

Robert Hanna

Husserl's Arguments against Logical Psychologism (Prolegomena, §§ 17–61)

3.1. Introduction

According to Edmund Husserl in the *Prolegomena to Pure Logic*, which constitutes the preliminary rational foundation for – and also the entire first volume of – his *Logical Investigations*, pure logic is the a priori theoretical, nomological science of „demonstration“ (LI 1, 57; Hua XVIII, 23).¹ For him, demonstration includes both *consequence* and *provability*. Consequence is the defining property of all and only formally valid arguments, i. e., arguments that cannot lead from true premises to false conclusions. And *provability* (a. k. a. „completeness“) is the property of a logical system such that, for every truth of logic in that system, there is, at least in principle, a rigorous step-by-step logically valid procedure demonstrating its validity according to strictly universal, ideal, and necessary logical laws. In this way, the laws of pure logic completely determine its internal structure. Moreover, these laws and these proofs are all knowable a priori, with self-evident insight (LI 1, 196; Hua XVIII, 185–195).

So not only is pure logic independent of any other theoretical science, in that it requires no other science in order to ground its core notion of demonstration, it also provides both epistemic and semantic foundations for every other theoretical science, as well as every practical discipline or „technology.“ To the extent that pure logic is the foundation of every other

¹ Citations of Husserl include an abbreviation of the English title, volume number, and page number, followed by the corresponding volume number of the Husserliana, and corresponding page number. The English edition used is Findlay's translation of the *Logical Investigations* (1970, = LI). I generally follow the English translation, but have occasionally modified it where appropriate.

theoretical science, it is the „theory of science“ (Wissenschaftslehre) in Bolzano’s sense of that term (LI 1, 60; Hua XVIII, 27), the „science which deals with the ideal essence of science as such“ (LI 1, 236; Hua XVIII, 244), and thus the science of science.

Logical Psychologism, or LP, is a particularly strong version of the denial that pure logic is an independent and absolutely foundational science. LP was a widely held view in the second half of the 19th century, grew out of the neo-Kantian and neo-Hegelian traditions alike, and is closely associated with the origins of empirical psychology as an autonomous discipline (Kusch 1995). Husserl’s arguments against LP in chapters 1–8 of the *Prolegomena*, often referred to simply as Husserl’s „refutation“ of LP, constitute one of the most famous and broadly influential critical set pieces in 20th century philosophy, comparable in these respects to W. V. O. Quine’s attack on the analytic-synthetic distinction in *Two Dogmas of Empiricism* published almost exactly fifty years after the *Prolegomena*. In this connection, it is surely by no means a historical or philosophical accident that the original working title of another one of Quine’s famous and closely-related essays from the same period was *Epistemology Naturalized: Or, the Case for Psychologism* (Kusch 1995, 11). By the 1950s, psychologism was making a serious comeback in epistemology, if not in the philosophy of logic. But radically unlike Quine’s seminal papers (Quine 1961, Quine 1969, Quine 1976a, Quine 1976b), which are still widely read, studied, and taught in contemporary North American and European departments of philosophy, Husserl’s *Prolegomena* nowadays is rarely read or studied, and even more rarely taught. To the extent that the debate between LP and anti-psychologism is still an issue, it is the logico-philosophical writings of Gottlob Frege that are taken as the seminal texts on anti-psychologism.

It is obvious that Husserl’s conception of pure logic shares much with Frege’s conception of pure logic in his 1879 *Begriffsschrift* and other manuscripts he was working on in the 1880s and 90s (Frege 1979), even allowing for differences in the formal details of their logical theories. It is also obvious that Husserl’s critique of LP shares much with Frege’s critique of LP in his 1884 *Foundations of Arithmetic* and the Foreword of his 1893 *Basic Laws of Arithmetic*, and that there is a direct, important, influential relationship between Frege’s devastating 1894 review of Husserl’s *Philosophy of Arithmetic* (Frege 1984) and Husserl’s lengthy and passionate defense of his conception of pure logic against LP. Indeed, this is all explicitly conceded by Husserl in the second half of an unintentionally ironic footnote buried away almost exactly in the middle of the *Prolegomena* (LI 1, 179, n. 2; Hua XVIII, 172, n. 2).

