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IS THERE ANY LOGIC AT ALL?

PAVEL ARAZIM
Institute of Philosophy, Czech Academy of Sciences, Prague
arazim@flu.cas.cz

ABSTRACT

Though to this point not as popular as logical pluralism or logical monism, logical nihilism has become a serious position in the philosophy of logic and a new alternative in the disputes about the notion of a logical system being right. We will review some basic moments of the discussions that have occurred so far and try to propose a viable version of logical nihilism. Some of the aspects of the doctrine as it has been proposed, mainly by Gillian Russell need revision but overall it proves plausible and well suited in particular to incorporation into inferentialist and expressivist accounts of meaning and logic. From a more general point of view, logical nihilism shows how essential it is to appreciate the pragmatic significance of logic and acknowledge that logical practice bestows its legitimacy on logical theory and not the other way round. Appreciating this, together with lessons about the open-ended nature of meaning of even logical vocabulary, leads to a more dynamic conception of logic.

Keywords: logical nihilism; rule generality; determinacy.

When the disputes about logical pluralism and logical monism were in the danger of exhausting their potential, a worthwhile attempt at enriching the debate was undertaken. After many different definitions of these two antagonistic views, a different alternative has been introduced, thus finally exhausting the possibilities of the number of correct logics, namely *logical nihilism*. If it is worthy of consideration that exactly one logic is right or that more logics are right, then why not consider also the option that all logics are wrong? Since its advent, even this new approach has been not only defended but also attacked.

I will present an assessment of this new approach to logic. My goal is to indicate both what I find insightful about logical nihilism but also where its limits lay. Both the defenders and the opponents of logical nihilism have put their views in different frameworks, which partly explains some of the disputes as stemming from misunderstandings. I will try to put it in an inferentialist framework of the Brandomian kind. Both inferentialism and logical nihilism will be explained and defended.

1 Virtues and vices of logical nihilism

What is the question that logical nihilism is supposed to provide an answer to? The fact that there are so many logical systems and new ones are continually being developed is in many ways provoking. One would suppose that logic should be particularly fundamental

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and therewith also particularly certain. And the many logical systems seem to be in conflict with these expected properties. If there are so many possibilities, then perhaps we are not so sure about logical principles. One way to answer this might be to say that only one system is truly logic. Despite appearances, the others are either failed logics or maybe they are fine and describe something rather close to logic but not logic proper. This amounts to logical monism. The other option would be logical pluralism. According to this view, more than one logic is correct. This is then somewhat in tension with the expectations that logic should in particular be fundamental and certain. Maybe these expectation are just wrong or they have to be reinterpreted if we are to accept logical pluralism. And then there is logical nihilism as the option that no logic is correct, after all.

At first sight, nihilism might appear as a merely provocative and of itself rather absurd thesis. When even a classical author such as [Str50, p. 344] closes his *On referring* by remarking that natural language has no exact logic, this thesis is still very controversial in our time, as is shown by the recent criticism by [PS17, pp. 110–111], who accuse Strawson of claiming the obviously absurd thesis that reasoning in natural language is lawless. While this reasoning may be very complicated and perhaps more complicated than even the most sophisticated logical systems would have it, it surely has to follow some laws, if it is to count as reasoning at all. Let us note that Strawson is far from being the last author who has claimed that natural language has no logic or something similar to this position. Thus [Gla15] emphasizes what he considers to be deep differences in nature between natural language and formal logical systems. I will head towards similar conclusions, though from a very different perspective.

But before we consider these matters, let us note that when there was already the debate between logical monism and logical pluralism, logical nihilism had to be considered sooner or later. If there is a dispute about whether just one logic or more logics are right, then obviously the thesis that no logic is right can also be entertained, as outlandish as it might seem to some. And in particular if the whole debate seems problematic, then the failure to consider this extant possible answer to the controversial question would be indefensible.

Any defense of either logical monism or logical pluralism has to say something about logical nihilism, as well, if it is to be plausible. But why might logical nihilism seem hardly worthy of serious consideration? There is an understandable sense that one or another logic has to be right, maybe a logic which has not yet been actually devised by logicians. If there were no such system that was at least possible, then reasoning has no rules and falls prey to the anarchy of arbitrariness. I will argue, though, that this worry is to a large degree misguided. Logical nihilism has a genuine point, yet our reasoning is not arbitrary. Or at least not completely arbitrary, which is an important difference.

1.1 Basic arguments for logical nihilism

Later we will see why the mentioned attempt at reductio of logical nihilism does not quite work but now we will look at the arguments which speak for this position. We will look mainly at the arguments of Gillian Russell. But first we should realize that a simple Occam's razor speaks for logical nihilism. This doctrine does not have to defend

any logical system and thus claims less problematic theses. On the other hand, it is yet to be shown how lawfulness of reasoning is compatible with no logic being right. As I promised, we will get to this in due course. But now back to the most salient arguments for logical nihilism which have emerged in the discussion so far.

The basic reason introduced by Gillian Russell is that no logical law holds in absolutely all cases. That is, any logical rule of inference fails in some contexts. How can one arrive at such a conclusion? Many logical laws have been an objects of discussion between their opponents and their adherents. The two probably most common and already somewhat hackneyed examples are the law of excluded middle and the explosivity of contradiction. In the case of LEM, adherents of classical logic claim that it is universally valid, while intuitionists claim that its validity is merely restricted, as it does not hold, for example, in the discourse about infinite mathematical objects. And given that logical laws should hold in all cases, LEM does not pass the test for logical laws. Or so the intuitionists say. Similarly, paraconsistent logicians argue that not every contradiction is explosive. Obviously, one could list many other rules of inference which have been an object of similar disputes, for example disputes about the validity of various laws in modal logics.

