Can We Logically Tell Good from Bad Reasoning?

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Abstract

The possibility of distinguishing good from bad reasoning – the precondition of any normative role for logic – has been challenged by a cluster of skeptical arguments in recent philosophy of logic. While much attention has focused on the gap between logical knowledge and ordinary reasoning highlighted by Harman and Russell, this paper identifies three additional arguments against logical normativity that have received insufficient scrutiny: one concerning the inherent limitations of formal evaluation methods, one concerning the pragmatic indeterminacy of illogical behavior in natural language communication, and one rooted in the early-twentieth-century doctrine of the 'feeling of logicality' directly opposed by Charles S. Peirce. The paper pursues two sequential aims: first, to show that skepticism about the logical normativity of reasoning is deeper and more historically entrenched than contemporary discussions suggest; second, to reconstruct Peirce's theoretical framework – centered on the distinction between *logica utens* and *logica docens*, the tripartite account of good reasoning, and the method-based criterion of validity – and to demonstrate that it provides a unified response to all four skeptical challenges.

1. Introduction

Logic, conceived as a normative science of reasoning,[1] presupposes that there is a meaningful distinction between good and bad reasoning – one that is not merely descriptive of how people happen to think, but evaluative of how they *ought* to think. This presupposition is so deeply embedded in the tradition, from Kant and Frege to contemporary textbooks, that it has rarely been treated as requiring defense. Yet it is precisely this presupposition that a growing body of work in the philosophy of logic has placed under pressure.

The most widely discussed challenge comes from Harman (1986), who argued that logical knowledge of implication fails directly to generate norms for ordinary reasoning as change or update of belief.

[1] The idea that logic is normative for thought or thinking is evident in Kant, Frege, Peirce, Carnap and others. For some historical details, see MacFarlane (2002), Steinberger (2017), Copi (1979).

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A classic illustration: Mary believes that if she goes to the cupboard she will find cereal, and she goes to the cupboard. Logic says she should infer there is cereal inside. But when she opens the cupboard and finds it empty, she ought instead to revise her original conditional belief – not draw the logically valid conclusion. The problem is not that Mary reasons badly; it is that knowing logical implications does not tell her which belief to revise. This gap between logical facts and what one ought to do in reasoning has proven stubbornly resistant to closure: bridge-principle approaches attempt to span it by linking logical relations to deontic requirements on belief, but they face well-known difficulties in specifying which bridge principles are themselves justified. Gillian Russell's (2020) more recent contribution is best understood as a philosophical diagnosis of why this gap is so resistant: the sentences that express logical relations – what she calls E(ntailment)-sentences, such as 'P, Q ⊨ R' – are descriptive in character, stating facts about entailment rather than issuing normative directives. The move from such descriptive logical knowledge to conclusions about how one ought to reason thus requires a further step that logic itself cannot supply, on pain of something like a naturalistic fallacy. Russell's argument, in this sense, does not introduce a new form of skepticism so much as it deepens and clarifies the original Harmanian gap by locating its source in the descriptive grammar of logical discourse itself. Together, these arguments define what we might call the gap-based challenge to logical normativity, and they have prompted an extensive range of responses (MacFarlane MS; Field 2009; Besson 2012; Steinberger 2019; 2022; Massolo 2023).

Beyond this gap-based challenge, there are further arguments against logical normativity that have received far less systematic attention – arguments that remain in force even if one grants that logic is directly concerned with reasoning, and that call into question not the subject matter of logic – whether logic concerns implication or reasoning – but something more fundamental: whether the normative evaluation of reasoning is feasible or necessary in the first place.[2]

This paper draws attention to three such arguments, which have not been brought together and examined as a group before, though

[2] The normativity thesis is sometimes construed more strongly: not only must logic enable us to distinguish good from bad reasoning, but logical laws are expected to serve as motivations for belief revision. The paper takes the former, weaker construal to be both more fundamental and more widely held.

