choice: the humanities on the one hand, sciences on the other. Today, students are asking for new educational models, models capable of reflecting the complexity and interplay of a world characterised by a different understanding of knowledge and, especially, by the rapid development of new social matrices. As a consequence, new paradigms have begun to emerge in the light of the development of new social phenomena such as globalisation, the changing political sphere and the development of new 'mediascapes'. In such a shifting context, the idea of 'interface', or 'interfacing', seems to offer a suitable paradigm capable of triggering new heuristic implications. Moreover, the very idea of 'interfacing' leads us to the intriguing notion of 'complexity', which is itself a metaphor implying exchange, mutual interlinking, and above all to the notion of 'networking', that is, of new strategies of observing and therefore shaping the world. The notion of networking implies not only a new way of conducting transversal research among different disciplines, but also a new way of conceptualising and representing 'reality'. Networking is at the basis of complexity; it is a new epistemological paradigm common to science and the humanities.

One of the things that both domains have to acknowledge is the fact that we are facing a constantly evolving cultural situation. Among the already existing materialisations of this acknowledgment are the new university programs in medical schools, faculties of engineering and other scientific institutions that offer specific courses in literature, arts, philosophy, as well as courses encouraging creativity. Moreover, there are examples of positive applications of scientific research and knowledge in the humanities, too: from more practical applications, such as the creation of new disciplines within the humanities (consider the case of the 'Humanistic Informatics', the creation of new infrastructures, e-archives, new databases, etc.), to new theoretical developments combining theories of literature/criticism and scientific models of investigation (from 'field theory' to chaos theory). Other interesting examples come from social sciences, which have been playing a pivotal role in developing new lines of research and new concepts capable of breaking down barriers and encouraging interdisciplinary approaches. Anthropology is a case in point as it applies the scientific idea of 'thick description' to analyse culture *tout court*. Following similar patterns, during the last two decades

scholars in the humanities have started to reconsider the idea of 'literary phenomena', with literature perceived as a complex rather than a closed system, that is, as a network of events.

Ad 2. *The concept of interface.* As the second point I will try to investigate the concept of 'interface' as it was employed in the working hypothesis of the European project 'Acume 2: Interfacing Science and Humanities', which I coordinated.

It is not difficult to understand the meaning of the term 'interface' if one reads it as being composed by the prefix *inter*, or *intra* ('between two or more parties'), and of the root *face* ('surface', 'face', 'point of contact'). It is a term, however, that defies monolithic explanations.

The semantic fields to which 'interface' can be applied range from information technology (IT) to geography, from chemistry to metaphor. Generally speaking, it is in IT that the term was used initially; therein, interface was understood as not only a point of contact allowing communication but also as a method of communicating itself. I will use this term, which is obviously an umbrella term that possesses the power of suggesting more than describing, as a methodological point of origin rather than as a simple metaphor. Let us try, then, first of all to propose a few definitions of the term 'interface'.

In computer sciences, or in IT, it is a circuit, a part of the hardware that physically links to different components; consider, for instance, the USB (Universal Serial Bus) port of a computer. But an interface is also a part of a computer's software, that is, a program enabling the interaction, the translation between two languages, and thus allowing the user to interact with the machine. The 'man-machine' interface in the strict sense is then, for instance, the program allowing someone to use his or her desktop or laptop. In other words, an interface is a knot, a minimum in a wider complexity. It is also a description of an exchange, a specification of the limits of a given activity. All information exchange therefore implies the presence of an interface. The utility of this notion is then not that of naming something, but rather of making it visible.

We can examine, for instance, our 'human being–technology item' interface. Are we really facing an interface here (if I may be allowed a pun at this point)? If the answer is yes, then one must view the two systems as distinct and independent because there are continuous exchanges between what is biological, human, and non-biological and non-human space. This last case is evident in artistic representations of artificial being, and especially in medical technologies, with, say, CAT (Computer Axial Tomography) scans and X-rays allowing human space to become readable, as it were.

Sickness or health are literally traced by a tool that allows these traces to become evident, visible, to the eyes of the doctor, who is then capable of reading them. The interface thus works not only in the striking cases in which a hybridisation of the mechanical and the organic occurs, but also as a mediator, as a communication solution between two actors communicating with each other, and even as a new language invented for this communication. The example can again be CAT scanning, a technique for medical imagining that consists of calculating a 3D reconstruction of tissues on the basis of a tomographical analysis obtained by having the patient swept over by an X-ray beam. In this much used diagnostic process there are many 'mediations' of messages on the path from the patient's symptoms to the diagnostician using an instrument of analysis and styling a final report on the basis of data obtained from scanning the patient's body, that is, the data that are in turn interpreted by the practitioner, who will then formulate a therapy. It is no mere diagnosis: in the different stages of the procedure, different levels are involved as the patient's body becomes a network, a multiple system comprising a physiological, an organic, a psychological and an existential dimension. It is also at the heart of the system of medical knowledge, a final point of the meeting between epistemology (all that is known on man and his functioning) and culture (the way illness is perceived by the subject itself, by society, the way a particular illness is imagined by the patient and described to or by others). Interface is thus not a metaphor, but a methodological approach: it is a question of seeing how the two systems, man and technology, interact, and at what level and how, from this observation, patterns, that is, structures, continuities or discontinuities, may arise.

Here, the seminal studies by N. Katherine Hayles and Edward O. Wilson are vital (see Hayles and Wilson, respectively). Both authors, the first being a humanities scholar (who now works also in ITC) and the second a biologist, recognise the need for cooperation between the two fields, proposing new methods and paradigms of knowledge.

Hayles relates literary sign/signs to scientific theories and proposes the idea of field theory, or the field concept, as the epitome of the new way of observing contemporary reality by employing both scientific research and artistic and literary insight. What is interesting and characteristic about her book is the fact that it avoids simplistic and predictable remarks such as 'science influences literature and opens it to new imagery' or 'new scientific discoveries offer literature new models of expression'; rather, Hayles proposes a deeper observation and introduces the new concept of field against a more complex backdrop. In particular, she observes that around *fin de siècle*, the two spheres of knowledge, the humanities and science, both

started to propose similar modes of investigation, less and less attached to an atomistic (Cartesian) idea of knowledge and increasingly linked to a holistic idea, which Hayles grasps as field theory. These new modes of inquiry were built on two fundamental assumptions:

1. All things are linked not by a tidy, hierarchic logic, but by their simultaneous, joint presence.

2. As a consequence, the language that expresses these things is, inevitably, self-referential.

These conditions make observation more complex: any traditional notion of the difference between the observer and the observed – the difference crucial for atomistic (Cartesian or linear) observation – is eliminated, as both actors now belong to the same field of observation, and mutually influence each other:

> In the atomistic view, the gap between subject and object is not 'contaminated' by the circular paradoxes of self-referentiality, because it is assumed that reality can be divided into separate, discrete components. Consequently, it is assumed that language can be used to define the relation between subject and object in a formally exact way. But the field concept assumes that these components are interconnected by means of a mediating field. When language is part of the mediating field (i.e., the means by which the relation between subject and object is described), it participates in the interconnection at the same time that it purports to describe it. To admit the field concept thus entails admitting that the self-referentiality of language is not accidental, but an essential consequence from within the field. (Hayles 41)

The field concept is hence a viewpoint that underpins both scientific and artistic research and that, as mentioned above, can no longer be explained in the terms of a simple cause and effect relationship, since it is perceived simultaneously by both fields. Hayles stresses the importance of observing this new idea in the light of a complex and ever changing cultural background:

> A comprehensive picture of the field concept is more likely to emerge from the literature and from science viewed together than from either one alone. […] A more accurate and appropriate model for such parallel development would be a field notion of culture, a societal matrix which consists […] of a 'climate of opinion' that makes some questions interesting to pursue and renders others uninteresting or irrelevant. (Hayles 10–22)

In turn, the idea of 'consilience' investigated by Wilson proposes a union of the two cultures in order to holistically grasp cultural as well as natural processes: 'Consilience [is] a jumping together of knowledge by the linking of fact and fact-based theory across disciplines to create a common ground-work of explanation.' (Wilson 8)

Ad 3. *Interface as a strategy: a new method of approaching literary studies.* Hayles proposes a new method of literary analysis based on mathematical models. Her basic hypothesis is the idea that the change of the scientific paradigm in the twentieth century determined a new conceptualisation of reality, which necessarily affected the scientific as well as the social, cultural and artistic milieus. However, it is not a case of simple influence between the scientific and the artistic or the social. A revisiting of the notion of comparison thus becomes necessary. It is no longer the case of adapting a scientific method to literary studies, of using metaphors, but rather of seeing the two spheres of knowledge as indissolubly linked, as taking part in the 'cosmic web' that connects a holistic, multistratified universe of science, technology and art. According to Hayles, the twentieth-century theories of chaos and of complex systems have supplied investigative models and brainframes[1] that can be applied to all fields of studies. In other words, the old cause-and-effect chain is to be replaced with the simultaneity of non-consequential relations and with areas of isomorphism in which different levels and materials interact.

Hayles invites us then to reformulate the notion of 'comparison'. It is no longer a question of placing two or more texts on the same level, but rather of keeping the borders of texts fluid and permeable to thematic constructions, languages and structures that make up the contemporary 'discourse', by way of which human beings, technology and art overlap in a continuum.

Starting from specific case studies, the European project 'Acume 2' tried to demonstrate how some concepts, metaphors and narrations acquired new meanings by migrating from one discipline to another, thus provoking new configurations of *savoirs* and opening new frontiers of knowledge. Terms such as 'appropriation', 'translation' and 'reassessment' have become keywords in an attempt to understand the reconfiguration of knowledge that results from this migration from one discipline to another. Hence, an important insight of the project was that in this process of migration the different historical and national contexts must be kept in mind.

Concepts, metaphors and narratives are not only the most important theoretical and analytical tools of academic discourse, but they also provide critical interfaces between sciences, literature and the humanities, enabling debate, research and dynamic exchange on the basis of a common language. However, more often than not, the meaning and operational value of concepts, metaphors and narratives, even of those which appear to be self-explanatory, differ from one discipline, or academic and national culture, or historical period, to another. Notions such as 'communication', 'code', 'complexity', 'life' and 'system', metaphors such as

'crisis', 'network', 'body' and 'text', and cultural narratives such as 'evolution', 'ageing' and 'digression', which are at the core of both sciences and the humanities, are not univocal and firmly established concepts. They are rather dynamic and exchangeable as they travel back and forth between academic contexts and disciplines. In this way, they constitute what Mieke Bal has felicitously called 'travelling concepts' (Bal).

With the move towards a more rigorous transdisciplinarity, the dynamic exchange of concepts between different disciplines as well as the translation of concepts into metaphors and narratives have surged. Through constant appropriation, translation and reassessment across various fields, concepts, metaphors and narratives have acquired new meanings, triggering a reorganisation of prevalent orders of knowledge and opening up new horizons of research. To the extent that their meanings must therefore be constantly renegotiated between different disciplines, travelling concepts, metaphors and narratives can foster a self-reflexive approach to the transdisciplinary study of culture.

Ad 4. The notion of transdisciplinary studies. At this point, I would like to introduce two books, *Memoria e saperi: Percorsi transdisciplinari* (Agazzi and Fortunati [eds.]) and *Biocomplexity at the Cutting Edge of Physics, Systems Biology and Humanities* (Castellani et al. [eds.]), which are the result of our effort to experiment with the notion of interface as a strategy for approaching epistemological paradigms that could potentially be shared by science and the humanities. Both of these books were born from the idea of transdisciplinarity. While in interdisciplinarity studies the various disciplines operate at each other's side, each addressing their common question from its own field of competence, in transdisciplinary studies the research methods and hence the disciplinary boundaries themselves are re-envisaged.

Our first book investigates the state of the art of the studies on memory in six disciplinary macro-areas: social sciences, biomedical sciences, arts and media, the humanities, and religion studies. These are crossed by 'keywords' of the conceptualisation of memory that has taken place in the last twenty years; this means that every area must confront the keywords that constitute a sort of paradigm running across the various disciplines:

1. evolution;
2. individual and collective memory/memories;
3. memory and trauma;
4. memory as a dynamic process;
5. the context;
6. memory and information;
7. memory and oblivion.

The idea of transdisciplinarity is built on the dynamic combination of verticality (macro-areas) and horizontality (common keywords). In this way, traditional disciplinarity remains a compulsory touchstone (for both the writers and the readers), but is 'revisited' by means of common keywords that acquire marked heuristic relevance.

Another example of the work we are carrying out in collaboration with scientists is a book born from a seminar aimed at investigating the paradigm of 'bio-complexity' as a possible heuristic model for the interpretation of complex systems in other disciplines. In this book biological complexity presents a challenge and a possible paradigm for other fields of knowledge whose objects are non-biological 'complex systems' (such as literature). The model of bio-complexity is used as the paradigm for observing complex systems in both the humanities and science: from biology to economics, from literature to physics. The basic idea of the book is the following: There are concepts able to highlight common characteristics of a whole series of complex systems, despite their apparent diversity and their belonging to different fields of knowledge. For instance, the concept of biological complexity may prove as a useful tool for investigating literature considered as a complex system. In the humanities, the paradigm of bio-complexity has been confirmed as a useful analytical tool: in a global perspective of literary systems, the idea of the European and the trans-European literatures and cultures as complex systems interacting with each other in a system of networks is starting to be explored in comparative literature and postcolonial studies. Due to its complexity, the study of literature from a global perspective needs models produced in other disciplines, such as quantitative historical graphs, geographical maps and the genealogical tree of evolutionary theory; only in this way can relations, structures and forms of the literary macro-systems be identified.

The most advanced conceptualisations of biological complexity have proposed the following characteristics of living organisms:

1. Living organisms are constituted by a high number of elements that mutually interact, organising themselves in functional and dynamic *networks*.

2. They possess different *levels* or *strata of complexity*, from molecules, to sub-cellular organelles, to *the cell*. This fundamental unit of living organisms not only constitutes in itself a complex system *par excellence*, but is also the building block of higher levels of organisation, as it is capable of generating a whole series of different tissues and organs that finally constitute a unique body.

3. The different bodies (organisms) organise themselves in *societies* that in their own turn constitute ecological systems that are even more com-

plex, systems in which hundreds or even thousands of different species coexist or cohabit in a dynamic balance.

4. Living organisms are systems with their own *evolutionary history* that conditions their structure and their functional capacities, entailing a series of *constraints*.

5. They are the result of a selection *for fitness*, which optimises networks from the structural and the functional point of view and is exercised at all the above-mentioned levels of complexity, from molecules and cells to organisms.

6. They are organised in *modules*, that is, aggregations of networks with a defined function. Modules are organised by *links*, which organise them in supra-modular organisations.

7. Living organisms are *dynamic*, *open* and *non-linear systems* dominated by *stochastic fluctuations and noise*.

8. They are characterised by *the emergence of unexpected properties and functions* such as symbolic language and awareness.

9. They possess the capacity of *learning* and of remembering (*memory*) at all levels, from the molecular to the highest level of biological organisation, including the most sophisticated cognitive functions.

10. The behaviour of every given element is determined by its *context*: each element is conditioned by all other elements, as they form a continuous interactive and dynamic system.

These two books document the advantages of an approach that questions traditional disciplinary distinctions and demonstrates that seemingly incompatible disciplines share similar methodological problems analysable by a shared set of instruments. This is not a trivial lesson for scientific institutions such as universities, which are still organised according to a vision that does not represent the current dynamics of knowledge. The cases of memory and bio-complexity thus render apparent the need to challenge the traditional separations that are unable to grasp the heuristic and epistemological potentials of a transdisciplinary method.

I would like to conclude by citing two thoughts that emblematically summarise the working hypothesis of my research on complexity in literature and science: according to Italo Calvino (668), 'the function of literature is communication between what is different […], not dulling but exalting the difference'; and Ilya Prigogine (74) writes: 'While classical science used to privilege order, stability, today we recognise the primal role of fluctuation and instability at every level of observation [demonstrating] the multiple choice and the horizons of limited predictability'.

NOTE

[1] A brainframe is a structure designed for the physiological, cognitive and sensorial reception and interpretation of reality created and determined by information technologies. According to this model, the means of communication change the mental configuration of those who take part in communication. Derrik de Kerckhove, a student of Marshall McLuhan, developed this concept, which I use here, modifying, however, its application. All technologies and sciences with their paradigms are in fact considered here as agents of changes in the frame.

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Tending to the Non-Trivial[1]

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The paper aims to acknowledge the need for renewing the trust in the individuality, complexity and intimacy of direct experience. It delineates limitations of the analytical-reductionist paradigm in the observation of the flow of consciousness, and suggests a balancing the intersubjective reductionist approximation with the intimate reality of the gestalt awareness demonstrated, perhaps better than by anybody else, by literary writers, those careful pursuers of the flow of consciousness.

Keywords: cognitive science / experience / flow of consciousness / individuality / participation

UDK 165.242
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Introduction

Science has always been driven by two motors, two types of creative unrest: curiosity and the fear of uncertainty. There have of course been numerous other influences – mostly economic ones – which substantially marked the flow of scientific discovering, but these two types of creative unrest are essential. The unrest of child-like curiosity in searching leads us to abandon the comfortable realm of the known; it forces us to wonder, to admit that we do not know and do not understand. And the unrest of the infinite complexity of universe and of being lost in this colossal process leads us to organising, simplifying, clarifying and – if we are successful – attempting to make predictions.

If one observes the historical flow of scientific advances, one feels that both types of unrest constantly intertwine and balance one another. In a given period, one might be dominant, which somehow produces a gap that only the other can fill. The area of research into cognitive phenomena is currently dominated by attempts to organise, simplify and explain. The inadequacy of results of such attempts bring forth a growing need to acknowledge the complexity of the studied phenomena, even on the account of the clarity of theory.

Cognitive science

Up to a few decades ago, thinking about theoretical models of the functioning of mind was limited to philosophical speculation and a few partial psychological models (Freud, Piaget, James). Interestingly enough, the eventual breakthrough did not occur as a consequence of an empirical discovery. The dramatic (and unexpected) change was introduced due to a new common metaphor, a model that allowed various areas of research on mind-related phenomena to venture interdisciplinary cooperation.

This common metaphor – cognition as information processing – originated in cybernetics. Today it is hard to fathom the revolution in thinking it has triggered. Just like computers process information (that is, translate input impulses into output according to their programs), the task of cognitive systems is the translation of stimuli (input impulses) into behaviour (the system's outputs).

The so-called information processing model or computer model of cognition suddenly allowed for a common conception of what goes on inside the 'black box' of mental processes. And from this common conception a new scientific discipline emerged: cognitive science.

In the 1980s, the development in computer technology, combined with the new metaphor for the functioning of cognition, stirred great excitement. The ability of computers to perform, in a matter of seconds, tasks which even the smartest people found virtually impossible to do, produced the overwhelming belief that an instrument has been invented which will enable us not only to model cognitive processes, but also to overcome the intelligence of the very creators of computers. This period was marked by the search for (computer) algorithms which could simulate intelligence. It was only when it became clear that the intelligence of computers does not grow proportionally to their performance (or rather that it does not grow at all) that researchers started asking questions about what intelligence actually was.

The end of the decade brought neither a satisfactory answer to that question nor computers that could be deemed 'intelligent'. It turned out that it was indeed rather simple to define, in terms of algorithms, certain operations which we consider to be indicative of high intelligence, or rather, those which we ascribe to 'experts': determining a diagnosis on the basis of known symptoms, calculating complex differential equations, playing chess, etc. What turned out to be much more incomprehensible were operations that we usually do not take any notice of at all in our daily lives: the process of getting to know your surroundings and of reacting to it, acquiring language and, above all, assigning meaning, a completely im-

possible task for a computer. In 1994, Dermot Furlong and David Vernon proposed the following conclusion:

> Actually, when you ponder on it, it is indeed strange, and telling, that artificial intelligence should have been a subject of serious, detailed study before artificial life, for, actually, we never assign intelligence to anything other than living systems. Did the artificial intelligencers simply but quietly assume that when their job was done their artificial intelligence systems would in fact be living systems? (98).

In the early nineties, several researchers began pointing out that cognitive science based on the information processing model entered into a crisis (see Winograd and Flores; Varela, Thompson and Rosch; Furlong and Vernon). These researchers first suspected that the analytical-reductionist model was perhaps not appropriate for research on mental processes, consciousness and life, while most cognitive scientists shared the tacit assumption that a way out of the stand-still lied in further specialisation of the study of cognitive phenomena, which would at some point bring to a unified theory that could provide satisfactory answers to questions of a wider scope.

In the nineties, the centre of attention shifted from artificial intelligence to neuroscience, which applied new non-invasive methods to the observation of the brain *in vivo*, embarking for the first time in history on the clinical research into mental processes. This overshadowed the fact that the only thing cognition researchers shared was a common model. Even the fact that it was just a model sifted into the background. Despite some attempts at introducing new metaphors such as connectionism and embodied cognition, the idea of the conscious being as the processor of external stimuli remained the fundamental (and increasingly self-evident) concept.

The problem of reduction

Thus, the computer metaphor remained the common model of cognitive science, and the analytical-reductionist method remained the appropriate research approach. Mind and cognitive phenomena can be viewed from the point of view of chemistry, biology, physiology, anthropology or computer modelling. A chemist, for instance, may consider chemical processes that occur inside a living organism. Of course one is unable to describe the entire (chemical) turmoil all at once, so one must focus on a specific chemical process in a specific species of living organism. This breaking-down of the problem into simpler components is the main argument in favour of the analytical-reductionist approach: if the system is

too complex for us to understand, we should break it down into smaller or simpler parts. If it turns out that these parts are still too complex, we should continue breaking them down until we come to parts that are simple enough for us to understand and describe.

According to Ackoff (8), this reductionism 'is a doctrine that maintains that all objects and events, their properties and our experience and knowledge of them are made up of ultimate elements, indivisible parts'. The tacit assumption of such approaches is that the path to comprehending an object or phenomenon of research (necessarily) leads through the study of its 'basic' elements. The reductionist assumption justifies (and even encourages) the simplification of the system (that is, phenomenon or object) under observation. This breaking-down into less complex entities can occur either at the physical or at the conceptual level, but it can never avoid simplification – the process of neglecting 'unessential' properties. And this is what enables physicists to transform the Earth into a 'punctiform mass' at a moment's notice.

