

THE NATURAL VS. THE HUMAN SCIENCES: MYTH, METHODOLOGY AND ONTOLOGY

LO NATURAL VS. LAS CIENCIAS HUMANAS: MITO, METODOLOGÍA Y ONTOLOGÍA

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RESUMEN ABSTRACT

Sostengo que las ciencias humanas (i.e. las humanidades, las ciencias sociales y las de la conducta) no deben tratar de imitar la metodología de las ciencias naturales. Las ciencias humanas estudian fenómenos significativos cuya naturaleza es decididamente diferente de los fenómenos meramente físicos que estudian las ciencias naturales, y cuyo estudio, por tanto, requiere métodos diferentes; los fenómenos significativos obviamente no obedecen a leyes naturales, mientras que lo meramente físico necesariamente lo hace. Esto no quiere decir que las ciencias humanas no estudian una realidad objetiva sobre la que no podemos tener un conocimiento genuino. Se discute la noción de realidad objetiva, y se sugiere que las construcciones sociales se pueden entender como entidades reales objetivamente.

I argue that the human sciences (i.e. humanities, social – and behavioural sciences) should not try to imitate the methodology of the natural sciences. The human sciences study meaningful phenomena whose nature is decisively different from the merely physical phenomena studied by the natural sciences, and whose study therefore require different methods; meaningful phenomena do not obviously obey natural laws while the merely physical necessarily does. This is not to say that the human sciences do not study an objective reality about which we cannot have genuine knowledge. The notion of objective reality is discussed, and it is suggested that social constructions can be understood as objectively real entities.

PALABRAS CLAVE KEY WORDS

ciencias humanas, metodología, ciencias naturales, filosofía de la ciencia, objetivo, realidad objetiva, construcciones sociales.

human science, methodology, natural science, philosophy of science, objective, objective reality, social constructions.

Introduction

A myth that now and again rises to the surface is that the humanities and the social and behavioural sciences (henceforth *human sciences*) are methodologically and hence scientifically retarded in comparison to the natural sciences, i.e. to the 'exact sciences', or Science with a capital S. The essence of this myth is reflected in Braithwaite's claim that the methodology of the human sciences, in so far as they profess to be applying an autonomous humanistic methodology focused on *understanding* rather than *explaining*, is a "policy of deep breathing followed by free association" (Haack 36). The underlying idea is that the human sciences should regard the natural sciences as a role model and try to assimilate their exact methodology. In this paper I will present what I take to be the defining feature of the human sciences, and to argue that on the basis of that hypothesis it is a mistake to treat natural science as the ideal for all research.

It is important to note that I am *not* suggesting that the human sciences apply, or should apply, a methodology wholly autonomous from the methodology of the natural sciences, or that they produce some altogether different kind of knowledge. I am suggesting that on the basis of the very same kind of rational thinking that is applied in science in general, a different methodology is motivated by a difference in the nature of the phenomena that the human vs. natural sciences are studying. It is universally acknowledged that different phenomena must be studied by different methods, its just that the difference between the kind of objects that the human vs. natural sciences study is slightly greater than, say, the difference between electromagnetism and combustion.

The human sciences

The human sciences contain a multitude of disciplines that do not self-evidently offer a common denominator. Research in social work focuses on the interaction between individual and public authorities, often using qualitative research methods. They may want to find out how different outreach programmes should be organised to achieve the best effect, e.g. in reducing anti-social behaviour. Economy studies economical systems, often using mathematical models. The goal might be to find out how 1% price increase in raw cotton from India could affect British households. Archaeology studies the past with the guidance of artefacts found in the ground, sometimes using carbon dating. Literature studies various

aspects of the meaning mediated through literature and how it affects us, usually using some form of linguistic or narrative analysis. One might want to find out about the impact of 1984 on contemporary ideas about government control. Philosophy studies, for instance, what cannot be studied empirically but which the empirical sciences take for granted, e.g. objectivity, rationality, and meaning. There is no tracking device for the reliable identification of rationality or ways to chemically analyse it. Conceptual analysis is the appropriate method, simply because rationality is not a chemical compound. As everyone knows, the validity of methods is relative to the subject matter. Given this short but extremely varied list of disciplines one might wonder what on Earth could unite the human sciences and set them apart from the natural sciences. They deploy a range of methods – interviews, mathematical modelling, carbon dating, questionnaires, narrative analysis, and conceptual analysis – some of which require/allow statistical analysis of the data.

