Classification, Natural Kinds and Human Kinds

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Overview

1. Recap on Kuhn & Relativism

2. Classification, Realism and Natural Kinds

3. The Construction of Human/Social Kinds

Paradigms & Scientific Progress

- Copernican revolution as an example of paradigm change
- In psychiatry: "Melancholia" and "depression" are not co-extensive (do not refer to the same things), which makes direct comparisons between their respective conceptions and theories difficult.
- Institutional view of art (G. Dickien)?
- Technological revolutions: overhaul of what is appreciated and ability to provide better solutions (not solve puzzles)?

Some (extreme) interpretations and consequences

Idea of scientific revolutions seems to lead to relativism: truth plays no role in scientific progress?

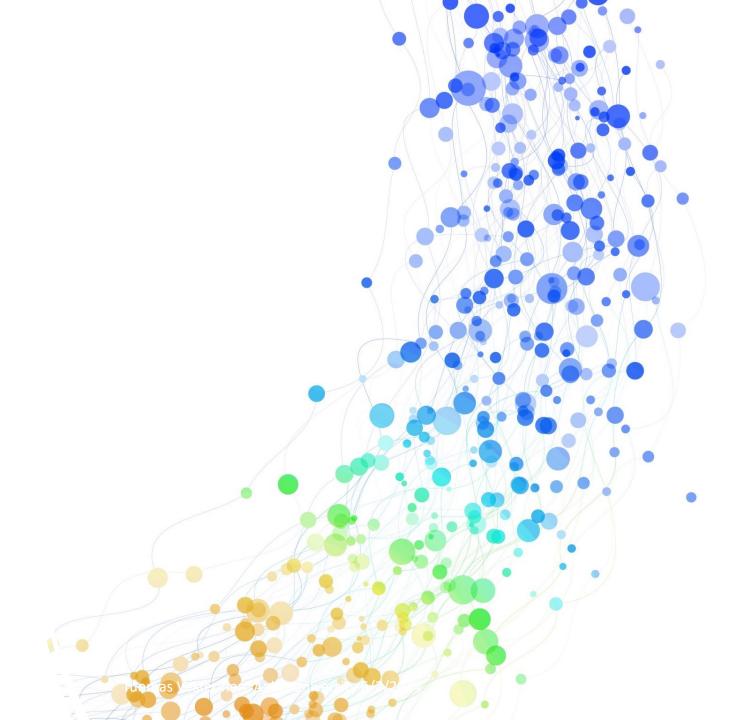
Strong program of science, postmodern approaches & science wars

Alan Shokal's case in 1996

Bruno Latour: Truth is socially constructed?

Paradigms in your field?

- Is there talk of paradigms in your field? How about in technology and arts?
- How is the term used? Does it match Kuhn's ideas?



REALISM and ANTI-REALISM



Most logical positivists were instrumentalists (antirealists): they believed that theories had meaning only as discriptions of observable things



Theory is only an instrument for organizing our observations, postulated *unobservables are not real* (e.g. atom, electron, subconsciousness)



In contrast, realists argue that, for example, parts of physics aim to close in on the truth about sub-atomic entities



Realists argue that unobservable objects of research and classification are real -> natural kinds that our scientific theories classify and explain

Celestial Emporium of Benevolent Knowledge (Found by T. Kuhn according to J. Borges)

- Animals are divided into
- (a) belonging to the emperor, (b) embalmed, (c) tame, (d) suckling pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) quaking as though mad, (j) innumerable, (k) drawn with a very fine camel-hair brush, (l) et cetera, (m) having just broken the water pitcher, (n) that from a long way off look like flies.
- (Cf. "Women, Fire, and Dangerous Things: What Categories Reveal About the Mind", George Lakoff)

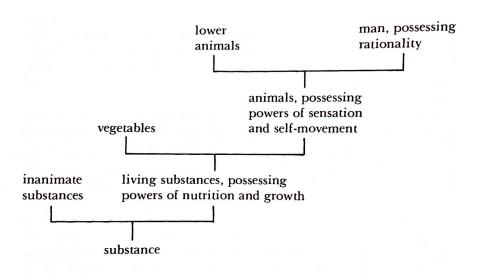
Scientific Realism and Natural Kinds

- Scientific terms or concepts ideally refer to natural groupings or kinds that reflect the natural world
- Plato: "carving the nature at its joints"
- Classificatory concepts enable cognitive capacities: we can gather knowledge of the world
 - Our cognition is not limitless, it does not allow knowing everything
- Natural kinds vs. arbitrary groupings (things on my left side) or social constructs (Money? Race? Gender?)
- Natural kinds support inductions and generalizations!