The advantages of the analytical-reductionist approach lie in the fact that it always brings results. If we embark on the fragmentation of the observed system, we are sooner or later left with a system that we are able to handle. The only inconvenience here is that the results sometimes bear no relation whatsoever to the initial problem. It was Wittgenstein who first sensed that the power of analysis was a one-way street: the wholeness of the world ('everything that happens') can be broken-down through analysis in order to gain 'facts', but this process does not work in the opposite direction – one cannot combine individual facts back into the wholeness of the world. One might be able to collect enormous quantities of data about individual parts, expanding one's knowledge of them. Each detail contains an infinite number of new possibilities for even more specific research. At this level one is able to seek out the relations of cause and effect and to identify corresponding quantities and/or phenomena. But this comes at a price of distancing oneself form the original problem that often dims into a kind of myth that no longer relates in any way to everyday research.

Of course there is no harm in learning about new parts of the world, even at the expense of breaking down 'the big picture'. The problem is that researchers are often tempted to infer about the original research question on the basis of results obtained by fragmented, simplified research. While such methods work admirably well in natural sciences, this is not the case in mind research.

I could quote numerous instances of inferring about the whole from fragments (albeit methodologically well processed fragments). Let me give the example of the well-known Libet's experiments (see Libet), which led

many cognitive scientists (see Wegner) to conclude that there was no such thing as free will. In his experiments, Libet compared the time in which participants 'decided' to push a button with the time of the firing of brain activity which signified the preparation of motor activity (in this case, the movement of the finger). Experiments demonstrated that brain activity significantly preceded the occurrence of the conscious decision. These experiments reduced the entire spectrum of human decision-making (which covers everything from semi-conscious movements to complex long-term decisions affecting our entire lives) to the decision about when a subject should push a button (the decision to push being already made upon agreeing to take part in the experiment).

What is the perspective of (neuro)scientific observation?

In 1971, Heinz von Foerster wrote down his cheek-in-tongue 'first theorem': 'The more profound the problem that is ignored, the greater are the chances for fame and success.' (von Foerster, 'Responsibilities'1) However cynical this remark may seem, it is nonetheless true. The giant progress in, say, cognitive neuroscience can be attributed exclusively to the fact that it gave up asking questions about the fundaments of the phenomenon it is studying, about what is consciousness, what does it mean to experience, and what is the relationship between the experiential and the physical.

Neglecting the question of the relationship between the experiential and the physical, the so-called 'hard problem', is especially problematic, since the basic task of cognitive neuroscience is supposed to be research on the neurological correlates of experiential processes. On one side of the explanatory gap we find physiology, which goes hand in hand with the analytical-reductionist method. On the other side we find lived human experience, the content of consciousness – an intimate and by definition subjective area that resists any generalisation and analysis.

Experience is not a property that could be satisfactorily defined by a finite number of discrete empirical parameters. Rather it appears to be a complex, (self-)contained and thus irreducible phenomenon. Experience is gestalt, more than just a simple sum of its components. Moreover, it is a dynamic gestalt, one that cannot simply be 'frozen' in a moment of time. As Furlong and Vernon write, 'What is wrong with our conception of science in its application to Life and Mind is that the analytic reductionism which characterizes the spectator consciousness stance can never capture organizational distinctions which characterize living or cognizing beings.' (96)

Nonetheless, science is constantly trying to neglect the fundamental problem – the subjectivity and irreducibility of experience – as this seems to be the only way to get anywhere, precisely in accordance with von Foerster prediction. The history of research on the mind oscillates between unsuccessful attempts at reductionist research on experience (such as the failed project of German introspectionism of the early twentieth century) and attempts to ignore the existence (or epistemological independence) of the field of consciousness (such as behaviourism and the popular neuroscientific view of experience as an epiphenomenon). Since, as mentioned above, the basic task of a neurologically enhanced cognitive science is the search for physiological correlates of experience, cognitive science cannot simply give up studying experience. Accordingly, cognitive science abounds with attempts to translate the experiential gestalt into more tangible units, be that behaviour or events in the brain.

In his grand theory of emotions, Antonio Damasio acknowledges the importance of an experiential (first-person) perspective. But in his work he merely mentions it without ever attempting to elaborate a systematic study (at the level of, say, his study of the physiological perspective), nor does he ever clarify its connection to other (physiological) components.

Another contemporary telling attempt to fit the elusive complexity of experience into the tight shoes of comprehensive categories accessible to the third-person perspective is affective computing, the new and flourishing area of artificial intelligence. Professor Nicu Sebe reports on the huge success of a new image analysis algorithm by which he managed to 'decipher' the emotions of Mona Lisa. The exact division of Mona Lisa's emotions according to the latest software goes as follows: 83% happiness, 9% disgust, 6% fear and 2% anger. Needless to say, professor Sebe's work is published in top-ranked research journals.

Let me compare that to a passage from *Mrs Dalloway*:

> 'Do you remember the lake?' she said, in an abrupt voice, under the pressure of an emotion which caught her heart, made the muscles of her throat stiff, and contracted her lips in a spasm as she said 'lake'. Foe she was a child throwing bread to the ducks, between her parents, and at the same time a grown woman coming to her parents who stood by the lake, holding her life in her arms which, as she neared them, grew larger and larger in her arms, until it became a whole life, a complete life, which she put down by them and said, 'This is what I have made of it! This!' And what had she made of it? What, indeed? Sitting there sewing this morning with Peter. She looked at Peter Walsh; her look, passing through all time and that emotion, reached him doubtfully; settled on him tearfully; and rose and fluttered away, as a bird touches a branch and rises and flutters away. Quite simply she wiped her eyes. (Woolf 48–49)

The aim of these examples was to demonstrate the existence of two diverse areas: an area that can be successfully studied with an analytical-reductionist approach, and an area that eludes such an approach, just like fine sand sifts through a sieve. In the follow-up, I intend to show more precisely the difference between these two areas, which, following von Foerster, I refer to as the trivial and the non-trivial. I will claim that these are not actual areas, but rather two different types of perspective an observer can take towards the world.

The trivial

Let me leave this last qualification aside for a while and take a look at the difference between the trivial and the non-trivial as if phenomena actually were divided into these two types.

Trivial systems can be thought of as 'machines' (in Turing's sense), devices for processing inputs into outputs. Such systems can be modelled by finding the so-called *transfer function* between the independent and dependent variables (inputs and outputs), which, as mentioned above, is the fundamental methodological principle of natural science. In computer terms, the transfer function is usually replaced by the concepts of algorithm or programme, which grasp a sequence of steps a machine has to take in order to adequately respond to a stimuli. Describability in terms of the machine metaphor is a very important property of the system. The systems that can be successfully described by a corresponding machine are also the ones most likely to be successfully handled with the analytical-reductionist method.

The sense of certainty, accountability and infallibility provided by the explanatory scheme of cause – operator – effect has become central to Western philosophic and scientific thought. This scheme has different names in different disciplines. In physics one speaks about cause – natural laws – effect, in biology about stimulus – organism – response, and in some areas of psychology about motivation – personality – behaviour. The origin of this scheme goes back at least to Aristotle and his logical syllogisms, especially the scheme of deductive reasoning: major premise – minor premise – conclusion.

With the introduction of mathematics, the naturalist-mathematic paradigm (today the scheme appears in the form of x – f – y) improved its instrument of description so much that it was no longer merely descriptive, but also enabled predictions. It was this capability of prediction that allowed for the dramatic progress of natural sciences, endowing them with the power they wield today.

The transfer function can be much more complex; it can even be non-linear. But regardless of its complexity, it can presented by a simple diagram:

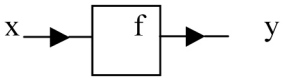

Figure 1: A trivial system

In general, to determine the transfer function of any trivial system it takes as many attempts as there are distinguishable input states. Trivial machines are (a) independent of time (ahistorical) and of their history of interactions, (b) analytically determinable, and therefore *predictable*.

Von Foerster writes:

> It is easy to understand the attraction of trivial machines for western culture. We could enumerate infinite examples of trivial machines. When we buy a car we get a trivialisation certificate guaranteeing that the car would stay a trivial machine for at least the next 100 or 1,000 miles or the next five years. And if the car suddenly becomes unreliable, we take it to a trivialisator to put it back in order. Our love for trivial machines is so great that we even send our children, who are usually very unpredictable beings, into trivialising institutions, so that when asked 'How much is 2 times 3?' their answer would not be 'green' or 'that's how old I am', but '6'. (von Foerster, "'Uncle Ludwig'" 8)

The non-trivial

The persistent longing for the trivial (repeatable, predictable) thus becomes more understandable, be it in everyday dealing with the world or in the scientific discourse. An interesting point, however, is that nobody – not even those scientists who dedicate all of their creative potential to trivialisation – is ready to accept her/himself as a trivial machine. A computer expert active in the area of automated recognition of emotions in images (in much the same manner as Professor Sebe) readily agreed with me that the distribution of emotions into percentages bears no meaning whatsoever in his daily experience.

Von Foerster notices the same discrepancy:

> When asked, all my friends consider themselves to be like non-trivial machines, and some of them think likewise of others. These friends and all the others who populate the world create the most fundamental epistemological problem, because the world, seen as a large non-trivial machine, is thus history dependent, analytically indeterminable, and unpredictable. How shall we go about it? (von Foerster, 'Through the Eyes' 8)

Von Foerster talks of three strategies of approaching this epistemological complication: (a) ignore the problem, (b) trivialise the world and (c) develop an epistemology of non-triviality.

I have already discussed the most popular solution: (a). It is followed in popularity by (b), the method that von Foerster dubs 'the Laplace solution', alluding to Laplace's 1814 statement that 'an intellect which at a certain moment would know all forces that set nature in motion, and all positions of all items of which nature is composed […] for such an intellect nothing would be uncertain and the future just like the past would be present before its eyes'. For Von Foerster, 'Laplace eliminated from his considerations all elements that could cause trouble for his theory: himself, his contemporaries, and other non-trivial annoyances', in order to present the universe as a trivial machine (von Foerster, 'Through the Eyes' 9).

If we admit to the existence of intrinsically non-trivial systems, we lose the chance of knowing the rules of transformation, the transfer function, natural laws, etc. The relationship between cause and effect in non-trivial systems is analytically indeterminable. The concept of linear causality itself (cause – operator – effect) becomes meaningless. If we consider the world to be a non-trivial system, then Wittgenstein's proposition 5.1361 applies:

> 5.1361 We cannot infer the events of the future from those of the present. Belief in the causal nexus is superstition.

Could it be that linear causality as an explanatory principle is applicable to some areas of the world while ineffective in others? It certainly seems to work for machines we build ourselves, and it helps explain a large part of nature – the part covered by natural sciences. For in building the machines, we have chosen a network inside which the relational questions of the type 'Why Y when X?' are determinable. The moment we analyse the system, we *make* it trivial; we have chosen (trivial) axioms and built a network based on them. In other words, we have chosen a perspective that allows us to see only the trivial area. The choice of our manner of observation, or research, determines what we see.

The allure of a perspective that allows us to analyse and make predictions is obvious. It leads one

> to pay for guarantees that our watches, lawnmowers, airplanes, etc., maintain their no-choice quality. The danger begins when we extend this demand to others, to our children, our families and other larger social bodies by trying to trivialize them, that is, by reducing their number of choices, instead of enlarging it (von Foerster, 'Through the Eyes' 9).

A similar situation occurs in science. The natural science approach to knowing the world is one of the climaxes of human reason. It would be pointless and ungrounded to criticise, let alone to try to forsake, such an approach. The danger lies in trying to apply the analytical-reductionist paradigm to problems that it is unable to handle, say, to observing the flow of experience.

Triviality is just about approximation. Where such approximations work, the natural science approach is effective. Trivialisation similar to Newton's mechanics in physics is a very successful idealisation functional in much of the 'useful' world. It guarantees safety and stability – and of course a consensus about what is 'real' and what is not.

From this point of view, the traditional analytical-reductionist scientific method can be seen as a sieve separating the trivial from the non-trivial. From the set of all our interactions with the environment it selects only those that suit its standards. The scientific procedure is hence not a method for research on reality, but rather a procedure for determining areas susceptible to trivialisation.

Participation in the observation of the flow of consciousness

In mid-twentieth century, physics reached the edge of the trivial world: Heisenberg realised that the act of measuring affects the outcome of the experiment and that, as a consequence, we can never know all the properties of the observed particle. This insight (Heisenberg's uncertainty principle) and some other properties of the world of elementary particles stirred an uproar in physics. This was an indication that even in theory, we might be unable to learn everything about quantum particles 'as they are' – that is, to describe these particles and predict their behaviour – and that the conception of an independent observer is an illusion.

Physicists avoided this problem by choosing a different perspective: individual particles may be elusive, but the behaviour of large groups is repeatable and predictable, in a word, trivial. According to the so-called Copenhagen interpretation, it is best to treat the quantum world statistically. This agreement met with strong opposition from some of the leading scientists of the time, including Einstein. Even today, the idea that the behaviour of quantum particles is unpredictable is a source of great frustration for some. But since the statistical view of quantum physics appears to be working (physicists are able to proceed with their work according to accepted methods without having to question the deeper epistemological fundaments of what they are doing), little attention is paid to such killjoys in respectable physics journals.

Social scientists, economists and psychologists gratefully embraced the Copenhagen solution: whenever possible, they tend to take statistical perspective to escape the elusiveness of observing individuals, the subjective component.

We should not forget, however, about the physicists' original motive for introducing the statistical interpretation: the realisation that the observer participates in the observed system. In social sciences it is much harder, and also infinitely less successful, to ignore the researcher's involvement in the subject of research, and research on the flow of consciousness even utterly resists the statistical interpretation. Any act of observing causes a change in the field of experience; in this field the influence of observation has direct consequences because observation itself is just another form of the flow of consciousness.

Where do we draw the dividing line between the trivial and the non-trivial? Up to which point is the trivial approximation still acceptable? The line runs along the border between the parts that can be successfully described as being separated from the observer and the parts where such idealisation is no longer viable. The non-trivial area begins at the point where it becomes necessary to give up the approximation of the remote observer and to accept the participatory point of view. By accepting the participatory point of view one also takes upon oneself part of the responsibility for the world. For any act of observation, and even any decision on the perspective of observation, is also an act of creation.

Tending to the non-trivial

The inclination towards the trivial originates from the wish for a predictable, safe, organised world. As I have mentioned in the beginning, the tendency to organise, understand, relate, that is, the tendency to trivialise, is one of the principal motors of scientific progress. The fear of the uncertainty of the unpredictable is just as important as its complement: the curiosity and wonder at the complex flow of experience, which runs through, and which *is*, our consciousness.

As these polar opposites complement each other, it is very important to keep them in some kind of balance: the outbursts of lively, daring, subversive curiosity should be checked by the conservative tendency for orderliness and explanation. But checking should not be suppressing. The history of scientific endeavour teaches us to remain modest even in the face of dramatic progress in one of the disciplines. At best, we can produce a working theory (a transfer function) that connects *some* of the data

about the observed system – a system constructed by choosing the perspective of observation.

In periods of great progress (like the one we are currently witnessing in the field of cognitive neuroscience), the conservative pole appears to have the upper hand. It is so easy to forget about the big questions we had to neglect in order to reach our (partial) insight; it seems that we are too quick in convincing ourselves that we have finally managed to organise and understand the researched fragment of the world.

How can we remain aware of the fact that the trivial is merely an approximation? Should we perhaps look to art in order to find answers? Perhaps literary studies with its analyses of the flow of consciousness can remind us about the fullness and indivisibility of experience.

This is not to say that we should replace research on experience by reading Joyce. We cannot expect artists to study reality systematically. The artist's freedom is not bound by the limitations of reality or systematic exploration; it originates in his or her fidelity to the creative drive.

Systematic exploration of, and faithfulness to, reality is a scientist's way of searching for freedom: his/her persistent, unconditional and systematic fidelity to empirical data liberates him/her from confusion. S/he seeks shelter by attempting, without ever fully succeeding, to place opinions and personal thoughts into brackets.

So, each of us should remain dedicated to our way of searching, our way of attaining freedom. As a scientist I nonetheless feel there is an important lesson to be learned from literature: a lesson about the non-triviality of experiential world, about the complex, indivisible, fluid, overflowing gestalt, about the self-referring nature of consciousness and our irrevocable dependence upon our personal history.

Some readings teach us yet another lesson: that the experiential landscape reaches far deeper than the well-trodden paths upon which we walk in our daily lives. We have not even really begun to answer the question 'What is it like to be human?' The comfort of the trivial, which has never been as alluring as in this very moment – in the era of functionally-oriented society – holds us in its iron grip of the mundane, the automatic, the well-known. It forces us to believe that we know the world and ourselves.

So, any reminder of the existence of experiential landscapes beyond the routine is precious; moreover, it is of vital importance regardless of its origin. Any attempt to escape experiential triviality is an act of a warrior.

> What makes the warrior's path so very dangerous is that it is the opposite of the life situation of modern man. The modern man has left the realm of the unknown and the mysterious, and has settled down in the realm of the functional. He has

> turned his back to the world of the foreboding and the exulting and has welcomed the world of boredom. (Castaneda 72)

This also applies to the path of the artist, as s/he reminds us about human experience, complexity, non-linearity and non-triviality.

NOTE

[1] This article is largely inspired by a (too) short correspondence with Sowon Park. I am sincerely grateful to her for reminding me about Virginia Woolf.

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Science and Ideology: From the Spontaneous Philosophy of Scientists to the Spontaneous Science of Economists[1]

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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

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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 exists. 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 restitute 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 philosophy 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 mathematicaly 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.

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Philosophy and 'Interdisciplinarity'

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The paper analyses the problematic relation of the humanities to scientific thought in the light of the absence of a philosophical system of knowledge that could serve as a shared framework of different regimes of thought. When philosophy agrees to the consensus that it is no longer possible as a system, it invents various forms of 'interdisciplinarity' in order to surpass the particularity of individual disciplines of thought.

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Introduction

To the humanities, science appears as a problem, since it brings about a persistent uncertainty regarding the answer to the question that could – after Heidegger – be posed in the following manner: 'What is called thinking?' Usually, the humanities deal with this problem according to one of the two basic strategies: they either adopt a certain ideal of science that they should follow in order to become sciences themselves,[1] or define an irreducible specificity of their own manner and object of thinking, a specificity that sciences supposedly cannot replace or treat adequately. This alternative between 'vulgar' positivism and 'naïve' humanism is supplemented with various attempts to surpass it: we could list a number of demands for forming a scientificity proper to the humanities that would no longer be a mere attempt to pursuit an external ideal and thus to 'imitate' scientific methodology, but rather a manner of thinking that would 'structurally' correspond to modern science. A demand of this kind was especially noticeable in Althusserian Marxism and Lacanian psychoanalysis.[2] Then there is the frequent opinion that contemporary humanities and science may diverge in their methods, while converging in their findings: the discoveries of the theory of relativity and quantum mechanics are supposed to correspond to the new ontological image of 'openness' or 'non-wholeness' of the world, suggested by the humanities. And the other type of surpassing the classical alternative is summarised by the principle of

'interdisciplinarity': diverse scientific disciplines and the humanities can collaborate in researching a specific object, which makes the gap between different manners of thinking welcome because it contributes to an expansion and deepening of knowledge.

While reflecting on bridging the gap between different regimes of thought one can raise the question whether thinking is also a problem for science itself. If this is indeed the case, if science too has to make clear to itself that it thinks (see Riha 97), the question of thinking becomes a question shared by science and the humanities. Both can either follow their desire to think or give it up and yield to other principles: the former to the imperative of profitability, and the latter to the imperative of ideological applicability of cultural production (see Riha 106). To post such a common question means to step outside the Heideggerian framework, since it is clear to Heidegger that science does not and cannot think.[3] But why does the capacity of science to think have to be denied by the philosopher? The scandal that science stirs in the field of humanities is that it shows that '*thought does not equal sense*' (Riha 106). Nevertheless, the humanities insist that sense is the product that makes their social existence justified. This can be illustrated, say, by an advertising slogan used by the Faculty of Arts in Ljubljana: 'Humanities make sense.'

The philosophical depreciation of science has its intra-philosophical precondition, which is tightly connected to the difficulties of bridging the gap between irreconcilable regimes of thought. Strictly speaking, Heidegger's philosophy does not speak about the truth of science from the meta-position of a philosophical system or in line with the philosophical claim to universal knowledge, but because it thinks truth in accordance with another 'particular' field of thinking, or – if we adopt Alain Badiou's terminology – 'under the condition' of another exteriority of philosophy, namely art. Heidegger's philosophy verifies the consequences that the thought of art and especially of poetry has for thought in general. The ideal of thinking is thus an ideal of art, which is identified as the strict opposite of the ideal of science. But the non-relation between both regimes of thought, the impossibility of any complementarity, is in fact a consequence of the impossibility of metaphysical philosophy, its incapability to supply the meta-knowledge that would ensure the unity of thinking. Simply put, philosophy is no longer possible as a system that could serve as a common framework for different disciplines of thought.

My purpose is not to reignite the worn out theme of 'the end of grand narratives' – since, as I will show, the philosophical (self-)critique of universalism is supplemented by an equally important critique of particularism of separated disciplines of thought – but rather to make the question

of the problematic position of post-systemic philosophy an opportunity to present models for thinking the connections between different regimes of thought. The question of 'interdisciplinarity' (in a broader meaning of the word) is secondary for science and the humanities because they have their own respective objects and specific methods of approaching them, which means that they can exist independently. Yet for philosophy, this question is crucial because philosophy does not have an object of its own and is no longer possible as a system, which means that what is at stake is the very possibility of its practice. In what follows, I will address the various manners in which different philosophies conceive of the passages and circulations of concepts between disciplines of thought.

The end of systems?

After Hegel, philosophy has for the most part accepted the consensus that it is no longer possible in the form of a speculative system.[4] Therefore, it had to redefine its relation to its exteriority, that is, to thought that it does not posses and that does not come to completion in it. Philosophy found a new possibility of its existence in positioning itself on the margins of a particular knowledge/practice in order to support it with the reflection on its methodological foundations and to universalise its effects on thought in general. However, this can lead to what Alain Badiou (*Manifesto* 61–68) calls the 'suture' of philosophy with one of its conditions (positivism sutures it with science, Marxism with politics, etc.) – that is, with a certain regime of thought that a particular philosophy identifies as being true – which eventually results in the self-abolishing of philosophy.