The subject matter of different disciplines within the human sciences seems equally disparate: social interactions, exchanges of goods/money, the past, texts, and concepts/ideas. My suggestion is despite the disparate character of the objects being studied, the human sciences actually study a particular type of entities that are decisively different from the type of entities studied by the natural sciences. While natural science studies inanimate matters of all kinds, the human sciences study what I call ‘meaningful phenomena’ (see section 4 below). To my mind, the methodological difference we observe is a consequence of differences in the nature of the entities being studied. Science, in the most general sense, designs and uses methods in accordance to what suits the study of the *objects* they are interested in. This is the rational thing to do.

The natural sciences

Natural science, I suggest, is the study of what I will call *the merely physical*; unconscious physical matter in all its forms. Of course, some scientific disciplines traditionally classified as natural sciences, e.g. medicine and biology, do study conscious beings, like humans. But, *ex hypothesi*, in so far as this study is correctly labelled ‘natural science’ it only studies the physiology of humans. It is possible to study most of the functions of the body quite independently of what goes on in the consciousness of the person inhabiting that body. However, when medicine diverts its attention to the investigation of a patient’s wishes, wants and preferences (e.g. psychosomatic disorders) – things that

we are at present unable to understand in physical terms—it is no longer involved in pure natural science. And, typically, the study of psychosomatic disorders suffers from the same criticism as the human sciences; lack of decisive evidence and strict laws that can give accurate predictions and/or treatments. It is important to discern here between approaches that *assume* that fixing the mind is to fix the body, e.g. with the use of chemicals, which is a natural science approach, and those who assume that to fix the mind might at least require a combination of chemicals and some form of cognitive approach. This apparently interdisciplinary approach, it seems to me, consists in the simultaneous application of two distinct types of treatment that we hope will interact in ways we do not yet fully understand. Who knows what the future will reveal about the connection.

The most important aspects of the study of the merely physical, from the perspective of this paper, is that everything in the physical domain, we assume, is (i) completely governed by natural laws, and (ii) mind-independent; it has a certain nature independently of what we happen to believe about its nature. Salt is, has been and always will be, water-soluble. It was water-soluble before anyone came to form any ideas about either salt or water. Natural science aims to discover the nature of unconscious physical matter in all its forms.

The merely physical vs. meaningful phenomena

The human sciences, on the other hand, study humans, but not primarily as physical bodies. They study *meaningful phenomena*: social interactions, experiences, thoughts, intentional actions, attitudes, humour, phobias, etc; everything that involves human beings *qua* self-conscious beings. That is why I choose to call them the human sciences. Others have called them the 'intentional sciences', e.g. the philosopher Susan Haack. According to her

the more important line of demarcation runs, not exactly between the natural and the social sciences, but between those areas of scientific inquiry which take human beings' beliefs, intentions, and motives as part of their subject matter, and those which do not. (Haack 36)

It must be added that the human sciences also study those meaningful structures that humans create, e.g. societies, research communities, legal

systems, education systems, the world economy, businesses, languages, literature, music and art, etc. Arguably, all these things exist only in virtue of the intentional acts and thoughts of human beings. These things are, in a particular sense, social constructions. The legal system would cease to exist the moment the community of humans either ceases to exist or ceases to have the intention of enforcing the law whenever they judge that this is needed. We take the law so for granted. We think of it as something as inevitable and natural as the weather. But in fact it came into being by a long and gradual social process and continues to exist and develop only as long as there is a body of humans that want to uphold a social structure and order; as long as there are humans that want to live in a society in which as many as possible can thrive and be happy (well, humanists think that this *ought* to be the motive of constructing a legal system).