But whatever the precise nature of Frege's influence on Husserl himself, and whatever the contemporary status of Frege's anti-psychologistic writings, Husserl's arguments against LP in chapters 3–8 of the *Prolegomena* are independently philosophically interesting, and in fact they had a massively greater intellectual and professional impact on the development of German and European philosophy in the first half of the 20th century, than Frege's arguments did (Kusch 1995, chs. 1, 3, 4). Moreover, and perhaps most importantly, as we shall see in section IV, one of the deepest problems in the philosophy of logic arises directly from Husserl's arguments against LP. Husserl's two-part response to this deep problem offers a *prima facie* compelling line of argument to which contemporary philosophers of logic and philosophical logicians should pay close attention.

3.2. What LP is, and its Three Cardinal Sins

According to Husserl, LP is the thesis that

„the essential theoretical foundations of logic lie in psychology, in whose field those propositions belong – as far as their theoretical content is concerned – which give logic its specific character (Gepräge).“ (LI 1, 90; Hua XVIII, 63)

In this way, LP is the thesis that logic is *explanatorily reducible* to empirical psychology (Hanna 2006, ch. 1), in the strong, dual sense that

- (i) a complete knowledge of the empirical, natural facts and causal laws with which empirical psychology deals would yield a *complete a priori knowledge* of the existence and specific character of logic, and
- (ii) the empirical, natural facts and causal laws with which empirical psychology deals *strictly determine* the existence and specific character of logic.

Or in other words, according to LP, logic is *nothing over and above* empirical psychology. This does not entail that empirical psychologists of logic are themselves logicians, but instead only that whatever it is that logicians know about logic, can in principle be known by empirical psychologists wholly and solely by virtue of their knowing all the empirical, natural facts and causal laws that are relevant to logical thinking.

Husserl's presentation of LP proceeds by means of a lengthy and sometimes repetitive critical exposition of the views of the leading recent and exponents of LP, including Mill, Bain, Spencer, Wundt, Sigwart, Erdmann,

Lange, Lipps, Mach, and Avenarius. Against the „psychologists,“ Husserl explicitly aligns himself with Leibniz, Kant, Herbart, Bolzano, Lotze, and (somewhat more covertly, as I noted above) Frege. In the crucial case of Kant, however, there is some apparent equivocation, when in a footnote Husserl asserts that „even transcendental psychology *also* is psychology“ (LI 1, 122, n.1; Hua XVIII, 102, n. 3). This apparent equivocation on Husserl’s part can perhaps be explained away by distinguishing between *Kant’s* theory of logic, which is explicitly and strongly anti-psychologistic (Hanna 2001, 71–76), and *neo-Kantian* theories of logic, which are arguably psychologistic. If this is correct, then Husserl is not really equivocating; instead, he is attributing psychologism to the mere *followers* (a. k. a. „epigones“) of Kant, but not to Kant himself, who would on the contrary be historically and rhetorically aligned with Husserl’s own anti-psychologism.

Quite apart from the historical and rhetorical *vehicle* of Husserl’s critique of LP, however, its underlying *content* and *structure* involve, first, a pair-wise contrastive characterization of LP’s conception of logic over and against Husserl’s own conception of pure logic, and then second, a set of critical arguments showing how LP either fails by external rational standards or internally refutes itself. The pair-wise contrastive characterization of logic according to LP versus pure logic according to Husserl can be summarized as follows:

Logic according to LP is:

- contingent
- based on particulars
- based on empirical facts
- concretely real
- governed by causal laws
- conditional
- belief-based
- based on relativized, subjective truth
- known by sense experience
- a posteriori
- empirical
- instrumentally normative

Pure Logic according to Husserl is:

- necessary
- based on real universals
- based on non-empirical essences
- abstractly ideal
- governed by strictly universal laws
- unconditional
- truth-based
- based on absolute, objective truth
- known by self-evident insight
- a priori
- non-empirical
- categorically normative

It should be especially noticed that the items on the left-hand side all differ from the corresponding items on the right hand side not in *degree* but rather in *kind*. In each pairing, some extra *non-natural or ideal* property has been added by Husserl to the right-hand item of that pair in order to

distinguish it in kind from the corresponding item on the left-hand side. The extra properties attributed by Husserl to pure logic are „non-natural“ or „ideal“ in two senses. First, none of the extra properties is to be found in the physical, spatiotemporal world. Second, none of the extra properties is knowable by experiential, experimental methods. So according to Husserl, pure logic is uniquely characterizable in terms of a set of special non-natural or ideal kinds to which LP has no ontological access (since LP has access only to the physical, spatiotemporal world) or explanatory access (since LP has access only to concepts and beliefs that are generated by experiential, experimental methods). This catalogue of sharply opposed conceptions of logic is then strategically exploited by Husserl in his three basic charges against LP – as it were, the three „cardinal sins“ of LP.

