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Taking Simmel seriously in evolutionary epistemology

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Abstract

Donald T. Campbell outlines an epistemological theory that attempts to be faithful to evolution through natural selection. He takes his position to be consistent with that of Karl R. Popper, whom he credits as the primary advocate of his day for natural selection epistemology. Campbell writes that neither he nor Popper want to give up the goal of objectivity or objective truth, in spite of their evolutionary epistemology. In discussing the conflict between an epistemology based on natural selection and objective truth, Campbell cites an article by the German sociologist and philosopher Georg Simmel entitled 'On a Connection of Selection Theory to Epistemology', as presenting the issue in a notably forthright manner.

The present essay summarizes Simmel's article, with the purpose of clarifying, in terms that Campbell apparently finds satisfactory, the conflict that Campbell acknowledges between an evolutionary epistemology and ultimate truth; the essay then examines the responses of Campbell and Popper to Simmel's position. While Campbell and Popper acknowledge the work of Simmel, their responses suggest something less than a full consideration of Simmel's position. © 2002 Published by Elsevier Science Ltd.

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1. Editor's introduction

In an essay entitled 'Evolutionary Epistemology', a contribution to *The Philosophy of Karl Popper*, Donald T. Campbell outlines an epistemological theory that attempts

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to be faithful to human evolution—biological and social—through natural selection. He takes his essay to be consistent with the works of Karl R. Popper, whom he credits as the primary advocate of his day for natural selection epistemology (Campbell, 1974, p. 413). Campbell writes that although their evolutionary epistemology, 'with its basis in natural selection for survival relevance' (Campbell, 1974, p. 447), seems to militate against objectivity and absolute truth, neither Popper nor he 'intend to relinquish the goal of objectivity, and must therefore reconcile it with the natural selection epistemology to which that very quest for objective truth has led [them]' (Campbell, 1974, p. 448).

In discussing the conflict between an epistemology based on natural selection, on the one hand, and objectivity and absolute truth, on the other, Campbell cites an 1895 article by the German sociologist and philosopher Georg Simmel entitled 'Ueber eine Beziehung der Selektionslehre zur Erkenntnistheorie' ('On a Connection of Selection Theory to Epistemology'), which first appeared in *Archiv für systematische Philosophie*, as presenting the issue 'forcibly' (Campbell, 1974, p. 447). The article is not (or at least its ideas are not) completely unknown to English-speaking writers on epistemology (and especially evolutionary epistemology); but references to it are sparse, and it seems to be unpublished in English translation.[1]

Campbell's citation of Simmel's article provides the impetus for the present essay.

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[1] The article is mentioned twice in Campbell's essay: first, in a section entitled 'Historical perspectives on evolutionary epistemology'; and, second, in a section entitled 'Pragmatism, utilitarianism and objectivity', in which Campbell claims that Simmel's article is especially effective in laying out the conflict between evolutionary epistemology and objective or absolute truth. The first mention includes a footnote giving Campbell's sources of information on Simmel: an unpublished paper by Herman Tennessen that is an English-language abstract of Tennessen's Norwegian-language chapter on Simmel's article; and an unpublished English-language translation of Simmel's article by Irene L. Jerison.

Furthermore, Tennessen's English-language book *Problems of knowledge* includes a paragraph on Simmel and a reference to the above-mentioned Norwegian-language chapter (Tennessen, 1980). There is a published work under Jerison's name, a book she co-edited entitled *Intelligence and evolutionary biology*. The book makes no mention of Simmel.

Other relevant references to Simmel I have found are in an essay by W. W. Bartley III, entitled 'Philosophy of biology versus philosophy of physics', and an essay by Kai Hahlweg and C. A. Hooker entitled 'Evolutionary epistemology and philosophy of science'. Without bibliographic reference, Bartley writes, 'It is now well-known, and argued by Simmel, Uexküll, and others, that the phenomenal worlds of animals differ from one another and from man's' (Bartley, 1987, p. 36). Simmel, in fact, makes this claim in the article cited by Campbell. Again, without bibliographic reference, Hahlweg and Hooker write '[Lorenz and Piaget] were certainly not the first to accept the fruitfulness of attempting to bring biological science and epistemology into interaction and interrelationship with one another. Among many precursors one can point to such important thinkers from the preceding generation as James M. Baldwin, Ludwig Boltzmann, Ernst Mach, Henri Poincaré, Georg Simmel, and William Whewell as having expressed related points of view and thus beyond the explorations of Darwin himself (cautions), Huxley and Spencer (speculative) and the great pragmatists Peirce and Dewey' (Hahlweg & Hooker, 1989, p. 25).

Finally, there is the English-language review by Mogens Blegvad of a German-language book by Horst Jürgen Helle entitled *Soziologie und Erkenntnistheorie bei Georg Simmel* (*Sociology and epistemology in Georg Simmel*). Helle is concerned to show how Simmel's epistemology gives rise to his social theory, though the reviewer challenges the notion that Simmel has a 'consistent and valid' epistemology (Blegvad, 1989, p. 209). Most interesting for the present discussion is Helle's discussion of Simmel's ideas about the objectivity of truth.

I will summarize Simmel's article with the purpose of clarifying, in terms that Campbell apparently finds satisfactory, the conflict that Campbell acknowledges between an evolutionary epistemology and objectivity and absolute truth; and then I will examine the responses of Campbell and Popper to Simmel's position. While Campbell and Popper acknowledge the work of Simmel, their responses suggest something less than a full consideration of Simmel's position.

Simmel begins by noting that many people—both realists and idealists—have thought that human knowing developed out of vital needs of protection and preservation of life. But, at the same time, what is to be known is assumed to be an objective truth independent of human knowing. Hence, there appears a dualism 'of practical, vital needs on the one hand, and on the other, the objectively perceptible world that stands over against them' (Simmel, 1895, p. 35).[2] On this view, what Simmel calls 'inner utility' and 'outer reality' are related only by human knowing. He asks whether there might be a common origin for both sides of the dualism and a unifying principle that will mend the split.