Aristotle

 "Scientific definition of a species is by genus and difference, and so the definition of the essence of man is 'rational animal'. Rationality, the difference, is "the principle thing in a man's nature," and the properties flow from the difference "as a natural emanation". Accidents are attributes that are not thus connected with the essence: the substance can in principle be without them even when it never is in fact, as crows are never without blackness." (Ayers 1981)

Porphyrian tree



³I quote from T. Spencer: *The Art of Logic* (London, 1628; Scolar Press facsimile, Menston, 1970), ch. xi, pp. 59f.

	С	ARC) L				NI	NÆI		R	E G	NU	J	M	A	NI	N	A A	L E.	
I. (QUAI	ORUPEDIA.		Corps	ar plumofum.	E S. Ala duz. Pedes dug. Femina oviparz.	Restrum offeum.	III. A M P H I B I A. Corpus nudum, vel squamosum. Dentes molares nulli : reliqui semper. Pinna nulla.	Corpu		ISCE				SECTA.	nnis instructum.	V		RMES. ab una parte bali cuidam foli	dæ affixi.
NTHROPO. PER.M. Deste primere 6. urinque : ister state primere 4. urinque : peter multifuli , urguiculari. Peter multifuli , urguiculari.	Homo. Simia. Beadypus. Urfus. Leo. Tigris. Felis. Muftela.	Digiti Samme 4, (Ald.) 5. Scandens. Geleseis (millit: Palles extus politus. Digiti Samme 8, rentribes. Digiti Samme 8, rentribes. Larges sculetts. Larges sculetts. Larges sculetts. Larges sculetts. Larges sculetts. Larges sculetts. Digiti 5, 4, 5, candens. Larges sculetts. Digiti 5, 5, candens. Larges sculetts. Digiti 5, 5, candens. Larges sculetts.	Europsus shefe. A mericinan visible. A mer	188	Falco.	Diglei pedis antici 3. politicus s. Penna a. longifilmm , fingulares , nec sis , nec utopygio infiam, pe dach. Refries exteriores graduim bereiores. Per dech. Refries requiles. Diglei pedis antici a. politici a. Reframa larve. Diglei pedis antici a. Reframa galatum. Per delch. Refr. graciis incurvum. Per delch. Refr. triangulare. Per delch. Refr. triangulare.	Pfitteren. Dividents. Dividents. Dividents. Dividents. Dividents. Dividents. Dividents. Pfitteren. Pfitteren. Pfitteren. Pfitteren. Pfitteren. Dividents. Pfitteren. Pfitteren. Dividents. Pfitteren. Pfitteren. Pfitteren. Dividents. Pfitteren. Dividents. Pfitteren. Dividents. Divide	Teftudo. Gryps: quedrupedium, cuedatum, tellus militarium, cueda de Ballo. Gryps: quedruppedium, cuedatum, digusto deren. Grossia et dellus militarium, digusto deren. Grossia et dellus d	HONDROPTERY- BRAI GIL Pinne Pinne cartilaginess. Brane	Thrichechus. Catodon. Monodon. Balæna. Delphinus. Raja. Squalus. Acipenfer. Petromyzon. Lophius. Cyclopterus.	Desse in urraque maxilla. Derse in pienne. Derse in inferiore maxilla. Derse in inferiore maxilla. Derse in inferiore maxilla. Derse in fingeriore max s; Derse in fingeriore max singeriore maxilla. Derse in urraque maxilla. Derse pienatum. Fersen branch utring, 5. Cerpus còlongum. Fersen branch utring, 5. Cerpus còlongum. Cerpus maxilla derse in utring. Cerpus transch utring. Cerpus transch utring. Cerpus dependium. Ceptus maxilla derse in utring. Ceptus dependium. Persen. branch utring. Ceptus dependium.		COLEOPTERA. Alse elytris duobus teftæ.	Blatta. Dytifcus. Meloč. Forficula. Notopeda. Mordella. Curculio. Buceros. Lucanus. Scarabæus. Dermeftes. Caffida.	5. FACIS SETIANA PACILE DISTING- Bipter concrete. Alls sullin. Assessa truncates. Biptera breviffima, rigida. Cauda sullio-rigido fimplici arrasta. Assessa culto-rigido fimplici arrasta. Assessa truncates. Assessa truncate	Auricularia. Scarab. elaficus. Negatur ab Arifissio. Curculio. Rhinoceros. Scarab. monoceros. Cervus voians. Scarab. pilularis. Medoloutha. Dermelles. Cantharus fafciatus. Scarab, clypeatus.	