Husserl's first basic charge against LP is that LP is committed to what I will call *Modal Reductionism about Logic* or MRL, which says logical laws and logical truths are explanatorily reducible to merely causal laws and merely contingent, probabilistic truths:

„The task of psychology is to investigate the laws governing the real connections of mental events with one another, as well as with related mental dispositions and corresponding events in the bodily organism [...]. Such connections are causal. The task of logic is quite different. It does not inquire into the causal origins or consequences of intellectual activities, but into their truth-content.“ (LI 1, 93–94; Hua XVIII, 67)

„Laws of thought, as causal laws governing acts of knowledge in their mental interweaving, could only be stated in the form of probabilities.“ (LI 1, 101; Hua XVIII, 76)

Logical laws according to Husserl are *necessary* rules, and logical truth according to Husserl is *necessary* truth. On the classical Leibnizian account, a rule or proposition is logically necessary if and only if it is true in every „possible world,“ i. e., in every total set of „compossible“ or essentially mutually consistent substances, insofar as this compossibility is completely envisioned by God. Sometimes this Leibnizian, or theocentric, type of logical necessity is also called *metaphysical necessity*. By contrast, on the classical Kantian account, a rule or proposition is logically necessary if and only if it is „strictly universal“ and also „analytic,“ i. e., it is true in a complete class of humanly conceivable variants on the actual experienced world, there is no humanly conceivable variant on the actual experienced world which is an admissible counterexample to it, and its denial would entail a contradiction (Hanna 2001, chs. 3 and 5). Sometimes this Kantian, or

anthropocentric, type of logical necessity is also called *conceptual necessity*. Otherwise put now, and regardless of whether the necessity is construed as metaphysical necessity (Leibnizian or theocentric logical necessity) or as conceptual necessity (Kantian or anthropocentric logical necessity), logical laws and logical truths, as necessary, are always *absolutely* or *unrestrictedly* true. By sharp contrast, merely causal laws and merely probabilistic laws are inherently *restricted* by brute facts about the actual world. As Hume pointed out, there is no absolute guarantee that any causal law, no matter how *generally* it holds in the actual world of sensory experiences, will *always* hold. And mere probabilities, no matter how probable, are always less than 1. So Husserl's first basic charge against LP, or MRL, says that by explanatorily reducing logical laws and logical truths to merely causal laws and merely contingent, probabilistic truths, LP radically restricts the *scope* of pure logical truth.

Husserl's second basic charge against LP is that LP is committed to what I will call *Epistemic Empiricism about Logic* or EEL, which says that logical knowledge is explanatorily reducible to merely a posteriori knowledge:

„[According to LP] no natural laws can be known *a priori*, nor established by sheer insight. The only way in which a natural law can be established and justified, is by induction from the singular facts of experience.“ (LI 1, 99; Hua XVIII, 73 f.)

„On this basis [of LP], no assertion could be *certainly* judged correct, since probabilities, taken as the standard of all certainty, must impress a merely probabilistic stamp on all knowledge.“ (LI 1, 101; Hua XVIII, 76)

Logical knowledge according to Husserl is *a priori knowledge* and also *certain knowledge*. A priori knowledge, in turn, is belief that is sufficiently justified by evidence which is underdetermined by all sets and sorts of sensory experiences, possibly also including evidence that includes no sensory experience whatsoever and is rationally „pure.“ Certain knowledge is indubitable belief, i. e., belief that is not open to refutation by actual or possible counterexamples, and more particularly not open to refutation by sensory experiences or factual statistics. So Husserl's second basic charge against LP, or EEL, says that LP radically underestimates the epistemic force of pure logical knowledge.