These historical disputes are commonly exploited by logical pluralists, as they seem to support the claim that one does not have to countenance merely one true logic but that more systems could be legitimate in their own right. There are already two criticisms announcing themselves. First, logical monists can claim that to merit the title of a logical law, the given rule has to be valid in full generality. The possibility of specific rules of inference restricted to a specific domain would hardly shock even Aristotle. What is new and controversial is calling them logic.[1]

Furthermore, there is the idea that laws of inference belong to the very meaning of logical vocabulary. Although the origins of this idea can be traced back at least to Carnap, it gained prominence particularly thanks to Quine [Qui86, p. 80], who claimed of those who were doubting LEM or the explosivity of contradiction that they were just changing the subject. Other authors, such as Peregrin [Per14, pp. 210–213], might be more benevolent but they still draw some line. So while Peregrin may not consider doubts about LEM or explosivity as an unwitting change of topic, his reasoning about modus ponens resembles very much that of Quine about LEM and the explosivity of contradiction.[2] By abandoning modus ponens, Peregrin argues, one is not speaking of a conditional anymore. One could therefore extract a more moderate version of the Quine's position that changing logic really means just changing the subject. Namely, not every rule has to be upheld if we do not want to change the topic but only some rules. Where exactly the line might lie, could be difficult to establish, according to this moderate view. But probably LEM or explosivity of contradiction are somewhat less convincing candidates than modus ponens for the role of the rule which is unshakeable in the sense just indicated. Even in the extreme form offered by Quine, this way of seeing these matters has much to recommend itself but is also too one-sided, even in more tolerant forms such as that I tried to extract from Peregrin. More about this later.

[1] This kind of criticism of logical pluralism can be found in [Pri06, p. 202].

[2] See [Qui86, p. 80] and [Per14, pp. 210–213].

But Gillian Russell tries to push things further and show that even rules which are much more basic can be doubted. If Quine represents one extreme end of the scale by condemning any attempt at questioning a logical law as misguided, so one can consider the opposite extreme. This would be the thesis that every logical rule can be doubted. Russell wants to open up this possibility by attacking exemplars of particularly basic rules. She chooses the identity inference and conjunction elimination as her targets. If even these laws fail to be universally valid, then the induction to all laws in general seems close to warranted. This would mean that every logical law can be doubted and does not hold universally. She formulates her strategy slightly differently in various papers on the topic, yet it will be illustrative to show how she proceeds in [Rus17].

There she countenances the possibility of valuation depending on the position of a given formula. We could imagine a formula which is true when standing in the scope of a binary connective, yet false when standing alone. This would belie the general validity of conjunction elimination. On the other hand, one can also countenance a formula which is evaluated as true when standing among the premises in a sequent, yet false when among the consequences. This would attack the general validity of reflexivity of consequence. We should note, though, that this example is not merely theoretical, as there are substructural logics which part company with reflexivity, just as there are those which part company with weakening, transitivity and other structural features of the consequence relation.[3] Why the failure of reflexivity caused by the introduction of this new formula, called *prem*, does not lead to the empty consequence relation is shown in [Fje21]. Nevertheless, if any law fails to hold in full generality, then no system holds in full generality. And that is enough for Russell for Russell and for her attempt to show that any purported law fails to hold in some contexts and that there is no unshakeable logical principle.

Indeed, if even such seemingly obvious laws as reflexivity or conjunction elimination fail, then no laws can be upheld come what may, as [EG11] proposes alongside Russell. And if we agree with [Pri06] that the point of logic is exactly to find laws of reasoning which hold come what may, then there is really no logic, as [Rus18] advertises already in the title of her article. When pluralists claim that a given law holds only in certain contexts, domains or under some other restricted conditions, Priest sees these restrictions as evidence that the given law is not logical. We have to look, Priest would argue, for those laws which hold unrestrictedly if we are interested in doing logic. While he apparently does not consider the possibility that the set of universally valid logical laws could be empty, he considers this push for generality as a strategy to defend logical monism in the face of logical pluralism. But Russell and Estrada Gonzáles try to use his attack on logical pluralism to undermine his own position and lead us towards logical nihilism. The striving for absolute generality leaves us with empty logical hands.

But now we shall look at some objections to this basic argument based on generality of logical laws. We will go through the individual objections and see to what degree they oblige us to modify logical nihilism to keep it defensible. We will also gradually put elements of inferentialism into play and see how they help us to arrive at a viable overall position.

[3] See [Zar18] for an illustration of what a logic without the reflexivity of consequence can look like.

1.2 Criticism—minimalism against nihilism and the point of logic

[Dich20] brings more arguments against logical nihilism. One of them is that by doubting individual logical laws, no matter how fundamental these happen to be, we are still far from showing that no laws hold come what may. He anticipates that this might be seen as mere pedantry, given how impressive the failure of reflexivity of consequence and of elimination of conjunction is. If it were a genuine failure, of course.

Nevertheless, he has a point that this inductive generalization is still not fully conclusive. I will not get into the details of his technical argumentation but in general he argues that relatively minimalistic set of logical laws is still far from being the same as the empty set. Gillian Russel herself acknowledges that although she has shown how to unsettle very fundamental logical laws, this does not mean that no laws at all hold with full generality. Yet, according to her, very weak logic can hardly be of much use and, therefore, minimalism is practically the same as nihilism. She claims that very weak logic can hardly be useful, for instance, for the formalization of reasoning about arithmetic.