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each draws on considerations that are live in contemporary philosophy of logic and the psychology of reasoning. The first concerns the limitations of formal evaluation methods: given the plurality of logical systems and the absence of a canonical translation procedure from natural language to formal notation, such methods can at best establish that a reasoning *is* valid, never that it *is not*. The second is pragmatic: in actual discourse, apparent fallacies of reasoning tend to dissolve once charitable interpretation and contextual clarification are applied – suggesting that invalid reasoning may be practically non-existent, and logical norms therefore redundant. The third is more radical: it holds that since all reasoning is governed by the reasoner's own feeling of logicality, there is no external standard by which any reasoning can be judged better or worse than another. For ease of reference, I label these three arguments FAIL, MISUN, and LOGI respectively; their precise formulations are developed in §§2–3 below.

The third argument has a historical pedigree. It was explicitly advanced by late-nineteenth-century German logicians and was directly opposed by Charles S. Peirce in his 1903 Lowell Lectures. Peirce's engagement with this argument led him to develop a detailed account of the structure of reasoning and its norms that, I shall argue, has the resources to address all four challenges to logical normativity examined in this paper. The turn to Peirce is not merely antiquarian. His framework anticipates, and in some respects surpasses, more recent approaches to logical normativity: it grounds norms in the lived practices of reasoning communities rather than in abstract formal properties, deploys a teleological conception of good reasoning oriented toward truth-seeking, and offers a dialogical procedure for third-person evaluation that is sensitive to the pragmatic complications arising in actual communicative practice.

The paper pursues two sequential aims. The first is to establish that the skeptical pressure on logical normativity is wider and more varied than the current literature – focused predominantly on the gap-based challenge – has recognized: FAIL, MISUN, and LOGI each attack the possibility of normative evaluation from a distinct direction, and together they suggest that any adequate defense must address a broader front than bridge-principle approaches have so far attempted. The second aim is constructive. I reconstruct Peirce's response to LOGI – which involves a detailed phenomenology of reasoning, a distinction between *logica utens* and *logica docens*, a teleological account of good reasoning as truth-conducive, and a method-based criterion for evaluating others' inferences – and argue that this framework provides a unified response to all four

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challenges. I do not claim that Peirce's solution is the uniquely correct one, but I do claim that it offers resources that current discussions have overlooked and that deserve serious philosophical attention.

The paper is structured as follows. § 2 presents FAIL and MISUN, explaining why the formal and pragmatic dimensions of the normativity problem resist standard solutions. § 3 reconstructs LOGI as it appeared in Peirce's intellectual context and examines his direct refutation of it. § 4 draws out the positive account of reasoning and its norms that underlies Peirce's refutation, organized around four central claims. § 5 applies this Peircean framework to all four challenges – FAIL, MISUN, LOGI, and the gap-based challenge – showing how it reframes and in key respects dissolves the difficulties each raises.

2. Two Other Arguments against the Normativity of Logic

It is telling that Russell (2020) devotes a section to rehearsing – and rejecting – what she calls 'three arguments for the normativity of logic.' The phenomena I invoke overlap with hers, but our use of them runs in the opposite direction: where Russell treats them as failed defenses of normativity, I treat them as the basis for a more direct skeptical challenge. My contention is that, taken seriously on their own terms, FAIL and MISUN are more damaging to logical normativity than the existing literature has recognized.

2.1 Argument from shortcomings of the formal evaluation method

> (**FAIL**) The prevalent method of evaluating ordinary reasoning in contemporary logic teaching can, at best, demonstrate that a certain *argument form* is invalid, but it cannot establish the invalidity of *the argument itself*. Furthermore, there are instances where it seems impossible to ascertain the 'form' underlying a natural language argument or to determine the validity of a particular form. This suggests that logic, as currently practiced, fails to assess whether an individual's reasoning is good or bad, unless more dependable methods are developed.