REPTILIA. Nuda, artubus defitura.	Gordius. Fænia. Lumbricus. Hirudo. Limax. Oochlea.	Corpus filiforme, teres, fimplex. Corpus falciatum, planum, articulatum. Corpus falciatum, planum, articulatum. Corpus falciatum, fuperne convex. tentaculis defitivuum. Topis falciatum, fuperne convex. tentaculis influedum. Zijda univalvis, filiralis, unifocularis.	Seta equatica. Vena Medina. Lumbicu longus. Intellinum tentus. Alexan. Lumbicu latus. Alexan. Lumbicu latus. Alexan. Lumbicu latus. Alexan. Lumbicu satus. Bacclaum. Lutyriuthus. Canifida. Satrombus. Satrombus. Terebellum. Murez. Purpus. Purpus. Canifida. Terebellum. Murez. Trochas.
-	Lutra. Odobænus. Phoca. Hyæna.	Dies 5. Dies 5. Dies 5. Dies 5. Dies 5. Dies 5. Donne intermedi fuprioret longif. Dies 5. Donne intermedi fuprioret longif. Dies 5. Donne dun umbilicales. Dies 5.	Lutra. Roff. Morjut. Canis marinus. Hygena Veter. Vivam Landini najer vi-	GHÆ.	Ciconia. Ardea.	Unguer plant , fubrotundi. Unguis medius inferne ferratus. Rafir. depteffo-planum , apies fubrot.	Ardes.	que de Draconibus , Bafilicis , ac ejufinodi monfitris si viganios i Bobulantur , certé humanum genus terram inhabi- tare vix posset.	flic. carentes, off. & membran,	Offracion. Baliftes.	Pinna ventrales nulla. Cusis dura, fæpe aculeats Denses contigui maximi. Aculei aliquot robatti is dorfo. Membr. branch. officulis 3. Venses laminis offels infir.	Guaperua, Histrix, Caprifcus, Caper,		Chryfomela. Coccionella, Gyrinus, Necydalis,	das. Simplices, clypco longiores, Carpas fubrotundum, dass. simplices, brevissimae. Carpas hemisphæricum. dass. simplices. Carpas beeve, Pedisas positicis faliens. dass. clavato-productas. Ciyrass apacitus, rotundates.	Cantharellus, Cochinella vulg, Pulex aquaticus, Pulex plantarum, Scarabgeo-formica,		Nautilus,	Toffs univalvis, fpiralis, multilocularis. Toffs univalvis, convoluta, rima lon-	Nautilus. Orthoceros, Lituus. Concha Veneris.
	Canis, Melcs. Talpa, Erinaceus,	Olipit . Casale kevis. Casale kevis. Digiti 5	de er deferips ARTED. Canis. Lupus. Squillachi. Vulyca. Taxus. Zibethia. Talpa. Echinus terrefiris. Armadillo.	Os denta	Pelecanus. Cygnus. Anas. Mergus. Graculus.	ager. espectua-plants ager turori. Ager. deperfilm, spire ungicicalito, inferne buris infiructure. Rafer. conico-coavexum. Rafer. conico-deprefilm. Rafer. cylindriforme, spire blunco. Rafer. conicum, spire adunco.	Onocrotalus. Olor. Elder. Anf. Bernicls. Anf. Bernicls. Glaucium. Bofchas. d. Osmif. Penclops. Querqueduls. Mergan. Merganier. Carbo squat. Graculus squat.	PARADOXA. Hydra corpore anguino, pedibus duobus, collis fo peem, & totidem capitibus, alarum expers, affervator Hamburgi, fimilitudinem referens Hydre Apocalyptice 8.5, Jo. AshNe CAP. xii. & xxii. deferipe. Esque sanquam veri a mimalis fpeciem plurimis prabulit, fed fallo. Natura fibi fem per fimilis plura capita in uno corpore nunquam produxit ma turaliter. Fraudem & artificium, cum lpfi vidimus, den tes Ferino-multelini, ab Amphibiorum dentibus diveril, fa	Im que	Zeus. Cottus. Trigla.	Corpus comprefium. Squama (bhaiperm. Squama (bhaiperm. Membrana branch, collic. 6. Capus aculeatum, corpore latius. Appendiess ad pinn. pcct. articulatum 2 vel 3. Operula branch, aculeatu. Cossil vicini in vertice.	Aper. Faber. Gallus mar. Cataphrachus. Scorpio mar.		Attalabus. Cantharis. Carabus. Cicindela. Leptura.	