Dicher retorts that various logical systems can be designed for variegated purposes and there is no need to relegate logic merely to the purpose of formalizing arithmetical or even mathematical reasoning. There is, Dicher goes on, no independent standpoint from which to assess the usefulness of logic. This might be true, though still his defence of minimalistic logic is too general and weak. Maybe Russell is somewhat too hasty in concluding that minimalistic logic cannot be useful if it does not help very much with formalizing mathematics but still, it is rather up to a defender such as Dicher to show what different purpose an extremely weak logic could have. And this he does not do.

But we do not have to engage, as Dicher would have us, in discussions of whether there could be a possibly not-completely-empty set of laws of reasoning which are extremely weak but hopefully have the virtue of holding come what may. This is because, in fact, logical laws can fail to hold completely come what may and still be of use. And it indeed can still make a very good sense to call them logical. But we will need to present the inferentialist approach to meaning and in particular to the meaning and role of logical vocabulary to appreciate this. This can be done naturally while discussing another objection to Russell's arguments.

On the legitimacy of counterexamples—real and imaginary monsters

There are more ways in which one can try to doubt that reflexivity or conjunction elimination have been genuinely undermined by the counterexamples just mentioned. For one, these sentences which change their meaning depending on their position in the argument strike one immediately as unnatural. Clearly, they were devised primarily for the destructive purpose of undermining the aforementioned fundamental logical laws.

Dicher compares the situation to the historical approach to counterexamples to some geometrical laws, which owes its popularity to [Lak76]. Lakatos calls some counterexamples *monsters*, as they, just like the very special formulae of Russell, are very artificial and do little work above just marring the general validity of certain laws. Furthermore, it seems obvious that they were somehow not intended to be covered by the given law

and fit it rather surreptitiously. Nevertheless, getting rid of them by merely adjusting the definitions so that they do not fall under it any more, seems ad hoc and not as a role model of sound methodology. Lakatos calls this ad hoc adjustment *monster barring* throughout his book. Dicher anticipates that his proposal not to accept the counterexamples as genuine could be rebuked as logical variety of monster barring. And indeed, Russell sees Dicher's approach as monster barring in logic.

So, if someone said that the sentences Russell proposes are not to be taken as serious counterexamples, would this be an example of illegitimate monster barring, as she is inclined to say? Dicher, on the other hand, claims that it would be rather just imaginary monster barring, meaning that those monsters are merely imaginary. But how can one distinguish between imaginary and real counterexamples in this context? Dicher, I believe, fails to indicate this, as he merely claims about the nihilists that "What they need are actual English sentences having deleterious effects on logical consequence" (p. 6 of [Dich17]). By this he merely signals that formulae such as *prem* seem somehow strange or unnatural to him, which indeed is no strong criterion. And I doubt that a convincing criterion can be found. In fact, Gödel's sentence claiming its own unprovability in a given system is also stretching the natural expectations of what a sentence is. The same holds for the liar sentence and many other exotic exemplars. Dicher goes on to say on p. 7 that these formulae are invented merely to mar the validity of reflexivity and conjunction elimination. Very well, but why should this make them into illegitimate counterexamples? Again, one could say the same about Gödel's sentence, liar sentence and many others. Still, these specific sentences did play a fundamental role in the history of logic. It is therefore hardly clear why Russell's formulae should be treated less indulgently. Russell's counterexamples should therefore be considered as legitimate, insofar as they establish her point that even identity and conjunction elimination are not unshakeable.

The meaning of logical vocabulary and changing the subject

But do not all these counterexamples merely change the subject, as Quine had already suspected them of doing? This question is closely related to the question about the meaning of logical vocabulary and whether every law of inference is necessary for the given meaning to be what it is. Here we should remind ourselves that [Qui51] himself in *Two dogmas* contributed to the awareness of how evasive and problematic meaning is. In particular, it is at least problematic to speak of the meaning of an individual expression, as meaning consists primarily in its interrelations with other expressions. It is therefore surprising, to say the least, that Quine puts all this nuance aside and has such a quick answer when it comes to the meanings of logical expressions.

This said, Quine has a point that inference laws indeed import much to what the expressions of a given language mean. Part of my position is constituted by inferentialism, which consists precisely in the thesis that meaning is constituted by inference rules. Therefore, modus ponens definitely has a lot to do with the meaning of conditional, conjunction elimination with the meaning of conjunction and reflexivity of consequence with the notion of deductive reasoning. Nevertheless, what does it mean that a given rule of inference holds? What does it mean that any rule at all holds?

Here we follow [Bra94], who links the rules with normative attitudes of the members of a given normative community. His overall account of the relation between normative attitudes and normative statuses is very complex, particularly as he presents it in his more recent [Bra19]. We will focus mostly on the dependence of normative statuses on normative attitudes. Of many normative statuses, it will be only rules and in particular inference rules which will interest us here. By normative attitudes, I mean primarily our holding of some behavior for right and other for wrong and acting on it. That means encouraging others and possibly oneself to obey the rules and discouraging them from breaching those rules. In this way rules are constituted by our normative attitudes. It is true that the influence goes both ways, as the normative attitudes are also evaluated as right or wrong on the basis of normative statuses and rules that we acknowledge.