Husserl's third basic charge against LP is that it is committed to what I will call *Skeptical Relativism about Logic*, or SRL, which says that logical laws, logical necessary truth, and logical knowledge are explanatorily reducible

to either individually-held beliefs (individual relativism) or species-specific beliefs (specific relativism):

„In order to criticize psychologism we have [...] to discuss the concept of *subjectivism* or *relativism*, which is also part of the above-mentioned [skeptical] theory. One of its original forms is caught in the Protagorean formula: ‚man is the measure of all things,‘ provided this last is interpreted as saying ‚The individual man is the measure of all truth.‘ For each man that is true which seems to *him* true, one thing to one man and the opposite to another, if that is how he sees it. We can therefore opt for the formula ‚All truth (and knowledge) is relative‘ – relative to the contingently judging subject. If, however, instead of such a subject, we make some contingent *species* of judging beings the pivot of our relations, we achieve a new form of relativism. Man as *such* is then the measure of all truth. Every judgment whose roots are to be found in what is *specific* to man, in the constitutive laws of man as species – is a true judgment, for us human beings. To the extent that such judgments belong to the form of common human subjectivity, the term ‚subjectivism‘ is in place here too (in talk of the subject as the ultimate source of knowledge, etc.). It is best to employ the term ‚relativism,‘ and to distinguish *individual* from *specific* relativism. The restriction of the latter to the human species, stamps it as *anthropologism*.“ (LI 1, 138; Hua XVIII, 122)

Relativism – or more precisely, *cognitive* relativism, which is about theoretical beliefs and truth, as opposed to *moral* relativism, which is about ethical beliefs and principles of conduct – says that truth is determined by belief or opinion. There are two distinct types of cognitive relativism. On the one hand, *individual* cognitive relativism says that truth is determined by individual beliefs or opinions (= subjective truth); and on the other hand, *specific* cognitive relativism or *anthropologism* says that truth is determined by beliefs or opinions that are either the result of human agreement (= truth by mutual contract, or truth by general convention) or are innately biologically specified in all human beings (= truth by instinct). According to Husserl, logical truth is *objective* truth, hence *mind-independent* truth, hence truth that is inherently resistant to determination by any merely subjective, contractual, conventional, or biological facts. So Husserl's third basic charge against LP, or SRL, says that LP implies a mistaken and indeed ultimately skeptical theory of the determination of truth.

3.3. Husserl's Three Basic Arguments against LP

Corresponding to the three „cardinal sins“ of LP, Husserl develops three basic arguments against it. It is possible to spell out Husserl's arguments in step-by-step detail (Hanna 1993; Kusch 1995, ch. 3). But for our purposes here, it is necessary only to cite Husserl's formulations of the arguments, describe their general form, and then offer a brief exposition of Husserl's underlying rationale for each argument.

3.3.1. Husserl's Argument against LP from its Modal Reductionism about Logic (MRL)

Here is what Husserl says about MRL:

„[According to LP] logical laws, must accordingly, without exception rank as mere probabilities. Nothing, however, seems plainer than that the laws of ‚pure logic‘ all have *a priori* validity.“ (LI 1, 99; Hua XVIII, 74)

„The psychologistic logicians ignore the fundamental, essential, never-to-be bridged gulf between ideal and real laws, between normative and causal regulation, between logical and real necessity, between logical and real grounds. No conceivable gradation could mediate between the ideal and the real.“ (LI 1, 104; Hua XVIII, 80)

Here is the general form of Husserl's anti-MRL argument:

- (1) LP entails MRL.
- (2) MRL is inconsistent with the existence and specifically *modal* character of pure logic – in particular, MRL is inconsistent with the *absolute necessity* of pure logical laws and pure logical truths.
- (3) Therefore, LP is false.

And here is the underlying rationale for Husserl's anti-MRL argument. Given Husserl's characterization of the modal character of pure logic, it follows that pure logical laws and pure logical truths are absolutely or unrestrictedly true, regardless of whether this absolute truth is construed, Leibniz-wise, as metaphysical necessity, or else construed, Kant-wise, as conceptual necessity. Now if LP is correct, then MRL is correct, and then logical laws and logical truths are non-absolutely or restrictedly true precisely because they are *restricted to the actual world*. But logical laws and logical truths are absolutely or unrestrictedly true. So LP must be false.