The value of the human sciences

This is a place to mention briefly the question of the utility of the human sciences, which is now and again called into doubt. Natural science, it is said, has given us cures for all kinds of diseases, TV's, computers, and has brought us (some of us anyway) to the Moon and back again. What have the human sciences ever done for us? Well, in so far as there has been a progress in the structure and content of the law, in educational systems, social structures, organisation of businesses and world market, not to speak about literature and arts, this has been in accordance to developments in the human sciences. It may perhaps be difficult to calculate the value of such development in terms of cash flow to the state budget, but it has made the world a better place to live in. Is it a coincidence that the Bill of Human Rights echoes the results of philosophical, sociological and psychological thinking about the nature of humanity and the necessary conditions for us to achieve the 'good life'? It is absurd that we still have to defend the value of the human sciences, and have to motivate why they should get their fair share of government spending on research. Televisions, telephones, and computers are all well and good, but I didn't buy any of these things only to marvel at the technological advances, but because these devices enable me to see, hear and to read/write something interesting. It is the meaningful content conveyed by these devices that is valuable to me.

Further details about meaningful phenomena

The human sciences also study artefacts, i.e. material objects intentionally created by humans. But, and this is a decisive difference, a hammer studied from the perspective of the natural sciences might turn out to be a lump of chrome molybdenum iron, while from the perspective of the human sciences it is a tool with a particular function and meaning in the everyday life of human beings, irrespective of its chemical constitution; it is useful, expensive, a symbol of status (or maybe of masculinity or DIY-nerdity). Archaeologists date and chemically analyse their findings, that is true, but they are aiming for more than just finding out their age and chemical constitution. This data only helps to place the artefacts in a certain historical context in order to aide our understanding of the humans that made and used them, what they knew, what they did, what kind of constructions were they capable of, what did they value, how was their society organised. Archaeology is not a science of dating, but of the history of human development. If we want to understand our future, we'd better know about our past.

The human sciences ultimately study what could be called meaningful phenomena, e.g. world economy, parenthood, music, art; everything related to the general meaning and value of human existence. Again it is important to realise that the human sciences cross the boundaries of faculties, e.g. in the study of whether GP's treat women differently than men because of gender bias (i.e. because of their pragmatic construction of gender) or of how user friendly a new lawn mower is. The definition does not respect the boundaries of departments either. In one and the same department we can find someone investigating the physical mechanisms behind gluten intolerance and another investigating why teenagers with gluten intolerance find it difficult to stick to a gluten free diet. One investigator is looking at enzymes and the cellular composition of the intestines (things wholly unaffected by our consciousness), and the other is looking at the preferences, attitudes, psychological character and cultural environment of gluten intolerant human beings. In the latter case we are studying phenomena whose determinate nature is determined by the intentional states of human beings and we look (or should look) to the human sciences for theoretical guidance. Getting to know about the social factors that make life difficult for the gluten intolerant may at first be a cost to society, but if it results in changes that make life easier for them and consequently reduces the cost of treatment for those who fail to stick to their diet, the world will have become a better place.

Meaningful phenomena are dependent for their properties on human thoughts, emotions, and actions, because our thoughts, emotions and actions are constitutive parts of these phenomena. There are no meaningful phenomena that do not involve conscious beings that perceive the phenomena as meaningful in some particular way. The world economy is what it is because there are 6 billion people that many times a day make conscious decisions to buy/sell (or not to buy/sell) some commodity. The economy changes when the actions of these people change, e.g. because their attitudes towards the commodities in question change. Say, if suddenly they start to believe that organic or fair-trade origin of a commodity is more important than its glamour factor, or even more important than the price (within limits of reason of course). The world economy is an object of investigation whose properties is constantly changing (perhaps not in every respect) due to changes in the dynamics between the actors involved, and these dynamics can change as a result of changes in the attitudes of the actors. No one will deny that economics has found very strong relationships between various factors, e.g. between price, demand and supply, but no one will claim that economics has provided us with an equation that allows us to determine how these factors interact with the same exactness as Boyle's gas law can predict the interactions between temperature, pressure and volume in a gas. Are we to suppose that the lack of predictive reliability is merely due to the incompetence of economists to ultimately discover the details of the law of supply and demand, or could it be the case that this is a different kind of law/regularity? Could it be the case that laws evade the human sciences because there are none in the reality they investigate, or that the regularities that do exist just aren't as deterministic as those that hold for inanimate matter?