He begins by considering the claim that the products of human knowing, that is, conceptions, must be true in order to guide action to beneficial outcomes. Given this, there is no other means by which conceptions can be proven true apart from their issue in successful action. Utility determines correctness of conceptions, and correctness is knowable only through the results of action. It makes no difference if knowing has become an independent sphere of human activity with its own criteria of truth and falsity, because these criteria themselves are subject to judgement based ultimately on their utility. Simmel concludes:

> Therefore, one could perhaps say, there is no theoretically valid 'truth' at all on the basis of which we act appropriately. Rather, we call those conceptions 'true' which have shown themselves to be motives of the proper, life-promoting actions. (Simmel, 1895, p. 36)

Simmel believes that this eliminates the dualism and converts truth from an agreement of conceptions with reality—empirical or transcendental—to a quality of conceptions in virtue of which they cause life-advancing action.

The question now, according to Simmel, is whether the concept of truth can survive separation from absolute objectivity. Can the concept of truth remain viable when conceptions are called true because they are determined through natural selection to be the bases of beneficial action? Simmel thinks so, but he anticipates resistance from those who continue to see a need for an independent truth in order to plan and predict successful action in the future. He claims this view is based on the 'prejudice that a cause must have a morphological identity with the effect' (Simmel, 1895, p. 36). He understands the prejudice in this way: if one acts on a conception with the purpose of eliciting definite, expected responses from the external reality,

[2] All references to Simmel are to the original German-language article. All translations are mine.

then the conception must contain a picture of the event and the means, otherwise some other event is likely to occur.

Simmel responds by recasting the role of the conception in action. He claims that the conception of an intended movement does not immediately produce this movement, rather it produces unconscious nerve and muscle processes which in turn realize the ultimate aim of the conception only through further causal processes. It is not morphological identity at work. The conception produces processes fully other than what is intentionally conceived but that lead eventually to the intended outcome, that is, the perceptible outcome corresponding to the issue of the conception.

No congruity of the content of conception and reality is required in order to realize an intention. Rather, the intention generates a power that drives processes of change in the mental, physical and inorganic realms and thereby leads to satisfactory results. In Simmel's words, 'it is not the conception but the conceiving that is active' (Simmel, 1895, p. 38). It is not the content of a conception but rather the psychological power it generates that leads to an intended outcome. Simmel writes:

> The conception that becomes manifest to consciousness as determinate content is a final developmental result of the internal process. In the definite, conscious conception, the conceiving achieves its end. What is further active beyond the conscious conception is not this content but rather the power which bears it or the dynamic process of which it is only the conscious aspect welded to the process in a still unexplained manner. (Simmel, 1895, p. 38)

Thus, the beneficial results of some action are not a part of the content of an originating conception, and the successful issue of a conception cannot be fixed in a relation of conceptual contents to external world. According to Simmel, it is precisely this distinction between conceptual content and dynamic conceptual power that drives the wedge between the notion of agreement of contents with objectivity or ideal thought, on the one side, and useful effects, on the other.

The next question Simmel takes up is this: if those conceptions that prove beneficial and life-advancing are established through natural selection and comprise the whole of what we call truth, thereby denying appeal to some metaphysical, absolute objectivity, what is the criterion by which particular conceptions are called true or false? Simmel answers that it is an immanent relation between the body of conceptions that determines truth and falsity of individual conceptions, in other words, coherence among conceptions selected for life-advancing utility. This coherence presupposes axioms that govern the conceptual system, but Simmel points out that these axioms themselves are not subject to any theoretical standard by which they can be proven true since an axiomatic system cannot be the ground for its own axioms. In this way, according to Simmel, such axioms are like those of geometry or of a legal system. He writes, '[t]he axioms of geometry are not to be proven by geometrical methods. The basic concepts of the law are not to be proven by legal methods' (Simmel, 1895, p. 39). Hence, he claims the axioms and the details of a system cannot be true in the same sense. Only the details or elements of the system can be proven true, and then only in relation to each other and according to assumed basic

principles. The truth of the system cannot be theoretical; rather the truth of the system lies in its utility 'as a departure point of practical action' (Simmel, 1895, p. 40).

Simmel finds support for grounding truth on utility when he considers non-human life. Non-human animals make their way through the world differently from humans because they sense the world differently. The keenness of their senses is greater or lesser than that of humans and in some cases they have wholly different sense organs with which they engage their environment in a wholly different way. The cause of these differences, thinks Simmel, is the different demands placed upon organisms living in different conditions. Therefore, different animals will necessarily end up with different pictures of the world. Yet Simmel thinks there is still a difference between true and false perceptions for animals. He claims that animals are subject to errors and illusions, but correction cannot be conversion to absolute truth. Rather, a false perception is converted into one that is helpful for a certain animal in certain conditions. The variability of truth resulting from varying experience suggests to Simmel that there may not be any absolute truth, but rather many kinds of truth corresponding to the many kinds of lived experience.

He thinks this result is applicable to human knowing as well. He writes:

> it might be the case even with us that those demands, in forming our physico-psychical organization, have the power to determine what should be called truth by us. The fact that even conceptions which we later judge as mistaken are useful to us, that is, can lead to useful actions, coheres easily with the fact that, in view of the complexity of our nature, our interests are often mutually contradictory. (Simmel, 1895, p. 41)

On Simmel's view, mistaken conceptions seem to imply that change is an unavoidable part of our environment. Since things change, what is beneficial changes, that is, our interests change, or—what amounts to the same thing—we must adapt. This seems to preclude fixed, final truths (this holds, perhaps, even if truth really is correspondence to the facts of an objective reality). But if human existence is inextricably bound up with change, does this not obviate the possibility of science, of any sort of meaningful progress? All that can be said is, apparently not; at least, it has not done so yet. Human experience also includes stability, as evidenced by our ability to correct mistakes when they show themselves and to move on to other conceptions that lead to further beneficial action and so further living.[3] Why should one be privileged over the other? (Why side with either Heraclitus or Parmenides—or even Plato for that matter?)

