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3.5 The fallibilistic revolution

At the end of the nineteenth century, it was still possible to regard the post-Newtonian theories of physics as merely adding new bits of knowledge to Newton's miraculous theory. James Clerk Maxwell (1831-1879) had managed to combine the laws of electricity and magnetism into a single theory of electromagnetic waves, and such waves are of another kind than the material particles that Newtonian mechanics deal with. Einstein changed it all. His special theory of relativity (1905) implies, as it is often and correctly said, that Newton's theory can only give approximately correct predictions for particles with velocities much smaller than that of light. But this is not the whole truth. Strictly speaking, the theoretical predictions from Newton's theory and Einstein's theory *never* give for any velocities exactly the same values; although the larger the velocity is, the larger the difference becomes. In other words, the theories logically contradict each other and, therefore, both cannot be strictly true. The contradiction arises because the theories contain different formulas for how to transform the quantitative values (of magnitudes such as mass and velocity) found in one inertial reference system into the values they obtain in another such reference system. Newtonian mechanics has so-called Galilei transformations, and relativity theory has Lorentz transformations, and these transformations give different values for all velocities, not only for high velocities.

Since Newton's theory, which once stunned the whole educated world, had turned out to be partly false, it became much easier to think that all scientific theories are fallible. Especially since quantum mechanics some decades later repeated the lesson. For a long time, all versions of quantum mechanics contradicted both Newtonian mechanics and relativity theory. At the microscopic and macroscopic levels it gives approximately the same predictions as Newtonian mechanics, but at the micro-micro level some predictions differ dramatically. The original quantum mechanics contains, like Newtonian mechanics, Galilei-transformations and contradicts relativity theory.

Even if seldom spelled out aloud, the *epistemological view* that physical theories are fallible (which is not the same as putting forward a specific *methodology*) slowly entered physics. Among philosophers of science, only a few, in particular Karl Popper and Mario Bunge (b. 1919), drew the general conclusion that scientific knowledge is fallible and began to defend this view explicitly. Most philosophers interested in the natural sciences discarded epistemological realism (the view that we have at least partial knowledge of a mind-independent world). They became positivists and/or instrumentalists saying that all physical theories – classical physics, relativity theories and quantum mechanics included – should be regarded as being only instruments for predictions about observable events; not as saying anything about substances, properties, relations, and processes in the world.

Today, at the beginning of the twenty-first century, the fallibilist view of science seems to have become the natural view among all researchers who think that scientific theories can describe structures in the world. Positivism and instrumentalism, on the other hand, have been substituted by social constructivism, i.e., the view that all structured entities that we can get hold of at bottom are like the entities we in our non-philosophical everyday lives call fictional, i.e., entities that like novel characters only exist in and through our language acts. Molecules are existentially put on a par with Hamlet. Scientific geniuses are doing the same kind of work as Shakespeare did. Most social constructivists say: 'Yes, there *might* be something out there in an external language-independent world, but even if there is, we can nonetheless not possibly know anything about it; so, let's forget it.' Put in Baconian terms: we cannot know anything else than our own idols – so, let's stick to them.

Fallibilism is the view that no empirical knowledge, not even scientific such knowledge, is absolutely certain or infallible, but in contradistinction to epistemological skepticism it is affirmative and claims that it is incredible to think that we have no knowledge at all. It presupposes the view that there is a mind-independent world, i.e., it presupposes 'ontological realism'. From its perspective, it is amazing what an influence the quest for certainty has had in science and philosophy. The epistemological dualism 'either certain knowledge or complete skepticism' echoes through the centuries. In philosophy, fallibilism was first stressed

and baptized by the chemist and philosopher Charles S. Peirce (1839-1914). Often, Peirce is called a pragmatist, even a father of pragmatism, but his conception of truth differs radically from that of pragmatists such as William James (1842-1910) and John Dewey (1859-1952), not to speak of the most famous contemporary pragmatist, Richard Rorty (1931-2007). According to James and Dewey, truth is – schematically – what is practically useful, but Rorty wants to drop the notion of truth altogether. Peirce, in contrast, thinks that truth means correspondence to reality; but he also thinks that what is true can only show itself as a future consensus in the scientific community. He does not speak of consensus *instead* of correspondence (as social constructivists have it), but of consensus *around* correspondence. He deserves to be called a 'pragmatic realist'.