Meaningful vs. lawful phenomena

The nature of the phenomena studied by the human sciences are special because the properties relevant for their study are at least partly decided by the meaning ascribed to these phenomena by autonomous human beings, and by the actions they spontaneously initiate on the grounds of some or other idea about these phenomena. As opposed to the behaviour of salt, it is not assumed that the behaviour of human beings is causally necessitated (i.e. lawful), which is why we can still insist we have a free will. Of course we are at any given time influenced by a number of external factors, and often, if not always, they do push us in a certain direction, and yet we firmly believe it possible for a person to choose to

endure torture and death rather than betray a good cause. The free will and every action initiated by a free will, is at least not easily described or explained in terms of universally valid natural laws.

The phenomena studied by the human sciences are also in a certain sense particularly difficult to study because they appear to lack a determinate physical shape. Where is 'rationality' as an object of inquiry? Can we find it in the library, bring it into the laboratory and submit it to controlled randomised studies to ascertain its nature? And yet, there is no criterion of greater importance than rationality when evaluating the conclusions of natural science. Where do we find the 'greater good' or determine the 'public benefit' in whose service the natural sciences claim to deserve the main part of public spending on research? I wish anyone good luck who aims to discover what they are by an investigation of the merely physical, i.e. without asking people about what they think is good and useful, and why. It is ironic that the public benefit of the results of natural science – by whose authority natural science claims its priority over the human sciences – is a matter for the human sciences to discover.

The natural sciences have completely different prospects of finding regularities of the sort we can generalise to laws, and that we can use to make uncannily exact predictions about future behaviour of various phenomena. The simple reason being that physical nature is lawful and predictable; it offers laws on a silver plate. If we throw salt in unsalted water at room temperature, the salt will dissolve. The result will invariably be the same in those conditions and is therefore generalizable to all salt everywhere at all times. This does not hold for humans. If you throw a human in the water then the first reaction might be cheerfulness. When repeated, the reaction may become ever so slightly less cheerful until it ends in violent retaliation; unless the series of reactions develop in the opposite direction, or differently today than it did yesterday. A subject may laugh heartily but swear inside.

The indeterminateness found on the quantum level is in a completely different ballpark. As far as we know, we find only probabilities on the quantum level, but it is a *predictable* probability that can be universally generalised, and be used to predict the behaviour of physical systems to a degree of exactness never before seen. There is no more exact science than the 'indeterminate' quantum physics.

Salt is not in any case unreliable and varied in the way a human is. It doesn't behave in accordance to its own ideas about how it ought to

behave (sometimes in conflict with how it wants to behave). It does not lie or cheat, is not affected by the ideas and intentions of the researchers about what is to count as a “right”, “wrong” or “wanted” reaction. That kind of influence can have dramatic consequences in the human sciences, and even for silly things like market research. A respondent might be smitten by the enthusiasm of the questioner, suspect that they would be very pleased with positive reactions to Magda’s Margerine and don’t want to make anyone disappointed. Too many ‘helpful’ responses of that kind might warrant a large-scale venture and end in tears. There are no reliable tools to find out what a person really is thinking, as opposed to what she says or writes. Not that it always matters that the subject is honest in her replies, because humans don’t always know what they think and feel, or why they did something or other. Someone might honestly think that they vote for the Liberal democrats because of their policy in foreign affairs, while really they were given a positive attitude to the party through years of upbringing and have a tendency to think that any policy of the Liberal democrats in foreign affairs is by default a good policy. We don’t like the idea that we are influenced by such social factors. We like to think that every morning we choose the clothes we wear on the basis of individual choice, and yet miraculously manage to dress perfectly in tune with the demands of fashion. Coincidence? I don’t think so. However, even though we are to a high degree creatures of habit and prone to comply to the demands of our social environment, even unconsciously, then it appears to be within our power to break the habit and chock the environment in a way no electron is able to do.