Simmel distinguishes his position from one that says that prudent creatures that

[3] Cf. John Dewey, *Experience and nature*, especially Chapter 2, 'Existence as Precarious and as Stable'. Dewey writes, 'As against this common identification of reality with what is sure, regular and finished, experience in unsophisticated forms gives evidence of a different world and points to a different metaphysics. We live in a world which is an impressive and irresistible mixture of sufficiencies, tight completenesses, order, recurrences which make possible prediction and control, and singularities, ambiguities, uncertain possibilities, processes going on to consequences as yet indeterminate' (Dewey, 1981, p. 47).

think logically have an advantage that allows them to thrive and further the species. This creates the utility of knowing the reason for evolutionary success. This is not Simmel's position because, first, it assumes as fact the utility of action based on correct thinking. Simmel proposes only to find the connection between what is called true knowing and increased chance of survival. Here the assumption as fact of the utility of correct thinking is the assumption of true knowing independent of actual knowing. Hence, one is again faced with the problem of connecting subjective belief with the true knowing that is beneficial. Simmel writes that the connection

> becomes conceivable only if the utility of the acting appears as the primary factor in cultivating certain behaviors and along with them their psychological bases that count precisely as true knowing in a theoretical respect; so that originally the knowing is not first called true and then useful, but rather is first useful and then called true. (Simmel, 1895, p. 41)

On Simmel's view, there can be no assumption of a truth apart from utility on pain of a dualism between what we actually know and what we need to know to survive. To avoid the dualism one must put all one's eggs in the basket of actual human knowing based on utility. To do otherwise seems to be assuming something without warrant, in the sense of assuming something that may appear relevant but that remains, in principle, beyond human experience and so is utterly irrelevant for human life.

The second reason for distinguishing the two positions is this: even if there were a purely theoretical knowledge independent of practical experience but which is acquired only through practical experience, one would still need a special experience (perhaps revelatory) by means of which to find the beneficial action to be undertaken on the basis of the objective reality. On Simmel's view, knowledge of beneficial action is accessible to human knowing 'because the experience of the effect of acting creates, at the same time, the truth' (Simmel, 1895, p. 44). There is no dualism and no need for a special experience.

In closing, Simmel characterizes the difficulty that faces an epistemology grounded in natural selection that is, at the same time, committed to an absolute objectivity. One cannot at first aver absolute truth, and then when giving account of an evolutionary epistemology attempt to derive it 'from the bare subjective requirements of the conscious being' (Simmel, 1895, p. 45). Objective truth at first set apart and outside all concrete, lived experience cannot then 'grow out of the practical demands of the subject' (Simmel, 1895, p. 45); that is, it cannot then be imported into an account of knowing based on evolution and natural selection.

In his essay, Campbell writes that he can give only brief comments in response to the issues raised by thinkers like Simmel. He makes two points relevant to Simmel's position. First, as a realist, Campbell distinguishes himself from naive realism that identifies the real with the phenomenally given. He acknowledges that the different life conditions of different animals lead to different pictures of the world. Yet he claims that a complete physics can subsume all the various conceptions of varying realities.

The problem with this response is that it seems to neglect the fact that physics is yet another mode of human response to life conditions. It is not clear why a complete physics—whatever that could be—should be privileged over other modes of experience and navigating the world.[4] Indeed, if it were complete in the sense of fixed and finished, it seems that, on Simmel's view, it would be especially subject to declining utility and so more likely to be shunned than privileged and deemed true. Physics and science are certainly responsible for many important advances, but these advances are beneficial not in virtue of physical or scientific knowledge alone. That is, it requires another kind of expertise to apply the results of narrow scientific inquiry in a way that makes a beneficial difference. And the success of physics and science does not supplant the success of other modes of experience in other situations. Does physics obviate the success of birds with their inborn capacity for flight given their life conditions or does it not rather change conditions so that humans are now able to fly; that is, does it not rather function as an adaptation of those who can experience in a scientific mode, namely humans?

Campbell's second point is that evolution is 'profoundly committed to an organism-environment dualism, which when extended into the evolution of sense organs, perceptual and learning functions, becomes a dualism of an organism's knowledge of the environment versus the environment itself' (Campbell, 1974, p. 449). He maintains that this leads the theorist to see observed subjects interacting over against a 'real world', and there is, hence, no additional assumption made when the theorist assumes humans as knowers to be in the same situation. He allows that one cannot have actual, external standards for human knowledge, '[b]ut this practical limitation does not necessitate abandoning an ontology one is already employing' (Campbell, 1974, p. 450).

An evolutionary theorist is committed to this dualism of knower and objective reality only if he or she already holds the view that knowing is correspondence to some external reality. The theory of evolution itself is not committed to any such dualism. Campbell seems to suggest that since evolution posits interaction between organism and environment, we land back in the same dualism that Simmel argues against throughout his article. But why would he suggest this? If evolution assumes that things change in interaction, why assume that only one partner of the interaction changes while the other remains fixed and hence provides a standard of knowledge? In fact, evolution suggests another view of knowing—the one outlined by Simmel. Evolution suggests that the object of knowing is not something outside of human experience, rather the object of knowing is the experienced conditions of interaction between organism and environment and the consequences that flow from these conditions. Given this, writes John Dewey in his essay 'The Influence of Darwinism on

[4] Campbell does use the phrase 'a complete physics' (Campbell, 1974, p. 448), though to be fair he has said that he thinks knowledge is better characterized by the concept of a map rather than in the form of statements precisely because 'a "map theory of knowledge" hasn't burdened itself with the notion of *complete exhaustion of the referent*; unlike many versions of the statement theory of knowledge'. Of course, this could mean only that we can never completely know the things in themselves, and this would run counter to the thrust of Simmel's position on human knowing.

Philosophy', 'no intelligible question can be asked about what, by assumption, lies outside' (Dewey, 1977, p. 11). Indeed, given Simmel's account of knowing and truth, what could it mean to speak of knowledge of the environment versus the environment? Simmel does not take successful fit or even the presumption of successful fit of conceptions to reality as proof of truth; rather he takes success, that is, the advancement of life, as the only proof.

Following Dewey further, it would appear that the radical split of organism and environment suggested by Campbell is impossible.[5] There is mutual interaction with mutual consequences, and hard and fast boundaries seem dubious. Surely there are functional divisions to be made, but they have their limit. Deny an organism its environment and it dies; deny a species its environment and it becomes extinct. One can maintain the conceptual distinction, but if enforcing the split in concrete experience eliminates a conceptually separated part and so eliminates the entire interaction, what does the distinction serve other than some airy, metaphysical notion of absolute truth? In fact, on Simmel's view it would seem to be wholly false given such deleterious effects.