In logic courses, students learn that the validity of natural language arguments depends entirely on the validity of their forms. A sound and complete formal system, with its theorems or 'logical truths',

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encompasses all possible valid forms. Consequently, a common evaluation method considers an argument valid only if its form corresponds to an internal theorem of the logical system. Any argument whose form cannot be matched with a theorem is deemed invalid, thereby assessing validity indirectly through form. While this method would be effective if we could readily discern a unique logical form for any natural language argument, this assumption rarely holds in practice. Indeed, the relativity of logical form to specific formal systems, combined with the indeterminacy inherent in the translation process, renders such an approach highly problematic.

Firstly, due to the diversity of existing logical systems and the potential for their expansion, the form corresponding to a specific argument is often not unique. In the contemporary landscape of diversified logics, there are multiple formal systems. Given the different syntaxes (and semantics) of each logical system, when we evaluate the validity of natural language arguments by their form, there may be different 'forms' relative to different but equally legitimate logical systems. Particularly, when using two logical systems where one is a conservative extension of the other (*e.g.*, classical propositional logic and classical first-order logic, or classical propositional logic and modal propositional logic), it may occur that the argument form found in the former, simpler logical system is invalid, while the argument form found in the latter, extended logical system is valid. To determine what constitutes the form of an argument, many tend to choose the deepest formalization.[3] However, appealing to 'the depth of formalization' leads to a more troublesome predicament: in striving for deep formalization, *any* natural language argument that cannot be given a corresponding internal theorem in a specific logical system and is thus considered to have an invalid form (*e.g.*, 'This is blue, so it is colored'), *may* find its corresponding internal theorem in another more extended logical system (existing or yet to be constructed), and thus be regarded as a valid argument (*e.g.*, obtaining deeper formalization by means of adding 'blue' 'colored' to the list of logical constants).[4] Even granting, in principle, that a natural language argument is valid if and only if its form is valid, in practice, this evaluation method can at most show

[3] For latest discussion about depth of formalization, see Baumgartner & Lampert (2008), Brun (2023).

[4] Perceptive philosophers like Salmon (1973) and Massey (1975) have long recognized this point, which Priest (2023: 455) has recently reiterated.

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that some arguments are *valid* because they have a specific form, but it cannot conclude that any particular natural language argument is *invalid* merely on the grounds that some argument form is invalid.

Secondly, when determining the logical form of an argument, an often overlooked task is translating or codifying natural language into a specific formal language. Since logic itself does not provide an explicit translation procedure,[5] we may sometimes struggle to ascertain the logical form behind an argument or determine its validity. For example, the inference

Lisa left school quietly; so Lisa left school. (Jackson 2007)

involves adverbs in natural language. Unless considered an ellipsis, it is generally deemed invalid because its corresponding classical logical formula is invalid. However, by introducing event variables (e) as Davidson (2001) did, we can translate it into

$$\exists e\,(\mathrm{L}\,(a, e) \wedge \mathrm{Q}\,(e)) \vDash \exists e \mathrm{L}\,(a, e)$$

making it valid. Regrettably, Davidson's procedure is not universally applicable to all everyday language arguments. For instance, Descartes' *cogito ergo sum* (Hintikka 1959) and McGee's (1985) putative counterexample to modus ponens are difficult to formalize satisfactorily using this method. This does not imply that reasoning in natural language is necessarily indifferent to good or bad; the key point is that, lacking a clear and authoritative translation procedure, we cannot, without arbitrariness, assess natural language arguments as valid or invalid on the basis of their form alone. In practice, those who initially consider it good (or bad) reasoning will *intentionally* translate it into a valid (or an invalid) formula in some preferred logic. However, this approach does not use logic to *evaluate* the quality of reasoning but rather to *explain* why someone might consider it good (or bad) reasoning.[6]

[5] The absence of this task in many logic textbooks suggests that logicians either take the reader's translation skills for granted or assume their methods enjoy universal consensus. Yet, such a presumption is scarcely realistic.