Popper and Bunge found their way to fallibilism, seemingly independently of Peirce, by reflecting on the development of physics that we have described above. It might be argued that even mathematics and logic are fallible disciplines, but we will not touch upon this philosophical issue. Nor will we bother about whether there is a couple of abstract philosophical statements such as 'something exists' or 'I think, therefore I exist' that may be regarded as supplying infallible knowledge.

Below, we will stress the Popperian concept of 'truthlikeness' (Bunge: 'partial truth'). Such a concept is implicitly present in Peirce's view that the scientific community is moving towards truths. (Let it be noted, though, that in saying this we skip over a subtle difference between Popper and Bunge on the one hand and Peirce on the other. The former find no problem in speaking about completely 'mind-independently existing entities'. Peirce, however, sometimes seems to find such a notion semantically meaningless, but he does nonetheless allow himself to believe in the existence of real entities and define what is real as "anything that is not affected by men's cognitions about it (Peirce, p. 299)".)

Fallibilism is linked to openness to criticism. If science were infallible, then there would be methodological rules to make sure that the results are true, and scientists would be immune to criticism. But if science is regarded as fallible, the results can never be regarded as completely immune to criticism. However, not only believers in the infallibility of science make themselves untouchable by criticism, the same goes for social constructivists. If there is no knowledge at all, then of course the

results of one's 'investigations', i.e., one's constructions, cannot be criticized for being false. Sometimes in some respect extremes meet. Here, in their refusal of taking criticism seriously, scientistic epistemological infallibility and constructivist epistemological nihilism go hand in hand. Fallibilism makes it possible to adhere simultaneously to the views that:

(a) science aims at truths
(b) science captures partial truths
(c) science accepts theories partly because of the way these conform to dominant views in the surrounding society.

Peirce and Bunge admit this social dimension of science, but do not comment upon it in the way sociologists of knowledge do. For some peculiar reason, despite being a fallibilist, Popper thinks that all sociology of knowledge implies epistemological relativism and, therefore, should be let down.

Outside the philosophy of science, Karl Popper is mostly known for his defense of democracy in *The Open Society and Its Enemies*. Within the philosophy of science, he is best known for his *falsifiability criterion*. Popper was, in the midst of Vienna, an early critic of logical positivism. He claimed that metaphysical speculation is by no means sheer semantic nonsense, and often even an important precursor to science. Nonetheless, just like the positivists, he thought there is a gap between science and metaphysics, and that science has to free itself from metaphysics, which, he stresses, includes pseudo-science. He even tried to find a criterion by means of which metaphysics could in a simple way be kept outside universities. He claimed that metaphysics is not at all, as the logical positivists had it, impossible to verify. To the contrary, he said, the problem with metaphysical views is that it is all *too easy* to find empirical support for them. For instance, some religious people can see the hands of god everywhere. Instead, what makes a view scientific is that it is falsifiable, i.e., that it can be shown to be false.

On Popper's view, true scientists, but no metaphysicians, are able to answer the question 'What empirical data would make you regard your theory/belief as being false?' We will later show in what way Popper overstates his case (Chapter 4.4), but this is of no consequence here. His

general ontological and epistemological realism can be dissociated from his falsifiability criterion and his concrete methodological rules. In particular, this criterion and these rules can be cut loose from a notion that is crucial to fallibilism and which Popper verbalizes using three expressions: ‘truthlikeness’, ‘verisimilitude’, and ‘approximation to truth’. This important notion (which has nothing to do with the probability calculus) is unfortunately neglected outside circles of Popper experts and, as we have said, only implicit in Peirce. The core of Popper’s fallibilist epistemological realism can be captured by the following thesis and proposal:

- Thesis: Every conceptualization and theory almost certainly contains some mismatch between theory and reality.
- Proposal: Seek truth but expect to find *truthlikeness*.