However, in twentieth-century philosophy, a critique of universalism is combined with a critique of particularism: it is common to encounter a critique of 'privatisation' or 'parcelling' of knowledge into distinct disciplines, especially within the humanities and social sciences. Even though philosophy is critical towards its systemic metaphysical tradition, which claimed to posses the universal knowledge, identification of true thought is nevertheless still supposed to be a matter of philosophy and not of the particular sciences. As we have seen, Heidegger's philosophy affirms poetical thinking as true thinking in the light of which science does not think. On the other hand, from the point of view of particular disciplines, philosophy – even though it declares to be proceeding immanently – still 'reduces' the objects of knowledge to its own concepts, which it defines in advance, or uses scientific concepts for its own purposes in a 'metaphorical' way. This can be illustrated, say, by the well known discomfort of art

historians with philosophical commentaries of artworks, or by the scientists' mockery of philosophical (mis)uses of scientific concepts. What kind of a position is philosophy then left with if it resists both, the universal/unlimited and the particular/limited knowledge?

The ontological turn

In Heidegger – the most determined critic of philosophy as metaphysics – the task of thinking truth is to a large extent assigned to art. In the introduction to his collected writings on Hölderlin's poetry (*Elucidations* 21), he writes that his commentaries 'do not claim to be contributions to research in the history of literature or to aesthetics' as they 'spring from a necessity of thought'. In the context of the present discussion, the question is why are literary history and aesthetics unable to capture this necessity? To start with the former, it can only study poetry as an object, but cannot reach the essence of poetry, which according to Heidegger brings about a different kind of thought, the kind that surpasses the epistemological principle prevailing in metaphysics and hence in science, that of adequacy between knowledge and its object. Literary history can offer correct knowledge on poetry as a particular object, but it overlooks the fact that poetry introduces a new paradigm in thinking being and therefore in thinking truth. On the other hand, aesthetics as a philosophical discipline can think of poetry with regard to truth, but its notion of truth is philosophical and thus metaphysical, and is not derived from poetry itself. Only philosophical thought that overcomes metaphysics and hence aesthetics can rise to the level of poetry and re-think its thought. Moreover, Hölderlin's poetry is chosen not as a random interesting object, but rather as a model for thought – it is through this poetry that we will finally be able to grasp what thinking actually means: 'Until now, thinking has not yet been able to think this experience [of Hölderlin's poetry] properly, or to ask about the realm in which this experience is at play.' (217) For Heidegger, being has to be thought according to language, while 'the essence of language must be understood out of the essence of poetry' (58). It is at this moment that Hölderlin enters the scene, since he wrote 'poems solely about the essence of poetry' (50). Hölderlin allows us to pose the question of the essence of poetry, which leads us to the question of language and therefore to the question of being.

It is because of the key role of poetry that Heidegger poses the problem of the relation between philosophy (*Denken*) and poetry (*Dichten*) as two manners of approaching the common and mutual origin of language and being: 'All essential Saying hearkens back to this veiled mutual belong-

ing of Saying and Being, word and thing.' (Heidegger, *On the Way* 155) Yet their proximity is of a problematic character: these two manners of 'essential Saying' cannot be translated into one another without something getting lost in the process. It is no coincidence that Heidegger (*What is* 98) concludes his text 'What is philosophy?' with a statement on this very problem: 'Between both there is, however, at the same time an abyss for they "dwell on the most widely separated mountains".' There is thus a non-relation between philosophy and poetry – and that is why they should not be combined as in a 'cloudy mixture', but imagined as parallel lines that 'intersect in the infinite' (Heidegger, *On the Way* 90). At the same time, they must not be thought as separated because the 'nearness that draws them near is itself the occurrence of appropriation by which poetry and thinking are directed into their proper nature' (ibid.).

Philosophy and art are thus linked by the question of being, which according to Heidegger supplements knowledge with sense and orientates the workings of man. This link is then not a resemblance by analogy or a subsequent 'interdisciplinary' linkage; if particular sciences are not linked by this fundamental question, knowledge remains merely the 'multiplicity of dispersed disciplines', whose 'rootedness […] in their essential ground has atrophied' (Heidegger, *Pathmarks* 81–82). Philosophy thus has to stand firm against the multitude of particular disciplines, which are linked merely by the technical relation of subjects of will to the objects of the world.

The importance of art for philosophy should therefore not be understood only on the grounds of the so-called language turn, but also on the grounds of 'the ontological turn', which according to Badiou (*Deleuze* 19) decisively marks the philosophy of the last century and confirms the significance of Heidegger: 'When all is said and done, there is little doubt that the century has been ontological, and that this destiny is far more essential than the "linguistic turn" with which it has been credited.' This statement can also be confirmed by the other major ontological-aesthetical project in German philosophy of the twentieth century, namely that of Theodor W. Adorno. In Adorno's view, too, the philosophical thought on art is determined by a kind of ontological question, a question of a certain real that is necessarily lost in the constitution of reality: 'If thought is in any way to gain a relation to art it must be on the basis that something in reality, something back of the veil spun by the interplay of institutions and false needs, objectively demands art, and that it demands an art that speaks for what the veil hides.' (Adorno, *Aesthetic* 24) The task of thought is to grasp what in an object is more that the object: 'This "more" is not imposed upon it but remains immanent to it, as that which has been pushed out of it.' (Adorno, *Negative* 161) This task is also the task to overcome the

division between disciplines which reduce the object to what it merely is.

In contrast to Heidegger, however, a third wheel is added to the company of art and philosophy, namely politics. Art and philosophy share a common ambivalence regarding their position in society: on the one hand, their distance from the society, their autonomy, is itself a product of society, a result of the triumph of bourgeoisie and capitalism, while on the other hand it is a carrier of the promise of a different world, a world of humanity emancipated from social antagonisms and the 'false needs' they create. The 'more' that thought strives for and that undermines the division of the disciplines is the 'more' of emancipation – something that does not yet exist. The 'more' is also the truth in which art and philosophy 'converge' (Adorno, *Aesthetic* 172). The truth that circulates in art, philosophy and politics is a becoming truth that can only be achieved through emancipation: 'The appearance of the nonexistent as if it existed motivates the question as to the truth of art. By its form alone art promises what is not; it registers objectively, however refractedly, the claim that because the nonexistent appears it must indeed be possible.' (109)

In order to remain faithful to this promise, thinking has to give up universalism as well as particularism, as both are subjected to the principle of identity, which necessarily has to be abolished according to Adorno. It is true that particularism can overcome the hegemony of universality, but it ends up in the identitarian fetishism of particular entities. Both positions thus have to be surpassed by 'negative dialectics', which can think what is un-identical about objects, and answer the 'call for binding statements without a system', a 'call for thought models', which makes negative dialectics 'an ensemble of analyses of models' (Adorno, *Negative* 29). Negative dialectics thinks objects in a broader context without subjecting them to a 'more general super-concept' (ibid.) What we have just inaccurately called 'broader context' is actually the object's participation in social antagonisms and at the same time its utopian dimension.

This kind of ontological-political unity of thought can also be found in Gilles Deleuze, for whom the main characteristic of being is its 'univocity': 'The univocity of Being signifies that being is Voice that it is said, and that it is said in one and the same "sense" of everything about which it is said.' (Deleuze, *The Logic* 179) Philosophy has to attain this ontological unity and establish a plane of thought that will enable the passing of concepts over different problem fields. In *A Thousand Plateaus*, for instance, we can find the conceptual double of molar and molecular, which originates in chemistry but is assigned a key role in thinking politics, psychoanalysis, linguistics, etc. Throughout the book, we can also find the geological notion of 'stratum', developed in the chapter on the 'geology of morals'. This

kind of linkage of different problem fields is made possible by the modern type of book, the 'rhizome-book', as opposed to the classical 'root-book'. The 'rhizome-book' is not centred around a subject or an object, but unobstructedly connects its various points. Hence, the question is no longer what the book is about or what does it mean, but how it functions and what it connects with: 'when one writes, the only question is which other machine the literary machine can be plugged into, must be plugged into in order to work' (Deleuze and Guattari, *A Thousand* 5).

To understand how this passing over of concepts is possible, we must turn to *The Logic of Sense*, in which Deleuze defines thinking by combining the figure of 'the ideal game' without proper rules as introduced in Carroll's *Alice in Wonderland* with Mallarmé's line 'All Thought emits a Throw of Dice':

> The ideal game of which we speak cannot be played by either man or God. It can only be thought as nonsense. But precisely for this reason, it is the reality of thought itself and the unconscious of pure thought. […] Each thought emits a distribution of singularities. All of these thoughts communicate in one long thought, causing all the forms or figures of the nomadic distribution to correspond to its own displacement, everywhere insinuating chance and ramifying thought (Deleuze, *The Logic* 60).

The concepts can pass over discipline borders because they exist on a level that precedes these borders. On the virtual plane there is only one thought that enables problems and concepts to be communicated. Strictly speaking, thought is not the universal common element that establishes the general unity of sense. The connecting element is rather the moment of 'nonsense' or of the 'unconscious of pure thought'. This kind of thinking is at the same time immediately political: 'This game, which can only exist in thought and which has no other result than the work of art, is also that by which thought and art are real and disturbing reality, morality and the economy of the world.' (Ibid.)

We should not overlook the fact that Deleuze – in contrast to Heidegger or Adorno – grants science the dignity of thought: in *What is Philosophy?* he and Guattari regard philosophy, art and science as the three disciplines of thought. Badiou (*Deleuze* 1) claims that Deleuze's use of scientific concepts (Badiou is speaking primarily of mathematics) is merely metaphorical. However, a kind of preemptive reply to this reproach can be found on those pages of *Difference and Repetition* that examine mathematics as an example of Deleuze's method of transporting concepts between different domains:

> There is no metaphor here, except the metaphor consubstantial with the notion of Ideas, that of the dialectical transport or 'diaphora'. Herein lies the adventure

> of Ideas. It is not mathematics which is applied to other domains but the dialectic which establishes for its problems, by virtue of their order and their conditions, the direct differential calculus corresponding or appropriate to the domain under consideration. (Deleuze, *Difference* 229)

Philosophy does not apply concepts of one domain to other domains, but rather establishes 'ideas' that can get their name and basic logical scheme from, say, a mathematical concept, yet actualise themselves independently inside a specific domain. Here, Deleuze distinguishes between two moments of the classical definition of metaphor: the *transfer* of meaning is distinguished from the *principle* of this transfer, namely the principle of resemblance or of analogy. Philosophical thinking, which strives to achieve the 'one long thought' beyond the division of the disciplines, is based on the transfer of ideas, but this transfer relies not on resemblance, but on the becoming of the idea that establishes itself 'immediately in each domain' (Deleuze, *Difference* 249).

From Ontological to Metaphorical Affinity

It seems that according to Deleuze, philosophy has a double role: on the one hand, it is one of the disciplines of thought, and on the other, it is the very 'in-between' of disciplines, the place of the becoming of pure thought, the manifestation of thought's unity. Thus, Deleuze can write about literature, film, mathematics, geology, biology, the classics of philosophy, capitalism, etc., and at the same time always about one and the same thing: through a metonymical slide of themes and problems he constitutes the consistency of a series of concepts that form his philosophy. Let us take a look at how Deleuze's procedure is described by Jacques Rancière and how the latter uses this description to delimit his own method:

> In my opinion, Deleuze is one of those philosophers who tried to expand philosophy, to give it a constitutive role in what we consider its objects, so that it could enter into its own exteriority, or put it in its centre. He therefore provides an essential demarcation for my own intention, which is to make philosophy, on the contrary, exit from itself so that its procedures, propositions, arguments and descriptions can be included in the topography of a wider territory of inventions of thought, where philosophy can meet the sentences of writers, the montages of directors, but also linguistic and mental inventions introduced by those who do not count as thinkers. (Rancière, 'Politique' 174)

One could say that Deleuze's method is 'centripetal': philosophy can expand freely, it can talk about anything, but only in order to acquire new

concepts with which it could reaffirm its ontology. On the other hand, Rancière's method could be described as 'centrifugal': as taking philosophical theses away from philosophy in order to confront them with non-philosophical theses. According to Deleuze, all thought can be incorporated into philosophical thought, while according to Rancière, all thought, including philosophical thought, can be untied from the 'body' that produced it, that is, from the explicit intention, original context and capabilities that were supposed to authorise its carrier. Any thought can be confronted with any other thought – for Rancière, no less than this is demanded by the epistemological supposition of equality, which is already a form of epistemology's politics:

> To be able to understand what is at stake in emancipation, the division of disciplines should be abolished. This epistemological demand is also a political one. To posit thought as something that denies the divisions between philosophical argumentation, historical explication and literary statements is also to define it as anyone's capability. Basically, there are two logics: the one that divides thought into reserved competences, into domains of specialists who fragment it with regard to differences that serve as a currency of a principle inequality, and the one that treats thought as an undividable capability, similar in all of its executions, that can be shared between anyone. I see philosophy first and foremost as the capability to declassify and redistribute the territories assigned to disciplines and competences. Philosophy claims that thought belongs to everyone. (167–168)

Rancière sees his task as a thinker in forming a discourse that would enable the preservation, and contribute to further verifications, of equality as a supposition. That is why he devoted himself to, in his own words, 'constituting a sphere of intelligibility for this egalitarian power' (Rancière, 'La Méthode' 515). This sphere not only functions in the field of politics, but also forms the meta-politics of other practices. For this purpose, Rancière undertakes research in various domains – politics of emancipation, pedagogy, aesthetics, historiography, and epistemology –, while putting on the same plane the texts of the classics of philosophy and literature, texts of contemporary sociologists and historians and also texts written by the proletarians of the nineteenth century who spent their nights engaging in 'cultural' activity rather than merely reproducing their labour power (see Rancière, *La nuit*).

Any discussion of philosophy's relation to its exteriority should also take into consideration Badiou's theory of conditions. Even though Badiou is famous for his reaffirmation of the further possibility of philosophy, we should note that at the same time he continues the work on the deconstruction of philosophy. In this manner, Badiou denies philosophy both the capability to think being and the capability to say the truth. For

him, being can only be thought by mathematics (that is, science), namely set theory, and the truths can only happen inside a limited number of practices: the practices of politics, art, science and love. What kind of task is then left to philosophy? Philosophy creates 'a general space' in which 'thought accedes […] to *its* time' (Badiou, *Manifesto* 38). To think its own time is to think crucial events that set off procedures of truth that defined this time. Philosophy thus invents concepts with which it is possible to think the 'compossibility' (37) of contemporary truths, that is, to think truths as all being possible simultaneously. These truths are the 'conditions' of philosophical thinking. But since events only exist as something that has already disappeared, and since the existence of truth procedures is destined to uncertainty because of their polemic and interruptive character, philosophy gives them 'shelter' (ibid.) by affirming and announcing them. The task of philosophy is double: it has to produce a concept of truth that will be on the level of the truths of its time, and at once to affirm the existence of truths as such and therefore to negate the sophistic position according to which there is only the multitude of opinions.

At first sight it is not clear why Badiou places so much emphasis on thinking truths from different domains together and simultaneously. Yet there are at least two reasons for that. The first is Badiou's conviction that philosophy has to evade the 'suturing' with any of its conditions, for this would put to a stop 'the free play' necessary for 'intellectual circulation between the truth procedures' (Badiou, *Manifesto* 61). However, we should not confuse this 'free play' with the demand for the autonomy of *domains* in which truths are possible (in terms of Lyotard's language games), but see it rather as a *possibility of affinity* between truths in different domains. For example, it is not so much that art should be independent from politics, but rather that there is a possibility that an artistic truth and a political truth can 'converge'. Moreover, resistance to 'suturing' does not mean resistance to any kind of overdetermination by one of its conditions. The notion of condition itself implies overdetermination, since the aim of philosophy is to prevent any limitation of the effects of a particular truth on thinking.

With the presupposition of the possible affinity of truths, we have already discovered the second meaning of 'compossibility'. Still, it is unclear how it should be understood. In Badiou's earlier work, *Theory of the Subject*, we can find a broad 'thematic repertoire' consisting of political theory, logics and mathematics, historical circumstances, psychoanalysis, literature and theatre, god, classical philosophy … All of these themes have to appear in the book so that it can achieve its goal of a renewed notion of dialectics centred around the category of the subject. For this purpose, it has to confront with one another various authors that have in

their own way contributed to the development of dialectics. Badiou's list of thinkers he takes into account is also very extensive and not limited to philosophers: Hegel, Hölderlin, Mallarmé, Lacan, Pascal, Rousseau, Marx, Engels, Lenin, Mao … (Badiou, *Theory* xxxix–xl) Oliver Feltham designates the method of this book as 'dialectical braiding'. This metaphor does well to describe Badiou's method, which according to Feltham (130) is itself metaphorical as it attempts 'to prolong and extend the metaphorical substitutions already at work in Mallarme's oeuvre by adding [Badiou's] own signifiers as further metaphors'. Philosophical signifiers signify the dialectical matrix developed by Mallarmé in a sonnet in order to confront this matrix with the dialectics developed, say, by a political organisation. Philosophical concepts may be products of pure thought, but their production is based on deriving implications of thought inventions in various domains such as politics, mathematics or poetry – they form a place where translatability between surpluses of thought is made possible.

This is the procedure Badiou maintains also in his later theory of conditions. Philosophy does not bind the truths together in a system, or simply list them – what it does can be better described with 'the metaphor […] of the liberty of movement' (Badiou, *Manifesto* 38). It is because of this movement that mathematics can occur as ontology – the concepts of set theory only become ontological concepts after philosophy intervenes by stating: 'mathematics is ontology'. However, the circulation does not stop here. Thoughts on being can also be found, say, in a Mallarmé sonnet (Badiou, *Conditions* 49–67). Moreover, philosophy also record 'the political condition in conformity with the parameters of ontology' (Badiou, *Metapolitics* 72). This circulation is made possible by the 'metaphorical affinity' (Badiou, *Being* 95) that philosophy establishes between its own conditions. Finally, unlike Heidegger, Adorno or Deleuze, the philosophical circulation of concepts in Rancière and Badiou is no longer made possible by the 'univocity' of being – which is why the interconnection of these concepts is 'merely metaphorical', but in a new, affirmative sense.

Towards a new paradigm of systematicity

This overview established that even as philosophy parts from its traditional systematic image, it cannot completely make do without a certain form of universality of its concepts or of their validity throughout different fields of knowledge or practices. It is true that philosophical concepts can no longer be the place where thinking, initially rising from somewhere outside philosophy, achieves its completion. But when philosophy posi-

tions itself on the margins of a knowledge or a practice, it examines the wider consequences of a discovery or of an event that took place there. It examines the discoveries that are not only valid for the object of a certain knowledge, but that can also be 'extended' beyond the frontiers of that knowledge. The working space of philosophy is thus the middle ground of the passing over of concepts between different discourses. When philosophy refuses to form a system, it *no longer applies* its concepts to objects of a certain knowledge or practice, but *connects the implications* of particular discoveries and actions that it adopts as singular thought models. Yet to fulfil this task, philosophy has to affirm the connectivity and translatability between disciplines of thought, and therefore to forge a new paradigm of the universal reach of its own concepts.

This paradigm consists of three moments. The *first* would be the philosophical identification of a certain truth or an exceptional instance of thinking, within a particular domain, that could have wider consequences. On the basis of the implications of this thinking, philosophy invents concepts, which is the *second* moment, the moment of 'pure' thought. What follows is the *third* moment, namely the moment of explication: philosophy tries to use its concepts to explain a situation in another domain and find in it examples of thought, or of truth, that would be equivalent to those in the original domain. The three moments can be exemplified by the following scheme:

$$\text{thought}_x \rightarrow \text{(implication)} \rightarrow \text{philosophical concept} \rightarrow \text{(explication)} \rightarrow \text{thought}_y$$

However, it is important that a particular domain alternates between positions *x* and *y*, so that philosophy can both examine its implications and explicate philosophical concepts within it. Without this reciprocity a suturing, and hence a blockage, of philosophical circulation takes place.

It has to be noted, though, that the transfer of consequences of concepts onto other domains has to be distinguished from the popular notion of interdisciplinarity. The latter aims to supplement the discoveries from different disciplines with each discipline remaining within its own methodological boundaries and its own definition of its object. The results are therefore combined subsequently and do not have an interior relation to each other. And the process we have described can better be described as an intervention that can change the methodological paradigm of a discipline and the way it defines its object. Philosophy is essentially 'interdisciplinary' in a more radical sense: on the basis of a thought model the very coordinates of its thinking can change.

NOTES

The notion of 'the ideal of science' is borrowed from Jean-Claude Milner and his commentary on Freud's scientism (35).

[2] As regards Lacanian psychoanalysis we can quote Milner: 'As far as the analytical operation is concerned, science does not play the role of an ideal point which could as well be infinitely remote. Strictly speaking, science is not exterior; on the contrary, it structures the very matter of [psychoanalysis'] object.' (36)

[3] 'Science, therefore, does not *think*, in *this* sense it cannot think with its methods. For example, I cannot say what physics is with the methods of physics. I can only think what physics is in the mode of philosophical questioning.' (Heidegger, *Martin* 42)

[4] Several authors see the sense of philosophy precisely in a reflection on its own limits and hence on the limits of thinking in general. However, acknowledgment of a limit can easily turn into injunction: thinking is not merely limited, it *has* to be limited. In this manner, philosophy finds another possibility of its further existence – it becomes an ethical discourse, the discourse of the imperative of limitation. Ethics – especially in the negative form of preventing evil – functions as a set of rules aimed at reducing the power of radical thought: it criticises philosophy in its claim to universality, and science in its effects on the biological real; it warns against the crimes of 'totalitarian' regimes as the destiny of any radical politics; etc. The ethical discourse is symptomatic: it originates in a critique of the exterior position of systemic thinking while simultaneously renewing this exteriority by forcing itself upon certain practices as a set of normative limitations not grounded in these practices

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Transgressiveness in Science, the Humanities and Literature

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The concept of transgressiveness first appeared during the Early Modern Age, and can since then be found in legal, theological, scientific and philosophical discourses. It predominantly refers to phenomena that transcend the limits of the ordinary, shift from expected practices and defy the fundamental conventions of communication, society or morality. Although its meaning is not sharply defined, there is no doubt that transgressiveness is linked to the vital functional dimensions of cognitive and social systems, since establishing, controlling and eliminating unconventional states is part and parcel of the fundamental mechanisms that ensure adaptability in complex environments. Of course, these mechanisms manifest themselves in various ways in different social systems such as science, the humanities and literature.

Keywords: transgressiveness / the literary system / the humanities / epistemology / Contingency

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Introduction

Accessible realities are more or less predictable. Stable states and recurring processes ensuring this predictability can be found everywhere: in ourselves, who observe the environment, and in the environment itself. Stability defines the limits of expectation, enables orientation and ensures survival. In the natural, cognitive and social sciences, mechanisms for establishing these states are described by the concepts of habitualisation, assimilation, accommodation, conventionalisation, schematisation, canonisation, etc.