[6] Of course, this does not preclude one from saying that the validity of a natural language argument can be assessed *relative to* a given symbolization procedure and logical system. But evaluation in this sense is too weak to underwrite what is ordinarily meant by the normativity thesis: if a judgment of validity changes with the choice of system, it cannot serve as the

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The implications of FAIL extend beyond specific evaluation methods. If one cannot reliably determine the logical form of a piece of reasoning, or whether that form is valid, then bridge-principle defenses of logical normativity – whether validity-based (MacFarlane MS; Dutilh-Novaes 2015) or invalidity-based (Evershed 2021) – lose their footing. Unlike Harman's challenge, FAIL does not presuppose classical logic or logical monism;[7] its force derives entirely from the indeterminacy of translation procedures within actual logical practice.

2.2 Argument from the potential for pragmatic misunderstandings between the evaluator and the subject

> (**MISUN**) In everyday conversations, it is rare for individuals to acknowledge that they are being 'illogical'. Any reasoning deemed obviously invalid can often be reconstructed as valid once potential linguistic misunderstandings are addressed. Therefore, it is likely that logically invalid reasoning does not actually occur in human verbal discourse. If a type of behavior is inherently infallible, there is no need to introduce any norms for it.

The concept of a 'limit on illogicality' has often been associated with the constitutive thesis, which posits that logic is constitutive of thinking (Oza 2020: 2). However, this argument does not necessarily lead to any version of the constitutive thesis. Instead, it emphasizes direct evidence from linguistic practices to refute the possibility of distinguishing between good and bad reasoning.

When one person expresses their thoughts to another, they must rely on language; similarly, the latter's judgment of the logicality of the former's thoughts also requires language. However, misunderstanding is a common phenomenon in verbal discourse. Such misunderstandings occur not only in expressions that logicians often consider to involve the 'content' of reasoning, but also, though

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kind of stable, action-guiding norm that logical normativity is supposed to provide.

[7] One piece of evidence for Harman's classical monism is his unreserved acceptance of the principle of explosion, a rule rejected by paraconsistent and relevant logics. Indeed, in his critique of modal logic, Harman (1972: 78–80) explicitly maintains that classical first-order logic is both necessary and sufficient for all logical purposes.

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less commonly, in the meanings or uses of particles related to the 'form' of reasoning. When a person is accused of being illogical, we have reason to expect the parties to continue the dialogue to determine whether there is a linguistic misunderstanding between them. Indeed, anyone who realizes how serious an accusation of 'illogicality' is to a rational being will usually take the initiative to explain themselves when accused of being 'illogical', to clarify that they are not illogical.[8] In the absence of such an explanation, we should adhere to the principle of charity, as Quine (2013: 53–54) reminds us, and sympathetically assume that there are no pre-logical or illogical people due to the possibility of linguistic misunderstanding or bad translation.

Recent studies in psychology of reasoning have also provided experimental evidence in this regard. Take the Wason Selection Task as an example. To test the conditional statement 'If one side is a vowel, the other side is an even number', subjects are required to choose the minimum number of cards to flip over from four cards, each marked with a letter on one side and a number on the other. It was initially believed that most participants violated logical rules as they did not choose the vowel card and odd number card (Evans, Newstead & Byrne 1993). However, when it was discovered that subjects and experimenters understood the tasks differently, the experimental results were not as negative. For instance, participants might choose to turn over the even number card due to a strong 'confirmation bias' (*i.e.*, prioritizing the search for or imagining situations that would make the conditional statement true). Identifying the task 'testing a conditional' with 'confirming a conditional' could be regarded as one fault of some subjects, but it does not suggest that they would endorse obviously illogical reasoning such as

> If one side is a vowel, the other side is an even number; now one side is an even number, we can infer the other side must be a vowel. ('Affirming the Consequent')

Another possibility is that participants interpreted the 'if' in the conditional in an unconventional sense. Although it is a cliché that

[8] P. Strawson (1952: 3) provided an excellent example about this point. When asked whether you were pleased by something, you might coherently respond, 'Well, I was and I wasn't.' Naturally, the questioner might then press you by asking, 'What do you *mean* by that?' If you can explain your meaning or clarify your intention, you are not contradicting yourself. You are only considered to be in a 'logical contradiction' if you cannot provide such an explanation.