Ani. fimplices, confuredar articulis or bicularious, prater ultim, glocolum 5. Aravanas, Saracas. Ciyyau pianus margine undique promit Liyra flexibi. Ciyyau fetce pianus, margine undique promit Elyra flexibi. Ciyyau cylindracess vel teres. Favray oris prominents. Ciyyau ribirotundus. Pada longi. Ciyyau cylindracess vel teres. Favray oris prominents. Ciyyau fubrotundus. Pada longi. Ciyyau fubrotundus. Pada longi. Ciyyau canus exuminatum.	Cantharis offic.		Haliotis, Patella	gaudinali. Tafa univalvia, patula, leviter conceva, perforata, ad angulum fijralis. Tefa univalvia, conceva, fimples. Tefa univalvia, teres, fimples.	Auris matina.
P GI	Vefpertilio, Hyftrix, Sciurus, Caftor,	dares humanse. Corpus (pinofum. Digiri 4. Canda longiffima lanigera. Digiri 5. Canda horizontalis plana, nuda.	Vefpertilio. Pelis volant Stå. Canta volant Stå. Glis volant Stå. Hyftrix. Sciurus volans.	SCOLO	Colymbus. Larus. Hæmatopus. Charadrius. Vanellus.	Rofer, fubulatum. Pedes infra myuliibr. Rofer, fubulatum. Pedes in myuliibr. Pes 3dast. Roferi upen compressus. Pes 3dast. Roferi upen teres. Pes 4dast. Roferum digitis brevius.	Colymbus. C. minim. Podiceps. Artices. Catasacks. Lavus. Sterns. Pulcator. Pica matina. Pluviai's. Histicula. Capells.	tes Ferino-mutélini, ab Amphibiorum dentibus diverii, fa cilima detexerum. RANA-Piccia s. RANÆ IN Piscem METAMORPHOSI VAIGÉ paradoxa eft, quum Natura mustionem Generis uniu in aliam diverfic Claffis non admittat. Ranæ, ut Amphibiominia, pulmonibus gaudent & offitous fpinofis. Pifers fpinofi, loco pulmonum, branchis indrutuntur. Ergo leg Natura contraria foret hace mustio. Si enim pifera lacia firardus eft branchis, erit diverfius a Rana & Amphibia. Si verò pulmones, erit Lacerta: nam toto caelo à Chondropte versitis & Pieneiri della estato.	am aculente.	Perca. Sparus.	Memb. branch. officul. 7. Pinna dorfales. 1 vel 2. Cercula branch. squamofa. Labia dentes regunt. Denses molares obtinet. Labia craffa dentes teg. Celor speciosus.	Percs Lucioperca, Cernua. Schruifer. Salpa. Melanurus. Sparus. Sargus. Chromis. Mormyrus. Maena. Smars. Boops. Dentes. Erythinus. Pagrus. Aurata. Cancharus. Jušis. Sachettus. Turdus divertar, feecier.	Alle omn	Cerambyx. Bupreftis. Papilio. Libellula.	Cippus ad latera mucrone prominet. Ast. coppus longitudine equant, v. (Cippus fuperna: pundis elevatis notatu Rofram spirale, Ala 4. Canda foliofa, Ala 4. expanse.	Capricornes, Scarab. fylvaticus. [Papilio alis erectis. Piyche planis. Phalæna compteffis. Peria. Virguncula.		Concha.	Tyle bivalvis.	Dentslium. Entilium. Tubus vermicul. Mytulus. Vulva marina. Pholus. Bucardium. Perna. Chama. Solenes. Tellina. Plnna. Odrea. Fedea. Mitella. Pomer.
S. rimores 2. utrinque. multifidi.	Mus, Lepus Sorex,	Digiri 4. Canda teres , Squasficila , hisfier. Digiri 5. Canda breviffirm , villofa, Digiri 5. Denne canine afficiat.	Rattus Mus domelicus bacchiurus macroutur. Lemures. Marmots. Lepus. Cuniculus. Sorex.	or cylindracco- infculum.	Tringa. Numenius. Fulica. Struthio.	Capes pennato critatum. Pes dacht. Raftum digitis brevius. Capes timplex. Pes dacht. Raftum digitis longius. Pes dacht. Raftum digitis longius. Pes dacht. Raftum digitis longius. Pes adach. Shique politico.	Tringa. Ocrophus. Pugnax. Gallinula. Gallinago, Limofa. Arquata, Recurvirofira. Gallinula squatica. Struthlo-camelus.	verò pulmones, erit Lacerta: nan toto celo à Chondropte l'yegiis è Piagiuris diflert. Monocaraci Fetteum, corpore equino, pedibus feinis cornu recho, longo, fiprilitre intorto, Pichorum figmen tum est. Monocora derest ejusinodi cornu gerit, cuteri verò partibus multum differt. Pellecandu rostro vulnus instigens femori suo, ut ems nante singuim fisim pullorum levet, sibulos de bissisme tuditur. Ansam fabula desti faccus sub gula pendulus. Sarvava coudatus, hiritutus, barbatus, humanum re		Mugil. Scomber. Xiphias. Gobius.	