To what extent the structures of accessible realities originate from the cognitive systems themselves, and to what extent from the environment, are complicated questions, but this will not be the focus of this essay. I will concentrate more on the capacity of systems to reflect upon and transcend the norms, principles and mechanisms of their functioning. Therefore, the concept of transgression will relate to systemic self-reflection regarding threshold values. I will focus on the fields referred to in the title: science,

literature and the humanities. I will try to answer the question of the function of transgressions.

Science

The field of science has changed over the thousands of years of its development. Nevertheless, it has always retained the mark of elaborate rationality (Ede and Cormack 199). In earlier periods, mathematical, metaphysical, hermeneutic and empirical discourses were intertwined in different constellations. However, during the last 200 years, there occurred an erosion of universality, while the scientific criteria became more rigid. Crucial becomes the connection between three norms: theoreticality, empiricality, applicability. Since then, an activity qualifies as scientific, if (a) it is based upon abstract, logically constructed conceptual systems, (b) it organises methodically acquired empirical data by means of these systems, and (c) based on these models, it offers verifiable and reproducible solutions to socially relevant problems. The relevant institutional infrastructure ensures that the aforementioned norms are enforced. In this way, science gradually establishes itself as a relatively autonomous social system with specific rules and social functions.

During the process whereby the scientific system became independent, literary criticism was also transformed. Tendencies towards establishing more rigid scientific criteria have been evident at least since the era of positivism in the nineteenth century, and they gained particular strength during the so-called cultural turn in the second half of the twentieth century. Such tendencies are most explicitly evident in studies that redirect the focus from the literary texts themselves to the context of literary communication. In these studies, the methods of natural and social sciences are used, and the criterion of verifiability is taken into account (Dović 11–20). Nowadays, we are witnessing a wide range of interdisciplinary connections in this spectrum of literary criticism.

Because of their pragmatism, empirical sciences are not favourably disposed towards transgressive thought. Trying to achieve the greatest possible degree of applicability, these sciences direct all their attention towards solving the problems in the observer's environment, while any reflection on the origins and limitations of their own functioning seems from their perspective redundant or even disruptive. This is all the more so, since the fundamental scientific norms are derived from basic mechanisms of rationality such as causal connections, coherent structures and consistent models. Reaching beyond these norms would therefore necessarily lead to

contact with the irrational, which is, of course, unacceptable to scientific thought.

Discourses dependant on the cognitive origins of constructivism come closest to the logic of self-reflection. Here, the central ideas originate from the cybernetic concepts of self-referentiality, circularity, insularity and self-organisation (Glasersfeld 198–219). In this regard, the concept of the second-order observer is especially interesting. Observation itself becomes the object of observation, while the relation between the observer and his or her environment shifts away from naive realism. However, constructivist self-reflection usually adopts the status of a realistic perspective, and thus does not necessarily lead to reflection on the limits of scientific cognition or to transgressiveness. Furthermore, more often than not, constructivism remains on the level of cognitive theory and is seldom incorporated into research practice.

Of course, aversion to transgression does not signify that science is predictable or conformist. On the contrary, among its maxims are creativity and innovativeness, which by definition include reaching beyond the known, as well as a shift away from conventionality. However, such shifts – for instance, the development of new methods, models, technologies, concepts, paradigms and interdisciplinary connections – are, of course, taking place in the framework of systemic logic. The system either accepts these as effective solutions for problems and establishes them as the new norm, or rejects them. The limitations of scientific cognition essentially remain a blind spot of scientific discourse.

We could perhaps speak of transgressions – in the narrower sense of the word – in instances where scientific criteria are losing their exclusive role. This is most frequently the case in hybrid zones between different social systems, for instance, in contacts between science on one side, and economy, politics, law, religion or, say, art, on the other. Such boundary crossing can fulfil the functions of two or more systems by means of symbiosis or hegemony.[1] In any case, these intersystemic connections are for the most part standardised and hence merely give the appearance of being transgressive.

Literature

Similarly to science, literature is, on one side, integrated into its social contexts, changing along with these contexts, while on the other side, it always preserves certain basic functional characteristics. Literature differs from other discourses in the sense that it develops those potentials of

writing culture that stem from the decontextualisation of communication processes. Writing separates communication from the body, from the mutual observation of the communication partners and from the perception of the collective communication situation. In this way, the space of autonomy for constructing meanings expands, and the awareness that cognitively produced models of the world form the reference framework for communication increases. Because these models are arbitrary and inaccessible to perception, scryptographic and typographic traditions stimulate insights into the interactive nature of the discourse on the socially accepted versions of the real world. These kinds of potentials are most distinctly developed in fictional texts and texts with multiple meanings, which, through the weakening of referential and consensual conventions, strengthen the mechanisms of decontextualisation and establish space for alternative models of the world.

However, even this kind of unconventionality does not yet signify transgression. In the case of literature, the breaking of communication conventions is incorporated into the discursive logic, and has gradually become a norm in its own right. It is expected by participants in the literary system. The extent to which this break is realised and the sphere of the system which it encompasses are not of crucial importance here. The possibilities are practically unlimited: the break may involve playing with aesthetic processes, narrative strategies, concepts of time and space, genre schemes, intertextual connections, etc. (Juvan 14).

As in science, in literature transgression occurs only when the identity of the system itself becomes questionable. Literary discourses weaken their own identification criteria by adopting the functions of other systems, including scientific ones. For instance, the construction of alternative worlds can be understood as a sharpening of awareness about the interactive, arbitrary and constructed nature of *each and every* discourse about the real world. Thus, cognitive functions beyond the categories that establish the system's identity can be attributed to this aesthetic experience. In other words, the aesthetic experience complements the kind of scientific observation that maintains that all accessible worlds – real and imaginary – consist of the same substance: the chemical and electrical processes in the brain.

And when the experience of the formalisable arbitrariness of worlds elicits a premonition of that which is unformalisable and non-arbitrary, these aesthetic transgressions can acquire a metaphysical dimension.

The humanities

The humanities do not establish norms and conventions for their functioning that are as clear as those characteristic of empirical sciences and literature. They are characterised by a tendency towards objectification of their fields (mainly thought, language, art and culture), on one side, and a high degree of self-reflection and multiperspectivity, on the other. The processes of verification are replaced by the logic of 'hermeneutic reasoning', whereby self-reflection and multiperspectivity are not in the service of verifiability and applicability (as in science), nor are they in the service of semantic openness (as in literature). While science excludes transgressions from the logic of its discourse, the literary system incorporates them as a fundamental convention, and it appears that the humanities are always located in the transitional or transgressive space between descriptions of the laws of the observed fields and reflections about the laws of self-observation.

Latent and uncontrolled transgressiveness leads, inter alia, to a conflicting relation between the humanities and the empirical sciences. When, along with the rapid ascent of natural and social sciences, the 'hard' scientific standards assume the dominant and exclusive position, the disciplines that do not meet these standards become marginalised in the economic as well as in the symbolic sense. The situation became particularly critical in the 1970s and 1980s, with empirical and humanistic paradigms playing antagonistic roles. Although in recent decades tendencies towards bringing them closer together have strengthened, the humanities still only exceptionally retreat from their defensive stance. The problem seems unsolvable: the adoption of empirical methods endangers the humanities' identity, whereas their rejection endangers the humanities' reputation.

When trying to solve the problem, an elimination of the asymmetry in terms of values is probably a step in the right direction: the humanities should model themselves on empirical sciences in the dimensions in which the latter are more effective (for instance, in pragmatic syntheses of theoreticality, empiricality and applicability), while refusing to perceive the potential for self-reflective and multi-perspective thinking as an epistemological shortcoming. Additional stimulation in this direction comes from the applied sciences themselves, which have recently been discovering the importance of hermeneutic methods in assessing empirical data (Hladnik 329). It is true that the 'empiricists' are far from willing to transcend the hierarchical relations between the two paradigms, but this is precisely why advocates of the humanities would actually benefit from redirecting their attention towards the cognitive advantages of self-reflective and transgres-

sive thinking, and also from heightening their awareness of the concept that contemplation of the limits of one's thought is an important factor in the economy of orientation strategies.

The humanities would probably have to admit that they cannot compete with the empirical sciences in the field of finding pragmatic solutions for socially relevant problems; on the other side, they should also be aware that they can develop cognitive potential that remains unutilised in the disciplines that focus only on the objects of their observation. By incorporating the observer's perspective into elaborate descriptions of the environment, the humanities not only stimulate fundamental reflection on the concept of social relevance, but also stimulate more than merely intuitive insights into relations between the arbitrary and non-arbitrary dimensions of the world. It is precisely these insights that are able to cope with contingency more efficiently than mere exclusions of contingency from the logic of the observing discourse.

Let me conclude by illustrating the synergy between the empirical and self-reflective approaches with a short example from the field of orientation strategies. In neurobiology it can be assumed that cognitive systems develop along with the increasing complexity of the central nervous system. A high degree of complexity has two seemingly contradictory effects: on one side, it ensures adaptability of orientation in the environment, and on the other, it leads to the autonomy or functional insularity of the system. Adaptability is manifested in an extensive repertoire of orientation strategies, while autonomy stems from the tendency of systems to develop criteria for evaluating their processes by themselves (Roth, »Gehirn« 178). Thus, the crucial question at this point is, what can orientation strategies tell us about the world if we are aware that they originate in systems that have access only to their own states? In light of these findings, what can we say about the limits of cognition? More precisely: who is the subject of the cognitive processes, and what is their object?

In this context, neurobiology and self-reflection come to the same conclusion: the concepts of subject and object need to be redefined. On one side, the concept of self is not suitable to be the carrier of cognitive processes. At most, the subject is the *result* of cognitive self-organisation. The same holds true for the construct of free will (Roth, *Fühlen* 494–544). We have long known this, although we are reluctant to admit it. Each of our actions is entirely conditioned by factors that were not chosen by ourselves, and which we cannot influence in any way whatsoever. We did not choose our own bodies, we did not choose the environment in which we have constructed our world, nor did we choose our desires. The source of power is not within us. On the other side, the object of our cognition dis-

integrates in a similar way. We have long known that perceptions can only be compared to perceptions, and not to the environment itself (Schmidt 13). We also know that the world is accessible exclusively in the mode of criteria immanent to the cognitive process. Everything incompatible with these criteria remains incomprehensible.

When we bring our thoughts about cognitive autonomy to a conclusion, emptiness and powerlessness are revealed where pillars of the world were expected. The connection between empirical reflection and cognitive self-reflection has brought us to an abyss of absence. If it has not done so before, it is now – in the core of the problem – that we hear the voice of poet, the messenger of incomprehensibility: 'But where there is danger / The Rescue grows as well' (Hölderlin, *Patmos*). And *what* is the rescuing element? It is time for the ultimate transgression.

In the abyss of absence, there arises the consciousness that the existence of the world is not self-evident. The absence of nothingness becomes incomprehensible in the same way that nothingness itself is incomprehensible. In contact with emptiness, we touch upon the force that negated non-existence. It is then that we recognise the same power of which we are made in everything that exists. When we renounce power, we renounce powerlessness. This is the epistemology of love. The final transgression has led us to the edge of the world, and it is there that we discover the foundation of our existence within the other.

Like every other emotion, love too is connected to the body, to the experience of life. With it, each reading is live. Science, the humanities and literature easily incorporate love into their basis as an ethical attitude. If cognition is derived from evolution, then evolution may be derived from such cognition.

NOTE

[1] An obvious instance of such symbiosis would be popular science, while hegemony is characteristic of, say, the political and economic manipulation of science.

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Peirce's Theory of Inquiry as a Poetological Model: The Case of Literary Realism

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The article presents the philosophy of Charles Sanders Peirce as a bridge between the so-called hard sciences, on the one hand, and the humanities and the arts, on the other. By following Hans Vilmar Geppert's theory of literary realism, that is, his Peircean 'realist semiotics', a scientific methodology can be traced in a poetological model. Geppert's application of semiotics to literary realism and to general issues of communication offers two original insights: besides re-evaluating the historical realism of the nineteenth century, his theory of inquiry as the pragmaticist response to an immediate communicative crisis proposes a viable poetological model for today's artistic needs as well, thereby making the dialogue between science and the humanities or arts possible once again.

Keywords: semiotics / realism / science / the humanities / Peirce, Charles Sanders / Geppert, Hans Vilmar

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Semiotics and machines

The problem of the semiotic status of mechanically produced phenomena is a distant echo of Charles Percy Snow's idea of the mutual incomprehension dividing the 'two cultures', that is, (natural) scientists and (literary) 'intellectuals'. I will address the issue by posing the following question: How does a human being relate to, and interpret, the signs that are produced 'mechanically', that is, by a machine, in a technological process that employs scientific findings or some other algorithms to 'create' new signs without any immediate human intervention or control?

Espen J. Aarseth's groundbreaking theorization of cybertext as the new media textuality produced by 'textual machines'[1] notes the problematic 'signal-semiotic threshold' that emerges within the cybernetic text, which partially escapes the author's control by proposing a virtually un-

limited array of readings according to some specific rules that are an inseparable part of the text. The self-manipulating textual device splits the output into a duality of the signal – the materialized entity excluded from the semiotic – and the signifying effect of the output on the reader-user. As opposed to, say, cinema, where the dual existence of a film tape and a projection is trivial, in a cybertext the relationship between the (hidden) code and the expressive level is 'arbitrary'. The expressive level escapes the author's control, partly leaving the domain of interhuman communication.[2] For Aarseth (22, 29, 31), the semiotic aspects of a cybertext are limited to, first, the observation of human reception of the system (that is, to the ways in which the user transforms signals into meaningful signs), and, second, to the implied teleology, which consists of the intentions of the constructor of the textual machine, as they are accessible, say, to an analysis of algorithms. David Link (85), a new media artist and theorist, reaches a similar conclusion: the user of a textual adventure game has to obtain a 'linguistic incompetence' (*Sprach-Inkompetenz*), or to accept a 'mental defect' (*Behinderung*), to be able to communicatively enter the realm of a computer game. The source of this apparent communicative vagueness is the fact that a computer, which is essentially a Turing machine, does not function on the level of represented information but on a pre-semiotic stage of separating one homogeneous materiality into artificially distinct states.[3]

Such problematic issues pertain not only to artistic practices, but also to digital humanities. The first 'Pamphlet' of the Stanford Literary Lab, directed by Matthew Jockers and Franco Moretti, considers results of computer based quantitative analyses of literary genres in a self-critical manner.

> [The computer-generated] image of genre [that is, the diagrammatic presentation of variations within databases] was clearly also incomplete, because differential features may tell us all we need to know in order to demarcate one form from another, and yet very little about that form's inner structure. If all men in an audience wore pink, and all women blue, the colours would differentiate them *perfectly*, and tell us *nothing* about them. […] [F]or the time being, the gain seems to be comparative more than qualitative: great*er* clarity, rather than clarity of a different type. (Allison et al. 18, 24)

The computational output[4] does not disclose new meanings explaining the database of novels, the input data; instead, it provides 'great*er*' clarity, that is, quantitatively greater mastery of the phenomenon at hand. It appears that the impasse of the non-semiotic information processing remains unchallenged – even if we consider the importance of the vast quantitative increase in the scope of the analysis.[5]

Aarseth proposes to solve problems concerning the semiotic and the non-semiotic features of a cybernetic system by introducing the idea of emergent properties. However, he does not seem to clearly distinguish the emergent behaviour from a malfunction of the cybernetic system in an algorithmic literary work (40, 124).[6] The concept of emergent properties may be of value in explaining (dis)continuities between physics, chemistry and biology, while the signification that becomes relevant at the level of society and culture does not seem to be available to the apolitical notion of a discontinuity between different orders of reality. (System theory and radical constructivism take the dynamics of society for granted and thus reduce them to an 'insignificant' question; the Foucauldian tradition exemplifies the counterargument.)[7]

What is a sign?

The question of the semiotic levels of various artificial and natural phenomena refers back to the definition of a sign. The structuralist semiology from Ferdinand de Saussure onwards considers a (linguistic) sign to be the duality of a sign and a referent, the duality mirrored in the relation between the sign's signifier and the sign's signified. The link between both elements is arbitrary and conventional. Saussurian tradition postulates a systematic code, *langue*, which is always already there as a sign is being interpreted. 'Natural' signs – that is, features not produced by communities of humans[8] – therefore do not exist. It seems that if algorithms randomly, or incomprehensibly, produce phenomena that can be identified as signs for humans to interpret, then these entities are not actually signs, but mere 'insignificant' materialities.

This is obviously not the case. Scientific research, which by definition supplies meaning to natural phenomena, is a case in point. Hence, an alternative conception of sign is needed. Indeed, the tradition of semiotics founded by Charles Sanders Peirce provides such an alternative. According to Peirce, a sign is what is interpreted as a sign (Geppert, *Der realistische Weg* 40, 80); for instance, a typical indexical sign is smoke that stands for fire. The link between the sign and the object is not a convention (such as *langue*), but the consequence of an existential fact, which is affirmed in the interpretation. Peircean sign is a genuine triadic relation of the representamen (that is, the sign), the object and, most importantly, the interpretant (the irreducible unit consisting of a new sign interpreting the original sign).[9] As a practicing chemist and geodesist, a 'hard' scientist by occupation, Peirce proposes a semiotic theory suitable for research into natural phenomena.

Signs may be produced in any way imaginable, including – concerning the previous examples – by some computer (mal)function.

Pragmaticism, semiotics, and the theory of scientific inquiry

In Peirce's late period, and as part of the third and 'Final Account' of signs (1906–1910), semiotics is linked to Peirce's theory of inquiry and to pragmaticism (see Atkin). The semiotic becomes closely connected with

> the standard idea of scientific method […] as being the method of constructing hypotheses, deriving consequences from these hypotheses, and then experimentally testing these hypotheses (guided always by the economics of research). […] Peirce increasingly came to understand his three types of logical inference as being phases or stages of the scientific method. For example, as Peirce came to extend and generalize his notion of abduction, abduction became defined as inference to and provisional acceptance of an explanatory hypothesis for the purpose of testing it. Abduction is […] inference to some explanation or at least to something that clarifies or makes routine some information that has previously been 'surprising,' […] given our then-current state of knowledge. Deduction came to mean […] the drawing of conclusions as to what observable phenomena should be expected if the hypothesis is correct. Induction came for him to mean the entire process of experimentation and interpretation performed in the service of hypothesis testing. (Burch)

The 'surprising' phenomenon is the starting point of every scientific inquiry, which triggers 'abductive' reasoning that proposes a hypothesis, which is followed by deduction and the most costly part of research, the testing (Peirce's induction). Peirce in fact equates abduction with pragmaticism as such and with the economics of inquiry – for if a hypothesis cannot be tested, no knowledge is ever gained, which, from the pragmaticist point of view, logically invalidates the hypothesis (see the term 'Abduction' in *The Commens Dictionary*). Compared with Saussurean semiology, Peircean model of sign is obviously more apt to explain the different semiotic and possibly pre-semiotic domains, as far as they are relevant to any actions by the humans. In Peirce, the famous 'two cultures' virtually melt.

Peirce's pragmaticist theory of signs as a poetological model

Is it possible to apply Peirce's semiotics, which is, as we have seen, compatible with his scientific methodology, to artistic practice? The following example should demonstrate a structural compatibility between

Peirce's pragmaticist semiotics and the (implicit) poetics of nineteenth-century literary realism. The link to a scientific theory of inquiry, stressed in Peirce's late works, proposes a possible answer to the dilemma of the significance of signs that do not depend on a pre-existing code. The non-human (proto)signs – natural signs as well as those produced by apparatuses – are thus (potentially) reintroduced into culture through the great novelistic tradition.

In his 1994 monograph *Der realistische Weg* (The Realist Way), the German comparative literature scholar Hans Vilmar Geppert successfully demonstrates a similarity between Peirce's pragmaticism and the literary realism of the nineteenth century[10] at the level of their theoretical frameworks. Both phenomena are historically simultaneous and based on the same sources; however, Peirce's thought did not directly influence authors and theorists of nineteenth-century realism. Should a project of linking the Peircean tradition with realism attempt to present a generally valid *logica utens*[11] within the domain of the semiotic, two challenges would necessarily be involved: first, the deconstructive approaches would need to be accounted for, since they have introduced skepticism towards all conceptions of 'reality' throughout the humanities; second, the so-called 'realist' mode of writing, including verisimilitude, should be addressed. Both problems should be tackled if Peircean semiotics is to be reinterpreted as a (realist) discursive practice that transcends a mere historical similarity between two nineteenth-century discursive regularities.

The realist semiotics

The Peircean answer to the challenges of deconstruction is a selective 'inclusion' of deconstruction into the whole of the pragmaticist theory of the sign. Geppert points to an analogy between Peircean infinite semiosis[12] and Derrida's notion of 'différance', while noting that 'for Peirce to expel the truth categorically in the "absence" would be a meaningless idea; even if it is never immediately "present", especially not in any system (in any additional similarity), it nevertheless cannot be grasped in any other way than through language and signs'.[13]

Pragmaticism is a kind of semiotics that gains relevance only when the normal signs fail, when – as in science – a 'surprising' phenomenon is encountered and demands explanation, or when – as in literary realism – people are faced with an imminent crisis of signs, that is, when signs clash violently with reality. The deconstructive answer is meaningless – useless – insofar as it merely affirms the *status quo* of the crisis. For Peirce, the

meaning of a sign is a human habit (grounded in the community and intended to last indefinitely). If a new and at least potentially generally valid relationship towards reality is needed, it has to be somehow reconstructed, even while facing the famous rubble-heap of Walter Benjamin's Angel of History. The 'principle of Peirce'[14] states the following: 'Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object.' (Peirce 293) The meaning of a surprising fragment is its interpretant (conceivable practical effects), which is imminently needed in a given situation.