Nevertheless, the bottom line is that all rules, including rules of inference, have to be constantly renewed by our normative behavior. And this renewal typically cannot mean just the repetition of the same. By getting into new situations and new contexts, we have to continually reinvent and develop the rules. Rules may also be dropped on some occasions, just as new ones can come into being if we act in the relevant way.

To illustrate how every rule has to be developed, let us think of the classical example of creatures which look like dogs, yet lack lungs. Should scientists discover such an animal, a decision would have to be made, as to whether these are dogs or not. Was the possession of lungs one of the necessary conditions for being a dog? That is hardly firmly established. This situation would force us to make a decision and develop the rule into a new shape, though in a shape which has to be continuous with the previous one. And despite its sci-fi settings, this example is far from being a remote and theoretical possibility but rather an illustration of how all rules behave all the time.

In a similar vein, any rule of inference has to be reinterpreted in new contexts. Is modus ponens an integral part of the conditional? Obviously, if one would claim that no instance of modus ponens holds, such talk would hardly be recognizable as a talk about the conditional. Consequently, it would lack any reasonable sense. Yet that there might occur problematic instances of modus ponens, such as those presented in [McG96], is nothing miraculous. We can both decide that these are genuine counterexamples or that they are illusory as, by the way, McGee himself does after presenting them. Or we can decide one way for some occasions and the other way for others. This is so because we are to a great degree free to choose whether we consider a putative counterexample, e.g., an English sentence containing the words *if-then* as a genuine conditional and thus formalizable by $A \to B$ or not. We can just say that in a given case it merely appears to be conditional but fails to be one, precisely because that would be against modus ponens. But we can also say that it is conditional, though a specific case thereof, and that therewith modus ponens has been shown to fail to hold come what may.

Let us focus once again on the example of formulae which are true when under the scope of a binary connective and untrue outside this scope. Russell uses these formulae to disprove the general validity of conjunction elimination. We are basically free to both acknowledge them as genuine formulae and see them as counterexamples, as well as declare them for non-formulae or do some similar move. Both kinds of moves are needed in our repertory but specific cases do not force us to prefer either above the other. Both Dicher and Russell in the aforementioned controversy assume that only one

answer to the question whether the counterexamples are legitimate is possible. Yet there is no correct answer, it is simply up to our free decision to develop the concepts that are discussed. And this is typically the case with rules.[4]

We thus see that even conjunction elimination is a living rule. It is closely related to the very meaning of conjunction and has to be relatively robust if we are to speak of conjunction at all. But how robust exactly, that is never finally established but has to be discussed in the process of our use of conjunction. Conjunction elimination is important for conjunction being what it is and playing an important role in logic. Nevertheless, this rule does not need to be considered valid come what may in order to keep its prominence.

Rules and with them also meanings are always in the making and never get a definite shape for all eternity. Of course there has to be some stability in our rules and therewith also in meanings, but to smaller or greater degree, every rule is always in the process of being established. Furthermore, even though specific laws do belong to the meanings of logical vocabulary, there is in principle nothing against modifying these rules and with them the meanings of logical expressions. If we heed rather the lessons [Qui51] taught us in *Two dogmas*, we see that there is no principled distinction between synthetic statements and analytical ones and therewith also between facts and analysis of meaning. Yes, Quine of *Philosophy of Logic* is right that modifying logic amounts to modifying meaning to some degree. But so does modifying everything else, as is succinctly put by Field:

> On some readings of "differ in meaning", any big difference in theory generates a difference in meaning. On such readings, the connectives do indeed differ in meaning between advocates of the different all-purpose logics, just as 'electron' differs in meaning between Thomson's theory and Rutherford's; but Rutherford's theory disagrees with Thomson's despite this difference in meaning, and it is unclear why we shouldn't say the same thing about alternative all-purpose logics ([Fie09], p. 345).

Thus discussing how broad the validity of modus ponens is can be both described as a discussion about the properties of conditional, considered independent of us as the properties of dogs, as well as a discussion about which definition of the conditional to endorse. Quine has offered an interesting perspective when he showed us that changing the logical laws can be seen as a change of topic. But this perspective is not to be taken as the absolute truth. It can be used well as an argumentation technique. For example, [Per14, pp. 210–213] uses it well against the sceptical doubts of [Bog00] about the validity of modus ponens. Indeed, one can hardly speak of the conditional absolutely independently of modus ponens, so the scepticism partly undermines itself. Nevertheless, this does not mean any talk of the conditional has to be associated only with a one very specific shape of modus ponens and that any discussions about the rule are impossible. Modus ponens is a living rule, just like any other rule.

[4] Is this heading towards just another form of logical pluralism, after all? If my position should be termed so, then the reader should keep in mind that is it very different from static pluralism of Beall and Restall. While they suppose that more logics are correct in advance and we have to discover which ones, my view countenances logics as being constantly in the making, as living processes.

Let me note that my approach to the meaning of logical vocabulary is a part of broader philosophical theory of meaning in general which acknowledges that meaning is a living and dynamic entity. Among the proponents of this approach I can mention [Rec03], who argues for *contextualism*, i.e., the theory that meaning is always created in a particular context of language use. He goes as far as to claim that this creation cannot be equated with disambiguation, as that would mean choosing from a previously given set of possibilities. Instead, the real use of language is capable of creating possibilities which are altogether new. This approach, in its turn, has a great predecessor in the analysis of rule following in [Wit53].

Furthermore, my approach to the dependence of logical laws on normative attitudes is an application of a broader conception of rules, not only the logical ones. As logical rules do not hold come what may in the sense that no rules are independent of our normative attitudes, so this holds also of all the other rules. Logical nihilism is thus a specific application of the broader doctrine of anti-necessitarianism or possibilism, proposed by [Mor89].