Popper’s epistemological realism combines fallibilism with the traditional idea that truth seeking has to be the regulative idea of science; epistemological realism presupposes ontological realism. The key to Popper’s mix is the notion of truthlikeness, roughly that a statement can be more or less true (which is not the same as ‘probably being true’). The intuition behind this notion is easily captured. Compare the three assertions in each of the columns below:

1	The sun is shining from a completely blue sky	There are four main blood groups plus the Rh factor
2	It is somewhat cloudy	There are four main blood groups
3	It is raining	All blood has the same chemical composition

In both columns it holds true that if the first assertion is true, then the second assertion has a higher degree of truthlikeness and approximates truth better than the third one. This is *not* to say that the second one is epistemologically ‘more likely to be wholly true’ than the third one. Compare the following two pairs of sentences, ‘X’ represents assertions such as ‘there are four main blood groups’:

Ia) *probably*, X is true
Ib) *probably*, X has a high degree of truthlikeness

IIa) X is true
IIb) X has a high degree of truthlikeness

The sentences Ia and Ib hint at coherence relations between an assertion X and its evidence (see also Chapter 4.7), whereas the sentences IIa and IIb express relations between the assertion X and facts (truthmakers) in the world. The former sentences express evidential epistemological relations, the latter express semantic-ontological relations, i.e., they say something about the relationship between an assertion and the world. Note that in itself a sentence such as 'there are four main blood groups' has *both* evidential relations of conformance to other sentences and observations *and* a relation of correspondence to the world. Constructivists note only the former kind of relations (and reduce 'truth' to coherence), old-fashioned realists only the latter, but reflective fallibilists see both.

The idea of truthlikeness belongs to a correspondence theory of truth. Such theories say that the truth of an assertion (truthbearer) rests upon a relation (correspondence) that the assertion has to facts (truthmakers). There can be no degrees of 'falsitylikeness' since there are no non-existent facts to which an assertion can be related, but one may use the expression 'being falsitylike' as a metaphor for having a low degree of truthlikeness.

At the end of a line of all possible progressively better and better approximations to truth, there is of course truth. To introduce degrees of truthlikeness as a complement to the simple opposition between true and false is a bit – but only a bit – like switching from talking only about tall and short people to talking about the numerical or relative lengths of the same people. The difference is this. Length corresponds both to comparative ('is longer than') and numerical ('is 10 cm long') concepts of length, but there are no such concepts for verisimilitudes. All lengths can be linearly ordered (and thus be represented by a comparative concept), and a general numerical distance measure can be constructed for them (which gives us a quantitative concept). Popper thought that such concepts and measures of degrees of truthlikeness could be constructed, but like many others we think that the ensuing discussion shows that this is

impossible (Keuth, Chapter 7). That is, we have only a qualitative or semi-comparative concept of truthlikeness. Some philosophers think that such a concept of truthlikeness can be of no use (Keuth, Chapter 7), but this is too rash a conclusion.

To demonstrate that even a semi-comparative concept of truthlikeness can be useful and important, we will use an analogy. We have no real comparative concept for geometrical shapes, to say nothing of a quantitative concept and measure. Nonetheless, we continue to use our qualitative concept of shape; we talk about shapes, point to shapes, and speak informally about similarities with respect to shape. Sometimes we make crude estimates of similarity with respect to shapes and are able on this basis to order a small number of shapes linearly (shape A is more like B than C, and A is more like shape C than D, etc.); we might be said to have a semi-comparative concept. In our opinion, such estimates and orderings of a small number of cases are also sufficient to ground talk of degrees of truthlikeness.

In the same way that a meter scale cannot be used before it has been connected to something external to it, a standard meter, so the concept of truthlikeness of theories cannot be used until one has judged, for each domain in which one is working, some theory to be the most truthlike one. In this judgment, evidential relations, left out of account in the definition of truthlikeness, stage a comeback. As we have said, truthlikeness informally measures the degree of a theory's correspondence with facts, not the degree of its conformance to evidence; 'truthlikeness' is a notion distinct from 'known truthlikeness'. Nonetheless, in order to judge how close a theory comes to the facts, degrees of evidence must somewhere come into play. Note that such evidential judgments are commonplace decisions; they are made every time some course book in some discipline is chosen to tell students some facts.