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the same word can bear different uses in natural language, experimenters typically adopted a homophonic translation of the particle 'if' used by each subject. In follow-up conversations with those subjects who were considered to have 'chosen incorrectly', recent psychological findings (Stenning & van Lambalgen 2008: 83–85) show that the reason participants did not choose the standard answer (*i.e.*, the vowel and the odd number) was often because their interpretation of 'if' was not what the experiment designers had anticipated. For example, some subjects, when explaining why they only chose to turn over 'E' and '4', revealed that they had interpreted the conditional statement 'if ϕ, ψ' as a sentence similar to 'ϕ and ψ' or 'when ϕ, ψ', because the word 'if' has such usage in certain contexts, as corpus analysis confirms. More likely, some participants had interpreted 'if' as biconditional. In everyday language, 'if and only if' is rarely introduced to specifically indicate biconditional; instead, 'if' is often used to indicate sufficient conditions or both sufficient and necessary conditions, depending on the context. While the ambiguity of 'if' is often overlooked in logic textbooks, the ambiguity of 'are' is well known (due to the work of Frege, Bertrand Russell, and others) among logicians and philosophers. However, since everyday statements like 'Ss are Ps' are often rephrased as a conditional, the ambiguity of 'if' in the latter is not difficult to understand when 'are' in the former is ambiguous (Wyer & Srull 1989: 279–84). Based on similar perspectives, Cohen (1981; 1986) and others believe that psychological experiments have not demonstrated that people are irrational.

Gillian Russell (2020) notes that some scholars invoke the 'error of reasoning' – as evidenced by experiments such as the Wason Selection Task – as grounds for logical normativity. The analysis offered here suggests that this evidential basis is more fragile than it appears: once pragmatic misunderstandings are taken seriously, the 'error of reasoning' may dissolve, and with it the argument from error for logical normativity.

While MISUN appears simpler than FAIL, it poses significant challenges to the normative role of logic. Acceptance of this perspective renders logic itself seemingly redundant for the purposes of evaluating reasoning, since ordinary reasoning would proceed correctly without any guidance from logic. The notion that humans do not violate logical principles may seem surprising but is not incomprehensible. As Hodges (2001: 3) candidly indicates, 'People are never *deliberately* inconsistent in their beliefs. It is simply impossible to believe, fully and without reservation, two things which you know

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are inconsistent with each other.' One could argue that logical principles are inviolable – akin to physical laws (Russell 2020: 385–6). This view was articulated by the nineteenth-century logicians such as Christoph von Sigwart (1895) and Ernst Schröder (1890–1905), who contended that no fallacies exist (Peirce 1992–1998: 2.244). Their argument, however, rests not on pragmatic misunderstanding but on a more radical psychological claim – the feeling of logicality – which is the subject of the next section.

3. LOGI and Peirce's Refutation

Sigwart and Schröder's 'feeling of logicality' argument against the normative role of logic, which engaged Peirce's attention for a long time, can be reconstructed briefly as follows:

> (**LOGI**) All reasoning determined by the feeling of logicality is equally good (A), and any reasoning occurs because it satisfies the reasoner's feeling of logicality (B). Hence, all reasoning is equally good, *i.e.*, there is no distinction between good and bad reasoning (C).

Structurally, the conclusion of LOGI wholly relies on the two premises about the feeling of logicality. What exactly is this feeling? The philosophical context of Peirce's lectures is instructive. The argument parallels psychological hedonism in ethics: just as the hedonist holds that since every action is motivated by the desire for pleasure, and since the motive is that by which we judge an action good or bad, all actions are equally good – so too the proponent of LOGI holds that since the feeling of logicality motivates every inferential act and is also what we use to judge reasoning good or bad, all reasoning must be equally good. Any attempt to invoke a further standard of assessment would itself require justification by appeal to the feeling of logicality, generating a regress that terminates only in that feeling. On this view, the feeling of logicality is not merely a subjective accompaniment to reasoning but serves simultaneously as its efficient cause and its evaluative standard – a conflation that, as Peirce will show, mistakes two entirely distinct moments in the reasoning process.