Campbell claims that no further assumption is made when one assumes humans as knowers to be in the same position as laboratory animals interacting with an environment and observed by humans. In animal observation, one studies the relationship between the cognitive capacities of the animal and the environment cognized by the animal. Campbell calls this ' "epistemology of the other one" ' (Campbell, 1974, p. 449). In this arrangement, the observer acknowledges a concept of the 'real world' with which the animal interacts; and this concept is embraced and used even if the observer's own access to the supposed 'real world' is partial and limited. Campbell writes, '[h]aving thus made the real-world assumption in this part of his evolutionary epistemology, he is not adding an unneeded assumption when he assumes the same predicament for man and science as knowers' (Campbell, 1974, p. 449). This is correct if one is concerned with knowledge of others. But Campbell wants to make the same claim for self-knowledge.

Campbell acknowledges that humans cannot have an experience of themselves as they do of laboratory animals, but he still maintains that the assumption of a real world in the context of the 'human predicament' imports no additional ontological properties. This seems problematic. The assumption imports not merely the environment of the observed animal—human or not—which Campbell acknowledges to be known only partially and in a limited way; but rather a complete real world. (If the assumed real world is not complete, how is it to serve as the goal for all correct science?) What has been imported is a world that is neither experienced nor capable of being experienced.[6] Campbell would respond that presumptions that go beyond

[5] See John Dewey, *Art as experience*, especially Chapter 1, 'The live creature'. Dewey writes, 'The career and destiny of a living being are bound up with its interchanges with its environment, not externally but in the most intimate way'.

[6] Campbell seems to dismiss such an objection as a 'practical limitation'. It is not clear what other kind of limitation would be substantial enough to block the propagation of a theory, unless one's theorizing is detached from action, in which case it might be better identified with fantasizing than with theorizing.

the data are always required (Campbell, 1974, p. 449). This is correct, but such presumptions are called hypotheses and are the basis of experimental activity. It is a further move to make such presumptions the basis of a doctrine of an 'ultimate truth' (Campbell, 1974, p. 447) to which our best theories correspond even if we can never fully arrive at this truth.

In the context of Campbell's overall project, the assumption of a 'real world' in his sense seems to import a fairly substantial ontological element not present when one observes a rat in a maze, namely God—that is, an observer outside of human experience who observes and knows human interaction *überhaupt*. Or, if God is not assumed, then the extra ontological element is, at least, a possibly vacant position which God would otherwise fill. So whether he imports God or merely God's throne, the move from observing rats to assuming a real world independent of experience seems fairly big.

The organism-environment dualism is characterized elsewhere by Campbell as a *puzzle of design*. He maintains that a theory of knowledge cannot rest content with a skeptical analysis but must grapple with this puzzle by making it conceivable that the beliefs underlying scientific advances refer increasingly well to 'the invisible realities to which they allegedly refer' (Campbell, 1988, p. 372). He compares this puzzle to the puzzle of the fit of organisms to the opportunities present in their environment. He acknowledges that such puzzles are not proven to exist and so seems to make a place for the skeptical response to the claim of an organism-environment dualism given above. But he characterizes the two positions (the one that does not recognize such puzzles and the one that does) as distinguished by an unquestioning faith in God or the 'Scientific Method' in the first case, and by an admiration of the scientific achievements of the last four centuries and of the adaptations of animals in the second case. On this view, then, it seems that to decline the metaphysical trip outside of concrete human experience with its real contingencies and instabilities is to rest easy in a kind of blind faith.

To consider Popper's position with regard to Simmel's article, first, consider Popper's reaction to what Campbell has written: 'For me the most striking thing about Campbell's essay is the almost complete agreement, down even to the minute details, between Campbell's view and my own' (Popper, 1974, p. 1059).[7] The points on which he disagrees with Campbell include an analysis of Kant's *a priori* categories, and views on the difference between human and animal knowledge, both of which seem, for the most part, irrelevant to the present discussion. Popper and Campbell

[7] Since Popper wrote those words it has become an issue as to how much the views of Campbell and Popper actually agree. That they disagree profoundly on some points seems clear from an anecdote related by Campbell in Callebaut (1993), pp. 4–5. However, in 1988, writing explicitly about points of disagreement between himself and Popper, Campbell concludes the piece in this way: 'What we both vigorously reject, as moralizing citizens of the society of science, is for scientists to give up the goal of truth (validity, accurate description, competence of reference) . . . (. . . Popper and I are convinced that, in exemplary instances at least, this quarreling about the truth has indeed brought scientific theories closer to the truth, and that the search has thus been validly motivated. . .)'. They remain committed to something that human knowing moves closer to, something outside of human experience that guards against the human folly (namely, for Campbell, 'relativist sophistry' and 'career opportunism').

agree on basing epistemology on evolution through natural selection. Indeed, according to Campbell, evolutionary epistemology is Popper's great achievement. They also agree in their commitment to an objective reality. And presumably Popper has no qualms about Campbell's acknowledging the tension brought out by Simmel's article. So one may then ask, how does Popper himself respond to the issues raised by Simmel? It seems that Popper's response to Simmel's position would be, first, as to pragmatism or instrumentalism and, second, as to subjectivist theories of truth.

Popper writes that '[l]ater certain Pragmatists based their whole philosophy upon the view that the idea of "pure" knowledge was a mistake; that there could be no knowledge in any other sense but in the sense of *instrumental* knowledge; that knowledge was power, and that truth was usefulness' (Popper, 1962, p. 99). Since Simmel bases truth on utility, identifies true conceptions as those proven to be life-advancing, and clearly sets his position apart from one that distinguishes 'true knowing' and 'actual knowing' (Simmel, 1895, p. 43), he seems to fit the characterization Popper makes of these certain Pragmatists.

According to Popper, a specific implication of this position is that theories become instruments and science becomes 'nothing but computation rules' such as one finds in the '"applied" sciences'. Hence, the distinction between 'pure' and 'applied' science breaks down, in the sense that there is no account of the supposedly special activity of science in advancing knowledge (Popper, 1962, p. 111). He criticizes instrumentalism as 'a narrow and defensive creed according to which we cannot and need not learn or understand more about our world than we know already' (Popper, 1962, p. 103).