3.3.2. Husserl's Argument against LP from its Epistemic Empiricism about Logic (EEL)

Here is what Husserl says about EEL:

„[The laws of pure logic] are established and justified, not by induction, but by apodeictic inner self-evidence. Insight justifies no mere probabilities of their holding, but their holding or truth itself.“ (LI 1, 99; Hua XVIII, 74)

„The justified possibility of [the exact factual sciences] becomes the absurdity of [pure logic]. We have insight into, not merely the probability, but the truth of logical laws. Against the truth that is itself grasped with insight, the strongest psychologistic argument cannot prevail; probability cannot wrestle with truth, nor surmise with insight.“ (LI 1, 100; Hua XVIII, 75)

„How plausible the ready suggestions of psychologistic reflection sound. Logical laws are laws for validation, proofs. What are validations but peculiar human trains of thought, in which, in normal circumstances, the finally emergent judgments seem endowed with a necessarily consequential character. This character is itself a mental one, a peculiar mode of mindedness and no more [...]. How could anything beyond empirical generalities result in such circumstances? Where has psychology yielded more? We reply: Psychology certainly does not yield more, and cannot for this reason yield the apodeictically evident and so metempirical and absolutely exact laws which form the core of all logic.“ (LI 1,100–101; Hua XVIII, 75 f.)

Here is the general form of Husserl's anti-EEL argument:

- (1) LP entails EEL.
- (2) EEL is inconsistent with the existence and specifically *epistemic* character of pure logic – in particular, EEL is inconsistent with the self-evident insights of pure logical knowledge, which are both a priori and certain.
- (3) Therefore, LP is false.

And here is the underlying rationale for Husserl's anti-EEL argument. Given Husserl's characterization of the epistemic character of pure logic, it follows that logical beliefs are sufficiently justified by self-evident insights, i. e., rational intuitions. Self-evident insights, or rational intuitions, are a priori or non-empirical, and if not strictly infallible, then at least certain and indubitable. Now if LP is correct, then EEL is correct, and then even

sufficiently justified logical beliefs are all a posteriori or empirical, fallible, and dubitable. But sufficiently justified logical beliefs are a priori and certain or indubitable. So LP must be false.

3.3.3. Husserl's Argument against LP from its Skeptical Relativism about Logic (SRL)

Here is what Husserl says about SRL:

„[The individual relativist] will naturally reply: My theory expresses my standpoint, what is true for me, and need be true for no one else. Even the subjective fact of his thinking he will treat as true for himself and not as true in itself [...] The content of such assertions rejects what is part of the sense or content of every assertion and what accordingly cannot be significantly separated from any assertion.“ (LI, 1, 139; Hua XVIII, 123)

„Specific relativism makes the assertion: Anything is true for a given species of judging beings that, by their constitution and laws of thought, must count as true. This doctrine is absurd. For it is part of its sense that the same proposition or content of judgment can be true for a subject of the same species [...], but may be false for another subject of a differently constituted species. The same content of judgment cannot, however, be both true and false: this follows from the mere sense of ‚true‘ and ‚false‘. If the relativist gives these words their appropriate meaning, this thesis is in conflict with its own sense [...]. ‚Truth for this or that species,‘ e. g., for the human species, is, as here meant, an absurd mode of speech. It can no doubt be used in good sense, but then it means something wholly different, i. e., the circle of truths to which man as such has access. What is true absolutely, intrinsically true: truth is one and the same, whether men or non-men, angels or gods apprehend it. Logical laws speak of this ideal unity, set over against the real multiplicity of races, individuals, and experiences, and it is of this ideal unity that we all speak when we are not confused by relativism.“ (LI 1, 140; Hua XVIII, 125)

Here is the general form of Husserl's anti-SRL argument:

- (1) LP entails SRL.
- (2) SRL is self-refuting, given the fact of the existence and specifically *alethic* (i. e., truth-based) character of pure logic – in particular, SRL is inconsistent with the objectivity of the truths of pure logic.

(3) Therefore, LP is false.