Can a natural scientist really imagine what it would be like to conduct research on that kind of material? Imagine that every grain of salt was in some significant sense unique and every now and then completely changed its modus of being and of reacting to stimuli due to their ever changing ideas about what they should do in light of their most recent reflections on what it is that defines their very being as grains of salt? You ever seen a Goth grain of salt, or a Punk electron? What if it reacted in accordance to the expectations of the experimenter, or defied her expectations every other time, because it regretted the way they reacted last week? What if the only way to find out about the nature of salt was to ask it, knowing that there is great risk that it didn’t really know anything about its nature, or that it would lay if it did know? Would the natural sciences then be the ‘exact’ sciences? My guess is that a science can only be as exact as its subject matter allows it to be. I think we have good reasons to believe that research in the human sciences is

decisively different because the phenomena they study are decisively different from unconscious physical matter.

Objective reality vs. Objective knowledge

I have so far argued that the human sciences study meaningful phenomena, which are decisively different from the merely physical phenomena studied by the natural sciences. This claim can very easily be conflated with the view that natural sciences study objective reality while the human sciences do not; that there is after all a distinction to be made between proper objective science and a science of “deep breathing followed by free association”. This is not my view, nor is it entailed by anything I have said so far. I think that the meaningful phenomena studied by the human sciences are objectively real even though they are mind dependent. Since I am sure many readers are used to thinking of ‘objective reality’ in terms of ‘that which exists independently of minds’, there is some risk of misunderstanding here and I need to explain why I think that this understanding of ‘objective reality’ is mistaken.

To repeat, the basis for the peculiar nature of the human sciences, to my mind, is that they study a special type of objectively real phenomena, phenomena that depend for their characteristics and existence on the existence of intentional thoughts in sentient beings. An example of such phenomena would be scientific research, which, I assume, is objectively real, but only exists in so far as there exist researchers who study various things in the intention of finding out what they are like. As such, scientific research is a social enterprise and its character depends on a range of ideas in the heads of researchers, say, about correct interpretation of data, about good and bad research practice, and what counts as important scientific problems. In other words, scientific research is a phenomenon that is partly constituted by the contents of the minds that partake in it, but it is nonetheless objectively real. However, to understand scientific research in this way as objectively real, clashes with the idea that ‘objective’ is equivalent to ‘independent of thoughts’ or ‘mind-independent’. Surely, this does not mean that scientific research is not objectively real but instead that something must be wrong about this idea of what it is to be ‘objectively real’.

The term ‘objective reality’ refers to the world as it is in itself independently of our ideas about what it is like and of our attempts to measure what it is like. The contents of minds can, accordingly, be

objectively real because this content can be what it is independently of our ideas about what that content is. Someone may want to object: can the contents of our minds really be a certain way independently of what we think that content is; can we be wrong about our own thoughts? Admittedly we are usually aware of the mental contents of our minds, even when we are not reflecting upon it (i.e. when we are not thinking about what we are thinking), but we can be uncertain about what it is exactly we are thinking and feeling even when we are reflecting upon it. And we can have incoherent thoughts apparently without realising it ourselves. It appears to be possible for someone to form the idea 'I am incredibly humble' without realising that they thereby no longer are all that humble. We often misunderstand social contexts (this is one of our greatest fears) and also fail to grasp how that misunderstanding comes to be a constituent part of that particular social event and determines the outcome of the situation. Imagine hearing a female acquaintance say to her friend that she is pregnant, but you don't realise that this is a joke about her having gained weight. Then you are not going to understand the evil eye you get if you blurt out 'I thought you looked a bit rounder than last I saw you'. Similarly, if you use the thumb signal when hitchhiking in Italy – oblivious of the fact that in Italy the thumb is used to signal 'up yours' – then the angry faces and failure to get a ride will surprise you. There are, then, plenty of aspects of meaningful phenomena that could be clarified by the human sciences.