The critique is based on the second of Popper's three requirements for the growth of knowledge (or more precisely, his three requirements for theories that increase knowledge),[8] namely, the requirement that a theory be independently testable. This means that the theory, to be scientific and contribute to the growth of knowledge, must predict phenomena beyond those it was constructed to explain. The predictions permit one to devise tests that are independent of the concerns that originally prompted the theory, that is, tests not anticipated in the initial design of the theory. Failure to pass such tests is falsification or refutation of the theory (Popper, 1962, p. 241). In contrast, according to Popper, an instrument is tested in its application according to its designated function. Failed tests yield information about the limits of its applicability, not rejection of the instrument as false. In short, instruments are irrefutable (Popper, 1962, p. 113). On Popper's view, the test of an instrument is not rigorous enough or not rigorous in the right way, and so to claim that a theory is an instrument is to loosen the standards that make scientific theorizing such a successful way of augmenting knowledge.

For these reasons, Popper sees instrumentalism as limiting the growth of knowl-

[8] Of the three requirements, first is the requirement of simplicity: a new theory should come from a unifying idea that makes connections between things previously seen as disparate. Second is the requirement of independent testability: a new theory must predict observable phenomena beyond those it was designed to explain. Third is the requirement that a new theory should actually pass new and severe tests (Popper, 1962, pp. 241–242).

edge and being 'obscurantist' (Popper, 1962, p. 113). A theory as an instrument cannot, he thinks, take one beyond the already known, that is, its intended application.

These criticisms hold up only if one already has a conception of truth contrary to Simmel's position. Instrumentalism as extracted from Simmel's position can be obscurantist and limiting only if one already believes that there is a truth beyond that available to human experience. Popper is applying standards based on an already assumed absolutist notion of truth rather than showing instrumentalism to be untenable. His objections can be met within Simmel's framework and so provide no refutation of the position.

Grounding truth in utility, as Simmel does, does not erase the difference between scientific theories and instruments in the way that Popper describes. On Simmel's view certain intellectual practices may have proven more effective and beneficial than others, and these could include ones that seek unintended consequences of instruments prior to actual application for the purpose of securing utility to a greater degree. Furthermore, it may have proven beneficial to reserve such practices for certain kinds of instruments, namely scientific theories. This would explain Popper's second requirement for the growth of knowledge—the requirement of independent testability. This is itself beneficial and life-advancing in that it promotes scientific theories that, first, harmonize with the mass of conceptions already deemed true in their utility and, second, ultimately lead to or at least are consistent with beneficial action. Simmel seems to speak to this issue when he acknowledges that knowing may become an activity carried on according to developed criteria that immediately determine truth and falsity independently of the concrete demands of the immediate situation. He goes on to suggest that the truth or falsity of the theoretical criteria themselves cannot be determined in the same way. Instead, this must be determined according to the utility of the actions that the criteria ultimately occasion (Simmel, 1895, pp. 36–37). Hence, Simmel's position is consistent with a fuller account of what an instrument is, thereby making room for theories as highly specialized instruments whose function includes extending beyond their anticipated applications. Refutation in Popper's sense becomes important for such instruments but remains irrelevant for things such as knives and forks and air compressors. It is interesting to note that while the latter two are not normally called 'true', a blade, a wheel or the flight of an arrow may in fact be true. This suggests that perhaps Popper's notion of true is a bit thin.

Popper's charge of intellectual stagnation does not seem applicable to a position rooted in evolution by natural selection such as Simmel's is. Intelligent anticipation hardly seems inconsistent with selection for life-advancing traits. It is wholly conceivable that humans evolved curiosity and imagination because these promote life and survival of the species. It seems that it is not instrumentalism as a creed that is narrow, but rather Popper's conception of an instrument and his views on truth.

Popper would also object to Simmel's position as a subjectivist theory of truth. According to Popper, such a theory sees truth as a particular mental state, 'characterized, for example, by its history or by its relation to other beliefs' (Popper, 1962, p. 225). Subjective theories of truth

> all say, more or less, that truth is what we are justified in believing or in accepting, in accordance with certain rules, criteria, of origins or sources of our knowledge, or of reliability, or stability, or biological success, or strength of conviction, or inability to think otherwise. . . (Popper, 1962, p. 225)

The characterization does seem to apply to Simmel. But again the criticism is less than fatal. It seems to be quite closely related to one already discussed. Popper rejects this view of truth because he is again worried about being able to distinguish between pure and applied science, that is, between true theories and ones that are 'merely powerful instruments for certain purposes' (Popper, 1962, p. 226). A response based on Simmel's position would be a repetition of what has already been discussed. It seems that Popper is again employing an overly narrow sense of what an instrument is.

In addition to his seemingly dogmatic objections to Simmel's position construed as instrumentalism, Popper does little to solve the main problem that occupies Simmel, namely the dualism of vital needs and an objective reality. Rather, he seems to take objective reality as an article of faith propped up by an arguably mistaken interpretation of Tarski's semantic conception of truth,[9] and proceeds to argue, in spite of his evolutionary epistemology, that actual human knowing requires a regulative principle beyond possible human experience in order to solve problems and advance knowledge.

The dualism so 'forcibly' brought out by Simmel seems to provide no motivation to either Campbell or Popper to be thoroughgoing in their evolutionary approach. The project of reconciliation, to use Campbell's word, between an evolutionary approach and objectivity seems to be a narrow and defensive attempt to maintain a dogma that clings to an extra-human certainty (and this in spite of Popper's repeated claims that he is not engaged in a 'quest for certainty').[10] There is an abandonment of science and its root of human experience. Something absolute and beyond is still required to save us from ourselves.

2. 'On a connection of selection theory to epistemology' by Georg Simmel[11]

The supposition has long been held that human knowing (*Erkennen*) arose out of the practical needs of preserving and providing for life. The general assumption is that an objective truth exists whose content is uninfluenced by the practical interests of the knower. Furthermore, according to this view, we grasp this truth or our conceiving realizes this truth because the utility of conceiving the truth is greater than

[9] See Haack (1976), Popper (1979b), Gratten-Guiness (1984), Jennings (1983) and Healy (1986).

[10] Popper writes that 'science has nothing to do with the quest for certainty or probability or reliability' (Popper, 1962, p. 229), and '[t]he quest for certainty, for a secure basis of knowledge, has to be abandoned' (Popper, 1979a, p. 37).