To understand where LOGI goes wrong, Peirce conducts a full examination of the nature of reasoning. Like moral conduct, human reasoning typically comprises four main elements:

(i) the general standard mentally conceived beforehand,

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(ii) the efficient agency in the inward nature,
(iii) the act,
(iv) the subsequent comparison of the act with the standard. (Peirce 1992–1998: 2.250)

Reasoners do not arrive at a conclusion arbitrarily. From childhood, they gradually shape certain ideal methods, believing these methods most accord with their natural and social life experiences. They try to ensure that their inferences conform to those parts of these ideal methods in which they have firm confidence, which constitutes the 'general standard' (**i**). If possible, based on these, they might formulate (however vaguely) certain rules of conduct which serve to minimize the effects of future inadvertence. Reflection on these standards and rules has a certain effect upon their disposition. On specific occasions, in accordance with their disposition, they might form a resolution as to how they will act upon that occasion. However, a resolution is a general 'mental schema', nothing more than an idea, requiring some real machinery (beyond mere imagination) to convert into an efficient agency in the reasoner's inward nature (**ii**), *i.e.*, 'determination'. The reasoner does not always have the opportunity to form a definite resolution beforehand, nor might they have conceived any rules, but regardless, the general standard of ideal reasoning potentially shapes the specific determination that arises in a given situation. This determination then gives rise to the inferential act (**iii**). On such an occasion, the determination gives rise to the act in a way that feels, at the moment of its occurrence, beyond the reasoner's control.[9] However, the reasoner's thought process does not end here; they compare the inferential act with the antecedent standards or norms (*i.e.*, the general pattern of correct reasoning) to judge whether it meets a certain norm. *If* the norm of correct reasoning is satisfied, they experience a feeling of approval.

This analysis of the structure of reasoning reveals what Peirce takes to be the fundamental error of LOGI, *i.e.*, confusing the controllable and uncontrollable parts in human reasoning. Specifically, it confuses the 'determination' formed before the inferential act, which serves as the cause of the act, with the 'feeling of approval' that appears after the act as a judgment of the result. The subtle –

[9] Such an inferential act is, I believe, much like the product of Kahneman's (2011) 'System 1' process or Broome's (2013) 'jogging process'.

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and, for Peirce, the decisive – error of LOGI is that, after confusing the two, it uses the undefined term 'feeling' to vaguely refer to both of them, implying that they are the same kind of spontaneous 'feeling'. This is not to say that the reasoner does not form any feeling during this process. A purely spontaneous feeling, if it appears *before* the inferential act, is not necessary for that act to occur – as Peirce notes, we can conceive of a reasoner with severed sensory nerves still drawing inferences. Such a feeling therefore cannot serve as the cause of the act. If, on the other hand, the feeling appears *after* the inferential act, it is best understood not as a spontaneous sensation but as the outcome of an active comparison between the act and the reasoner's pre-existing norms – what Peirce calls the 'feeling of approval'. Hence, firstly, its premise (B) is clearly incorrect. Taking the 'feeling of approval', which can *only* occur after the inferential act, as the cause of the inferential act is putting the cart before the horse. As Peirce replied,

> [Sigwart] supposes that I first *feel* that a certain inference would gratify my sense of logicality and then proceed to draw it. But I beg to tell him that in no case whatever is it possible to *feel* what *would* happen. We *reason* about what *would* happen, and feel what *has* happened. (Peirce 1992–1998: 2.169)

> … I never know the inference will afford me any such satisfaction except by a subsequent reflexion after I have already drawn it. (Peirce 1931–1958: 5.87)

As for the premise (A), it can be restated as the conditional, 'If all reasonings are determined by our feeling of logicality, then all reasonings are equally good'. Even if its antecedent, *i.e.*, (B), is true, it does not mean that the consequent (*i.e.*, the conclusion 'all reasonings are equally good') will hold. Because, as long as the reasoner compares the inferential act with the norm used as the ideal method in their mind, it does not always result in the affirmative judgment that the act satisfies the norms. The comparison of an inferential act with a pre-existing norm is a genuine cognitive achievement, not a mere feeling; and like any comparison, it can yield a negative result. When it does, the reasoner is in a position to recognize that their inference fell short of the standard they themselves had set – a recognition that is the very basis of self-correction and logical learning.