Too often 'objective' is defined in terms of 'what exists independently of our minds' in the belief that this is equivalent with 'the world as it is in itself independently of our ideas about it and our attempts to measure what it is like'. That is why the contents of our minds is not always included as a part of what makes up objective reality, or at least not as something that could have certain properties independently of what we happen to believe about its properties. In the natural sciences no one encounters any problems with this view because they only investigate non-conscious objects and states of affairs. It just so happens that the particular part of objective reality that the natural sciences study is mind-independent. Not so for the human sciences, which seek knowledge about other subjects, the contents of their minds and how it affects their behaviour. In that perspective, it is natural that the question should arise whether some of the things the human sciences study really are 'for real' because clearly they are not independent of thoughts. To my mind, it would be absurd to deny that the contents of thoughts are 'for real', even if it doesn't exist independently of thoughts?

It is not reasonable to deny the reality of mental content, because such a denial is equivalent to denying that our actions have any meaning. Researchers discuss and investigate which of their ideas best explains what the world is like, because they have different ideas about it and also believe that two incompatible ideas cannot be simultaneously true. Their thoughts are constitutive elements of what we call scientific research, and which makes it meaningful. Does this mean that scientific research, because mind-dependent, isn't 'for real'?

To study research is not simply a matter of describing the movements of researchers in time and space, and their empirically measurable properties, but also the content of their ideas and how they motivate their reasoning and actions. This is an essential part of validating scientific results. However, according to the idea that 'objective' is equivalent to 'independent of minds' then the contents of the minds of researchers is not a part of objective reality and therefore not 'for real'. I don't take this to show that the human sciences do not study objective reality. I take it to show that something is wrong with this idea about objective reality.

It is also worth noting that sometimes 'objective' is used in the meaning 'measurable/observable', under the assumption that if something is objectively real then it can in principle be observed/measured by anyone with the appropriate equipment. I don't think it is quite that simple. It isn't self-evident that it will ever be possible to observe the contents of minds by anyone other than the person having that content. The contents of minds isn't publicly available in the same way as physical objects and their properties, which is why self-reported data on the contents of a mind cannot be confirmed by a third party. Most importantly: 'measurable/observable' simply isn't equivalent to 'the world as it is in itself independently of our ideas about it and our attempts to measure what it is like.'

What I am trying to say is that one should distinguish very clearly between (i) the idea that there is a world that exists independently of minds, a world that has whatever properties it happens to have (the world as it is in itself), and (ii) the idea that we can obtain knowledge that accurately represents what that world is like (representations of the world as it is in itself). Typically the two have been bundled together to make up the definition of what it is to be an objectivist, i.e. someone who believes in an objective reality and that we can know what such a reality is like. The two ideas come apart quite easily when we admit

that we may coherently admit that there might be an objective reality about which we cannot perhaps have absolutely objective knowledge.

Perhaps the source to this confusion is that the terms ‘objective’ and ‘subjective’ are often used to denote two different perspectives, notably the unbiased and the biased perspective. But, this use of the terms can really only apply to subjects, i.e. the subject that can see the world without being affected by subjective bias and the subject that is affected by subjective bias. However, the idea of the world as it is in itself has nothing to do with any perspective of any kind; it is not the idea of a world that has an unbiased perspective of itself.

Social constructions are objectively real

From my point of view the study of ‘meaningful phenomena’, e.g. linguistic categories or hierarchies of power – often called ‘social constructions’ – are just as properly objects of scientific research because I consider them to be a part of objective reality. But it may be worth while to give a more nuanced picture of social constructions than is usually the case, because, arguably, there are various types of such constructions, and, arguably, their nature is not a matter of mere taste or personal opinion; they are not ‘mere fictions’.