The notion of truthlikeness is important for the following reason. The history of science tells us that it is no longer possible to believe that science progresses by simply adding one bit of truth to another. Now and then whole theory edifices have to be revised, and new conceptualizations introduced; this sort of development will probably continue for a long time, perhaps forever. If, in this predicament, one has recourse only to the polar opposition between true and false, and is asked whether one believes that

there are any true theories, be it in the history of science, in today's science, or in the science of tomorrow, then one has to answer 'There are none'. If, however, one has recourse to the notion of truthlikeness, then one can answer as follows:

There are so far no absolutely true empirical theories, but, on the other hand, there are not many absolutely false theories either. Most theories in the history of science have some degree of truthlikeness, even if only to a very low degree. Today, however, some theories have what is probably a very high degree of truthlikeness. Why? Because many modern inventions and modern standardized therapies which are based on scientific theories have proven extremely effective. It seems highly unlikely that all such inventions in technology and medicine are based on theories with very low degrees of truthlikeness, to say nothing of the thought that these theories are mere social fictions. Think, for instance, of traveling to the moon, images from Pluto, computers, the internet, the GPS system, magnetic resonance imaging, physiologic contraception, artificial insemination, and organ transplantation. Can they possibly be based on mere figments of the imagination?

It is now time to add a quotation from Popper in order to show how he himself summarizes his views on truthlikeness:

> I have in these last sections merely sketched a programme […] so as to obtain a concept of *verisimilitude* which allows us to speak, without fear of talking nonsense, of *theories which are better or worse approximations to truth*. I do not, of course, suggest that there can be a criterion for the applicability of this notion, any more than there is one for the notion of truth. But some of us (for example Einstein himself) sometimes wish to say such things as that we have reason to conjecture that Einstein's theory of gravity is *not true*, but that it is a *better approximation to truth* than Newton's. To be able to say such things with a good conscience seems to me a major desideratum of the methodology of the natural sciences (Popper 1972, p. 335).

Just as in ethics there are people who only think in terms of white or black, and who always want to avoid nuance and complication, so in

science there are people who simply like to think only in terms of true or false/fictional. Not many decades ago scientists thought of their research only in terms of being certainly true; today, having familiarized themselves with the history of science, many think of it only in terms of being certainly false/fictional.

Popper's remark about criteria is more important than it might seem. Among other things, it has repercussions on how to view a phenomenon that Kuhn and Feyerabend have given the misleading name 'the incommensurability of basic theories'. It sounds as if it is claimed that basic theories in a scientific discipline are completely incomparable. But this is not the claim. Rather, 'incommensurability' here means un-translatability. As translators of plays, novels, and poems are well aware of, there can be parts of a text in one language that are impossible to give an exact translation in the other language; some concepts used in the first language have no exact counterpart in the other. And the same is often true of basic physical theories. For instance, where Newtonian mechanics has one single concept 'mass', special relativity has two, 'rest mass' and 'relativistic mass'; and the following holds true. If the Newtonian concept 'mass' has at all a counterpart in relativity theory, it must be 'rest mass', but these concepts are nonetheless not synonymous. Synonymous concepts can be contrasted with the same other concepts, but only 'rest mass' can be contrasted with 'relativistic mass'; 'mass' cannot. This un-translatability does not, however, imply general incomparability and epistemological relativism. Any physicist can compare the theories and realize that both cannot be wholly true. As translators are bilinguals, physicists may become bi-theoreticals. And as translators – without using any criterion manual – can discuss what is the best translation of an 'un-translatable' poem, physicists can – without using any criterion manual – discuss what is the most truthlike theory of two incommensurable theories.

Applying the notion of truthlikeness to the history and future of science allows us to think of scientific achievements the way engineers think of technological achievements. If a machine functions badly, engineers should try to improve it or invent a new and better machine; if a scientific theory has many theoretical problems and empirical anomalies, scientists should try to modify it or create a new and more truthlike theory. As in engineering it is natural and common to invent imperfect devices, in

science it is natural and common to create theories that turn out not to be true. In both cases, however, there is an obligation to seek to improve things, i.e., improve problematic machines and problematic theories, respectively. Also, and for everybody, it is of course better to use existing technological devices than to wait for tomorrow's, and it is better to trust existing truthlike theories than to wait for the science of tomorrow.