Memb. branch. offic. 6. Gapas totum figuamofum. Memb. branch. offic. 7. Pinna doff 1 vel plures. Refirum apice entiformi. Pinna venteales nullæ. Pinna vente in 1 fimpl. concr. Squama afteræ.	Mugil. Gapkelas. Glaucus. Amia. Thynnus. Trachurus. Saurus. Gladius. Gob. niger. Jozo. Paganellus. Apkaa.	PIEKA. ibus datæ, elytris deftit	Ephemera. Hemerobius. Panorpa. Raphidia. Apis.	Canda fetola. Ala 4. erectus. Canda fetola. Ala 4. erectus. Canda cheliformia. Ala 4. Rafir. corn. Canda cheliformia. Ala 4. Rafir. corn. Canda aculeo timplici. Ala 4. Canda aculeo timplici. Ala 4. Canda aculeo partito. Ala 4.	Crabro. Vefpa. Bombylius. Apis.		Lepas.	Toffe mukivalvis. Valvule duabus pluces	
JUMENTA. Destes primeres incerti, canini exerti, validi.	Equus, Hippopotamus Elephas, Sus,	Mamma a inquirales, Podo integri. " Adamma a inquirales (Aripl.) Podo quadrifid. Adamma a pedorales, Podo 5, calu intrudi. Mamma 10, abdominales. Podo bonquiati 2 ano fimplices.	Equus. Alinus. Onager. Zebra. Equus marinus. Elephas. / Khiooceros. bus. Aoer.	Referent conico-incurv	Otis. Pavo. Meleagris.	Pas 3dect. abique politico. Copas gales de palestibus ornatum. Pas 3dect. abique politico. Copar dimples. Pas 4dect. Gapar corolla pennac. orn. Pas 4dect. Press papilla. Gale membrant unica iongitudinali infracta.	Emeu. Tarda, Pave. Gallopavo.	Forms copus, gefficulations value destus, finitation re forms copus, gefficulations value destitus, fisicatifinus Simia feccies ett, fi unquam silquis vilus fuit. Himines quo que Canadri, de quibus recentores pregranteres multa na san qi qifiden generis funt. BOROMETT A. GARUS SCYTHIUTS plantis accenfetur, 8 agos adimiliari ; cui cuilis alteris plante è terra rum que difiniliari ; cui cuilis alteris plante è terra rum que de consideration intra; ichenque fanguine preditus à feri	MALACOPTER:	Gymnotus. Muræna. Blennus. Gadus.	Membr. branch. officul. 5. Finna dorfalls nulla. Membr. branch offic. 10. Tabali in spice rofts. 2. Finna wate. conftant off. 2. Caput admodum dedive. Membr. branch, offic. 7. Finna deril. 2 vel 3.	Carapo, Anguilla. Conger. Fluta. Setpens mar. Alauda non crift. & galer. Blennue. Gattorugine,	and H	Musca, Gryllus.	Stylus sub alls capitatus. Ala 2. Pedes 6. Ala 4. Superiores cyasilores.	Ichneumon. Mufca tripilis. Mufca div. fpec. Oeftrum Fes. Oeftrum Lappenum. Tabanus, Cufex. Teredo nav. Tipula. Formica-leo. Gryllo-talpa. Locuffs.		Tethys.	Cerpus forma variabile, molle, nudum	Baranus marinus.
obtus. Pedes pri	Camelus.	Cerase nucli. Cerase nucli. Gerase nucli, primum pilofa, felida, als apice ercicentia. plumina remda feminis rara.	Just. Aper. Porcus. Babyrouffa. Tajaca. Dromedarius. Bactisious. Glama. Camelopardalis. Cupres. Aris.	um. PAS	Gallina, Tetrao, Columba,	Refer, rectum , ad basin surfuraceum. Nares oblongee , membranula superne instructæ.	1	Filicinia Americania compoditus. Naturalibra rutem eff. Em spy Ocis allegorice descriptus, qui conna data labot attri buta. Processa, Avis faccias, cujus unicum in mundo indivi duum, &c quue decrepia ex ferdi butho, quod fibi ex aro manibus fruxerare, repuerafecte fabulofi ferur, feiticem fubi tura prioris vina periodum. Eft verò Palma Dactylleb Ra. vid. Kempi. Bennicla s. Arees Scottoris & Connela Anattera. è lianis putrida in mare abietis nafe i Vererbus crediture.	YGII.	