Roughly following Haslanger (1995), I will mention three types of social constructions and how they are very reasonably considered to be objectively real phenomena: generic, discursive and pragmatic. A generic construction is something that is created by a social activity (genesis \approx creation). The English legal system is a concretely existing social phenomenon, which has been created by humans through direct and indirect agreements about following certain rules in accordance to various ideas about what is right and wrong (really about how we want the society to be, ideally). It is based on ideas and agreements (conventions) that reflect our intentional striving towards an ideal society, but is nonetheless a real phenomenon that can be scrutinised scientifically, even if it only exists insofar as there exists a body of human beings that intentionally uphold the law. But it is not obvious that it is a phenomenon that works in accordance to universally valid natural laws, hence it should not by default be explained in terms of such laws, nor is it obvious that we should be looking for such laws in the first place when trying to understand or explain it.

A discursive construction is an object that has at least partially been shaped by a social activity. A human being is a biological creature from birth but is from then on shaped as a person through social influences (upbringing/socialisation) and is in that sense a social construction. Such entities are called 'discursive constructions' because the persons we eventually become are very much influenced by the way others talk about us. We are constantly told (or overhear) that we are 'girls/boys' and must do this and that because we are 'girls/boys'. We come to find it unavoidable/natural to behave like the 'girls/boys' that our environment clearly perceives and expects us to be, and unnatural to defy that norm. We might even come to regard ourselves as being freaks of nature merely for entertaining the thought of defying the norm. To the extent that we are shaped as persons by such influences then we are discursive social constructions; that doesn't render us any less real even though we might not be entities that fully obey natural laws; at least not if we actually do have a free will.

Pragmatic constructions are really just concepts or ideas, often called conceptual categories because it is in virtue of them that we identify things as belonging to a certain category of objects. They are what usually associated with the term 'social construction'. As a general rule there are as many conceptual categories in a language as there is a practical use for (therefore the term 'pragmatic construction'). In the research community we use concepts like 'transcendent' and 'operationalize' which no one uses in colloquial language because there simply is no use for them in that context.

Concepts are conceptual structures, whose content, for the lack of a better characterisation, describe various aspects of reality (truly or falsely). The problem is that we tend to think of every concept as denoting naturally occurring phenomena, even when they denote generic and discursive constructions, or even mere fictions. This is because our ideas tend to become a part of our perception of the very things they are about. For instance, we tend to think of 'nations' as denoting some kind of naturally given kinds, just like lions, elephants and giraffes. And we tend to see the 'Britishness' in every Briton, whether or not it is really there to be seen. But nations are generic constructions; they are created and destroyed by social activities, sometimes by a handshake. We can change nationalities by agreement. In comparison, lions and elephants couldn't change species no matter what agreements they made because they really are a natural kind.

Even though concepts are pragmatic constructions, i.e. they are the best idea we have so far come up with about something, it does not follow that the objects they denote must also be constructions (some are), and it is a mistake to think that nations are not 'for real' just because they are social constructions. Nations are real even though they are not obviously objects that exist independently of the mental contents of the humans that constitute the nation, and even though nations are objects whose character depends on the individuals' ideas about what it is to be of that nationality. Brits genuinely tend to be 'British' because they regard themselves to belong to that particular creed of people, but this is not a matter of natural law. If minds do not obey universally valid natural laws, then the nations they constitute don't either, but that does not in any way dilute their reality.