For Geppert (54, 152), literary realism is the art of the interpretant, stemming from an immediate experience of a semiotic, and therefore existential, crisis. Peirce's six-level model of the sign – representamen, immediate interpretant, immediate object, dynamic object, dynamic interpretant, final interpretant – translates into realist discourse as follows: The 'realist way' starts from the immediate interpretant as the first interpretation of the representamen evoking the conventions in a dysfunctional state, which produces the immediate object, 'the motivated illusions',[15] such as Emma Bovary's self-destructive expectations about the world. It is the media-induced 'inter-reality' that clashes violently with the given conditions, the dynamic object. The crisis is 'amplified' in the reproduction and condensation of available cultural codes and their effects in – and on – the hero's or heroine's illusions. The dynamic interpretant[16] is the narrative arch of the realist novel. It consists of a multiplicity of immediate interpretants with their immediate objects in experimental recombinations. It is in the recombinant constellations of the dysfunctional cultural codes that the realist verisimilitude is grounded – realism does not reproduce reality but the discontinuous archive of cultural codes (as conceptualised by, say, Foucauldian archaeology). The final interpretant is the method itself, realism as a dynamic and continuous path that stands in stark opposition to a static spatial constellation.[17]

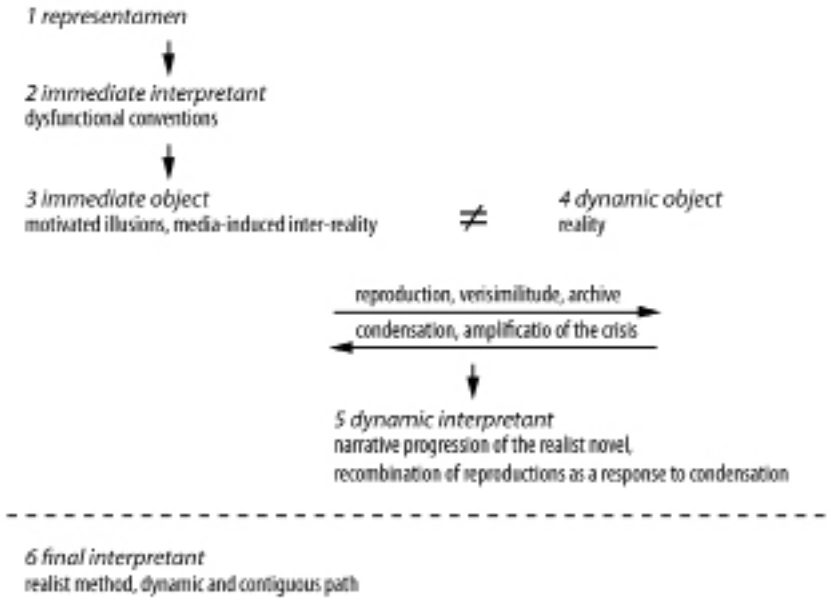

Figure 1: Peirce's six-level sign model in alignment with the scheme of the discourse of literary realism

Peirce's further semiotic differentiations facilitate an even more detailed explication of realist discourse, which additionally substantiates the analogy between realism and pragmaticism. At the level of the representamen – the different ways of perceiving the sign[18] – realism is constitutively linked with sinsigns (tokens), singular and uniquely concrete phenomena that demand interpretation. In fact, since Peirce is aware of the ubiquity of the semiotic – he accepts the Kantian 'transcendental unity of apperception', which covers the domain of the semiotic (see Geppert, *Der realistische Weg* 40, 11) – the genuine non-encoded phenomena that a human might need to interpret are very rare, as singular signs are utterances of legisigns (types), signs that depend on codes. Realism characteristically 'exploits' and 'uses-up' ('verbraucht') the existing codes. Realism cannot be coded, since it does not produce new legisigns (as literary symbolisms do): the legisign *in potentia* is an ordered archive of sinsigns that resists homogenisation. Geppert speaks of 'retro-semiosis' to highlight the non-unified regularity of the archive of cultural codes reproduced in literature.[19]

The indices – which, as part of the most well known Peircean semiotic triad, that of icon, index and symbol, are determined by an existential link between the sign and the object – are characteristic of realist discourse. In opposition to an icon, which resembles the object, or a symbol, which

depends on being decoded through the interpretant, an index is not based on any feature of the representamen. An index needs to be surprising in order to be distinct from the insignificant reality that surrounds it. In the realist discourse the symbols – the code-based conceptions of objects – 'degenerate' into icons, the images of imminent crisis. The only way to interpret the malfunction of the system-based orders of objects is by taking it as an iconic sign of the malfunction as such. Reality in realism is not taken for granted, it is a manifestation of unacceptable interpretations that demand a correction. The indices then take the role of the 'attention vectors' guiding the thought through the crisis-ridden iconic dispersion of the archive of the symbols. The indices provide a way out. The 'metonymisation of metaphor' and the 'realist media' are typical realist phenomena: for instance, money ceases to be part of the symbolic order and begins to signify a unique and concrete situation in its worldly continuum. What is realistic is the flow of reality through time, not its reflection (the icon of crisis). The realist symbol does not exist, only the symbol *in potentia* as a pluridirectional index is possible. The order within the network of indices is iconic, and additionally shifted to a meta-poetic level: Geppert calls this semiotic move a 'metapoetic allegory',[20] of which the most prominent example is the image of the (realist) 'way'.

For Geppert, realism is the art of the interpretant, which is why the relationship of the realist sign to what Peirce calls 'the {Final/Immediate} Interpretant'[21] is never guaranteed or given. Realism consists of propositions that can be affirmed or denied. Realist media are claims about what really exists and possesses an immediate relevance. Dicent signs[22] are parts of a continuous chain of inferences. The realist argument, that is, a sign from the point of view of correct or incorrect reasoning,[23] is the 'incomplete induction', the progressive testing of hypotheses as presented in Peirce's theory of inquiry. 'Late realism' regularly sways into *aporias*, the no-way-out situations (*Ausweglosigkeit*), however without breaking out into other modes of signification.

'The pragmatic narrative' and 'late realism'

A demonstration of Geppert's Peircean interpretation of realist novels lies beyond the scope of this article. The 'pragmatic narrative' ('pragmatisches Erzählen') touches upon all aspects of a realist work: Geppert even demonstrates regular semiotic movement in the titles of realist novels, for instance, the dynamic continuous movement of the meaning encoded in the ordered pair of the red and the black in the title of the Stendhal's

novel. Some sort of reverse perspective is to focus on 'late realism', which, for Geppert, is situated on the margins of realist discourse. It is possible to show that Dickens's novel *Hard Times* (1854) is an archive of voices (in the Bakhtinian sense) of characters and the different narrators (see Vaupotič). Geppert himself identifies a communicative discontinuity in the text/reader relation in Dickens's *Our Mutual Friend* (1864-65), where for almost one half of the novel the reader lacks the clues to understand the reality behind the characters' pretences (Geppert, *Der realistische Weg* 463). In this case, strangely, the reader, too, is separated from the voices in the novel. Each of the voices in a late realist narrative is autonomous, placed next to all others, equal in value, and irreducible to any unified system-based order, such as is attempted in the scheme of Zola's naturalism. The novel becomes a space of dispersion that resists unification and movement itself.

This apparently counters Geppert's thesis that the spatial dispersion, which is a sign of crisis, regularly turns into a pragmaticist continuous progression, akin to scientific inquiry. The novel is a continuous path from one crisis to another, all born from a retro-semiotic constellation of dysfunctional codes. The meaning is produced through allegory, which Walter Benjamin once enigmatically explained as:

> Just as a mother is seen to begin to live in the fullness of her power only when the circle of her children, inspired by the feeling of her proximity, closes around her, so do ideas come to life only when extremes are assembled around them. Ideas – or, to use Goethe's term, ideals – are the Faustian 'Mothers' (Benjamin 35)

It appears that a late realist novel such as *Hard Times* is at the same time a spatialised archive and a linear narrative – linear progression is somehow forced upon the archive of voices, but is nevertheless brimming with dynamic forces (denounced by Adorno as 'magic')[24] that demand concrete albeit pragmatic answers.

NOTES

[1] Rather than limiting cybertexts to computer-based manipulation of text, Aarseth includes any mechanical textual apparatuses, even, say, Raymond Queneau's *Cent mille milliards de poèmes* (1961).

[2] The notion of arbitrariness should not be construed here in a strict Saussurean sense, since cybertext is not necessarily a social phenomenon.

[3] 'Obwohl der Computer alle möglichen Medientypen, also auch Schrift, darzustellen vermag, operiert er nicht auf der Ebene der repräsentierten Information, sondern auf der ihr vorgehenden von Sein und Nichts, der reinen und deshalb bedeutungslosen Differenz. […] Anstatt Mengen zu bestimmen, bezeichnen Zahlen in [Turing's] Konstruktion

Zustände und halten Gleiches künstlich auseinander. Null und Eins setzen sich in einer Identität von Identität und Differenz ebenso entgegen wie sie in eins fallen, im Gegensatz zur herkömmlichen Mathematik, in der Null von Eins geschieden werden muß. Wer die Maschine im numerischen Feld verortet, verfehlt eine Pointe der Turing'schen Erfindung.' (Link, 44, 45)

[4] Consider, say, the method of principal component analysis as used in biology (see Cavalli-Sforza, Menozzi and Piazza 39ff).

[5] The quantitative leap, the previously unimaginable speed of information processing by means of computation, is itself one of the 'faces' of the signal–semiotic duality. Humans are now able to see regularities that were previously out of reach and could not take part in the understanding of the world. From this point of view the quantitative gain tentatively turns into a qualitative one, as, say, the new 'techno-gaze' redefines the human (see Bovcon).

[6] An aspect of this ambiguity is the difference between the ontological and the epistemological emergentism, or the 'strong' and the 'weak' emergentism (O'Connor & Wong).

[7] On the problem of emergentism in semiotics, see also Brier (1916ff).

[8] The ecocritical approaches attempt to extend the field of consciousness to non-humans such as domestic animals, which, however, merely shifts the point of the split between the semiotic and the non-semiotic.

[9] 'A sign, or *representamen*, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object*. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the *ground* of the representamen. "Idea" is here to be understood in a sort of Platonic sense, very familiar in everyday talk; I mean in that sense in which we say that one man catches another man's idea, in which we say that when a man recalls what he was thinking of at some previous time, he recalls the same idea, and in which when a man continues to think anything, say for a tenth of a second, in so far as the thought continues to agree with itself during that time, that is to have a *like* content, it is the same idea, and is not at each instant of the interval a new idea.' (*A Fragment*, CP 2.228, c. 1897, in *The Commens Dictionary*).

[10] Geppert's concept of literary realism excludes naturalism.

[11] The 'logic in possession' as opposed to *logica docens*, which is learned by study (see the term 'Logica utens' in *The Commens Dictionary*). The Peircean formulation is comparable to the Foucaludian discursive formation.

[12] This is a problematic concept, which has been in its strict 'infinite' version later removed from the centre of Peirce's system (see Atkin).

[13] 'Sofern jedes Interpretans auf "some other possible sign of experience" […] verweist, hat Peirce entscheidende Momente einer "dekonstruktiven" Überwindung des Strukturalismus vorweggenommen; […] Derridas Begriff der "difference" (sic!) kommt einer bestimmten Form der unendlicher Semiose in der Tat sehr nahe. Aber für Peirce wäre es ein sinnloser Gedanke, Wahrheit prinzipiell in die "absence" zu verweisen; auch wenn sie nie direkt "präsent" ist, schon gar nicht in irgendeinem System (eine weitere Gemeinsamkeit), kann sie doch nicht anders als sprachlich-zeichenhaft gefaßt werden.' (Geppert, *Der realistische Weg* 79)

[14] As called by the author of the word *pragmatism*, William James (see Hookway).

[15] According to Geppert, Roland Barthes's 'éffet du reel' reduces the whole of the realist discourse to a single constituent part. 'Dieser Effekt entsteht aber nur dann, wenn man eben einen einzigen singular denominativen […] Objektbezug der Erzählzeichen […] isoliert. Andere Funktionen, z.B die historischen Konkretisationen, aber auch Funktionen

der Reflexion, Kritik, Progression, das "Verbrauchen" der Codes usw. heben ihn auf.' (Geppert, *Der realistische Weg* 129)

[16] Geppert calls it the 'actual interpretant' in order to stress the distinction in relation to the dynamic object in the text.

[17] Here, the contrast between Peirce's and Foucault's positions comes to the fore: Foucauldian spatial dispersion of the archive becomes an unacceptable image of crisis in Peirce's view, which demands an active step on the chosen 'path'.

[18] The triad consists of qualesign, sinsign (token) an legisign (type). An explanation of all of the categories would exceed the scope of this article.

[19] An archive without the strictly systematic order is compatible with Foucault's conceptions of the archive in *L'Archéologie du savoir*.

[20] In his *Abschiedsvorlesung, "Prodigium" und Chaos der "Zeichen in der Welt". Wilhelm Raabe und die Postmoderne*, Geppert points to a possibility of postmodernist-like features of allegoric imagination (which he construes in the sense of early Benjamin) at the poetic level itself, particularly in Raabe's works.

[21] It is used as if it were the immediate interpretant, even though it is located in the distant future as a sort of a Hegelian *Aufhebung* of the totality of semiosis.

[22] The triad of the relations of the sign to the final interpretant consists of rhema, dicent and argument.

[23] Geppert considers the following triad of signs from the point of view of correct or incorrect reasoning: abduction, induction, deduction.

[24] '[T]he theological motif of calling things by their names tends to turn into wide-eyed presentation of mere facts. If one wished to put it very drastically, one could say that […] [Benjamin's] study is located at the crossroads of magic and positivism.' (Adorno 129).

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Nonhuman Intervals: Filippo Tommaso Marinetti's Radio Syntheses[1]

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In his 1933 'sintesi radiofoniche' (radio syntheses) Filippo Tommaso Marinetti explores the conceptual and sensorial density of wireless communication, alternating sounds, noises and silences through a complex use of interruptions and intervals. This essay analyses the theoretical implications of these unprecedented in-betweens in the context of the debates on infra-representational artistic methods taking place at the beginning of the twentieth century. The technologisation of aesthetic production advocated by Marinetti is then framed within the landscape of a post-Bergsonian vitalist epistemology, in opposition to Gilles Deleuze's transcendental interpretation of the avant-garde practices of interruption.

Keywords: aesthetics / art and technology / Marinetti, Filippo Tommaso / Bergson, Henri / Deleuze, Gilles / radio performativity / the art of intervals / technological vitalism

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In this essay, I will try to provide a glimpse on the unstable and variable relation between technicity and literature by a minor case study of Filippo Tommaso Marinetti's 1933 *sintesi radiofoniche* (radio syntheses).[2] It is my hope that this enigmatic work will serve as a provocative articulation of some of the key terms addressed by the Vilenica Colloquium on 'Literature, Science and Humanities', namely, life processes, literary transgressivity and performativity.

The advantage of referring to Marinetti is that his work is immune to the temptations of artistic autonomy and untouched by the conventional dualism of aestheticism and technicism, having abandoned altogether any distinction between art and technology, between expression and action. Marinetti did not formulate his overcoming of the fracture between art and science as yet another post-symbolist, romantic aesthetic infinitisation and absolutisation of art. On the contrary, he envisioned for the avant-

gardes a more radical task, a shift of paradigm, an epistemic discontinuity: the invention of an art-action tuned to the 'life of matter'.

The *sintesi radiofoniche* are a good example of this attitude, since they dismiss any heterogeneity of mass communication and conceptual experimentation, embracing the odd language of 'technological vitalism'. In doing so, they place themselves within an unexplored practice of art, where interruptions and intensifications of energetic flows replace artistic genres and poetic principles. Compared to other radio performances by Marinetti, including his 1932 radio drama *Violetta e gli aeroplani* (*Teatro* 638–656),[3] the *sintesi radiofoniche* have the significant advantage of being abstract and programmatic, thus revealing Marinetti's unconventional approach to technology.[4]

According to Arndt Niebisch, what is at stake with the futurist use of the radio is not an aesthetic innovation but a new relation with the 'nervous system of the listeners': 'the radio *sintesi* do not unfold a complicated narrative, but adopt an absolutely minimalistic aesthetic based on alternating sounds, noises, and silence […]. [W]hat Marinetti tries to affect with his radio *sintesi* is not the critical mind of the audience but the nervous system of the listeners' (343–344). Taking up an idea by Wolf Kittler, Niebisch relates the symbolic function of traditional art to communication noise, which presupposes a hermeneutical decoding by the receivers, and Marinetti's medial practices to a signal technology channeled directly, as in Artaud's theatre of cruelty, to the sensorial apparatus: '"Signal" in opposition to "symbol" is a semiotic category that requires no interpretation, but provokes reflexes.' (344)

As declared in his manifesto *La radia*,[5] Marinetti's engagement with radio transmission aims explicitly at creating unprecedented medial topologies and modalities of reception:

> A new Art that begins where theatre cinema and narration leave off […]. Immense enlargement of space […]. A pure organism of radiophonic sensations […]. An art without time or space without yesterday or tomorrow […]. The elimination of the concept or the esteem of the audience which has always had a deforming and worsening influence even on the book. (Marinetti and Masnata 294–295)

The replacement of the standard substantive 'radio' with the playful neologism 'radia' suggests a disjunction between the ordinary social use of technology and artistic sabotage. While the radio is a normalised communication device, 'la radia' requires a distortion of aesthetic categories and experiential habits:

> La radia abolishes 1. space or any required scenery in the theater including the Futurist synthetic theater (action unfolding against a fixed or constant scene) and

> film (actions unfolding against extremely rapid and highly variable simultaneous and always realistic scenes) 2. time 3. unity of action 4. The dramatic character 5. the audience understood as a mass self-appointed judge systematically hostile and servile always misoneist always retrograde. (Marinetti and Masnata 293–294)

Following Friedrich Kittler's ground-breaking inquiries into the history of media connectivity, Timothy Campbell (x) has rescued the notion of the 'wireless' from the 'gray zone between telegraphy and humble genealogies of early radio', outlining the impact on literary structures of Marinetti's appropriation of the logic of communication media. Although Campbell's analyses concentrate exclusively on Marinetti's literary manifestos and *parole in libertà*, his description of the emerging practices of 'wireless writing' grasps indirectly the medial context of Marinetti's radio experimentations. Beginning in the late twenties, a fundamental mutation in medial interconnectivity reframes, together with the nature of radio broadcasting, the relation of speaker and listener, the exchange of inscription technologies and sound, the hierarchy of archival traces and spoken language: 'Once the frequencies in voice transmissions and technological storage converged, sounds could be cut and mixed in montage, resulting in important temporal effects, especially in the field of time manipulation.' (Campbell xii) At this moment 'wireless writing' becomes a matter of frequency modulation, of machinic couplings and spacing, of bodily interfacing.[6]

The *sintesi radiofoniche* and the manifesto *La radia* followed in the footsteps of a heated debate, taking place in the late twenties and early thirties, on the impact of radio broadcasting and new communication technologies on traditional aesthetic practices such as theatre and literary recitations (see, say, Brecht). In his commentaries on Bertolt Brecht, Walter Benjamin has highlighted the technological implications of Brecht's epic theatre – 'The forms of epic theatre correspond to the new technical forms – cinema and radio. Epic theatre corresponds to the modern level of technology' (Benjamin, *What* 6) – and underlined the fundamental changes in the nature of aesthetic perception introduced by Brecht's method of interruption, capturing the 'moment when the mass begins to differentiate itself in discussion and responsible decisions […], the moment the false and deceptive totality called 'audience' begins to disintegrate' (10).

Like Marinetti's 'radia', epic theatre is 'a new art' that implies unusual space-time relations and a transformed attitude by the audience. Yet, unlike Marinetti's vitalist language of 'radio sensations', Brecht's interruptions and *Verfremdungseffekt* are predicated in the context of a pedagogical and humanist Marxist *episteme*, which also explains Benjamin's well known condemnation of Marinetti's futurist sensibility (Benjamin, 'Work' 241–242).

As in Brecht's epic theatre, the central feature of the *sintesi* is the interplay of acoustical fragments and interruptions, intervals and boundaries. This is the logic of Marinetti's 'radia', which corresponds to the non-representational futurist use of the media: the language of the *sintesi* does not presuppose symbols and rhetorical articulations of meaning but a defamiliarising practice of connectivity, deferred movements and setting-in-relation of multiple elements; a landscape of signals and *stimulai*, processes of fusion and spacing of expressive materials.

Most importantly, the *sintesi*'s alternation of intervals and interruptions points to a continuous field of intensity, a vitalist logic of condensation and expansion. Between the acoustical intervals and the interruptions that both separate and connect the multiple segments of the *sintesi* there is not a difference of nature but a difference in degree which can be intensified or weakened, accelerated to the point of absolute variation or suspended in the stillness of repetition. Beyond the appearance of an unsurpassable heterogeneity of elemental acoustic substances and irrational interruptions, we can observe the emergence of a subtle aesthetics of the interstitial, a technological production of new perceptual intervals.

Stati intermomentali

In order to understand the centrality assigned by Marinetti to intervals and interruptions, we need to return to the debate surrounding the temporal experience of presence that was unfolding at the beginning of the twentieth century. According to Henri Bergson – a key influence on Marinetti and the avant-gardes at large – behind the illusory instantaneousness of the present lays the reality of duration, of elastic blocks of temporal segments. These unities comprise a temporal span; they last, because they are tensed up between the immanent polarities of the virtual and the actual, between the powerless past and the active present. These blocks of duration are thin yet dense, since they continuously frustrate the presence-to-itself of the instantaneous and non-dimensional present.

Whereas the Euclidean spatial habits of human reason and perception have privileged representation – a mimetic reproduction of presence, based on the illusion of an a-temporal relationship with the thing represented – Bergson (77) concentrates on the infra-representational intervals, questioning the spaceless non-dimensionality of interruptions: 'In the living mobility of things, the understanding is bent on marking real and virtual stations. It notes departures and arrivals. It is more than human to grasp what is happening in the interval.'

Following this Bergsonian notion of interval, Anton Giulio Bragaglia bases his *Fotodinamismo*, a pioneering technique of avant-garde photography, on the concept of *stati intermomentali* (inter-momental states). According to Bragaglia, the aim of photography is to reveal the non-representational nature of the intervals that constitute everyday gestures, dispelling the illusion of the instantaneity of snap-shot photography.[7] Marcel Duchamp's notion of *infra-mince* (infra-thin) is another modulation of the Bergsonian aesthetics of intervals. In his posthumous notes to the *Large Glass*, Duchamp (n. 135) attacks in a Bergsonian language the instantaneity of present: '= in each fraction of duration (?) all / future and antecedent fractions are reproduced – All these past and future fractions / thus coexist in a present which is / really no longer what one usually calls / the instant present, but a sort of / present of multiple extensions –'. While the visuality of traditional art is inextricably linked to the myth of an 'instant present' – the present of production and reception of images, of interpretation and communication of meanings, of the marketing and taste of artworks – Duchamp's absorption of the Bergsonian logics of infra-representational intervals transforms artworks into non-artistic works of 'multiple extensions': 'infra-thin' objects, works that do not belong to representation and that occupy the paradoxical spatiality of duration. This is the nature of the 'readymades': they are aporetic things that dwell in the perceptual and conceptual 'thinness' of non-representational intervals.