2 The meaning of generality

So are there no generally valid rules? In fact, the understanding of rules I just presented entails that there are not. Or rather, it entails that the notion of rules which are valid for ever and ever does not really make sense. It would mean countenancing rules without the supportive normative attitudes. According to the Brandomian analysis of the notion of rule I offered, these would not be rules.

But that seems to force on us the conclusion that all rules are arbitrary, which is unpalatable. To this I want to say two things. First, our rules, even the quite fundamental ones, could have different shapes and the fact that these alternative shapes are difficult to imagine does not make them impossible. Still, any deviation has to be partial to make sense. I have already mentioned that it would be self-defeating to claim that no instance of modus ponens or conjunction elimination is right. Quine illustrates this point very well by adducing the example of trying to subject conjunction exactly to the rules of disjunction of classical logic. Such a modification, Quine rightly notes, would be merely notational.[5] We would not be speaking of an alternative conjunction but just of disjunction. But from this good example he proceeds all too hastily to equate it with the cases when LEM or explosivity of contradiction are being questioned.

In fact, when Quine is speaking of changing the subject, I propose making a distinction between two kinds of changing the subject. In fact, any substantial discussion of any subject changes it but some discussions change it by developing it, while others just jump to another subject without explicitly avowing this, either as a result of being mistaken or with the purpose of deceiving others. Thus speculating about conjunction possibly being subjected to the same rules as disjunction is an example of unwitting jumping, while discussing the possible exceptions to modus ponens is an example of a development, although there can be more legitimate forms of development. In general, though, one cannot decide for every case whether it is a jump or a development.

[5] See [Qui86, p. 81].

These two notions also have to be themselves developed when confronted with their application to specific cases.

[Fra15], in his defense of logical nihilism, claims that both logical monists and pluralists concur in their intuition that logic has to be somehow *out there*. I agree with him and claim that logic is not simply out there but that it is always established anew, not by any arbitrary fiat but rather by continual development. But even logical nihilists could fall prey to something very close to the conviction that logic is out there. They can share in the impression that logic is simply independent of normative attitudes and we can discuss whether there are any fully generally valid logical laws. Out there, according to such approach, there is something that decides which, if any, logical laws hold in full generality. Such a nihilist would then argue that there are none fully valid laws, as all the laws out there are invalidated by some counterexamples. I suspect that Gillian Russell would fall into this category. To this I retort that any such generality is always partially postulated and never simply found in the way we may find facts about the behavior of bears in the mountains of a given region.

And any generality is always relative and partial. Because language is a living entity, there is no way one can legislate about absolutely all occasions of the use of a given expression. Priest, attacking logical pluralism, opposed to the line of thought common among logical pluralists such as [BR06]. These pluralists claim that we can think of the use of a given logic for a certain area of reasoning or domain of objects reasoned about or something similar. Priest retorts that, obviously, reasoning across domains has to be possible:

> Despite the fact that there are relatively independent domains about which we reason, given any two domains, it is always possible that we may be required to reason across domains ([Pri06], p. 204).

I agree. But that does not mean that any rules can be valid come what may in all contexts and areas of reasoning for all eternity. Not only does this fail to happen, it does not make sense due to the intimate connection between rules and normative attitudes.

Priest, accompanied by not a few equally-minded authors, believes that holding come what may should be the very point of logic and the reason why it is important. Logical notions are interrelated with activities such as debating, arguing, denying a thesis, inferring, etc. These activities are quite essential to our rationality and in many ways underlie many more specific activities we engage in. Logic could not be so fundamental if its rules were not very general in comparison with many other rules. And if someone used an expression without many of the laws we take to hold of negation, it would not make any sense to classify this expression as negation. Nevertheless, there is no such thing as fully general validity and for any expression there are still many ways how specifically this expression could be used and some might strike us as exotic. Our own use never pins down just one set of rules.

2.1 The natural vs. the formal and logic as an artifact

The problem of logical nihilism is, as I will try to argue now, closely related to the role of artificial formal languages and their relation to the natural language. We have to give

the famous quote from Frege, as it is hard to set the stage for the discussion better:

> Das Verhältnis meiner Begriffschrift zu der Sprache des Lebens glaube ich am deutlichsten machen zu können, wenn ich es mit dem des Mikroskops zum Auge vergleiche. Das Letztere hat durch den Umfang seiner Anwendbarkeit, durch die Beweglichkeit, mit der es sich den verschiedensten Umständen anzuschmiegen weiß, eine große Überlegenheit vor dem Mikroskop. Als optischer Apparat betrachtet, zeigt es freilich viele Unvollkommenheiten, die nur in Folge seiner innigen Verbindung mit dem geistigen Leben gewöhnlich unbeachtet bleiben. Sobald aber wissenschaftliche Zwecke große Anforderungen an die Schärfe der Unterscheidung stellen, zeigt sich das Auge als ungenügend. Das Mikroskop hingegen ist gerade solchen Zwecken auf das vollkommenste angepasst, aber eben dadurch für alle andern unbrauchbar. So ist diese Begriffschrift ein für bestimmte wissenschaftliche Zwecke ersonnenes Hilfsmittel, das man nicht deshalb verurtheilen darf, weil es für andere nichts taugt ([Fre79], p. v).[6]

Does this quote support logical nihilism or does it to the contrary show how little value it has? Curiously enough, both positions have been entertained, with Dicher using Frege against logical nihilism and [Cot18] using him to argue for logical nihilism. Cotnoir in fact distinguishes two kinds of nihilism. The first kind claims that natural language lacks any logic, as no rules really hold, while the second kind merely claims that no logic of natural language can be captured by formal languages. He goes on to embrace the second variety of logical nihilism, as he deems it more cautious. His worry might be similar to that we already mentioned, namely that the first kind of logical nihilism would mean declaring reasoning in natural languages lawless, which it obviously is not. He bases his argumentation on pointing to what he considers as fundamental differences between natural and formal languages, for example that formal languages cannot quantify unrestrictedly, have restrictions on expressing their own semantic properties, etc.