[11] Originally published in *Archiv für systematische Philosophie, 1895* (1), 34–45. This translation by Martin Coleman.

that of conceiving error. This conception is common to the most varied schools of epistemology, including realism, for which perception is an immediate taking up and reflecting of an absolute reality, as well as idealism, for which knowledge is determined by *a priori* modes of thought. Since, for the latter, the content of correct knowing is objectively preformed by the relation of these modes to one another or to a transcendental factor, knowledge stands to these elements as a conclusion to premises, in which it is, so to speak, latent. Accordingly, the operation of the principle of utility, or of any other principle that impels us to knowing, has no forming influence at all upon the content of this knowing. Rather the principle brings about only the psychical realization of the very content which can only be so and not otherwise—just as utility can cause us to keep an account but not to obtain results other than those established by objective relations of the factors and without regard for our actual reckoning. These factors, as said, can be conceived as externally empirical as well as *a priori* ideal. Apparently, on the basis of each epistemological theory, the goal of the psychical selection can be expressed as parallelism of thinking and objectivity, because this is the only security that practice based on thinking will not collide with the hard reality of things and so realize a very unwelcome correction. The poet imagines thoughts dwelling easily with one another, whereas things in space bump into each other. However, in practical matters we ourselves are, so to speak, things in space. We learn very soon the reactions that follow from our acting among things in space. These reactions limit the easy dwelling of thoughts as soon as the reactions become the basis of acting. Therefore, even if inner utility and purely psychological laws really are the exclusive factors in the development of thinking, they must realize at least the same result as an objective reflection of reality. Since only true thought can be the basis of life-advancing action, then conceiving (*Vorstellen*) truly must be cultivated like muscular strength. Considering these plausible hypotheses I would now like to ask whether one could not find a unified principle to replace the dualism contained in them. This dualism consists of practical, vital needs on the one hand, and on the other, the objectively perceptible world that stands over against them. I would like to ask whether these two apparently mutually independent elements—the outer reality and the inner utility, which are to be set in a relation only on the basis of the knowledge (*Erkennen*) of the former—already meet at a deeper root.

If one says: our conceptions (*Vorstellungen*) must be true so that the action based on them is useful, then in that respect we have no other proof for the truth of our conceptions than the real advancement (*Förderung*) we have realized through action based on them. Therefore if it is really only the utility that cultivates correct thinking, then its correctness (that is, agreement with an ideal or material reality) is knowable only because of the outcome of the effect of the cause. Of course, if knowing has become just an independent sphere with developed criteria, then it determines the truth or falsity of the individual conception immediately and purely theoretically according to these criteria. But whether these criteria themselves (that is, the whole of our knowing) are in general true or false is according to our presupposition again not to be determined theoretically. Rather, this is to be determined only according to the utility or harm of the action that results from them. Therefore, one could

perhaps say, there is no theoretically valid 'truth' at all on the basis of which we act appropriately. Rather, we call those conceptions 'true' which have shown themselves to be motives of the proper, life-promoting actions. This eliminates the above-noted dualism. The truth of conceptions is no longer based on their agreement with some reality; rather truth is that quality of the conceptions which makes them into causes of beneficial actions, whereby it remains wholly undetermined whether the content of such conceptions possesses a similarity relation or some other constant conjunction to an objective order of things. Now the question is only whether the concept of truth may tolerate the casting off of the objectivity that stands opposite the conceiving (*Vorstellen*). One may think of this objectivity in the sense of transcendental realism or Lotzean ideal 'validity' ('*Gelten*') or in the purely empirical sense that even every idealism allows. With this the concept gives up its independence: the truth is no longer a property determined by theoretical criteria and belonging to conceptions that serve only when complete as the basis of appropriate action. Rather, those conceptions are indicated and obtained from the countless suddenly appearing conceptions by natural selection, and prove themselves useful by their further consequences. The word 'true' denotes nothing else than just this regular and practically beneficial result of thinking.

If the common conception holds fast to the view that thinking requires, above all, an independent truth so that one can estimate the success of an action ahead of time, then this conception depends on the widespread (*allenthaben auftauchenden*) prejudice that a cause must have a morphological identity with the effect. If one acts on the conception of an external reality that is supposed to respond to this action with definitely intended, appropriate reactions, then this conception seems to necessarily include an adequate picture of the external occurrence that results and the means to this occurrence. Otherwise, this particular occurrence would not follow from this conception; rather some other external occurrence would be realized. Here, above all, is the following to be considered for the first step in action.

The conception of the movement, which I intend and which also eventually really occurs, does not, however, immediately produce the realization of the movement. Rather, it produces an entirely different nerve and muscle process which does not occur in consciousness and whose form is not conscious. This process, for its part, realizes that conceived purpose only through further causal processes. Therefore, no intentional process in and for itself produces an effect that is morphologically identical to its content. Rather, it produces a fully differing effect. This effect is taken up in a further mechanical chain that then produces, by various transformations throughout, only the visibly corresponding realization of that intention. However, this realization of the intention signifies only that the intention occasions some external process. This process, for its part, reacts in this intention on the subject and produces the conception of the realization of the content of the intention or the satisfaction of the intention. Therefore, if we imagine the multi-part intentional action starting out from a conception on which it is based, then the effect of this conception is in no way the production of a structure which corresponds in content or is morphologically congruous with the conception. The intention's achievement of its goal and satisfaction of the drives and needs of the subject does not depend on congruity of

the content of the conception from which the intention starts out with the reality to which the intention directs itself. On the contrary, the intention only needs to develop a power, which, by means of the most varied transformations throughout the mental, physical and inorganic world, eventually ends in a subjective contentment or an objectively beneficial result. Moreover, those fundamental conceptions have little need of being 'true' in the usual sense (also in the sense conditionally permitted by idealism). That is, they have little need of bearing a similarity to the empirically external conditions that they shape in the way that the manipulations of the telegraph bear a similarity to the words whose written record they eventually cause at the other station. Or, stated differently, the conceptions that determine our action do not work their effects as a result of their content but rather as a result of the actual psychological power that they have to bring to bear. So one could say it is not the conception but the conceiving that is active. The conception that becomes manifest to consciousness as determinate content is a final developmental result of the internal process. In the definite, conscious conception, the conceiving achieves its end. What is further active beyond the conscious conception is not this content but rather the power that bears it or the dynamic process of which it is only the conscious aspect welded to the process in a still unexplained manner. For example, if I say that the conception M has the effect of calling into consciousness the associated conception N, then in this way the regular (*gesetzmässige*) course of an internal process is indicated, and two stations of the process appear in consciousness as M and N. The conceived content of M is itself not active any further. Rather, only the conceiving of it is still active. M as a phenomenon of consciousness that is finished and whose becoming conceived has come to an end is the indication that N will shortly be making an appearance. It is the active cause of N's appearance. It indicates that this cause is present. Therefore, that the action, which is the effect of conceptions, has practically beneficial results still is not prejudged to be a definite qualification of the content of the conceptions. On the contrary, the conceptions can work their effects in the external world as actual psychological powers and through physiological and physical transformation. The success (*Erfolg*) of these conceptions is not at all a constant and in principle to-be-fixed function of that relation that exists between their contents (the logical consciousness of them) and that empirical external world. This relation may be one of congruity and thus may correspond to the usual concept of 'truth', or it may not. In no case does *this* need to decide the direction that the further actual working of the conception-action as such follows. The split between the ideal or content-sense of the conception and the dynamic sense of the conception makes it possible to loosen the ties between the content-agreement with objectivity or wholly ideal thought and the useful effects.