If one wants to contextualise Marinetti's construction of sound intervals one should take into account also the developments taking place in the field of experimental physiology. By relying on technical devices such as the 'chronoscope' illustrated in Wilhelm Wundt's *Principles of Physiological Psychology* (1874), psychophysiological experiments aimed at measuring 'physiological time' – the physiological interval between stimulus and reaction – which questioned the instantaneity of perception and thought. Symbolist writers, painters and composers such as Debussy and Janáček were fascinated by the experiential territory revealed by the discovery of the non-instantaneousness of perceptual mechanisms (see Steege). What was happening during these short, and yet dense, intervals? Marinetti's *sintesi radiofoniche* are yet another example of this subtle art on the in-between.

Interruptions

Marinetti's first *sintesi radiofonica*, *An Acoustical Landscape*, is made of three blocks of sounds: a fire's crackling, a water's lapping and the whistle of a blackbird:

An Acoustical Landscape
The whistle of a blackbird envious of the fire's crackle ended up putting out the water's whispery gossip
10 seconds of lapping.
1 second of crackling.
8 seconds of lapping.
1 second of crackling.
5 seconds of lapping.
1 second of crackling.
19 seconds of lapping.
1 second of crackling.
25 seconds of lapping.
1 second of crackling.
35 seconds of lapping.
6 seconds of blackbird whistling (Marinetti, 'Radio Syntheses' 416).

The crackling lasts constantly for 1 second while the lapping follows a dramatic *crescendo* and *decrescendo* (10, 8, 5, 19, 25, 35 seconds) ended by the abrupt whistle of the blackboard. This *sintesi* presents the basic elements of Marinetti's radio language: although the three sounds can be erroneously interpreted as heterogeneous materials separated by differences of kind, they function as differences in degree of emotional intensity. In order to achieve this effect, Marinetti transforms the lapping into a repetitive interruption, the five 1 second segments. These interruptions are at the same time connectors and modulators of the degree of intensity of the lapping. Instead of a flow of punctiform heterogeneous materials, we are now experiencing an assemblage of acoustical repetitions and variations.

In the second *sintesi*, *Drama of distances*, the alternating occurrences of soundscapes from distant geographical regions and environments – the military, entertainment, everyday urban or rural life, religion – are assembled without distinct interrupting intervals, following a strict rule of repetitive unities of 11 seconds:

Drama of distances
11 seconds a military march in Rome.
11 seconds a tango being danced in Santos.
11 seconds of Japanese religious music being played in Tokyo.
11 seconds of a lively rustic dance in the Varese countryside.
11 seconds of a boxing match in New York.
11 seconds of street noise in Milan.
11 seconds of a Neapolitan love song sung in the Copacabana Hotel in Rio de Janeiro (417).

In this instance, the communal element is the medium of radio itself, the flowing continuum of radio waves. Radio broadcasting 'immensifies

space', but it does so artificially, by coupling and modulating differences. What is at stake is the logics of intermediality, the power of connectivity of radio transmission.

In the third *sintesi*, *Silences speak among themselves*, Marinetti's medial constructivism becomes overtly complex and the distinction between intervals and interruptions becomes blurred: is silence interrupting sounds of vice versa?

> *Silences speak among themselves*
> 15 seconds of pure silence.
> A flute's do re mi.
> 8 seconds of pure silence.
> A flute's do re mi.
> 29 seconds of pure silence.
> A piano's sol.
> A trumpet's do.
> 40 seconds of pure silence.
> A trumpet's do.
> An infant's wah wah.
> 11 seconds of pure silence.
> An eleven year old girl's stupefied ooooh (418).

As the blocks of silence and the musical and human sounds vary according to a *crescendo* and *decrescendo* of time patterns – 15, 8, 29, 40, 11 seconds of 'pure silences' – it becomes increasingly difficult to distinguish between repetitions and variations, modulations and qualitatively different segments of musical instruments. Given the abstraction of silences and the singular concreteness of human voices, it is also impossible to establish differences of kind between forms and contents, structural and thematic elements. What is clear is that we need to grasp the differences in degree of the emotional life-space constructed by the 'radia'. A paradoxical reversal takes place: silence is not the empty background filled in by the fullness of media communication; quite the opposite is true: the apparently triumphal efficacy of interconnected global networks rests on the fragile foundation of virtual silences that 'speak among themselves', penetrating and overcoming the barriers of human and technological communication.[8]

The *Battle of Rhythms* intensifies the exchanges between interruptions and intervals, between silences and sounds:

> *Battle of Rhythms*
> *A* prudent and patient slowness expressed by means of the tap tap tap of water drops first cut off then killed off by
> *A* flying elasticity composed of arpeggios of piano notes first cut off then killed off by

A loud ringing of an electric doorbell first cut off and then killed off by
A three minute long silence first cut off and then killed off by
A toiling key in lock tat rum ta trac followed by
A one minute long silence (419).

Here, each acoustical segment is first 'cut off' and then 'killed off' by the following segment. What this means is that each block functions initially as an interruption, and then as a dense interval. Furthermore, an acoustical segment can be 'slow' or 'elastic', 'loud' or 'silent' – the tap of water, the arpeggios of piano, the three minutes of silence[9] – thus showing a variety of intertwined spatial and temporal characteristics. Not only is there no difference of kind between interruptions and intervals, silences and sounds, but also quality and quantity, time and space, are technologically coupled, assembled by the machinic performance of the 'radia' and addressed to the listeners as a mysterious field of pulsations.

The fifth *sintesi*, *Building a Silence*, reveals the foundations of Marinetti's topological constructivism:

Building a Silence
1) Build a wall on the left with a drum roll (one half minute)
2) Build a wall on the right with trumpeting – shouting – auto tram a squealing of capital (one half minute)
3) Build a floor with the gurgling of water in pipes (one half minute)
4) Build a ceiling terrace with the chip chip srschip of sparrows and swallows (20 seconds) (420).

Here, Marinetti avoids any distinction between intervals and interruptions. Since their difference is in degree, intervals and interruptions are hinges, devices for folding and shaping space-time phenomena. Consequently, each acoustical material – drum rolls, auto tram squealing, gurgling water, bird's chip chips – is used as a joint, a turning point for building the ideal 'infra-thin' artificial environment: silence.[10]

Entre-deux

The *sintesi* are sound collages, constructivist montages, assemblages of silences and acoustical *objects trouvés* infused with a modernist sensibility for unmediated conceptual structures and *readymade* materials. As such, they follow a minimalist cubist aesthetics and pave the way for John Cage's radio music and *musique informelle*. Yet, because of their primary concern with the articulation of interstices and cuts, they also belong to a more specific lineage of avant-garde experimentalism that has from

Bertolt Brecht to Jean Luc Godard emphasised the use of gaps and interruptions:

> The interrupting of action is one of the principal concerns of epic theatre […] often its main function is not to illustrate or advance the action but, on the contrary, to interrupt it: not only the action of others, but also the action of one's own. It is the retarding quality of these interruptions and the episodic quality of this framing of action which allows gestural theatre to become epic theatre. (Benjamin, *What* 3–4)[11]

In Gilles Deleuze's ontology of 'irrational cuts' – grounded in Godard's cinema theory, which is in turn directly influenced by Brecht's *Verfremdungseffekt* – Benjamin's uncovering of Brecht's interruptions is radicalised, becoming the central device for reconstructing the logic of modern cinema. Like Marinetti, Deleuze is immune to Brecht's Marxist humanism and pedagogical tenets, and develops his conception of the 'in-between', the *entre-deux*, on a purely vitalist terrain. In his two-volume study on cinema, the arguments culminate in the theorisation of a 'method of irrational cuts' that generates an 'interstice between images'. In the cinema of Rohmer, Dryer, Bresson and Godard, 'the question is no longer that of the association or attraction of images. What counts is on the contrary the interstice between images, between two images' (Deleuze, *Cinema 2* 179–180).

What matters for Deleuze is a peculiar movement: not a locomotion but a process of becoming, a power of transformation whose driving force is localised in the 'transcendental field':

> What is a transcendental field? It is distinct from experience in that it neither refers to an object nor belongs to a subject (empirical representation). It therefore appears as a pure a-subjective current of consciousness, an impersonal pre-reflexive consciousness, a qualitative duration of consciousness without self. […] The transcendental field is defined by a plane of immanence, and the plane of immanence by a life. (Deleuze, 'Immanence' 4)

In the transcendental field, life is 'a life', events take place at absolute speed in an empty time, in the non-representational duration of a non-human interval: 'This indefinite life does not itself have moments, however close together they might be, but only meantime (*des entre-temps*), between-moments.' (5)

At least apparently, Deleuze follows Marinetti in developing a refined logic of the in-between, conceived as an *organum* for vitalist art practices. And yet, Deleuze separates sharply interruptions from intervals, attributing to cuts and ruptures the task of relating the finite and the transcenden-

tal fields, the actual and the virtual. Because of this architectural function, interruptions for Deleuze are not intervals, and they are not mutually exchangeable. They join and disconnect segments by cutting and penetrating the empirical plane. However, their power originates from an intensive field that we must not confuse with everyday perceptual experience. Interruptions for Deleuze are in-betweens understood as a pure power of differentiation of the transcendental field.

As a result, Deleuze's descriptions of the in-between presuppose a topology of interruptions that is incompatible with Marinetti's exchanges of cuts and intervals. Deleuze's logics of 'irrational cuts' is a method for intersecting immanence and transcendence, absolute life and relative movements: the pure, void intensive Outside and the impure territory of worldly phenomena. A line of escape, not an interval (Deleuze and Parnet 37, 39).

The Deleuzian in-between is an autonomous and incommensurable cut not coordinated with the beginnings and ends of other blocs of life; not exchangeable with intervals. This is, according to Deleuze, the logics of avant-garde art and cinema:

> The modern image initiates the reign of 'incommensurables' or irrational cuts: this is to say that the cut no longer forms part of one or the other image, of one or the other sequence that it separates and divides. […] The interval is set free, the interstice becomes irreducible and stands on its own. (Deleuze, *Cinema 2* 277)

The transcendental non-dimensionality of the Deleuzian in-between requires a theology of the Outside, an ontological Void that sustains all the operations of irrational cutting:

> Because of the method of the BETWEEN: 'between two actions, between two affections, between two perceptions, between two visual images, between two sound images, between the sound and the visual' […] the whole undergoes a mutation. […] The whole thus merges with that Blanchot calls the 'force of dispersal of the Outside', or 'the vertigo of spacing': that void which is no longer a motor-part of the image, and which the image would cross in order to continue, but is the radical calling into question of the image. (180)

We may try to imagine how Deleuze would have approached Marinetti's *sintesi radiofoniche*: their 'primitive' interruptions, their use of raw sounds and unpredictable cuts, would have been understood as the evidence of an irrational interstitial power, the trace of an absolute freedom of becoming, the signal of a line of flight leading to the superior life of the machinic intervals, the life of a 'spiritual automaton'.

And yet, the density of Marinetti's silences – which are never a void and never produce a 'vertigo of spacing' – and the thick dimensionality of

the *sintesi*'s cuts – with their constant exchange of intervals and interruptions – suggest that, contrary to the Deleuzian in-betweens, Marinetti's intervals *do* 'form part of one, or the other, sequence that they separate and divide'. For this reason, in order to approach the *sintesi*'s nature, we must reach a vitalist and yet post-Deleuzian conception of the in-between, envisioning a topology of intervals able to grasp and articulate Marinetti's non-transcendental geometry of interruptions. That is, we need to elaborate a truly vitalist critique able to decipher the language spoken by the 'radia'.[12] Unfortunately, we are still quite far from this objective. What we have instead are a few hermetic objects, such as Marinetti's *sintesi*, which encourage a yet to be articulated theory of their puzzling artistic life.

NOTES

[1] The essay is a modified version of Luisetti, 'A Vitalist Art'.

[2] Filippo Tommaso Marinetti's 1933 *sintesi radiofoniche* are five short experimental radio compositions which date back to Marinetti's late futurist period and coincide with his *Manifesto futurista della radio*, also known as *La radia*. The scores for the *sintesi radiofoniche* have been originally published in August 1941 in the journal *Autori e scrittori* and later in Marinetti, *Teatro* 629–637; recently, they have been translated into English by Jeffrey T. Schnapp (Marinetti, 'Radio Syntheses'). The *sintesi radiofoniche* have never been broadcasted by Marinetti; a 1978 recording by composer Daniele Lombardi is included in the CD *Musica Futurista: The Art of Noises 1909–1935* (LTM Recordings, 2006). The audio files of this recording are also available online: http://www.futurismo.altervista.org/audio.htm (7 May 2012). For information on other performances of the *sintesi radiofoniche*, see Fisher, 'Futurism' 245.

[3] For a history of Italian radio aesthetics, see De Benedictis.

[4] Marinetti's experiments with recorded sound begin in 1914 with a series of recordings of poetic recitations carried out in a London recording studio. His interest in the medium of radio dates back to futurism's beginnings but starts carrying over into the realm of practice in the mid-to-late 1920s. During his 1926 tour of South America, Marinetti makes repeated appearances on Brazilian and Argentine radio stations. These are followed by sixteen years of active collaboration with the Italian national radio (the EIAR), founded in 1928, which involve everything from declaiming aeropoems, to serving as a live action commentator of major events like the August 1932 return from the United States of Italo Balbo's flying squadron, to hosting a regularly broadcast radio bulletin on the activities of the futurist movement (Marinetti, 'Radio Syntheses' 415). On Marinetti's and the futurists' engagement with radio, see Fisher, 'Futurism' 229–262.

[5] The *Manifesto futurista della radio*, co-authored with Pino Masnata, has been published on 22 September 1933 in the Italian newspaper *Gazzetta del popolo*. The manifesto appeared as *Manifesto della radio* in *Futurismo* (1 October 1933) and as *La radia, Manifesto futurista dell'ottobre 1933* in *Autori e scrittori* (August 1941). It is now available in Marinetti, *Teatro* 769–774, and in Marinetti and Masnata 292–295. The manifesto was followed in 1935 by a 44-pages unpublished exegesis by Pino Masnata. Translated excerpts from this exegesis will appear in *Modernism / Modernity* 19.1 (2012). On this gloss, see Fisher, 'New Information'.

[6] Timothy Campbell (91) addresses Marinetti's literary 'simulation of wireless functions' and the deficiencies of his 'translation of sense data into their written analogue'. In my essay, I approach Marinetti's medial logic without privileging the literary field.

[7] On Bergsonian intervals in Bragaglia's *Fotodinamismo futurista*, see Luisetti, *Una Vita* 119–138. Bragaglia (34) quotes the previous passage on intervals from Bergson's *Introduction to Metaphysics*.

[8] The role played by silences in Marinetti's radio *sintesi* trails from Enzo Ferrieri's 1931 manifesto, 'Radio as a creative force'. Ferrieri, Artistic Director for Italian radio from 1929, 'introduced the seminal idea that the source of radio's true, paradoxical power derives from silences' (Fisher, 'New Information').

[9] On this three minute silence, see De Benedictis (66).

[10] For the role of silence as the minimal, 'keyed-in unit of spacing', 'necessary for one sound to be joined to another', see Campbell's pages on Sergi's measuring of the gap between unities of excitation (70–72).

[11] On the structural affinities between Brecht's epic theatre and Marinetti's theatrical techniques, see Coda.

[12] Given the hegemony of transcendental paradigms in Western thought and aesthetics, a vitalist critique may benefit more by looking eastward, for instance at Chinese thought and art, where the 'subtle', the suspended complexity of virtual and yet real experiences, of immanent gaps between the present and the absent, has been for centuries at the center of philosophical and artistic practices: 'There are various angles from which the subtle becomes accessible to experience. In aesthetics, for example, there is the exquisite flavor of the barely perceptible, whether in sound or image, in the transitional stage between silence and sonority in music or between emptiness and fullness in painting, when the sonic or pictorial realisation is barely evident or on the verge of vanishing […]. All Chinese practices derive from this.' (Jullien 25)

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The Culturalist Ideology in Literary Theory: From a 'Critical' Theory of the Performative to a 'Topical' Conception of Performativity

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The age-old gap between humanities and sciences is being cynically bridged by the neoliberal subjection of both humanist and scientific theory to expert knowledge, in the humanities mostly to cultural studies, a key source of which is the conception of performativity. The article sketches the process leading from Austin's proto-theoretical 'nomothetic' exclusion of literature from his theory of the performative to Butler's ideological 'idiographic' grounding of her conception of performativity in literature.

Keywords: literary criticism / speech act theory / performativity / cultural studies / ideology / neoliberalism / performativity

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In this essay, I will examine the institutional effects of the theory of performativity. The institutional framework of this theory – the university and research institutions in the core countries of the stagnant US systemic cycle of accumulation – is currently one of the strategic targets of neoliberal austerity measures. What might seem as a policy of cutting funding for the humanities on behalf of science is merely a humanist projection of the policy that is forsaking theory, basic research, be it humanistic or scientific, for expert knowledge, the opposite of theory: science is being increasingly commodified for the production of things, and the humanities, for the production of people, which is more and more threatened by the production of things. Information technology, the military-industrial complex and the pharmaceutical industry instead of science; human resource management, area studies and cultural studies instead of the humanities (and social sciences). The gap between the humanities and science, which has

been postulated ever since Aristotle's *Nicomachean Ethics* (see book VI; see also Yu 8–23), is thus being bridged shamelessly by capital. It is the commodification of cognitive production that has sublated this gap between the humanities and science by redoubling it within both poles as a gap between theory and ideology. This gap, this lack, and not some positive predicate, is what unites science and the humanities today.

In conditions of commodified cognitive production, the institution of university presents its employees with the injunction to render their products quantifiable, publishable in hegemonic, increasingly for-profit (see Peekhaus; Striphas; Sterne 1861–1863) journals, handbooks and readers, which have become 'outlets for the publications demanded by the corporatized university' (Discenna 1845; see also Peekhaus 582, 592, 594, 587, and Striphas 9–10). This injunction was reflected, subjectivated and legitimised by the natives of postmodern commodified cognitive production by the motto *Publish or perish!* (which was critically echoed in Lyotard's [xxiv] 'be operational […] or disappear', but also analysed in the context of academic publishing by Waters, Drew 66 and, say, DuBoff). Like *Your money or your life!*, which is Lacan's (212) model of an alienating alternative, this alternative between publishing and perishing alienates its addressee into the institution: *Publish!*, the signifier that forms an opposition only with its absence, perishment, thus signifying the signifier as such, publication, interpellates its addressee as the subject of knowledge, of the chain of signifiers that the empty signifier, *Publish!*, signifies and rules.

The university is therefore forced to equate knowledge with publications in hegemonic journals, and the alternatives to knowledge with non-being. Among these alternatives, theory as an extreme alternative is far more marginalised than the simple idiosyncratic absence of knowledge at the other extreme. For the same commodification that overdetermines the university presents theoretical practice with its own forced alternative: theory can be practiced either within the university institution or in the ever fleeting spare time of a precarious cognitive worker; theory is thus forced to choose the institution that is in turn forced to equate theory with non-being.

The conception of cultural translation as the hegemonic notion of culture

In the humanities, theory is to a large extent being forsaken for cultural studies, which largely remains 'on the sidelines' during the corporatisation of the academy despite the 'unique theoretical and analytical resources the

field has at its disposal for exploring the relations among media texts, institutions, apparatuses, and audiences' (Striphas 18); or rather, in order to avoid technological determinism and resolve the contradiction one should say that it stays on the sidelines due to the fact that, as Thomas Discenna (1844) shows for communication studies, the 'focus on culture is predicated on the erasure of labor'.

In the case of literary studies, researchers are faced with the dilemma of accepting either culturalisation or marginalisation. As a typical institutional framing, the dilemma has, again, the structure of a forced alternative, compelling literary theory to die either by or into cultural studies, that is, to either give way to it or to become it. Insofar as literary theory accepts the dilemma, it seeks its niche in a culturalised reading of literariness, which reduces the latter to a textual device and supplements it with the so-called social context, as if this context were not just another text, thus making this supplementation a mere Hegelian *Verstellung* of the problematic of text. This compromise between literariness and culture leads literary theory to the bad infinity of discovering allegedly literary features in non-literary discourses and, in the last analysis, to blurring the line between the literary discourse and its own.[1]

As any forced alternative, the dilemma formally abandons theory, immanent thought, for ideology, the apparent obviousness of the right choice; yet this dilemma does this in its content as well, as it forces theoretical practice itself out of literary studies. It can be suspended, however, by abandoning the institutional perspective and tackling cultural studies as a theoretical rather than institutional practice. Rather than confronted from an external, institutionally competing viewpoint, cultural studies should be analysed theoretically; they should be grasped as a pre-theoretical, ideological – and hence institutionally hegemonic – practice. With this end, I will address one of the epistemological nexus of cultural studies, Judith Butler's theory of performativity. Since Butler's accounts of performativity and elaborations of Homi Bhabha's notion of cultural translation, translation has become, as Hito Steyerl notes, 'a model of time-space, of geopolitical relations, of postnational identities, and ultimately even a metaphor of culture itself' (Steyerl). I will try to show that this practice of popularising cultural translation is pre-theoretical insofar as it fails to analyse the historical conditions of its own reflections on its object and, hence, to consider its own position of enunciation and constitute itself as a theoretical practice.

Austin's much-disputed separation of the social effects of literature from the illocutionary force of speech acts was unproblematically, non-dialectically, undone by cultural studies. The social effects of literature are

grasped by cultural studies with the notion of performativity, whose most influential articulation was proposed by Judith Butler (Gorman 98; Miller 222). Her analogy between performative utterances and artistic performativity has been applied (Sedgwick 23–29) – or at least revised (Fischer-Lichte 37–41; Miller 233–235) – in many recent accounts of literature's social dimension. Moreover, twenty-one years after its original publication, even Shoshana Felman had to reintroduce her own ('admirable and admiring' [Cavell 53]) 1980 study on Austin and *Don Juan* against the backdrop of Butler's performativity (Felman ix–x). To the hegemony of the notion of performativity attests even the fact that the encounter between cultural studies and the Austin-inspired literary studies ended in favour of the former: the unknowing encounter between Mary Louise Pratt and Judith Butler – the former diminishing, in 1986, the subject of enunciation of Austinian peformatives to the Western man of modernity without referring to cultural studies (Pratt 62),[2] and the latter reducing, two years later, the performative to performativity without mentioning Austin (Butler, 'Performative' 519–522) – resulted in Pratt's move to cultural studies (in 2004, she even co-wrote, with Ron G. Manley and Susan Bassnett, a study on *Intercultural Dialogue* for The British Council).