False assertions and fictional assertions are in one respect different and in another similar. They are different in that it is possible to tell a lie using a false assertion but not using a fictional one. When we lie we present as true an assertion that is false, but fictional assertions are beyond the ordinary true-false dimension. The two are similar in that neither refers to anything in reality that corresponds exactly to the assertion in question. A false empirical assertion lacks a truthmaker, and a fictional assertion cannot possibly have one. Therefore, it is easy to confuse the view that all theories are false with the view that all theories are about fictions. Nonetheless, it is astonishing how easily social constructivists move from speaking about false theories in the history of science to speaking about theories as being merely social constructions, i.e, as being about what is normally called complete fictions. Why don't they believe that stories can contain a mix of true statements and fictional statements?

If one assertion is more truthlike than another, then it is by definition also less false. However, this 'falsity content' (to take an expression from Popper) can easily be turned into a 'fictionality content', whereupon the more truthlike assertion can also be said to be a less fictional assertion. When we are reading about, say, Sherlock Holmes, we have no difficulty placing this fictional character in a real setting, London between 1881 and 1904. In many fictional discourses not everything is fictional, and we often have no difficulty apprehending such mixtures of real and fictional reference. Something similar is true when one reads about the history of science. For example, when one reads about the false hypothesis that there is a planet Vulcan between Mercury and the Sun, which would explain some anomalies that Newtonian mechanics were confronted with, there is no problem in taking Vulcan to be a fictional entity postulated as existing in the real solar system in about the same way as we take Holmes to be a fictional character in a real London. When one reads about the false hypothesis that there is a chemical substance, phlogiston, which *exits*

burning material (where in truth, as we now know, oxygen *enters* burning material), then there is no problem in taking phlogiston to be a fictional substance in the world of real burnings. When one reads about Galen's view that the arterial system contains pneuma or spiritus, then there is no problem in taking this pneuma to be fictional, but the arterial system to be real.

Those who write about the history of science often make the reader look upon statements which were once false assertions as being assertions about fictions. In retrospect, we should look upon superseded theories as *un*intentionally containing a mix of reality and fiction in the way reality and fiction can be intentionally mixed in novels. This is to give fictions their due place in science.

Apart from all other curiosities, social constructivism is self-reflectively inconsistent. Social constructs are created, but if everything is a construction, then nothing can construct. Unfortunately, social constructivists shun this kind of self-reflection.

The fact that Popper's fallibilistic epistemological realism is far more reasonable than all forms of positivism and social constructivism does not imply that it is in no need of improvements. We will stress a semantic observation that underpins epistemological realism; we will present it by means of a detour.

When we look at things such as stones, trees, and walls, we cannot see what is on the other side. But things like water and glass are such that we can look through them to the other side. In the case of glasses, microscopes, and telescopes, this feature is extremely useful. By *looking through* such lenses, we are able to have a better *look at* something else. This phenomenon of 'being-aware-of-*x*-through-*y*' is not restricted to the visual sense. It can be found in the tactile realm as well. You can grip a tool and feel the tool against your palm, but when you are very good at using such a tool, this feeling disappears. You are instead primarily aware of whatever it is that the tool is affecting or is affected by. For instance, when you are painting a wall with a brush, you are only (if at all) indirectly aware of your grip of the brush, and are instead aware only of the touching of the wall. You are *feeling through* the brush and *feeling (at)* the wall. What glasses are for people with bad sight, the white cane is for blind people.

