In a definition appealing to commonsense, REALISM = belief that there is an objective REAL world existing

independently of us and is knowable by us

* Usually we adopt this view without really questioning it
* EDDINGTON’S TWO TABLES –

2nd – SCIENTIFIC ONE; more recent and not familiar; objectivity and subjectivity don’t matter

* Mostly empty, with a few sparse particles…
* I know its objects are really there and not influenced by my personal prejudices

1st – FAMILIAR ONE; made of objects collectively called ‘world’ appearing in front of my eyes

* Has EXTENSION, it is PERMANENT, COLORFUL and SUBSTANTIAL
* On the other hand it draws heavily from my prejudices and previous mental imagery
* This division has a certain philosophical tradition, since Locke made the distinction between
* PRIMARY QUALITIES: properties of physical objects (basically the second table)
* SECONDARY QUALITIES: effects of PRIMARY ones on the mind
* We recognize a gap between subject and object, which may be unbridgeable
* In general however, REALISM has -> ONTOLOGICAL INGREDIENT (i.e. the world exists independently)

-> EPISTEMOLOGICAL INGREDIENT (we can come to know the

world, which is open to our enquiry)

* Not all realists agree on these two INGREDIENTS (e.g. Locke was a split-realist and believed in the existence of PRIMARY QUALITIES but denied science was able of any knowledge of them)
* Note that there is a spectrum of the notion of observability which affects both our capability of being realist and realism itself
* When we make OVERARCHING CLAIMS through observation (from personal point of view to a ‘’real’’ one), how can we be sure nothing else exists apart from what we see?
* REALISM IN SCIENCE: apart from the two aforementioned INGREDIENTS, this kind of REALISM poses other questions:
* Provided we have access to instruments that make us see otherwise unobservable objects, should we trust them? And what about theoretically unobservable entities like quarks?
* E.g. plate tectonics explain well a vast array of phenomena, but we cannot observe them in principle. Should we rule them out?
* Van Fraassen argues that SC. RE. could accept any visible object whatever its distance (like stars) but ought to reject ‘’invisible’’ entities, such as electrons
* These are questions close to FAITH
* Our THEORIES might work not because of themselves but because of how the world works… How can we be sure that entrusting them is not blind FAITH?

IAN HACKING -> there can be REALISM about THEORIES and one to support the existence of unobservable

Entities

* REAL/ EXISTENT:
* MATERIALISM -> everything is built up of materials that constitute reality (e.g. grains of salt are

ultimately made of atoms)

* What about things we could count on but aren’t made of particles (as the lines of force followed by electrons in magnetic fields)? E. didn’t say it but lines of force don’t exist
* CAUSALISM -> entities postulated possess CAUSAL POWER, which makes them have certain

effects in the world

* We know some entities cannot be observed at all, but these have the POWER to produce observable events (e.g. electrons neutralize positive charge in neodymium bars, and we can witness this in an experiment 🡪 ‘if you can spray them, they are real’)
* We can use events of the observable kind to produce evidence that support the existence of previously supposed ENTITIES
* We don’t even need a sound THEORY to describe these events, as the formers could merely label ENTITIES the wrong way (maybe ‘electrons’ is a nonsensical word); all that matters Is for these ENTITIES to be described correctly
* The profusion of ENTITIES that lie beyond our capacity of manipulation makes us go back to THEORIES…
* We just have to find a way to show how these are justified
* In the end we might say there are true THEORIES if we do not buy Hacking’s REALISM

NB.: TRUE in SC. REAL. -> represent the world as it really is and this can also be beyond our

empirical capacities

≠

TRUE for INDUCTIVISM -> describe what happens empirically

* THEORIES are linguistic CONSTRUCTS, while the world is not -> the description of the world is linguistic, so there could be a CORRESPONDENCE
* The problem then shifts to that of how can we give an appropriate account of the world, so we are not really solving anything. Thus claiming THEORIES can be literally true is very tough
* We may be satisfied with APPROXIMATE TRUTH => a THEORY is not definitive about the ENTITIES it elaborates; we may have incorrect description of these and they can find different ways to show their existence
* With APPROXIMATE TRUTH, THEORIES become sidelines of ENTITIES, which are at the center
* But do we have any method to measure TRUTH?
* PREDICTIONS! -> a THEORY can be considered true if it gives good predictions (a very bad

candidate, since even wrong THEORIES gave some accurate predictions)

* EXPLANATORY SUCCESS! -> a THEORY can be said to be true if it explains things over a long

period of time

* Another bad candidate, since we would have to define what is intended with ‘’long’’ and take into account that some THEORIES might have succeeded for reasons other than TRUTH (such as political interests, widespread beliefs, etc.)
* Pragmatic criteria are thus disputable; however, we are at an impasse;

TRUTH is over-demanding, while REALITY OF ENTITIES (independently of how THEORIES thoroughly represent them) is restrictive. The temptation is that of changing path.

ANTI-REALISM/ SOCIAL CONSTRUCTIVISM: there are no unobservable ENTITIES (e.g. electrons)

* We CONSTRUCT THEORIES about elusive ENTITIES out of commodity to explain events
* THEORIES are just tools for thinking, aiding the scientists at an empirical level
* Thus, they are neither EXPLANATORY nor TRUE

The debate between REALISTS and ANTI-REALISTS (also considered sometimes to be enemies of science and progress) were very polarizing, and at a certain time it would seem as if THEORIES either discovered or made up everything.