Dicher, on the other hand, doubts that it ever was a point of logical systems to capture the logic of natural language. Obviously, much revolves around the problem of how natural and formal reasoning relate to one another. There are two basic approaches to this discussion. One claims that the formal and the natural languages and their reasoning are continuous, the other denies this and claims that there is a lacuna between the two. So which side should we pick and what will it mean for the prospects of logical nihilism? I think both accounts are one-sided and rest on some misconceptions. Let me explain why.

To begin with, the very notion of natural language is rather suspicious, no matter how commonplace it has become. It is not so clear that English, Italian, Chinese, Swahili

[6] English translation: "I believe that I can best make the relation of my ideography to ordinary language clear if I compare it to that which the microscope has to the eye. Because of the range of its possible uses and the versatility with which it can adapt to the most diverse circumstances, the eye is far superior to the microscope. Considered as an optical instrument, to be sure, it exhibits many imperfections, which ordinarily remain unnoticed only on account of its intimate connection with our mental life. But, as soon as scientific goals demand great sharpness of resolution, the eye proves to be insufficient. The microscope, on the other hand, is perfectly suited to precisely such goals, but that is just why it is useless for all others" ([Fre67], p. 6).

and all the languages not definable by a recursive definition of well-formed formulae and maybe an axiomatic system do form a sufficiently homogenous group that can be so readily contrasted with the so-called formal languages. Furthermore, those languages are, in important ways, quite artificial themselves—not everything you hear in the streets of London, New York City or any other place in the English speaking world counts as correct English. The language is regulated, there are codifications of it and so it is quite artificial. [Sha14] calls logic an artifact, which is supposed to differentiate it from natural everyday reasoning. Very well, but English and all the other languages spoken by humans are artefacts in a very similar way.

The term *natural language* is thus itself a somewhat unnatural contrivance of philosophers who use it primarily for contrast and in order to describe what the formal systems are not and how they do not work. Although the quote from Frege is insightful, he wisely expressed himself by means of a metaphor and we should not take it too literally. Basically all the claims of a different nature between natural and formal languages, including the claims by Cotnoir, can be doubted. This is so mainly because you can hardly say much that is definite about the so called natural languages, as they are living entities and not static systems. For example, is the liar sentence formulated in English all right? In what sense? Is it meaningful, does it have a truth value? I do not see why one should expect that the rules for the correct use of English establish any answers to these questions as correct. It just remains open, probably partly because it does not matter for the ordinary use of language.

This is not to say that one cannot point to interesting differences between the so called natural and formal languages, yet it is more problematic than the usual talk about these differences would suggest. And we should not forget that formal languages are strongly dependent on natural languages, as it would be hard to make sense of the validity of the rules in formal logics, if these could not be explained in a language one already understands. That is a further argument against the common understanding of the difference between the two kinds of languages. Obviously, we would not understand how conjunction works in classical or any other logic if we did not understand the word *and* or analogous expressions of English or other languages.

If we take Frege's metaphor very seriously, we can say that logical nihilism might be true but is then relatively trivial. If logical systems do not try to capture the actual rules of reasoning, then it is no wonder that they fail doing it. But what would be the point of devising these artificial systems? In the literature, you can find many commonplace expressions about abstractions, idealizations and similar aspects which we purportedly have to take into consideration when thinking about the relation between everyday reasoning and formal logics. But why abstract, why idealize and do all those things?

Some authors have embraced the view that logical systems are something like models of reasoning. A model shares some salient properties with what it models but may also simplify in other respects, as it is then more easy to handle. For example, a map oversimplifies many things but is practical and tells us a lot about the territory it depicts. Also in physics there are many cases of idealization, as when in Newtonian mechanics we speak of objects moving without experiencing any friction, though we know that this never happens. But I do not see the point of doing similar idealizations or abstractions about reasoning or logical vocabulary. What should we learn about logical vocabulary in

this way? We obviously know the logical vocabulary of natural language well enough, as we could not use it otherwise.

The talk about logical systems being models of actual reasoning is at best still underdeveloped. It is another metaphor and I do not believe that it is very illuminating. I want to add that while considering maps of a given territory or movement without friction, we know in principle rather precisely in what sense these models are inaccurate and we can as if subtract their inaccuracies. We know how the distances on the map translate into distances in the depicted territory. We know how to calculate the influence of friction on a given movement. I do not see any similar methods concerning logical systems as models of reasoning or the use of logical vocabulary. Yes, we can say that *and* might, unlike the conjunction of classical propositional logic, express temporal succession. But how does an acquaintance with classical propositional logic help us calculate anything about the actual usage of *and*? What new properties of the expression *and* can we discover by using any logical system?