In his theory of the performative, Austin discovers a class of utterances that do not reproduce logical positivism's difference between subject and object, but produce intersubjective relations. But far from simply adding performatives to constatives, Austin discovers that, like performatives, constatives can under certain conditions do the act they name. Hence, he degrades the constative/performative opposition into a 'special' theory of the performative within the 'general' theory of speech acts (Austin 147). According to this theory, each utterance has the locutionary force of uttering a sentence, the illocutionary force of producing intersubjective relations by this utterance, and the perlocutionary force of affecting subsequent utterances. Given the illocutionary force, which was designated, in the 'special' theory, by the notion of performative, Austin classifies speech acts as verdictives, exercitives, commissives, behabitives and expositives (Austin 150–151).

Derrida recognises in Austin's concept of illocutionary acts all the features of his own concept of sign: its independence from the original discursive (the signified; the presupposed author and addressee; the metaphorical and metonymical relations with the rest of the text; the text's code) and extra-discursive context (the referent; the sender and receiver with their chronotopes), and its consequent dependence on the history of its enactments. But this similarity is, according to Derrida, just a backdrop for the fundamental difference, his own *différance*. Austin is said to

regard locution as a contingent expression of the illocutionary formula, and not as its structurally necessary and potentially changing embodiment. Austin's price for this independence from locution is, for Derrida, dependence on unisemy guaranteed, for Austin, by the conventional context and the 'serious' (Austin 9, 27) intention. And included in this price is Austin's dismissal of jokes, citations and literature as 'etiolated' (22, 92n1), 'parasitic' (22, 104), failed speech acts. According to Derrida, the possibility of this failure, etiolation, is a necessary possibility that makes any speech act precarious and hence meaningful, non-redundant.

Butler, as I will try to show, misreads this necessary possibility as necessary actuality: for her, every speech act is always already etiolated. Every speech act is sooner or later 'aesthetically reenacted' (Butler, *Excitable* 99), resignified, reappropriated by the addressee. Aesthetic discourse, which was painstakingly expelled, by Austin's 'nomothetic' science, from the theory of the performative, is now equally painstakingly elevated, by Butler's 'idiographic' conception, to the very notion of the performative.

The 'performative contradiction' of the legal institutionalisation of universality

Butler tries to provide theoretical arguments for institutionalising universality beyond legal institutionalisation. In her analysis (Butler, *Excitable* 88–90), the law necessarily particularises universality because it must censor, in the name of universal rights and liberties, any utterance that prevents its addressee from uttering. (For example, from the legal perspective, hate speech discredits in advance the utterances of its addressees; the 'coming out' in the military jeopardises the *lien social* among military personnel; and pornography depicts members of certain social groups as unworthy of uttering.) If the law were to protect such particularist utterances on behalf of universality, it would conduct a 'performative contradiction' (88). If the universalist law is to avoid such a contradiction, it must ratify only universalist utterances. But according to Butler, it is precisely by shunning a performative contradiction that the law falls prey to the contradiction of universality, which lies in the notion that universality is precisely a process of ratifying, universalising, non-universalist utterances.

In positing universality beyond its institutional, legal notion, Butler refers to Hegel's critique of Kant's formalist distinction between subjective categories and the objective world. According to Hegel, the individual participates in universality inasmuch as s/he subjectivates the objective sphere of customs, *Sittlichkeit*. For as alienated into this sphere consisting

of the family, the civil society and the state, s/he can be recognised within the community of other subjects of *Sittlichkeit*. Participation in universality is guaranteed by participation in *Sittlichkeit*. But since Butler views contemporary societies as multicultural, she claims that today, universal recognition demands the work of cultural translation: since it is no longer possible to either universalise a particular culture or define a universal trait of cultures, the universalisation of recognition depends on cultural translation. (Butler et al. 20–21, 24–45, 35, 172) Multiculturalism is said to require a practice of translating between the particular and the universal, a politics of translation that would recognise all particular identities as participating in universality and hence universalise the institutionalised universality. In short, it seems that the politics of cultural translation amounts to the politics of recognition.

It is now clear that Butler equates *Sittlichkeit* with the cultural sphere. Only after this equation can she derive universality, whose material existence is for Hegel *Sittlichkeit*, from the cultural overcoming of cultural differences, which are supposedly characteristic of contemporary societies. This equation, however, is a regression in relation to Hegel. In Hegel, not only does *Sittlichkeit* universalise both abstract law and its universalisation in morality, but also, in the sphere of *Sittlichkeit* itself, the state universalises both the family and its universalisation in civil society. So when Butler returns to the sphere of culture, accusing the state of rigidity, her reliance on *The Phenomenology of Spirit* and *The Philosophy of Right* (Butler et al. 172) is illegitimate. Granted, the latter text does envisage such a return from the state to civil society, since it views the universalisation that propels the family/civil society/state triad as more than a linear negation of the first two spheres by the third one (Theunissen 21, 25ff). But this return is by no means neutral or without consequences for universality: it proves regressive as soon as *The Philosophy of Right* is read with *The Phenomenology*,[3] in which the state, far from negating civil society, overdetermines it, rendering any return to civil society regressive.

In order to interpret culture as more universal than the state, Butler has to read Hegel's philosophy of right without considering *The Phenomenology*, without addressing the latter's letter – according to which *Sittlichkeit* structurally precedes, rather than follows, morality – or, more importantly, spirit – the dialectics. She reduces the negation of the family and civil society by the state to a mutual dependence of all three institutions of *Sittlichkeit*. She does that so as to reveal the dependence of the state's legal apparatus on the norms of the family and civil society (for example, the dependence of the legal definition of universality on the patriarchal homophobic politics [Butler, *Excitable* 62–63, 23, 22, 93]), and then to deploy this hinging of

the state upon culture in her struggle against the hegemony of the existing state (Butler et al. 174–175). But in my view, this struggle for elevating the legally unrecognised identities to the status of legal subjects is effectively a struggle for globalising legally defined relations of capitalist exploitation. Butler's reading of Hegel neglects that negation (of the family and civil society alike by the state) is irreducible to mutual dependence (of these three spheres), as the negated sphere (say, the civil society defended by Butler against the state) is overdetermined by the negating one (the state). This is why her demand that universality be a process to come, not merely a sphere already institutionalised in the modern nation-state, is overdetermined by the viewpoint of the contemporary state, which is precisely the institutionalised regression of the nation-state to the identitary community.[4] Her anti-étatism is the anti-étatism of the contemporary state itself, her regression is the regression that is the contemporary state. Defending civil society amounts here to exposing it to the logic of capital.

Butler's theory of performativity is probably as much informed by Derrida's reading of Austin's speech-act theory as it informs current debates on speech acts in general and on art in particular. And yet in her account of hate speech, Butler finds Derrida's philosophical meditation on the conditions of possibility of a speech act as unsatisfactory as Bourdieu's sociologistic radicalisation of (Austin's own [Butler, *Excitable* 24]) conventionalism. However, this view is hardly a disjunctive synthesis that could negate the very presuppositions unwittingly shared by the two opposing options. Rather, Butler disavows this opposition by proposing the notion of the 'social iterability of the speech act' (147–152), thereby deploying Derrida's category of iterability for her multicultural critique of the nation-state.

Hate speech as an iterable speech act

Butler believes that hate speech can be rearticulated by its addressees via 'aesthetic re-enactment' and other transgressive acts that do not need to resort to the state apparatus. Moreover, by censoring hate speech, state apparatus are said to disable this rearticulation. She can believe this because she interprets hate speech as the illocutionary act of threat, the act that brings about a temporality that can be brought to a close only by the threatened act as the perlocutionary effect of the threat. In this interval between the threat and its realisation lies, for Butler, the opportunity to subvert hate speech (11–12, 15, 40, 41, 101–102, 125–126), the possibility of the threat's misfiring (69).[5]

Now, the perlocutionary effects of a threat or, say, a promise, are much less institutionally mediated, and hence much more in the hands of the utterer, than those of a marriage or a verdict. The reason for this is that the same goes for the felicity conditions of these illocutions as classified by Austin (14–24). Hate speech can be viewed as a result of a Benvenistean (239–246) delocutive derivation of a verdictive: from a word that metaphorically designates its addressee as having a certain property (say, his/her national, sexual or religious identity) is with continuous, conventionalised use derived a homonym that designates its addressee as the addressee of that word. Far from describing its addressee, hate speech makes him or her hateable, addressable by hate speech. Just like *to okay* means simply 'to say: "Okay!"', *Idiot!*, far from being a diagnosis, means 'I call you "Idiot!"' If called 'Idiot!', a person is designated not as someone who fits the description that the word *idiot* makes (whatever that description may be), but as someone who is called an 'idiot' (and as such fits the only pertinent description).

Consequently, Austin's felicity conditions (A. 1) and (A. 2) are in this case satisfied by definition: there is a conventional procedure with a conventional effect, and the involved persons and circumstances are appropriate, as they are retroactively constituted by the very invocation of the procedure. Due to this invocation, utterance, the threat is also executed correctly (B. 1) and completely (B. 2). The four conventionalist conditions are hence easily met. And the remaining two, the intentionalist conditions – the sincerity of (Γ. 1) and subsequent adherence to (Γ. 2) the speech act – need not be met at all, for even without them the act is not a misfire, but merely an abuse. Butler seems to forget here that a threat, an utterance about the rift between illocution and perlocution, can only be abused, and not misfired.

Thus, in the absence of state censorship anyone can make a threat. And anyone who happens to be on the winning side of a concrete struggle can execute a threat, thereby satisfying the condition (Γ. 2). By warning against censorship, Butler in fact exposes the addressees of hate speech to the class struggle of the ruling class.

She is right in saying that hate speech can be stopped only in the gap between its illocutionary force and its perlocutionary effects, in the rift between what hate speech does as uttered and what it does as a cause of a later event (Butler, *Excitable* 39). And she legitimately applies here Derrida's argument that the possibility of this gap is a necessary possibility that makes any speech act precarious and hence meaningful, non-redundant. Yet while Derrida merely abstains from analysing the institutional conditions of actualising this necessary possibility, Butler recognises

these conditions precisely in a disintegration of the institution of state censorship. She thinks that hate speech will have been subverted already in the process of its free, uncensored dissemination, since it is 'iterable' in Derrida's sense, that is, repeatable and as such prone to subversion. The law, claims Butler (23–24, 41, 125–126, 69), cancels the gap between illocution and perlocution as it defines hate speech (illocution) as conduct (perlocution) and even provides an argument for censoring the illocution. By doing this, the law deprives the non-state identitary groups of the opportunity to rearticulate the speech act of threat before the gap between this act and the threatened act is closed (162).

But as Butler may very well know, it is the neoliberal commodification of the nation-state that itself currently prevents the addressees of hate speech from suspending its perlocutionary effects. In a situation when the addressees is deprived of any legal and social support, one shouldn't say, *A rearticulation of hate speech by its addressee is only possible in the absence of censorship*, but, on the contrary, *Only a rearticulation of hate speech by its addressee is possible in the absence of censorship*. And Butler's critique of the nation-state actively contributes to such a situation. And this attack does not seem to lose its force despite the economic crisis in which multinational capital is by now externalising its costs to entire nation-states: 'To be protected from violence by the nation-state is to be exposed to the violence wielded by the nation-state, so to rely on the nation-state for protection *from* violence is precisely to exchange one potential violence for another.' (Butler, *Frames* 26)

Cultural translation's disavowal of the rigidity of hate speech

In my view, the addressee is forced to rely on the option of subverting a threat only after a bigger threat, that of dismantling the legal and redistributive state apparatuses, has been realised. Only after the institutional sanctions against the illocutionary act of threat are no longer an option, a suspension of the act's perlocutionary effects becomes a real, even the only, option (which is of course no option at all). But at that point even the institutional measures necessary to sanction the perlocutionary effects become unavailable (the only option literally becoming a non-option). As soon as an individual has to suspend the perlocution, it is too late. Butler fails to see that we can prevent the realisation of a threat only if we treat the threat as always already realised, and silence it. Her politics of allowing the dissemination of hate speech in order that it be aesthetically subverted in its iterability (Butler, *Excitable* 144–145) disavows the fact that only institutions can rearticulate rigid designations, to which hate speech,

as Butler herself knows (28–31, 99), pertains (in all possible worlds, *Idiot!* means only 'I call you "Idiot!"'). As a result of a delocutive derivation, hate speech is inherently institutional, inscribed in the national language, which is why it can only be rearticulated institutionally. A rigid designator cannot be subverted without a transformation of the institutions that give the material existence to the belief in the object of such a designator. There is no rearticulation without the institution, so any attack on the institution on behalf of rearticulation is effectively an attack on rearticulation itself.

This is why Butler has to disavow Derrida's point: in her reading, iterability guarantees for the changeability of the sign's meaning (Butler, *Excitable* 3, 82n32), not for the persistence of the sign's conventional meaning despite the changeability of its original context (for this persistence, see Colebrook 198–203). Paraphrasing Octave Mannoni's formula for fetishistic disavowal (Mannoni), her disavowal can be summed up as *I know very well that hate speech is a rigid designator effective in every possible world, but all the same I believe that it can be rearticulated without, and only without, institutional intervention*. Moreover, if, in Derrida, the possibility of a speech act is conditioned by the potentiality of etiolation, failure, Butler reifies this potentiality into actuality: Derrida is said to see in 'the failure of the performative' (Butler, *Excitable* 151) – and not in the performative's 'possibility […] to be "quoted"' (Derrida 16) – 'the very force and law of its emergence' (Derrida 17; Butler, *Excitable* 151). Note also the following transition from 'a risk of failure' to 'a failure': 'Derrida […] argues that there is a conventionality and a risk of failure proper to the speech act itself ([Derrida] 15) – a failure that is the equivalent to the arbitrariness of the sign.' (Butler, *Excitable* 150)[6]

Only if each case of hate speech is always already misfired, can it be subverted by its addressees without their having to resort to institutional sanctions (Butler, *Excitable* 19, 69). Her appropriation of Derrida's deconstruction of Austin (3, 25, 32–34, 51–52, 144–145, 165n3, 182n32) is ideological, it is a case of contemporary expert knowledge on the individual's management of the social effects of identitary utterances. Unlike Derrida, Butler raises the question of the social conditions of the meaning of an utterance, but she finds the answer in iterability as the law of performativity (Butler et al. 27–29), that is, in the very iterability the postulating of which allows Derrida to dodge the question itself. Her answer regarding the conditions of a performative is performativity, that is, she equates conditions of a phenomenon with its essence instead of studying its conditions precisely in order to avoid contemplating the mystery of its essence. She answers by way of tautology the question of the conditions of what she calls a 'tautological' (25–27) act of symbolisation. Hence, her account of her object reproduces this object – which makes it an ideological account.

The absence of institution in Butler's analysis of hate speech uncannily fits the absence of institution from the list of sincerity conditions of the speech act of threat. Her argument therefore reproduces its own object. It fails to consider the material efficacy of absence; it neglects the fact that the very action it suggests, the disintegration of legal and social institutions, contributes to bridging the gap between the act of threat and the threatened act. This omission of the absence of institutional suspension of hate speech, this consideration of but the existing institutions such as contemporary US law, indeed makes possible, if not necessary, the conclusion that such a consideration is insufficient (Butler, *Excitable* 13; see also Butler et al. 14) and the belief that the iterability of speech (its proneness to rearticulation by repetition) is by itself a guarantee of rearticulation. Because this argument refuses to analyse the institution, it follows the institutional logic of disavowal and belief. Because it rejects the nation-state as the institutionalised social bond that censors hate speech, it helps promoting hate speech itself to the status of the social bond of contemporary identitary communities. The supposedly essentialist, naive, totalitarian, etc. belief that classless societies are possible has effectively been abandoned for the belief that societies already are classless.

Conclusion: From the Performative to the Signifier, From the Utterance to the Institution

If Derrida radicalises Austin's possibility of etiolation, of a performative's failure, into a necessary possibility, Butler reifies it into a necessary actuality, into an unavoidable non-institutional subversion of the institution. Yet by believing that individuals themselves can turn this necessary possibility into a necessary actuality, by disavowing the institutional overdetermination of this turning, she reproduces the very institutional practices – disavowal, belief – that are the object of her critique.

So, instead of following Sedgwick (23–29) or, say, Felman (ix–x) in their adherence to Butler's etiolations, or even Miller (233–235) and Fischer-Lichte (26–36) in their revisions of Butler, we should grasp etiolations as rigid designators, empty signifiers, which we can subvert only by subverting their institutional legitimisation, only beyond the horizon of the atomised addressee, as suggested by Austin's own forsaking of logical positivism's subject/object pair for an intersubjective model of communication. This would allow us to conceptualise not only hate speech acts but also such speech acts as *Publish or perish!*, thus making our practice a reflexive, theoretical practice.

NOTES

[1] An attempt to save the concept of literariness from culturalisation was recently made by Marko Juvan (123–140).

[2] Stanley Cavell (52–57, 61–63, 75–77) demonstrates that by conceptualising speech as act, Austin rejects the metaphysical word/I opposition. Austin (9–11) illustrates this metaphysical hypocrisy with Euripides's Hippolytus, who revokes a promise saying that he had promised with words but not with his heart. Cavell (61–63) concludes that for Austin, the I is but an effect of the given word. Then he goes on to ask how Austin could have missed the fact that the very plot of *Hippolytus* enacts the impossibility of separating the I from the word. A possible answer is implied in Cavell's above-mentioned conclusion itself: if Austin had read *Hippolytus* as a text on the impossibility of undoing the effects of the given word, he would have had to admit the redundancy of his own critique of Hippolytus's hypocritical attempts at this undoing. Austin thus criticises, prohibits, the impossible, the paradigmatic example of a prohibition of the impossible being of course the prohibition of incest, which institutes the subject of the signifier. Hence, Austin's I, for whom it is both impossible and prohibited to revoke the given word, is the subject of the signifier, the Lacanian other side of *cogito* – and not the *cogito* as the positive *res cogitans*, into which Pratt substantialises the utterer of a speech act as she embodies it as the Austinian man of Western Enlightenment (which was in literary studies already done by Stanley Fish's [243–244] Derridean claim about Austin's ideology of referentiality).

[3] As in Simoniti's (110) afterword to Honneth, a proponent, like Butler, of the Hegel of recognition, who explicitly rejects Hegel's institutional view on *Sittlichkeit* (Honneth 63–80). See also Ernesto Laclau's objection to Butler's appropriation of Hegel's dialectics of *Sittlichkeit* (Butler et al. 296).

[4] In his critique of the conception of cultural translation and its belief that the law functions by way of excluding identities from its domain and can as such be universalised in these identities' struggle for recognition, Rastko Močnik (206n32) writes, 'the universal is articulated in juridical terms, it is abstract and formal. The content from which it is abstracted is not this or that identity – it is the relations of production and exploitation'.

A broader account of the neoliberal turn in the second-wave feminism's anti-étatism is given in Fraser 107–113.

[5] For an account of literary censorship in the transition from socialism to post-socialism, see Dović.

[6] This substitution of the necessary actuality for the necessary possibility of etiolation, of 'social iterability' for 'linguistic iterability' (Butler, *Excitable* 150, 152), allows Butler to maintain her belief in the rearticulation of hate speech by its addressees. In her discussion with Laclau and Žižek she believes quite literally: '[A]ttacks by one's enemies can paradoxically boost one's position (one hopes)' (Butler et al. 158). The sentence goes on in the same register of belief: Butler claims that this 'hope' is especially legitimate when the broad public refuses to identify with the enemy attacks, but instead of providing us with an analysis of conditions of the very difference between the public and our enemies, she offers us her belief in Derridean iterability (157–158).

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Theoretical Practice in Innovation-driven Research Environment

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The political assault on pure science and theoretical production imperils the very foundations of both 'soft' and 'hard' sciences. What positions are scientists taking towards the changing conditions of research? I will look at the epistemological position and self-reflection in scientific practices, the material conditions of research (particularly publishing and scientific impact measuring), the responses to external demands and the social positioning of science.

Keywords: epistemology / scientific practice / the topical method / the material conditions of research / publishing / scientific impact measuring

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In this article, I will try to shed some new light on the age-old question of possible epistemological convergences between the so-called 'soft' and 'hard' sciences: the humanities and social sciences on one side and natural sciences on the other. Relations between the two kinds of science have so far been understood rather as discrepancies between two rigid systems of knowledge, that is, as the difference between nomothetic and idiographic sciences. However, the recent political assault on 'pure science' and theoretical production in general seems to imperil the very foundations of both kinds of science.[1] Simultaneously, the whole research milieu is changing: from the university, which is constrained to submit to corporate governance and to engage in market-oriented 'services', to research institutions, which are pressed to justify their existence by providing innovations for enterprises. All these transformations are supposed to improve the global competitiveness of states. At the same time, exceedingly quantitative selection criteria for funding or personnel decisions are being introduced under the aegis of the so-called 'scientific excellence', that is, the international competitiveness of local scientists. Academic publishing, a decisive institutional setting for presentation, distribution and exchange of research findings, is being taken over by profit-driven multinational corporations, which impose their own conditions on the access to pub-

lishing. These external pressures pose a series of questions, specifically the questions regarding the epistemological position and self-reflection in scientific practices, the comprehension of material conditions of research work, the responses to external demands and the social positioning of science. I see these questions as closely interrelated: the capacity of scientists to analyse their own material conditions of research and to take a stance towards these conditions depends on their epistemological positioning. And vice versa, if scientists are not capable to cope with their own conditions of research, with what other task can we entrust them?

Counter-epistemology in social sciences

The notions of nomothetic and idiographic science were introduced by Wilhelm Windelband in 1894 as part of his critique of positivism; however, the debate itself goes back to Giambattista Vico and his polemics against Cartesianism as the critical method of the Moderns, which Vico contrasted with the topical method of the Ancients. G. H. von Wright described nomothetic sciences as examination of events that repeat themselves and can be anticipated; such events can be moreover isolated with the aim of carrying out experiments whose observation may engender scientific general laws. On the other side, idiographic sciences such as historiography study transient events, which we comprehend in the form of description. Wright (6) stressed that Georg Simmel compared historiography to theatre and defined the method of comprehending past events as empathy. During the modern age, the prestige of the nomothetic approach give birth to many new disciplines by annexing research areas that initially 'belonged to' the idiographic sciences (in this way, the nomothetic sociology 'appropriated' the field that had been covered by historiography). Rastko Močnik (188–191) even claims that social sciences are a compromise formation resulting from the pressure of the Galileian paradigm upon the humanities. However, tensions between nomothetic and idiographic sciences not only stem from competing scientific disciplines implementing one approach or the other, but they are also inherently present in every research or scientific work. The success of every discipline and of each research depends on a suitable combination of both approaches.