* Mind that not every ANTI-REALIST is a SOC. CONSTR. (there could also be radical relativists), but the contrary holds
* THE CONSTRUCTIVIST ARGUMENT
* X, or present X, is not determined

X is a product of intentional human activity

Human activity is not in itself necessary (but it is necessary for X to exist)

------------------------------------------------------------------------------------------------

X is non-inevitable

* If X is CONSTRUCTED, X is what it is because it is the product of contingent activity (i.e. non-necessary). It is not what it is necessarily because of the nature of things.
* We have to admit that a scientist can make a whole set of different choices (just as every human endorses one weltanschauung). The non-inevitability of X is due to X being the product of intentional human activity.
* It is our THEORIES and actions, our history. And biography that make X what it is, and as such X exists for what it does
* Ultimately, non-inevitability of human actions is responsible for the CONSTRUCTIVENESS of X. In X there is no determination
* This can be interpreted to different levels:
* METAPHYSICAL: X = facts of the world
* EPISTEMOLOGICAL: knowledge about X follows the C-Arg.
* SEMANTIC: only the linguistic apparatus of things involved in the previous levels is comprised in

the C-Arg.

* In addition, X could be either 1. Any object (everything in the world)

Or 2. IDEA (concepts, beliefs, THEORIES and classifications)

* In the METAPHYSICAL sense, X = object. Nothing lies beyond the construction. Reality itself is CONSTRUCTED and between objects and our IDEAS of them there are no differences.
* E.g. we CONSTRUCT the IDEA of an electron, but it doesn’t even make sense to ask if there is a thing such as an electron in reality.
* In the two weaker senses, X = IDEA. There are real objects in the world and we CONSTRUCT IDEAS about them. The real world itself cannot be CONSTRUCTED.
* Anyway, C-Arg. Is a threat to the objectiveness of science, especially as in its METAPHYSICAL interpretation, reality can even not exist.
* At least it makes us reflect that the world as we conceive it (and the objects referred to by science) is not given to us, but objects studied by science somehow are always at least PARTIALLY CONSTRUCTED. We look at them via the means we possess.
* However, to follow entirely the C-Arg. Would be a slippery slope

Claiming that objects in science could be both real and invented is not a contradiction!

* Actually, Hacking has opened the debate in this way, with the purpose of retaining elements of both without being radical
* Daston goes in the same direction with her APPLIED METAPHYSICS
* The world of science isn’t a static reservoir of given objects; it is dynamic, made up of objects that came to be and fade away depending on the way enquiries objects became knowledge of science, due to tools for discovering them, interests, etc.
* However, objects are not wholly invented…
* REALITY is a matter of degrees -> phenomena become more or less real depending on how much and how deeply they are embedded with scientific practice
* E.g. preternatural philosophy (regarded as a science) took anomalous, diverging-from-habit things (such as faces in the marble, dreams and so on) as objects of scientific enquiry

All these ceased to be scientific objects but not ceased to exist, just gave away their REALITY as scientific OBJECTS

* This sounds arbitrary (especially thinking that ordinary life cannot be a sufficient criterion for deciding what enters the fray of scientific objects)
* Daston finds no differences between scientific objects, as dreams, mortality, gravity, tuberculosis and the soul are all partly REAL and partly CONSTRUCTED
* But can we find any difference between natural and social OBJECTS?
* SOCIALLY CONSTRUCTED SOCIAL OBJECTS -> it is clear that most social facts are like that by virtue

of human actions, beliefs and intentions

* SOCIALLY CONSTRUCTED NATURAL OBJECTS -> intuitively we reject the idea these are wholly

CONSTRUCTED (human influence isn’t that deep)

-> the social determination isn’t as clear as with

SOCIAL OBJECTS

-> it is again counterintuitive to think there is no

distinction between what belongs to human and

what is independent

* To accept C-Arg. Ontology means to eliminate objective natural reality
* Hacking points out another difference:
* Quarks for instance are not aware of the observations we make and the way in which we categorize them. In general, scientific OBJECTS are not affected by our calling it in a certain way (i.e. INDIFFERENCE)
* They are STATIONARY TARGETS (≠ passive); they simply do not react as they cannot be aware of us and our work upon them, but only to our eventual manipulation
* People on the other hand are agents, they act under descriptions. We experience being persons of various KINDS, and yet always INTERACTIVE -> there is a reaction to social CONSTRUCTION and social CONSTRUCTION receives a feedback from those it is applied to
* There is a kind of LOOPING EFFECT, where if people are classified, they rethink themselves accordingly and so on and so forth
* People are thus MOVING TARGETS
* For social science to become ‘’real’’, genuine natural science is not possible, as they would always need the extra bit of INTERACTIVENESS, and their objects can be at the same time REAL and CONSTRUCTED and classified both INDIFFERENTLY and INTERACTIVELY
* E.g. an autistic child can be classified both INDIFFERENTLY (a pathology is present) and INTERACTIVELY (relying on a SOCIAL CONSTRUCTION which affects the individual)
* By admitting this, social sciences cannot emulate natural sciences but have to remain sui generis sciences
* The merits of CONSTRUCTIVISM -> REALITY is not given, waiting to be discovered

-> even the world of scientific objects is partly CONSTRUCTED

-> by admitting all this, we are not being ANTI-REALIST, just more

mature