Rather I find that logical systems mainly show us how actual reasoning does not work and what its rules do not look like. In a way, a map of a given territory also partly shows us what the territory is not like but this is not the best use to make of it and the best kind of lesson to take from it. In the case of logical systems this negative lesson, on the other hand, is more important than the positive lesson of seeing anything new about the actual behavior or usage of logical vocabulary. This is not meant ironically, as I consider this a valuable service. Removing oversimplified preconceptions and prejudices is hardly an easy job and it possesses great value. So, rather than showing us that real reasoning is something like this or that system, the acquaintance with classical logic, intuitionistic logic and all the other systems makes us aware that actual reasoning cannot be captured by any system.

Furthermore, logical systems do show us how our use of logical vocabulary could be modified. Of course, it does not happen that we simply decide to use classical logic or any other system in everyday reasoning. Nevertheless, after getting acquainted with many systems we understand how many possibilities there are as to how to use the logical vocabulary and we can use it with more awareness and not just spontaneously.

One more attempt at monster barring

Having discussed the commonplace division of languages into natural and formal languages, I can react to one more attempt at monster barring of counterexamples to logical laws. When Brouwer, the father of intuitionism, doubted whether the law of excluded middle holds for reasoning in infinitistic mathematics, there is an easy answer a proponent of the law could provide him. Namely, that the validity of LEM is meant for the given formal system. And in this system, it clearly holds come what may. This would actually come very close to what Hilbert as a formalist might have had in mind as an opponent of Brouwer[7].

This answer clearly makes some very good sense but it also has its problems. If it is claimed that every logical law holds only restrictedly, relative to a given formal system, then it could be seen as a variety of logical nihilism. Nevertheless, it would not be a

[7] See [Zach06] which provides the summary of their debates and fights.

very profound variety. Certainly a given system, for example classical or intuitionistic propositional logic, has its autonomy. We play language games with it, for example when students have to solve some problems based on those systems during a logic exam. Nevertheless, a logical system is only in a very stretched sense a language to which we could restrict the validity of a rule. As I have sketched in the previous sections, language as a system of rules has to be upheld by normative attitudes of its users and these attitudes bring with them dynamics which make language living. In this sense, I concur with [Lau14] who describes formal logical systems, as well as programming languages, as borderline cases of languages. This is a view quite contrary to that of the analytical tradition, which might see these systems as the paradigms of real languages.

As I indicated, the formal systems are comprehensible only in the context of our ordinary language. In this sense, they can be seen as part of our natural languages and one which is independent only to a very limited extent. I have argued that natural languages are not very natural and now I add that formal languages are not so much languages. So restricting the validity of some rules of inference, for example of LEM, to the formal systems is problematic. Does this undermine the formalist response to the Brouwerian doubts about a given logical law (it is obvious enough that the same reasoning applies to any logical law, if it applies to LEM)? I think it at least shows that this formalism fails to capture very much of what is interesting about logical laws.

3 Logic as a practice

Very often it is assumed that all the nuances of the actual usage of logical vocabulary cannot for some reason be captured by logical theories. I believe this is correct but more needs to be said about why it is the case. Let me try to do this in this last section. We saw that Cotnoir embraces this view and I agree with him, even though, unlike him, I embrace also what he considers to be the stronger and more controversial form of logical nihilism. Namely, that natural language has no logic. At least in the sense that I will now specify.

The first point is that the difference between formal systems and actual reasoning is not merely quantitative. The rules which govern our use of logical vocabulary are not only likely more complicated than those of formal logics, they are also qualitatively different. Yet I think there is a stronger qualitative argument than those of Cotnoir. One way in which I was explicating this qualitative difference was by showing that to be genuine rules, they have to be upheld by our normative attitudes which renders them dynamic. The logical systems, on the other hand, cast an impression that the logical expressions are guided by a definite set of prescriptions valid for all times.

But to illustrate my point differently, I claim that logic is primarily a practice and not a theory. What kind of practice? I think a particularly illuminative answer is given by Robert Brandom [Bra94], who claims that logic makes inference rules explicit. Thus if there is a rule that we can infer a sentence B from sentence A, logic enables us to state this rule with the use of the conditional when we say that A implies B. Brandom calls his approach to logic *logical expressivism*. Given what I said about the dynamic character of rules, I think that any act of explication partly modifies what it makes explicit. At the very least, it tends to stabilize it and so slow down the dynamics.

The formal logics, on the other hand, are theories and therewith creatures of quite different kind than the logical practice which they come from and to which they relate. What kind of relation do they have? This is very close to asking what the point of doing formal logics is. There can be many points in devising logical systems, not the least of which is that it is intellectually satisfying for logicians. But I think that among these possible points, depicting the rules of actual usage of logical vocabulary ranks very low, if at all. It is true that when Brandomian expressivism is a good idea concerning the extra-logical vocabulary, it can in principle be applied to logical vocabulary as well. That is, if it is useful to make explicit the rules governing the use of extra-logical vocabulary, so it could also make sense to express the rules governing the logical vocabulary. But it is difficult to see what an expression of the tools of expression could bring. And anyway, if there is the difference of kind between logical practice and logical theory, then it is impossible because any depiction would have to be so deeply wrong that it cannot be of any use. But again, it is not clear what the point of it would be, even if it somehow could succeed. I fully agree with Field who, concerning logical pluralism and the possibility of finding different models of behavior of logical vocabulary, remarked:

> But personally I find it hard to get excited about issues related to the extent of indeterminacy in English words ([Fie09], p. 345).