Idiographic sciences recently responded to these tensions with what seems to be a counter-attack based on Clifford Geertz's anthropology and his 'native's point of view' approach. Geertzian perspective has probably been the most widely accepted approach in the humanities since the publication of *The Interpretation of Cultures* in 1973, with an impact comparable

to the impact of Saussure's linguistics (published in 1916) upon structuralism.[2] Geertz's idea that we can speak about societies only in their own languages, and that theoretical apparatuses invalid our comprehension of the functioning of societies, disqualifies the use of sociological approaches or 'reified' concepts such as structure, class and class struggle in the humanities. Traces of this disqualification can still be found all over the spectre of the humanities, including literary studies, historiography and, say, cultural studies. In Geertz's 'counter-epistemology' *isolated and fixed social representations* are presumably the only acceptable intermediaries in research examination. As a consequence, his approach impedes the basic principle of idiographic science, due to which Vico called this science the 'topical method', according to which concepts should be able to provide a meeting point of various possible perspectives on a certain problem as well as space for their confrontation and comparison. Needless to say, this particular 'post-Geertzian' epistemology also takes for granted a vision of society as consistent and pacified community in which only 'soft social divisions' may exist (Breznik 285). Epistemology is therefore also a political statement.

As a consequence, Geertz's epistemology is helpless when confronting the teleological viewpoint that is currently imposed upon science by the ideologies of 'innovation', service to industry, economic efficiency and the like. By removing the topical method from research, this viewpoint renounced the dialectical comprehension of human affairs, which is the most important contribution of the humanities to the interchange between nomothetic and idiographic sciences. Topical or dialectical approaches were a solid impediment against the teleological ideologies that easily undermine scientific efforts. After having given up these approaches, the humanities gave way to the 'spontaneous ideology of scientists' (to use Louis Althusser's concept) that frequently manifests itself as the idea of 'progress'.

It is precisely by way of the idea of progress that capitalist interests can grasp the scientific practice, something they are doing very efficiently at the moment.[3] It would be short-sighted to consider the ideology of progress merely as a 'spontaneous' component of scientific practices;[4] while the ideology of progress emerges as the spontaneous ideology of scientific practices only in specific and well determined situations,[5] it is the dominant ideology of the apparatuses of capitalist state: it secures the unity of scientific ideological apparatuses and articulates them onto other apparatuses of the capitalist state.[6] State apparatuses rigorously enforce this ideology and accelerate the re-orientation of scientific work into innovations for the development of the capitalist articulation of productive

forces. Looking at the European Commission's latest administrative creation, *Horizon 2020*, or at the latest Slovenian national research strategy, *Drzna Slovenia* (Daring Slovenia), we see that the politics of the European Union and its national epigones compel science to work exclusively on innovations as economic factors for raising economic 'growth' (concealing the fact that economic growth actually means securing and increasing profits for capital owners).[7] In this framework, the humanities and social sciences are assigned the task of pacifying conflicts that inevitably arise from the 'innovative' restructuring of the labour processes and generally from exploitative and repressive relations produced by economic growth itself; the humanities and social sciences are being encouraged to specialise in identity ideologies in order to maintain social cohesion for the accumulation of capital.

Old and new revolutions

The material conditions of research work, especially in the publishing area, are now being redesigned so as to comply with the idea of progress. The development of worldwide establishments for the publication, distribution and exchange of printed texts was certainly a great leap forward, but this development hardly guarantees access to printed texts greater than in the early modern print culture. Academic publications (the so-called 'academic electronic publishing') are restricted to the members of universities that can afford to pay expensive subscriptions, while remaining inaccessible to the majority of scientific workers. Similarly, access to literary and other printed works is increasingly restrained due to progressive dissolution of public cultural programmes. The new models of publishing impose a certain elitist social position of science. Moreover, these models dictate a certain 'epistemology' (focusing on novelty, experiments and innovation), prescribe research topics (such as social 'cohesion' and 'exclusion', 'identities', etc.), or, according to Bill Cope and Mary Kalantzis, bring 'epistemological disruption' into scientific work (see Cope and Kalantzis). It is therefore hidden publishing structures that nowadays 'write' scientific articles, novels and poems; they efficiently impose norms upon writers as they assume a neutral look with respect to scientific or artistic practices and operate in a common-sense way, like the forces of nature, not as a product of human decisions and actions.

The new print revolution, electronic digital publishing, is associated with a belief that technological possibilities may open a larger general access to printed works and promote greater social equality. With a brief

digression into Gutenberg's print revolution I would like to show that the persistent belief in technologically determined progress can be problematic. The following case is moreover instructive because it shows that without the topical approach we would not be able to grasp unexpected social correlations.

Let me briefly go back to the fifteenth century, to the time of Gutenberg's invention of print. French historian Christian Bec reconstructed Florentine family libraries from this period on the basis of the inventories of *Magistrato dei Pupilli*. The 'Magistrate of the Pupils' exercised custody over Florentine orphans and maintained a detailed registry of family heritage for each child. This inventory included the list of books of every household, on the basis of which Bec examined which books the households possessed. He divided the inventories into two periods, divided by the invention of print. According to his findings, in the first half of the fifteenth century, family libraries contained a relatively small number of books, which were, however, equally distributed among Florentine households regardless of the economic strength of families. The list of the most frequent works in Florentine households of that period is quite surprising: these were either writings in Italian (with Dante and Boccaccio prevailing) or translations (especially Donatus), while religious books were not as frequent as one might expect. In the second half of the fifteenth century, the amount of books in family libraries as well as the preferences of readers changed. The most frequent authors were Petrarca, Cicero, Dante, Virgil, Ovid, Boccaccio, Donatus and Tit Livy in Latin language, a selection more suitable for educated humanists. The number of small family libraries was progressively decreasing, while big family libraries with hundreds of books appeared in that period. We should know that Italy surpassed even Germany, where the invention of print technology took place, in the number of printing presses soon after their invention; and as for the number of printed books in that period, Florence occupied the fourth place in Europe (Febvre and Martin). Even though the accessibility of printed books in Florence was wide, Bec concludes that after the invention of print, most Florentines had a more limited access to books than during the preceding period, when books had been copied by hand. Only wealthy and well educated individuals could afford printed books, and they were buying a lot of them, particularly in Latin. Additionally, a new cultural barrier appeared with the books printed in Latin, which most people could not read.

Another historian, Samuel K. Cohn, Jr., drew a similar conclusion from his examination of commissions of paintings in testaments. During the first half of the fifteenth century, many people were commissioning

religious paintings *post mortem* for a low price, while during the last years of the fifteenth century, big commissions of large frescos started to prevail, while small commissions almost disappeared.

These two conclusions contradict Richard Goldthwaite's claim that after having lost the world economic leadership in basic products (such as wool), Italy successfully substituted this regression with the export of luxury goods. According to Goldthwaite's interpretation of this substitution, the peak period of the Renaissance arts sponsorship is actually the moment when the first proto-cultural industry was established. Goldthwaite tries to prove his claim by noting that during this period, the share of wealthy population in Florence was greater than in other parts of Europe. However, this argument is correct only if we compare the Florentine wealthy social strata with other wealthy social groups in Europe; that is, the argument holds if we look at the society from the top down. But if we change the perspective and look from the bottom up, a mass of very poor people appears before our sight. The poverty and deprivation of the poor in Florence in 1427 were incomparably worse than the situation of the poor in Great Britain in 1688 (at the presumably brutal beginning of industrial capitalism) or, say, in 1962 (Cippola 5–17). As a consequence, it seems impossible to see in the high Renaissance a period when a considerable portion of the population could participate as consumers on an accessible cultural market. The process would be much better defined as 'conspicuous consumption' by a relatively small social group. From this observation we can draw the conclusion that there is no necessary correlation between artistic prosperity and social equality; various socio-economic and cultural factors (such as economic inequalities, social stratification and learned culture in Latin inaccessible to the majority of people) may generate contradictions between productive forces and relations of production. Technological development may enlarge the group of those who benefit from it, while expropriating many others who have already taken advantage from the 'socialisation' of previous technology. It is also appropriate to note here that the idea of an irreversible and continuous 'civilising process' is illusory; the history of society is actually full of disruptions, and simultaneous heterogeneous processes result in re-compositions and re-articulations of social practices and institutions for which it is not possible to say whether they have anything to do with progress.

Electronic publishing was a revolutionary innovation comparable to the introduction of print technology in the fifteenth century. It is still developing, so we cannot anticipate all possible publishing and distribution models. However, it is already very clear that the new technology, assisted by extra-economic forces such as copyright regulation, will certainly im-

pose new relations of production, which will support the appropriation of technology and its results for individual capital gains. Like print five centuries ago, electronic publishing may have increased the number of its beneficiaries. But it also imperils the general access to published works, particularly by undermining the public library system. Electronic publishing has eliminated the institution of 'public lending', which had been offering general access to printed works. Public libraries are only allowed to offer to their members distant access to e-published works if they pay costly licences. Moreover, copyright holders have the right to limit access to their works to a special group of library members, while being entitled to request exorbitant compensations. Hence, libraries usually restrict the access to their e-collections (academic e-journals, e-books and databases) to the exclusive group of their members. This was inconceivable in the previous period, when public libraries were tightly associated with general access they had to facilitate.

The conclusions we usually draw from our research depend, as we can see, on the perspective we take. There is no objective approach or quantifiable data that would by themselves make possible any reflection without theoretical elaboration, which starts with the first determination of the object of research. The humanities cannot examine human affairs without taking into consideration a plurality of perspectives. This is why a rejection of the topical method exposes research to imprudent simplifications, if not ideological deception.

Science of science and scientific efficiency measuring

In my view, the implicit epistemological position, tacitly imposed upon scientific practices by the new methods of presumably objective evaluation of scientific work as well as by other regulations of academic and research establishments, increases the powerlessness of scientists, forces upon them certain epistemological choices while excluding others, obstructs the production of theoretical *problématique* and imposes ideological problems. It has deep social effects: it radically changes the conditions of research work, decides where and how scientists should publish their research results and atomises scientific communities (Močnik 441–510). Yet so far, the resistance of scientists to the newly imposed regulations has been weak and inefficient, which should be a matter of particular concern, since the erosion of the institutionalisation of scientific practices as a special social field abolishes the institutional separation of scientific work from ideological practices and processes. The production of the *epis-*

temological break is certainly the permanent task of any theoretical practice: however, in the present situation when the epistemological break is institutionally undermined, theoretical practices have to be exercised *against* their institutional conditions of possibility.[8]

The so-called objective evaluation of scientific work comprises several sets of procedures: the quantification of data for measuring scientific efficiency of every scientist by the number of publications and citations; the evaluation of academic journals by their 'impact factor'; university ranking; international innovation scoreboard; and international science ranking. Electronic academic publishing and information management made manageable enormous quantities of scientific data: this technological possibility alone seems to be a sufficient reason to impose the citation index and impact factor as the main elements of the evaluation of scientific work. However, most of other arguments speak against the use of such measurement, as the allocation of research funds and the distribution of university posts have been subjected to these controversial measuring procedures.

Electronic publishing of academic journals brought about numerous possibilities of collecting data from the published articles. It made possible a large-scale use of the citation index methodology. It is important to note that academic publishing is a profit-driven industry with the highest profit rates in the publishing sector. In 2009, three of the top five publishers with the largest turnover were publishers of academic journals (Reed Elsevier, Thomson Reuters and Wolters Kluwer). They have concentrated enough journals to take advantage of the new business opportunity and are now offering to their clients not only journals and articles, but also metadata about authors, publications, citations and impact assessments. Because of this double function of the quasi-monopolistic academic publishing corporations, authors are forced to cooperate with them for two reasons: the main two criteria for the evaluation of scientific work are publications in journals with the highest impact factor and citations of authors in the articles written by other authors for the same group of journals. So the authors have no other choice than to fight for publications in journals with high impact factors and for as many citations of their works as possible, if they want to keep working as researchers or university teachers.

The idea to measure citations in scientific articles, books or conference proceedings originates from the 1920s;[9] gradually, it was developed into 'unobtrusive measures that do not require the cooperation of a respondent and do not themselves contaminate the response (i.e. they are non-reactive)' (L. C. Smith, qtd. in Bornmann and Daniel 45). The citation betrays the information scientists' desire to forge an objective measurement of scientific efficiency. Eugene Garfield, the founder of the Institute

for Scientific Information, argues that this methodology has roots in the history of science (he cites Kuhn's *The Structure of Scientific Revolutions*) and its legacy:

> Certain presuppositions, both historical and sociological, underlie the idea of 'mapping' science by identifying key papers and events through citation analysis. The basic unit of analysis in mapping is the highly cited document. The assumption is that these articles and books are markers for critical scientific ideas or events, taken in the broadest sense. This includes theoretical formulations, speculative hypotheses, experimental results, procedures or methods, and any combination of these. The fact that some documents have been highly cited within a specified time-period confers upon them a special status as providing important 'ideas' in their respective areas or specialties. (Garfield et al. 181)

Citations certainly can, to a certain extent, indicate[10] ideas, procedures, methods and concepts of the current scientific production; for the history of science they are amazing tools for the reconstruction of invisible scientific currents and paradigms. These methods are probably quite applicable in cumulative nomothetic sciences, which rely on up-to-date experiments, procedures and discoveries. However, if we only take rough statistical indicators as information about scientific work, we tend to simplify the available data and reproduce the empiricist notion that all we can assess is there in the presumed objective reality and does not need any further intellectual intervention (which is the problem of Geertz's epistemology). By proceeding in this manner we also imply that scientific publishing in a particular publishing setting with certain power relations and profit-driven motives can be taken as an exact mirror of what we believe to be 'scientific production'. This type of reasoning is obviously very difficult to accept.

However, a crucial question about scientific production remains answered. What separates scientific work from ideology and enables science to make the epistemological break, which differentiates it from ideological practices? Louis Althusser taught us that we must know how to separate what he calls the real object, *l'objet réel*, which exists independently of our thoughts, from the object of knowledge, *l'objet de la connaissance*, which is the product of our reasoning and exists independently of the so-called real object. The two processes belong to different ontological realms: on one side, formation and duration of the real object pertains to reality by the working of natural and historical forces; on the other side, the object of knowledge is produced by our thoughts in accordance with specific cognitive processes that use concepts as their tools of production. Albeit concepts may 'reproduce' real objects, they do not belong to their realm of existence, and perform specific functions in the production of the objects of knowledge. Scientific practice is therefore theoretical production,

a special social production that produces objects of knowledge (Althusser et al. 3–79). This is an initial formal identification of scientific practice that of course needs further elaboration. Moreover, we have to take into consideration that there exist two different thinking processes: ideological and scientific thinking process. This is why we have to introduce the concept of epistemological break as the tool for differentiating scientific thought from ideological thought. This makes the epistemological break a necessary constitutive element of theoretical production.

Garfield and his colleagues took a quite empiricist shortcut and presented citation data as a possible instrument to survey and control scientific practices. This is how they presented their visionary claim: 'At the Institute for Scientific Information (ISI), we operate on the fundamental assumption that citation data can be used as indicators of present, past, and perhaps future activity in science.' (Garfield et al. 179–180)

However, what we can get from citations and the reconstruction of ideas, paradigms, methods and concepts (that is, from science mapping) is a mere factographic description of intellectual activities. This remains an empiricist project that tells little or nothing about scientific and/or theoretical production. It may inform us about the spread of ideas in scientific production, but it can also reveal merely a star system in science or uncover an elitist academic network. Within the framework of Garfield's method we cannot determine the nature of the 'facts' established by that method. The history of science in Garfield's sense yields factographic description rather than an examination of scientific production. In order to examine scientific production, we have to take into consideration the specificity of a scientific practice, and examine the way it produces the epistemological break, which differentiates the 'pre-scientific' history of a particular scientific area from scientific practice proper (Althusser 47). These are probably the minimal necessary steps to approach science as a special social production of scientific objects of knowledge.

Citation data are an amazing rough material for further research in the history of science, but cannot pretend to be an aim in itself. But this is precisely what happened. Since 1982, when Thompson Scientific & Healthcare bought Garfield's Institute for Scientific Information, the company offers a citation index and its derivatives (the impact factor and H-index) for evaluating the scientific work of a scientist, department, university or country. Since then, the supply has been extended: Elsevier offered the SciVerse Scopus Database, and Google offered Google Scholar with free access. Under the influence of well-argued criticism (see O'Segen, Cameron, as well as Bornmann and Daniel, for a review of arguments) the databases have been improved, but only partially: the time span in which

citations are collected was extended from two to five years, and H-index replaced the initial impact factor. However, the fundamental argument against the use of citation data for evaluating research has been put aside.

It is difficult to understand why scientific communities so easily accepted citation data for evaluating research, something that is contestable as a method and inappropriate for evaluating research work. This is surprising because the method itself is probably in many aspects inconsistent with the social science methodology; from the epistemological point of view, it contradicts the basic conditions of science as social practice; from the point of view of the people involved, it jeopardises the very existence and work of scientists. As we have seen, the citation data method combines a number of detrimental features: the weakening of epistemological reflection in scientific production (the question of topical method, the epistemological break); the scientists' incapacity to control and question the changing conditions of work (such as publishing and evaluation systems); and as a consequence, the servile attitude towards external ideological demands and expectations. These features are systematically interconnected and equally harmful to the 'soft' and the 'hard' sciences. They indiscriminately challenge all the sciences to reclaim their social role and to act socially and politically. There is no science without social and political involvement.

What is the proposition on the other side? To answer this question we should look at the final argument why citation data should nonetheless be considered an appropriate method for evaluating research, as it was proposed by Bornmann and Daniel. The authors meticulously present arguments for and against citation indexes. They conclude their examination with an assessment that at the micro-level, at the level of local scientific production, there is a greater possibility that a citation does not reflect the scientific impact of the work cited. Authors more often cite works by authors with whom they are personally acquainted, they may build up reciprocal exchange of citations to help each other, etc. Therefore, the low aggregation level of citation data is likely to produce, according to the authors, results that do not reflect the scientific impact of the work. But at the high aggregation level such distortions disappear, since the highly cited 'work […] is accepted by the relevant scientific community as important and correct (the core of research), and it is more or less uninfluenced by social variables and processes' (Bornmann and Daniel 70). This argument is a real acrobatic feast that makes possible a deduction from all the negative premises valid for local scientific communities a positive conclusion applicable to a larger scientific community, although this presumed larger scientific community consists but of local scientific communities. At the high level of aggregation, where institutional world hegemony really operates, academic con-

nivance and hierarchical conformism are washed out, and, presumably, the truth appears. The truth of the power relations, one should add.

Conclusion: Science on the stock exchange

A quite possible outcome of the processes outlined above is scientific work as an investment on the stock exchange. Publishers have transformed academic publishing into a close equivalent of a stock exchange with a system of quantification and valuation of items such as publication, citation, rejection of articles, impact factor, H-index, etc. The process of 'securitisation' transforms non-monetary values into quantitative values that can enter into the process of monetisation of scientific data. Quantitative values created in this process are exchanged by authors for university posts, research funding, rewards and prestige; the national funders use them as quantitative research funding criteria and as international score rates of national scientific competitiveness; and publishers use them to plunder public funds for education and research. The system seems to work well as it binds its agents together by a network of reciprocal obligations and benefits. Publishers have thus created a binding system of 'monetary dependence' where scientific work itself cannot find its appropriate price.

NOTES

[1] Recently, both the current Prime Minister and the Minister of Science justified severe cuts in the financing of public high education by claiming that Slovenian universities should make a better use of their 'internal reserves' and adding that the average university teacher works four to six hours per week.

[2] A suggestion that comes close to Geertz's idea was formulated by Claude Lévi-Strauss in his 1950 'Introduction à l'œuvre de Marcel Mauss' (Lévi-Strauss). For Lévi-Strauss, Maussian 'total social fact' should be conceptualised both as a 'Durkheimian thing' and as a 'native representation'. It should be noted that Lévi-Strauss proposed a way out of Geertzian dead-end even before its appearance.

[3] I use the wording 'capitalist interests' insofar as these are the real interested party behind the 'state interests'.

[4] In this case, it would pertain to the 'cumulative' phase of a scientific practice located between two 'ruptures' of the theoretical problematic: this is the typical epistemic situation of the applied sciences and also of peripheral practices in those sciences where epistemic 'ruptures' are conditioned by important financial inputs. Applied sciences are favoured by the capital interests in general, while the peripheral practices are politically and institutionally dominant in peripheral zones such as Slovenia.

[5] See footnote 4.

[6] Althusser's thesis that the dominant ideology unifies various ideological apparatuses should be extended into a thesis that the dominant ideology also unifies the field of regional apparatuses such as the scientific ideological apparatus in its various modes of material existence of (scientific) ideology: universities, academies of science, research institutes, etc. In particular, the dominant ideology determines the criteria of financing, the mode of financing (mostly 'by projects', in order to secure efficient control), criteria of recruitment of the personnel and modes of employment of personnel (mostly precarious, in order to undermine the solidarity between scientists and to subordinate them to the requirements of capital and the state). The way how the dominant ideology integrates the scientific field is increasingly in contradiction with the logic of scientific practices: it promotes individualism and competition where practices are collective and co-operative, it imposes short term utilitarianism for capital where practices are in principle long-term and have their own specific criteria of 'utility'. In the EU, integration by the dominant ideology has all but excluded theoretical practices and their agents from scientific institutions (including universities) and from the system of financing. (See Breznik and Močnik.)

[7] For more on the Slovene research strategy, see Žagar and Korsika, eds.

[8] The current tendency of scientific and academic institutions towards the abolishment of the institutionalisation of the epistemological break, that is, of the separation between theoretical and ideological practices, is destroying 'the separation of the principle of power, the principle of law and the principle of knowledge', considered by Claude Lefort as the central and 'unprecedented event' constitutive of modernity and its political emancipation (Lefort 65n8).

[9] For the first documented application of a citation index, see Gross and Gross.

[10] I say 'to a certain extent' because there are various reasons why one cites a certain work, and they do not always reflect scientific impact on the author.

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