Pleuronectes. Ammodytes. Coryphæna. Echeneis.	Membr, branch, offic, 7. Pinna ventr. nullæ, Membr, branch, offic, 5. Pinna dorfi à capite ad caudam. Stris transverise, asperce, in su-		clytris definitae, Qu antum individuis conci	Lampyris. Formica. Cimex. Notonecta.	Pedes 6. Clopeus planus. Ala 4. Pedes 6. Ala 4. Cauda aculcum condit Pedes 6. Ala 4. cruciferm. Referem Hylicome, rectum. Pedes 6. quorum pofilis remorum figu. & ufu. Ala 4. cruciferm.	Cimex lectularius. Orfodachne. Tipula aquatica. Bruchus.	ZOOPHYTA. Artubus donata.	Echinus,	Curpus fabrotundum, tefta tectum, acu- leis armatum. Corpus radiatum, corio tectum, fcabrum.	Echinus marinus.
imeres inferiores tantus ingulaci.	Capra.	Cornes furfum verfa.	Captes. Acti. Cervus. Platyceros. Rheno. Raugifer. Alces. Hircus. Libex. Strepficeros. Gusells. Tragelaphus.	frus conico-attenuatu	Turdus. Sturnus. Alauda. Motacilla.	Rafir. parum convexum. Plama rolli bish tegust. Rafir. rectum fuberera. Lingua bifda coines. Lingua bifda coines. Lingua bifda coines. Lingua della Faren ligifcant. Lingua apex bifdus laceratus.	Turdus, Meruls, Sturnus, Alauda, Motacilla; Oenanthe, Merula aquatica,	e lignis puridis in mare abjectis nafe à Veteribus creditur Scot fucun impoliui Lpos internacie fuis penniformibus, 8 modo adherendi, quafi verus ille anfer Bernita inde oriro tur. Danco corpore anguino, duobus pedibus, duabus alis Vefpertilionis inflar, del Laterta alata, vel Raja per arter monitrofe fiche, 6 ficesus. AUTOMA MORTIN HOTOLOGII minimi fonitum cedes in parietibus, ell' Petialus palfastrini dictus, qui ligna perforat, rietibus, ell' Petialus palfastrini dictus, qui ligna perforat.		Efox, Salmo, Ofmerus, Coregonus,	perna capitis parte. Mambr. branch. offic. 14. Membr. branch. offic. 10-12. Cerpus maculofum. Membr. branch. offic. 78. Dents in max. lingu. palat. Membr. branch. offic. 810. Appeadus pinniformis.	Lucius. Acus maxima fquamofa. Salmo. Umbla. Carpio lacuft. Eperlanus. Saurus. Albula. Levareias. Oyyrhynchus.	Quibufdam And nulli- conceffer.	Pediculus,	Pedes 4. Pross chelifera. Al. Crucif. Pedes 8. Pross chelifera, aculeata. Ale 4. laza. Pedes 6. Ansanna capite breviores. Pedes 6. faitatrices.	Scorpio aquat. Scorpio terrefiris. Pediculus humanus. Ped. avium. Ped. pifcium. Ped. pulfatorius. Pulex vulgaris.		Meduía.	Corpus radiatum , corro rectum, rasrum. Gorpus orbiculatum , gelatinofum , fubtus filamentofum.	Stella marina. Stella oligantis. St. pentactinoides. St. polyfactinoid. Urtica marina. Urt. vermiformis. Urt. crinita. Urt. aftrophyta.
m.; Superiores multi.	Ovis. Bos.	Corana retrosfum flexà intosta , rugoia. Corana antrosfum verfa; lanniata , layra.	Ovis vulgarit Arabica Africana Angolenfit. Bos. Urus. Bifon. Bubalus,		Lufcinia. Parus. Hirundo.	Rafir. gracile rectum. Lingue apex bifidus laceratus. Refir. gracile. Lingue apex truncatus , 4 fetis in- fiructus. Rafir. gracile , ad bafin depreffum , minimum : stas amplifimo.	Lufcinia. Ficedula. Entihacus. Troglodytes. Carolina Rasis. Paras. P. caudatus criftatus. Hituado. Caprimulgus.	Tuomas Vesterinen, Aalt	o Ur	Clupea. PXP@IPS †\	Membr. branch. offic. 8,	Harengus, Spratti, Encraticholus, Alofa	E.A.	Monoculus. Acarus.	Pes I. t Antenna bifidæ; Pedes S. articulis S conflantes. Genli 1. Ans. minimæ.	Pulex arbotefs. Swam, Memeulas Bradl, Apas Frifth, Ricinus, Scorpto - araneus, Pedic. Scarabus, Pedic. Scarabus, Pedic. Scarabus, Araneus coccineus,		Sepia. Microcofmus.	Corpus oblongum , interne offeum , anterius octo artubus donatum. Corpus vatiis heterogeneis teclum,	