I think that besides indeterminacy, any vicissitudes concerning the actual usage of English words such as *not*, *or*, *some* and *all* hardly make for particularly interesting philosophical issues. The same, of course, holds for translations of these words in all the other languages spoken. And competent language users should be aware of the indeterminacies that there might be. Maybe the very fact that we can contrive various logical systems and see their inadequacy makes us more acutely aware of these nuances and the potential dangers of misunderstanding or manipulation that might lie in them.

Furthermore, various attempts at loosening this relation between logical theory and logical practice are not of much avail. For example, according to [Coo10] logical theories should be seen not as direct representations but rather just as models of reasoning. [PS17] go further by claiming that we search for reflective equilibrium between theory and practice. While theories provide models which might not exactly correspond to the actual usage of logical vocabulary or actual reasoning, they are more easy to handle. But why would we look for the equilibrium? This view that logical systems are models of actual usage of logical vocabulary is supposed to foster an analogy between logic and, for instance, physics. But while physical theories enable us to say something interesting and new about the reality they model, I doubt that logical theories do anything comparable. Of course, logicians engage in intellectually challenging and fascinating enterprises when they study whether a given semantics is axiomatizable, whether a given calculus is decidable, etc. But these are still questions pertaining merely to the alleged models, not to what they are supposed to model.

And even if there were some pragmatic use to finding a reflective equilibrium between logical systems as models and the reality they model, how can we make sense of applying the idea of reflective equilibrium here? And are there any ways to measure whether formal logic is somehow approaching the state of reflective equilibrium with ac-

tual reasoning? Or do only some formal logics come close to it? All these explanations are themselves too much on the theoretical side and too little on the practical side of the aisle. All these doctrines revolve around the idea that logical systems have to represent something, no matter how watered down this idea might come to be by invoking models and the like. And that is why logical nihilism is quite a good answer to them.

Regarding logic primarily as a practice also disarms the possible objection to logical nihilism that it undermines itself. The objection claims that while logical nihilism, just as any other thesis, has to be supported by some reasoning, it precludes any reasoning whatsoever. This objection sees in logical nihilism a variety of scepticism. But my account, which can be overall seen as a variety of logical nihilism, does not undermine reasoning but only shows that its basis is not theoretical. If scepticism is doomed to undermine itself, then my version of logical nihilism is not sceptical.

4 Logical nihilism—some final disambiguation and a final verdict

There is an interesting proposal which goes into the direction of logical nihilism, namely so called logical particularism, as it has been presented in [PW18]. This is the thesis that a specific logical system can be applied only to a limited extent, for example only when we reason about a specific topic or a specific domain. In fact, the logical pluralism of Beall and Restall can be seen as a specific variety of logical particularism.

I share the view that no logical laws can be said to be valid in all discourse come what may. This is still practically identical with logical particularism. But it is possible to go further. In fact, one should go further. Recall the discussion about putative counterexamples to a given logical law, for example modus ponens. We are free to both acknowledge the counterexamples or to proclaim them as illusory, as we can interpret them as not really containing conditional, precisely because that would violate modus ponens. But this means that we cannot claim that any logical law simply holds or does not hold no matter how much we restrict the area in which we discuss its validity. No matter how much we particularize the validity, there is no matter of fact which forces us to either refute or acknowledge it. Logical particularism is thus too weak.

And although this view is closely related to the appreciation of the dynamic nature of language and reasoning which constantly develop, this does not mean that we can decide questions about the validity of a given law even when we restrict ourselves to a specific slice of time. Not only does it not make sense to proclaim a given law for valid or invalid diachronically, it is the same synchronically. But this is not much more than just the application of the lessons of *Two dogmas of empiricism*, namely that any statement, including a statement about a logical law, can be both upheld or sacrificed in the face of theoretical hardships. And honouring further lessons from [Qui60] and also from [Dav73], we see that determinacy indeed begins at home, even in logic.

Indeed, logical practice is determinate enough for its purposes. It is not the case that anything goes, I do not herald any form of logical anarchy. Clearly, a given logical system has to be somehow similar to the actual logical practice, if it is to be counted as a logical system at all. Yet, there is nothing out there which determines which logical laws hold and which logical systems are correct.

4.1 The verdict

Should we be logical nihilists, then? We saw that, just as with logical monism and logical pluralism, logical nihilism can be and actually has been spelled out in more ways. My point is that logic is a practice and as such is governed by rules which are by their nature live and dynamic. There is therefore no definite shape they have and therefore also no way to capture them correctly. In this sense logical nihilism is correct, as no logic is exactly right. More fundamentally, though, it is wrong to think that they should try to be right. Indeed, I could strengthen the attack and claim that the idea of any logical system being right is not only false but makes no good sense when analyzed.

Logical nihilism proves to be not only a defensible but actually a very reasonable position. Nevertheless, spelling it out requires a revision of or at least going beyond the form in which logical nihilism is typically defended, namely that due to Gillian Russell. We should overcome the supposition that there is some kind of a fact as to how many logics are correct. Thinking about logical systems in that way invites misguided questions. And not only that it fails to be of much real interest, it is based on wrong conception of rules and normativity.

As far as the so often discussed generality of logic is concerned, I have argued that it is not in itself a particularly important feature. True, the logical practice of making inferential relations explicit, i.e. what logic does according to Brandom's logical expressivism, is itself quite universal and can be applied to all kinds of discourse. In this sense, logic indeed is general. But it is general as a practice, not as a set of specific laws which would be valid for all eternity. This is not a vice but a significant virtue because the logical practice has to be itself dynamic if it is supposed to be of any use in making explicit the other living conceptual practices.

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