And here is the underlying rationale for Husserl's anti-SRL argument. Given Husserl's characterization of the alethic character of pure logic, it follows that logical truth is objective, or mind-independent, and inherently resistant to determination by merely subjective, contractual, conventional, or biological facts. Now if LP is correct, then SRL is correct, and then truth is either individually relativized or specifically relativized. Suppose that truth is individually relativized. Then whatever anyone believes or opines is true, is true. This includes the person who believes or opines that LP is false. So if truth is individually relativized, then LP is both true (relative to the defender of LP) and false (relative to the critic of LP) and thus self-contradictory. Suppose, alternatively, that truth is specifically relativized. Then there can be other communities, or other species, that say radically different and opposing things about the nature of truth. This is the possibility of conceptual, semantic, and theoretical *incommensurability*. But given the possibility of conceptual, semantic, and theoretical incommensurability, it follows that these other communities or other species are really talking about something *other than* what we mean by „truth“ – instead, they are really talking about *schmuth*, or whatever. But *truth*, after all, is objective or mind-independent. So if truth is specifically relativized, then these other communities or other species are not actually disagreeing with us about truth, since they are talking about something other than truth. To summarize: If LP is correct, then SRL is correct, and if SRL is correct, then it is either self-contradictory or talking about something other than truth. So LP must be false.

3.3.4. Has Husserl Begged the Question against LP? The Logocentric Predicament, and a Husserlian Way Out

It should be very clear from the previous section that Husserl's three basic arguments against LP all have the *same* general form, and that they all directly invoke non-natural or ideal facts about the specific character of pure logic, whether modal, epistemic, or alethic. But it can be objected that Husserl only ever *asserts* that pure logic exists and also has the several non-natural or ideal specific characters he attributes to it, and that he never actually *justifies* this assertion. In this way, on the face of it, Husserl seems to have merely begged the question against LP.²

2 The question-begging objection was first made in 1901 by Paul Natorp. See Natorp 1977, 57. See also Hanna 2006, ch. 1; and Kusch 1995, ch. 4.

But has he? It is equally clear that Husserl would reply to this charge by saying that he has *not* begged the question against LP. Instead, and on the contrary, what he has done is to show *that* and also *precisely how* the existence and specific character of pure logic is covertly presupposed and used, even by the defenders of LP:

„Logic [...] can as little rest on psychology as on any other science; since each science is only a science in virtue of its harmony with logical rules, it presupposes the validity of these rules. It would therefore be circular to try to give logic a first foundation in psychology.“ (LI 1, 95; Hua XVIII, 69)

In other words, since LP is a theory, it fall under logical constraints, e. g., laws of logical consistency, laws of logical consequence, and the inferential justification of its theses and beliefs. So LP covertly *invokes* pure logic, just as every other theory and every science explicitly or implicitly invokes pure logic.

But given this line of argument, as Husserl himself anticipates, the defenders of LP have one last arrow in their quiver, and it is a very sharp one indeed:

„The opposition will reply: That this argument cannot be right, is shown by the fact that it would prove the impossibility of all logic. Since logic itself must proceed logically, it would itself commit the same circle, would itself have to establish the validity of rules that it presupposes.“ (LI 1, 95; Hua XVIII, 69)

In other words, the defenders of LP will retreat to the charge that in his showing pure logic to be what is covertly presupposed and used by the defenders of LP, Husserl has himself run up against one of the deepest problems in the philosophy of logic, namely, *the explanatory and justificatory circularity of logic* – or what the Harvard logician Harry Sheffer later very aptly called the „logocentric predicament“:

„The attempt to formulate the foundations of logic is rendered arduous by a [...] ‚logocentric‘ predicament. In order to give an account of logic, we must presuppose and employ logic.“ (Sheffer 1926, 228)

A specific version of the Logocentric Predicament is Lewis Carroll’s famous skeptical argument, published in *Mind* in 1895 – and which Husserl may well have read, or at least have read *about* – which says that that any attempt to generate the total list of premises required to deduce the conclusion

of a valid argument leads to a vicious regress (Carroll 1895). But for our purposes here, the Logocentric Predicament is just this:

How can pure logic in Husserl's sense ever be explained or justified, if every explanation or justification whatsoever both presupposes and uses pure logic in Husserl's sense?

How will Husserl respond to the Logocentric Predicament? One possible way out of the Logocentric Predicament would be for Husserl just to concede that pure logic is explanatorily and justificationaly *groundless*, in the manner of the imaginary mock-logician invented by Carroll, Tweedledee:

„If it was so, it might be; and if it were so, it would be; but as it isn't, it ain't. That's logic.“ (Carroll 1988)

But then Husserl would have no *rational* defense against LP and no *rational* response to the Logocentric Predicament. And it would clearly be self-stultifying for Husserl to defend anti-psychologism and to respond to the Logocentric Predicament by lapsing into a *non-rational*, or as it were *fideist*, approach to the foundations of pure logic, which by Husserl's own reckoning – not to mention by an historical and rhetorical appeal to the authority of Kant's theory of logic – is supposed to provide categorically normative laws of *rationality*. It made good sense for Kant to claim in the Preface to the *Critique of Pure Reason* that in order to make room for moral faith in freedom of the will, he had to „deny“ or limit our scientific knowledge of universal natural determinism; but it would make *no* sense for Husserl to say that in order to make room for pure logic, he had to deny *rationality*.