Speech acts, listening acts, writing acts, and reading acts – in short, language acts – are, just like glasses and white canes, tools for improving everyday life. They can be used to convey and receive information, to give and take orders, to express emotions, and to do many other things. Even though language acts do not have the same robust material character that tools have, they nonetheless display the same feature of being able to be both 'looked at' and 'looked through'. When you look at linguistic entities, you are directly aware of them as linguistic entities, but when you look through them you are at most indirectly aware of them. When, for example, you are conveying or receiving information in a language in which you are able to make and understand language acts spontaneously, you are neither looking *at* the terms, concepts, statements, and propositions in question, nor are you looking at grammar and dialects. Rather, you are looking through these linguistic entities in order to see the information (facts, reality, objects) in question. When, then, are we looking *at* linguistic entities? We look at them, for example, when we are reading dictionaries and are examining terminologies. If I say 'Look, the cat has fallen asleep', I want someone to look through the term 'cat' and my assertion in order to receive information about a state of affairs in the world. But if I say 'In WordNet, the noun 'cat' has 8 senses', then I want someone to look at the term 'cat'.

Our distinction between looking *at* and looking *through* is similar to the traditional distinction in semantics between the *use* and *mention* of linguistic entities, and it applies both to factual talk and to reading novels. In fictional discourse, terms are *used* as much as they are in talk about real things, but they are used in a very special way. Fictional discourse is *about* fictional characters; it is not about terms and concepts. In fact, we are standardly using the same terms and concepts both in fictional and factual discourse.

When you are not using lenses, you can look at them and investigate them as material objects of their own in the world. For instance, you can try to find out what their physical properties and internal structures are like. In the world of practice, we investigate tools this way only when they are not functioning properly and are in need of repairing. Something similar holds true of terms and concepts. We normally bother to look *at*

terms and concepts in dictionaries only when our language acts are not functioning well – think for instance of learning a new language.

Furthermore, we are able to switch quickly between looking through and looking at things. Car drivers should look through, not at, the windshield, but when driving they should also have the ability to take a very quick look *at* it in order to see whether, for instance, it has been damaged by a stone. Something similar is true of people using a foreign-language dictionary. They should be able to take a look at a certain foreign term and then immediately start to look through it by using it. Let us summarize:

1. In the same way that we can both look at and look through many material things, we can both look at and look through many linguistic entities.
2. In the same way that we can quickly switch between looking at and looking through glass, we can quickly switch between looking at and looking through linguistic entities.

And let us then continue the analogy by adding still another similarity:

3. In the same way that consciously invented material devices for 'being-aware-of-*x*-through-*y*', such as microscopes and telescopes, have provided new information about the world, consciously invented linguistic devices for 'being-aware-of-*x*-through-*y*', such as scientific conceptual systems, have provided new information about the world.

By means of the *invention* of new concepts, we can sometimes *discover* hitherto completely unnoticed facts. Often, we (rightly) regard discoveries and inventions as wholly distinct affairs. Some things, such as stones, can only be discovered, not invented; others, such as bicycles, seem only to be inventions. One person might invent and build a new kind of bicycle, and another person may later discover it; but the first person cannot both invent and discover it. These differences between inventing and discovering notwithstanding, devices for 'being-aware-of-*x*-through-*y*' present an intimate connection between invention and discovery. By means of new

'being-aware-of-*x*-through-*y*' inventions, we can discover *x*. There are many *x*'s that we can discover only in this way.

The third point above should partly be understood in terms of the notion of truthlikeness: if an existing conceptual system is confronted by a conflicting conceptual system which has a higher degree of truthlikeness, the latter should supersede the former. But the notion of truthlikeness should also be understood by means of the distinction between looking at and looking through. We introduced the idea of truthlikeness with the three assertions 'The sun is shining from a completely blue sky', 'It is somewhat cloudy', 'It is raining', and we said that, *given that the first assertion is true*, the second one seems intuitively to be more truthlike than the third. A standard objection to such a thesis is that this sort of comparison can show us nothing relevant for a correspondence theory of truth, since what we are comparing are merely linguistic entities, namely assertions, and the result can only show conformances between assertions. However, this objection overlooks the distinction between looking at and looking through. Looking at the assertions allows us to see only conformances between the assertions as such, but when we have learned to switch from looking at them to looking through them – at reality – then we can coherently claim that the second corresponds better to reality (is more truthlike) than the third.