Birth of the "natural kind"

William Whewell (1794-1866): *Kinds* are the groups that we refer to with our general terms.

John Stuart Mill (1806-1873): *finite kinds* and *real kinds*

Charles Peirce (1839-1914): Laws of nature hold natural kinds together Finite kinds: Have only one thing in common. E.g. all green things, all the things on my left side.

Real kinds: Enable inductive inferences due to shared similarities. E.g. Tigers, chemical elements, planets.



Essentialism and Naturalism about natural kinds

- Essentialist approach defines kinds as natural based on shared necessary and sufficient conditions that are determined by, for instance, microstructure, nature or intrinsic properties
- Essentialist usually argue that natural kinds are upheld by laws of nature (e.g. Peirce, Kripke 1980, Putnam 1975)
- Naturalists defend natural kinds from an epistemic point of view. They stress how natural kinds ground inductive inferences, explanations, and predictions (Mill 1843, Boyd 1989, Millikan 1999, Dupré 1993).

Questions

- What role does classification play in your field?
- Do you employ classifications in your research?
- Are there natural kinds in your discipline?

Classifying humans into groups

- Are classifications in the human scieces different? Are their targets different, humans and social objects?
- Social kinds:
 - Processes: revolutions, economic depressions, wars
 - Institutions: universities, countries, corporations
 - Roles and status: student, single
- Human kinds: gender, "race" and other identities
- Support *limited inductive inferences*



Dynamic Nominalism and Human Kinds (lan Hacking 1936-2023)

- Classification as a process of co-fitting our concepts and the world
- "Perhaps the fundamental difference between the natural and social sciences is that the natural sciences investigate indifferent kinds, while the social sciences are on the whole concerned with interactive kinds." (Hacking 1997)
- But the social world does not offer natural restrictions for different ways of classifying and intervening
- Whereas quarks are stable objects of study,. human kinds or "kinds of people" have a historical ontology contingent on their classifications
- Source of Instability: classification changes the very attributes used in the classification (Hacking 1993: 304)

WHAT ARE HUMAN KINDS? (Raul Hakli)

- Kinds of behavior, act or temperament are human kinds if we take them to characterize kinds of people
- studied in the human and social sciences
- ... about which we would like to have:
 - systematic, general, and accurate knowledge
 - classification that could be used to formulate general
 - truths about people
 - generalizations sufficiently strong that they seem like laws
 - laws that can be used to predict what people will do
 - or how they'll respond to interventions

What are Human Kinds? (Raul Hakli)

- Human kinds are **not** messy natural kinds
 - they will not become natural kinds with the advancement of our knowledge of nature
- Human kinds don't differ from natural kinds because they have to be understood hermeneutically rather than causally explained
- Nor because human kinds are social constructions whereas natural kinds are discovered
 - Facts are socially constructed and the kinds about which there are facts are also socially constructed
 - At the same time these kinds are **real**
 - Still there is an **important** difference between quarks and human kinds ...