Husserl's actual strategy of response to the Logocentric Predicament has two parts. First, he distinguishes carefully between reasoning *according* to logical rules, and reasoning *from* logical rules:

„Let us, however, consider more closely what such a circle would consist in. Could it mean that psychology presupposes the validity of logical laws? Here one must notice the equivocation in the notion of ‚presupposing‘. That a science presupposes the validity of certain rules may mean that they serve as premises in its proofs: it may also mean that they are rules in accordance with which the science must proceed in order to be a science at all. Both are confounded in our argument for which reasoning *according* to logical rules, and reasoning *from* logical rules, count as identical. There would be a circle only if the reasoning were *from* such rules. But, as many an artist works without the slightest knowledge of aesthetics, so an investi-

gation may construct proofs without ever having recourse to logic. Logical laws cannot therefore have been premises in such proofs. And what is true of single proofs is likewise true of whole sciences.“ (LI 1, 95; Hua XVIII, 69 f.)

What Husserl is saying is that it is only if one mistakenly confuses reasoning *according* to logical rules and reasoning *from* logical rules that one will also cite those logical rules as *axiomatic premises* in one's argument, and thereby encounter the circularity problem. But logical rules can be perfectly legitimately *used* in proofs without also *citing or mentioning* them as premises in those very proofs. Indeed, the very idea of *natural deduction systems*, later discovered by Gerhard Gentzen, is based on this fact (Gentzen 1969). Furthermore, that Husserlian observation seems to be *precisely* the right reply to make to Carroll's vicious regress version of the Predicament (Hanna 2006).

But I think that Husserl is also making an even deeper point than this one. His deeper point is that it is not only possible but necessary, given our commitment to human rationality, to conceive of the laws of pure logic as *supreme constructive categorically normative logical meta-principles*, telling us how we unconditionally ought to go about constructing all possible lower-order logical principles or rules, all possible lower-order logical proofs, all possible lower-order logical systems, all possible lower-order exact scientific principles or rules, all possible lower-order exact scientific proofs, and all possible lower-order exact sciences themselves. It is to be particularly emphasized that this does *not* mean that the lower-order sciences are supposed to be *deduced* from these supreme meta-principles, construed as axiomatic premises. Instead and on the contrary, the lower-order sciences are all simply *constructed and operated according to* these supreme constructive categorically normative meta-principles. This deeper point, in turn, leads directly to the second step of Husserl's response to the Predicament.

Second, then, Husserl explicitly addresses the issue of how to characterize the explanatory and justificatory status of pure logic, when we assume we must always reason according to (i. e., not *from*) the laws of pure logic conceived as supreme constructive (i. e., not *deductive*) categorically normative (i. e., not instrumental, causal, or merely descriptive) meta-principles (i. e., not *lower-order* principles) that tell us how we unconditionally ought to construct first-order exact sciences, including all first-order logical systems. Here is what he says:

„[The unifying aim or purpose of pure logic] is the ideal of a pervasive, all-embracing rationality. If all matters of fact obey laws, there

must be some minimum set of laws, of the highest generality [...].³ These ‚basic laws‘ are, accordingly, laws of supreme coverage and efficacy, whose knowledge yields the maximum of insight in some field, which permits the explanation of all that is in any way explainable in that field. [...] This goal or principle of maximum rationality we recognize with insight to be the supreme goal of the rational sciences. It is self-evident that we would be better for us to know laws more general than those which, at a given time, we already possess, for such laws would lead us back to grounds deeper and more embracing. Plainly, however, our principle is no mere biological principle, or principle of thought-economy: it is a purely *ideal* principle, an eminently *normative* one [...]. The ideal drift of logical thinking is as such towards rationality.“ (LI 1, 208; Hua XVIII, 209 f.)