Yet further complications

Studies of the past offer yet another complication. The historian is studying what no longer exists, the past, with the help of presently existing clues, e.g. archived documents. It is difficult to know the attitudes of the authors to what they wrote; whether they exaggerated (negatively or positively) in light of some unstated political agenda, or not. The object of study is no more, and something equivalent cannot be recreated in the laboratory. To simplify, history studies unique events while natural science studies repeatable events. Also, an historian is not interested in tracking the footsteps of Shackleton's journey merely in order to know his coordinates in time and space, how much weight he lost and how many fingers and toes, but to know and understand what it was like to be on that journey in order to be able to appreciate the accomplishments of those who endured the struggle. What was Shackleton *thinking* while he was leading his men across the Antarctic on a voyage that must at times (or throughout) have seemed doomed to failure to everyone? Can anyone even hint at an 'exact' way of objectively assessing/measuring what that was like? And, in the absence of such 'exact' ways, is anyone going to suggest that we shouldn't even try or that any such assessment is as good as worthless? It seems to me that a refusal to engage in that kind of speculation or to even consider its results, due to some misconceived ideas about the merits of stringent 'scientific' reasoning, will inevitably lead to an intellectual poverty that I do not covet.

A further difficulty is the fact that the purpose of the human sciences is not always descriptive but often normative. It often aims at finding out

what something *ought* to be like, instead of what it *is* like: what ought the law to be like, how should we conduct scientific research? The latter question is interesting, because natural scientists have of course a lot to contribute with, regarding the nature of science, but any attempt on their behalf to say what science *ought* to be like will fail to live up to their standards of 'science proper'. Indeed, natural scientists gladly enter into debates about the nature of science oblivious to the fact that thereby they have become part of the human sciences. I welcome them.

Anyhow, the social ideals we are striving towards do not already exist somewhere to be empirically studied and then copied. It is more likely that they are constantly being *construed*, and maybe perfection is unattainable because the preconditions change with the birth of new generations that turn out to be ever so slightly different from the previous. There are no natural scientists, as far as I know, that study how salt should behave as opposed to how it actually behaves. In my opinion, the natural sciences have been allotted the *easier* task, and they can afford to laugh good-heartedly at such a statement.

In conclusion

I think the claim that the human sciences are methodologically retarded and should adopt the exact method of natural science is unfounded. The human sciences have their own problems, determined by the nature of their subject matter, and must resolve them in their own way. I'm not claiming that the human sciences are at the peak of their accomplishments. I don't deny that they are in many ways in their infancy and could learn a lot from natural science (and vice versa). I only claim that those who have looked upon the human sciences as the less talented sibling to the natural sciences have not adequately appreciated the difference between the two kinds of phenomena that they are studying and the methodological consequences of that difference. In fact the stubborn insistence that there is only one way to do science, notably the 'exact' way, may have delayed the methodological development of the human sciences.

That the contents of minds are constituent parts of social phenomena is the reason why the human sciences face different methodological challenges than the natural sciences. Partly because this content is not publicly available (cannot be independently verified by third party), and partly because the mind doesn't obviously obey universal natural laws.

So if my reasoning is to be criticised it should be criticised for assuming that the thinking and actions of autonomous human beings isn't causally determined and that therefore their behaviour can't be fully explained in terms of natural laws. However, if this assumption is accepted, the methodological consequences that follow from it should be accepted to.

To my mind, the acceptance of the reasoning developed here entails that knowledge about human behaviour should not take the form of natural laws that enables us to predict with unerring precision how humans will behave, nor should hypotheses about human nature and behaviour be tested in the same way that we test hypothesis about natural laws. It is no favour to the human sciences to insist they copy from the natural sciences methods that were designed for the study of a completely different kind of subject matter.

I have here simplified and exaggerated the differences between the human and natural sciences. Overall the similarities are greater than the differences, especially in so far as they both deploy the same kind of rational scrutiny of the validity and reliability of its methods *with respect to their subject matter*, of the manner of reasoning about the data, and of the conclusions drawn on the basis of that reasoning. They judge the validity of conclusions in terms of relevance, reliability and generalizability, except that the criteria for each of these, and the degree to which they can be established, depend on the nature of the subject matter. The human sciences are, in Susan Haack's words, "the same, only different". One definite difference in my view is that they are studying different types of phenomena, of which one type is lawful, while the other isn't obviously so.

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