I also assert this: among the countless conceptions that appear psychologically, there are some whose effects prove to be useful for action and life-advancing for the subject. These conceptions establish themselves in usual ways of selection and form in their entirety the 'true' conceptual world. If, with Kant, we are already clear that the correct knowledge of things does not come to be through the direct reflection of these things in the mind, and that therefore the truth in its perfection does not find its criterion in a metaphysical parallelism with an absolute objectivity, then the

question is: what is now the criterion of truth that brings it about that out of all conceptions generally some are called true and others false? It must be an immanent relation between them, since they cannot go beyond internal agreement and harmony of the individual conception with the whole of the world picture. This agreement of the details with one another is not, however, a mechanical correspondence (*Sichdecken*) like that of two congruent figures; rather, it at least presupposes axioms according to which agreement or contradiction is decided. But that these axioms themselves are 'true' in the theoretical sense again is clearly not theoretically knowable, since the ultimate foundation of a field can never be grounded from within but rather only from without. The axioms of geometry are not to be proven by geometrical methods. The basic concepts of the law are not to be proven by legal methods. The individual mathematical proposition is 'true' insofar as it is reducible to others. The truth of the axioms in which the reduction ends and which bear the whole system is itself not mathematical. Hence one can say: mathematical truth exists only *between* the individual propositions of the system (*Wissenschaft*); however, the system (*Wissenschaft*) as a whole, insofar as it is borne by its axioms, is not true in the same sense as its individual elements. Therefore, actually provable truth occurs always and only between individual elements of knowledge and according to assumptions of certain primary facts and principles. For that reason, the whole of knowledge is not actually true in the same sense as the details within it, since there is nothing theoretical apart from it by which its truth can be proven or in relation to which it could be true. And since the peculiar relation now exists such that conceptions that correspond to truth criteria are the bases and causes of useful action, one will be able to suppose as most probable that the concept of the conceptions' special dignity, which we call truth, has been formed from the fact of the utility of their further psychological and physical effects. For the foundation and the whole of the conceptual world, the truth can no longer lie in their theoretical qualities. The truth finds the 'counterthrust' ('*Gegenwurf*') that legitimates it or, more correctly, creates it as such in the utility that it possesses as a departure point of practical action.

Moreover, the grounding of the truth in utility—not only in regard to its acquisition but also its content and substance—is made more probable by a look at non-human physico-psychical organization. The sense-conceptions (*Sinnesvorstellungen*) of animals, with which they respond to the influences of the external world, must in many cases deviate as strongly as possible from our own. Undoubtedly, many animals have sensations (*Sinnesempfindungen*) that we fully lack. That is proven by certain behaviors of animals as well as by the detection of capacities (*Nervenapparaten*) for which we possess no analogue. Likewise, other animals doubtless lack many senses which are peculiar to us. Again, with other animals, the keenness of the qualitatively identical sensation is greater or lesser than with us. The cause of this disparity can be nothing other than the fact that for one kind of animal, one kind of sense endowment is the most useful and best suited to its living conditions; while for another kind of animal, another type is most useful and best suited to its life conditions. But, inevitably, from such varying material only wholly different pictures of the world can emerge. The conceptions which the animals form of existing things are thus in their disparity determined throughout by their subjective demands of life. But, doubt-

less, for animals also there is within their scope of perception a difference between true and false. We have enough proof that animals too are subject to illusions and correctable errors. However, a correction for them cannot mean that the false conception is changed into an absolute truth. Rather, it means that the false conception is changed into the conception that is normal for the relevant animal. For the animal, that conception is the true one that results in the animal conducting itself in the most beneficial way in its circumstances, because precisely the demand for this type of behavior has shaped even the organs which actually shape the animal's conceiving. The deep disparity of the actually existing sense world proves that there must be many kinds of such truths. From this variability of truth that results from the variation of experience it becomes clear that we might very well not possess an independent truth that stands opposite the demands of experience and to which only additionally these demands are set in some relation. Rather, it might be the case even with us that those demands, in forming our physico-psychical organization, have the power to determine what should be called truth by us. The fact that even conceptions which we later judge as mistaken are useful to us, that is, can lead to useful actions, coheres easily with the fact that, in view of the complexity of our nature, our interests are often mutually contradictory. That conception counts as an error which cannot survive in the long run and which is supplanted by conceptions whose assumption is appropriate for our predominant and lasting interests.