WHAT'S SPECIAL ABOUT HUMAN KINDS? (Raul Hakli)

- Human kinds are laden with values. Yet, there need not be evaluation in the causal laws about human kinds
- Human kinds are kinds that people may want to be or not to be, because human kinds have intrinsic moral value
- So, classifying people has real effects on people, it changes them and the causal relations between kinds
- But once people of a kind are changed, scientists and experts have to rethink their original classifications



Examples

Homosexuality

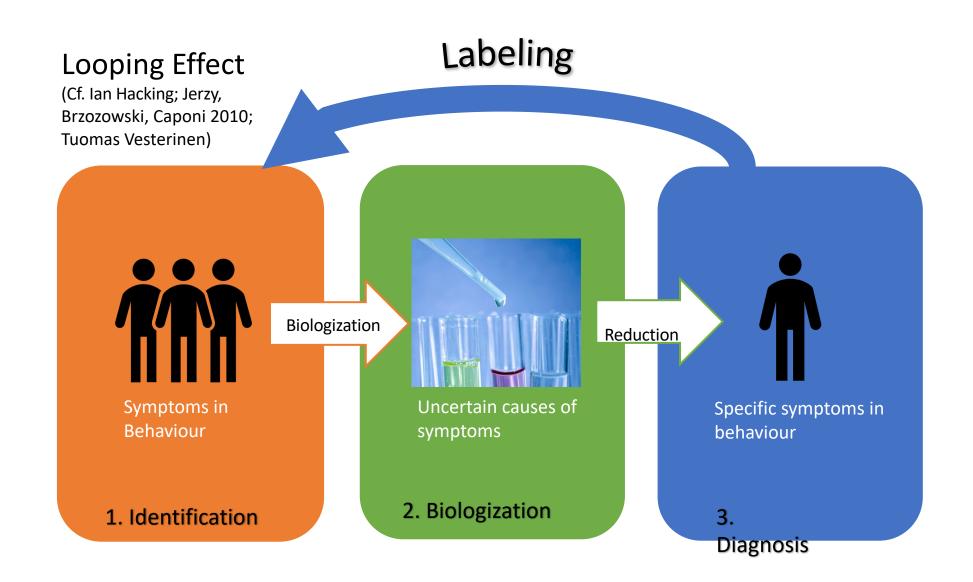
 Becomes a kind of person late in the 19th century when homosexual behavior became an object of investigation

Teen-age pregnancy

- Becomes a relevant kind only around the 1960s; now
- Cultural meaning of the term has changed: early parenting

Child abuse

 Becomes a kind around 1960s with battered baby syndrome, included incest and sexual abuse later on, and then cruel ritual cult





The looping effect

Classification "changes the space of possibilities for personhood"

The Loop: Classifications and the people being classified interact with one another

First stage: Classification, associated beliefs, and the generated actions influence the people being classified (and others around them)

Second stage: Classification may have to be amended to match the changes

The Effect: Destabilizes the kind by rendering it a "moving target"

Psychiatric kinds as examples

When symptoms appear somewhere they may need to be considered as symptoms of a disorders to cluster

May lack the required "conceptual space" for a suffering person: the conception of the normal way to be abnormal

Norm and Norma 1945

Individual has to recognize and interpret her feelings and behaviour as kind-typical and learn the proper reaction

Interactive kind is not just a bundle of symptoms, but a kind of person

For example, when Asperger's was included in 1994, it was thought to be really rare -> turned out to be common

Culture influences mental problems

- E.g. Voice hallucination in the USA, Ghana and India; Depression in Japan
- Latah in South-East Asia
- Taijin Kyofusho: social phobia, ashamed for their bodily functions and appearance.
- Hikikomori: withdrawal from all social contacts
- Mild depression in Japan

Strange Tools (Alva Noë, 2015)

- Hacking (1999: 34) "Looping effects are everywhere.
 Think what the category of genius did to those
 Romantics who saw themselves as geniuses, and what their behavior in turn did to the category of genus itself. Think about the transformations effected by the notions of fat, overweight, anorexic."
- Art and technology do not only model, and describe yourself, feelings etc, but hey change the ways we are organized, provide novel resources for thinking and doing things differently. They alter the way we see ourselves and reorganize our practices.
- Artifact kinds are subject to looping?
- E.g. the developent of music instruments interacted with people, concepts, culture, craft-techniques and materials.



Are there looping effects in your discipine?



What kinds of kinds do you study?



Can you think of a looping effect in science about in design, architecture?



"When I do my practice-led research in a field of craft, should I clarify to myself how my ontological thinking is linked to the idea of natural kinds?

Glass-blowing process (social kind) and the material kind."