In the same way that our choice of kind of lens may determine what we are able to see, so our choice of concepts determines what we can grasp. Such a determination is compatible with the view that we can acquire knowledge about the world: it does not render truth a wholly social construction. When, through a concept, we look at and grasp some thing and/or features in the world, this concept often does for us at least three different things:

(i) it *selects* an aspect of the world (for instance, physical, biological, or social)
(ii) it *selects* a granularity level (for instance, microscopic or macroscopic)
(iii) it *creates* boundaries where there are no pre-given natural boundaries.

Nonetheless,

(iv) the concept *does not create* this aspect, this granularity level, or what is bounded.

Think of the concept ‘heart’. It selects a biological aspect of the human body, it selects a macroscopic granularity level, and it creates a boundary line between the heart and its surroundings, which does not track physical discontinuities at all points, as for example where the heart meets the aorta and the veins. But, nonetheless, our invention of the concept ‘heart’ does not *create* our hearts, and there were hearts many millions of years before there were concepts.

Both perceptions and linguistic acts (talking, listening, writing, and reading) are intentional phenomena, i.e., they are *directed at* something which they are about. Like all intentional phenomena, they are marked by a tripartition between (intentional) *act* or state, (intentional) *content*, and (intentional) *object*. Assume that you are reading a physician’s report about your heart, which tells you that your heart has some specific features. At a particular moment, there is then your reading *act* along with what you are reading about, the intentional *object*, i.e., your heart and its properties. But since your heart exists outside of your reading act, there must be something within the act itself in virtue of which you are directed towards your heart and its properties. This something is called the *content*; in assertions, it consists of propositions. When an assertion is completely false there is no corresponding intentional object; when it is completely true there is a corresponding intentional object; and when it is partly true there is only a partly corresponding intentional object.

A move made by many idealists in the history of philosophy is to argue that there *never* are any intentional objects that are distinct from the intentional contents of our acts of thinking and perceiving. Modern social constructivists make the same kind of move. But since they think that there is no thinking without a language and no perception not structured by language, they think that all there is are language acts and language content. It deserves the label ‘linguistic idealism’.

Social constructivists often ask: ‘From what position are you talking?’ In order to answer this question, we will bring in Thomas Nagel (b. 1937). We regard ourselves as speaking from the kind of naturalist rationalist position that he has tried to work out in *The View from Nowhere* and *The*

Last Word. Below are two quotations. The first is from the introduction to the latter book, and the second is its ending paragraph.

> The relativistic qualifier—"for me" or "for us"—has become almost a reflex, and with some vaguely philosophical support, it is often generalized into an interpretation of most deep disagreements of belief or method as due to different frames of reference, forms of thought or practice, or forms of life, between which there is no objective way of judging but only a contest for power. (The idea that everything is "constructed" belongs to the same family.) Since all justifications come to an end with what the people who accept them find acceptable and not in need of further justification, no conclusion, it is thought, can claim validity beyond the community whose acceptance validates it.
>
> The idea of reason, by contrast, refers to nonlocal and nonrelative methods of justification—methods that distinguish universally legitimate from illegitimate inferences and that aim at reaching the truth in a nonrelative sense. Those methods may fail, but that is their aim, and rational justification, even if they come to an end somewhere, cannot end with the qualifier "for me" if they are to make that claim (Nagel 1997, p. 4-5).

> Once we enter the world for our temporary stay in it, there is no alternative but to try to decide what to believe and how to live, and the only way to do that is by trying to decide what is the case and what is right. Even if we distance ourselves from some of our thoughts and impulses, and regard them from the outside, the process of trying to place ourselves in the world leads eventually to thoughts that we cannot think of as merely "ours." If we think at all, we must think of ourselves, individually and collectively, as submitting to the order of reasons rather than creating it (Nagel 1997, p. 143).

Reason, Nagel says, has to have the last word. However, this statement needs to be qualified. As a reviewer notes with regard to Nagel's book: "reason has the last word – or perhaps only the last but one, since reality,

reason tells us, has always the absolutely last word"' (Lindström, p. 3-6). Let us in the next two chapters see how this last word may make itself visible among all the words we use.

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