From the standpoint here proposed one difficulty is solved that even a theory yet designated as idealistic must find in the relation between conceiving and acting. That is to say, if it is already granted that the conceiving is fully and completely determined by the specific energy of the psychical organs and does not equal (*heranreicht*) the reality of the things in themselves, then surely the action seems to stand in a closer relation to these things. For in the action we attain a certain relationship to that reality of the objects, a relationship which only through the subjective forms of conception appears to us just in the knowing. If one may now say that in willing and acting we ourselves are things in themselves—or if one may insert into the region of the phenomena the problematic distinction as relative—the distinction, in any case, remains insofar as we ourselves in acting are a contributing factor to that reality whose reaction to us again becomes just an object of appearance. In any case, the world is not appearance to us as acting creatures wholly in the same sense as it is appearance to us as conceiving creatures. Thus we have, on the one hand, theoretical conceptions, of which we know that they do not give pure objectivity of things but rather only subjective phenomenon. On the other hand, on the basis of such conceptions we set ourselves in a practical—not a phenomenal (at least not in the same sense)—relation to reality. Nevertheless, this relation meets our expectation of success in everything and is beneficial for the maintenance and advancement of our existence. Here an agreement of two factors of wholly different nature and origin is apparently put forward and poses no small riddle—just like the dualism of thinking and extension discovered by Descartes. Just as the Cartesian dualism ended in a preestablished harmony between the substances of the internal world and the external world, so here a similar harmony seems to exist between the functions of conceiving and acting. For the actions are based on the conceptions, and when those conceptions

are true, the actions produce results that lie in a certain beneficial direction. Though the true conceptions operate within mere phenomenality, the acting and its success operate within a—at least relative—reality. According to the view proposed here, this wonder, which seems at first to indicate a pre-establishment, reduces precisely to this: the conceptions are starting points for acting not in virtue of their content but rather as actual psychical powers; of the actions that have originated in such a way, some have shown themselves to be beneficial for the preservation of the species and some have shown themselves to be unbeneficial; those conceptual habits (*Vorstellungsweisen*) that give rise to beneficial action have been preserved, increased and fixed; the contents of these beneficial conceptual habits have been outfitted with the predicate true, which, accordingly, does not at all denote an independent, theoretical quality of the conceptions, but rather denotes a quality that indicates a practically beneficial result.

This theory is in no way synonymous with the one that makes its appearance in a related fashion: the prudent creature who, for the most part, thinks logically has an advantage over its competitors in the struggle for existence; in this way, this advantageous characteristic becomes a basis for natural selection and increases until it has spread itself over the entire species at the highest level of intensity possible. Therefore, the utility of knowing is the reason for its supremacy. However correct this consideration is, it does not replace the view laid down here for two reasons. First, it declares the utility of acting on the basis of correct thinking as complete fact, while we intended only to seek out the connection that might exist between knowing deemed true and increased chance of survival. In supposing the truth of knowing to be an independent quality of knowing and to be in principle independent of the utility of knowing, it retains the difficulty of how knowing only subjectively determined comes to establish acting that is beneficial for our actual existence. This becomes conceivable only if the utility of the acting appears as the primary factor in cultivating certain behaviors and along with them their psychological bases that count precisely as true knowing in a theoretical respect; so that originally the knowing is not first called true and then useful, but rather is first useful and then called true. Second: granted, it would in principle be possible to acquire a purely theoretical knowledge that is independent of all consideration of experience (*Praxis*) but whose acquisition would be an affair only of experience. In any case, it would still require a special experience (*Erfahrung*) of that action one would have to undertake on the basis of that objective picture of the world. Between the theoretical knowledge and the special experience, which together represent the theoretically correct, a new selection must occur from the viewpoint that the subjective sensory nervous actions (*Handlungsinnervationen*) can consequently follow in a more or less beneficial way. Then, even if the whole picture of the world lies spread out before me in absolute empirical correctness, my own behavior is in no way determined from the beginning by that, insofar as I am an intentional being; all the less so as the coordination, which is here being discussed, of conception and volitional impulse takes place for the most part unconsciously, instinctively, and according to species. Even with the assumption of an *a priori* truth independent of practice, the selection process, which must fix the most beneficial mode of action, does not remain blocked to us. On the

contrary, our assumptions clear away the dualism of a truth existing for itself and an experience (*Erfahrung*) existing for itself or a selection of the practical effect upon the known world—because the experience of the effect of acting creates, at the same time, the truth. Already from the merely methodological viewpoint of *Principia praeter necssitatem non sunt augenda* a theory is taken up for which a single process is enough to determine practice as well as knowledge; the same act which fixes certain modes of acting bestows validity on their psychological-intellectual conditions for the species. If this validity is established certainly and has obtained independent significance, then one can say that the act especially endowed with these intellectual qualities practically surpasses the less favorable ones and so produces in the species the increase of those insights and intellectual qualities—but only because experience (*Praxis*) has determined from the beginning that just these theoretical contents are most beneficial and worth preserving. That one acts according to the known truth and indeed with good results becomes understandable given that 'the truth' was originally aligned with acting and its successes.

The difficulty of this theory lies in the same prejudice with which the Kantian theory of space will always have to struggle. In the popular conception, space appears as a container existing externally to us and in which the self (*Ich*) has its place alongside all other things. If this conception is fundamental, then it certainly must appear as a paradox of idealism to pack everything else and space itself, as it were, into this self. If one has already located the psyche (*Seele*) in space, then one certainly cannot locate space in the psyche anymore. Only after one has set oneself free from the vulgar prejudice that in an absolute sense space is an objective reality existing externally to us does the conception that space is the form of intuition (*Anschauung*) become thinkable. Our case corresponds completely. If one conceives the truth of things—that is, their conceptual interrelation (*d. h., ihr Sich-Verhalten in den logischen Formen*)—only once as something objective in the absolute sense that our consciousness would have to imitate in itself—which is possible both in idealist as well as realistic epistemology—then it certainly is very surprising to want to derive the psychological development of these interrelations from the bare subjective requirements of the conscious being. Just as in the first case it was not possible to let space existing externally to us wander over into the intuitive faculty (*Anschauungsvermögen*), so also in our case it is not permissible to let the plainly objective truth grow out of the practical demands of the subject. On the contrary, just as the process of intuition, following its immanent laws—whose systematic expression is formed by mathematical propositions—first produces what we call space, so certain norms of conduct for our thinking are produced according to the principle of utility. Generally, it is through these norms that what we call truth first comes to be, and it is these norms that represent themselves in abstract formulation as conceptual laws (*die logischen Gesetze*). If Kant eliminated the dualism of conception and being by comprehending being, too, as a conception, then the unification brought off here now goes a step further: the dualism between the world as appearance, as it exists for us logically and theoretically, and the world as that reality, which answers to our practical action, is eliminated in the following way. Even the forms of thought, which produce the world as conception, are determined by the

practical effects and counter-effects which form our mental constitution no differently from our physical according to evolutionary necessities. And if one, in the conclusion to one's own expression, can summarize Kant's theory in the claim that the possibility of knowledge produces for us, at the same time, the objects of knowledge, then the theory suggested here means this: the utility of knowledge produces for us, at the same time, the objects of knowledge.

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