In other words, Husserl is arguing that insofar as we must always reason *according to* pure logic, and insofar as the laws of pure logic are conceived as supreme constructive categorically normative meta-principles for constructing all lower-order exact sciences, then it follows that pure logic is the necessary a priori condition of the possibility of any explanation or justification whatsoever, in the sense that it is innately constitutive of *human rationality*.

This argument assumes, as a „transcendental fact,“ that we are rational human animals, and that as a consequence our manifest capacity for generating and using pure logic in the cognitive or practical construction of any explanation or justification whatsoever belongs innately to our cognitive and practical rational human nature. Therefore pure logic exists and also has the specific character attributed to it by Husserl. In turn, from this „transcendental argument from rationality“ it would also directly follow that Husserl's arguments against LP are sound.

Whether or not one ultimately accepts a Husserl-style transcendental rationalist solution to the Logocentric Predicament (Hanna 2006, chs 3,7), and whether or not one ultimately accepts Husserl's correspondingly robust reinforcement of his arguments against LP, which might otherwise seem to be question-begging, nevertheless Husserl's response to the Logocentric Predicament is at least *prima facie* compelling. It therefore provides an

3 In the elided passage, Husserl seems to be asserting precisely what he himself had earlier rejected in his response to the circularity objection – namely, that the laws of pure logic are themselves axiomatic premises in deductive proofs. But charitably interpreted, this must be a mere slip. Even Husserl nods.

independently sufficient reason for contemporary philosophers of logic and philosophical logicians to re-read and seriously reconsider Husserl's *Prolegomena to Pure Logic*. Husserl's *Prolegomena* §§ 17–61 provides a classic, and arguably independently defensible, defense of anti-psychologism. One can foresee a day when every History of Twentieth Century Philosophy course everywhere will begin its list of Required Readings with selections from the *Prolegomena*, alongside the familiar selections from Frege, and when Quine's so-called „refutation“ of the analytic-synthetic distinction will *also* be compelled to face up to the Logocentric Predicament.

Literature

- Carroll, L. 1895: „What the Tortoise Said to Achilles,“ in: *Mind* 4, 278–280.
- Carroll, L. 1988: *Through the Looking-Glass*, New York.
- Frege, G. 1979: „Logic [1897],“ in: Frege, G. *Posthumous Writings*, trans. P. Long et al., Chicago, 127–151.
- Frege, G. 1984: „Review of E. G. Husserl, *Philosophie der Arithmetik I*,“ in: Frege, G.: *Collected Papers in Mathematics, Logic, and Philosophy*, trans. M. Black et al., Oxford, 195–209.
- Gentzen, G. 1969: „Investigations into Logical Deduction,“ in: Gentzen, G.: *The Collected Papers of Gerhard Gentzen*, trans. M. Szabo, Amsterdam, 68–131.
- Hanna, R. 1993: „Logical Cognition: Husserl's *Prolegomena* and the Truth in Psychologism,“ in: *Philosophy and Phenomenological Research* 53, 251–275.
- Hanna, R. 2001 *Kant and the Foundations of Analytic Philosophy*, Oxford.
- Hanna, R. 2006: *Rationality and Logic*, Cambridge, MA.
- Husserl, E. 1970: *Logical Investigations*, trans. J. N. Findlay, 2 vols., London.
- Kusch, M. 1995: *Psychologism*, London.
- Natorp, P. 1977: „On the Question of Logical Method in Relation to Edmund Husserl's *Prolegomena to Pure Logic*,“ in: Mohanty, J. N. (ed.): *Readings on Edmund Husserl's Logical Investigations*, The Hague, 55–66.
- Quine, W. V. O. 1961: „Two Dogmas of Empiricism,“ in: Quine, W. V. O.: *From a Logical Point of View*, 2nd edn., New York, 20–46.
- Quine, W. V. O. 1969: „Epistemology Naturalized,“ in: Quine, W. V. O.: *Ontological Relativity*, New York, 69–90.
- Quine, W. V. O. 1976a: „Truth by Convention,“ in: Quine, W.V.O.: *The Ways of Paradox*, 2nd edn., Cambridge, MA, 77–106.
- Quine, W. V. O. 1976b: „Carnap and Logical Truth,“ in: Quine, W.V.O. : *The Ways of Paradox*, 2nd edn., Cambridge, MA, 107–132.
- Sheffer, H. M. 1926: „Review of *Principia Mathematica*, Volume I, second edition,“ in: *Isis* 8, 226–231.