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4. Peirce on distinguishing good from bad reasoning

Alongside his critical examination of reasoning and his detailed refutation of LOGI, Peirce's later works offer a systematic account of the nature of reasoning and its norms – the core subject matter of logic as a normative science. I will demonstrate that many of these insights not only serve as a rebuttal to LOGI (viewed here in its historical context) but are also capable of defusing the prevailing contemporary challenges to logical normativity discussed earlier.

The following reconstruction draws primarily on Peirce's writings from around 1903 and aims to make his position available to readers without specialist knowledge of his work. Where relevant, I note points of contact and tension with contemporary discussions.

4.1. The distinction between good and bad reasoning arises only because norms (rather than mere feelings) are inherent in the phenomenon of reasoning

Standard logic textbooks often treat reasoning as a binary relation between premises and conclusion. Peirce's key move is to insist on a third element: the general method or norm the reasoner brings to the inference – making reasoning, on his account, a ternary rather than binary relational structure, an interpretation that finds support in recent work by Neta (2013). Although speakers ordinarily state only premises and conclusion, the reasoning act itself presupposes a guiding principle – a habit of inference formed through experience – against which the act can subsequently be measured. Peirce calls this element the *leading principle*, and its presence is what makes reasoning a self-controlled, norm-governed activity rather than a mere mental event. Crucially, what matters is not that these guiding principles are correct, but that the reasoner takes them to be correct – a condition that connects Peirce's account to what Frege (1979: 3) and Boghossian (2014: 4) have called the Taking Condition in contemporary discussions of inference. For example, besides the premises ('Socrates is a man' and 'all men are mortal') and the conclusion ('Socrates is mortal'), there is also the *method of reasoning* that supports the inference and subsequently evaluates the inferential act. Usually, one does not need to explain their method of reasoning, but when hard pressed by others, they might refer to some semantic analysis of the word 'all', leading to statements similar to *dictum de omni* (*i.e.*, whatever is universally affirmed of a kind is affirmable as well for any subkind of that kind). Many reasoners'

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formulations of these methods, although not as clear cut as the rules written in logic textbooks (such as Barbara), constitute the norms they use to conduct reasoning and self-evaluation. These are habits – formed through social life, and especially through language acquisition – concerning what it is to reason correctly, which Peirce borrows the term *logica utens* from medieval logical literature to describe.

These *prima facie* acceptable norms, as *logica utens*, in a sense, precede one's inferential act. Their presence transforms an inferential act from a merely subjective mental reaction into a self-controlled, norm-governed activity. This self-control operates at two levels. First, the reasoner's prior plans and resolutions – themselves shaped by internal norms – can influence, though not determine, the specific inferential acts that follow. Second, and more importantly, the reasoner actively compares completed inferential acts with those norms, approving or disapproving of them, and thereby indirectly shaping future reasoning. Each reasoning, through such normative evaluation, leads us to either approve or disapprove of the current inferential act, allowing us to 'absorb the lesson like a sponge' (Peirce 1992–1998: 2.248), so that the next time when encountering similar situations, we can hopefully do better.

4.2. The function of norms lies in being methods that expedite scientific inquiry, with multiple types of good reasoning collectively contributing to our ultimate goal – finding out the truth

The norms contained within a person's *logica utens* are not immutable, nor are the norms in everyone's mind always and absolutely identical. However, this does not imply that the norms in a reasoner's mind are merely subjective and arbitrary feelings. A reasoner adopts certain norms as ideal methods of reasoning through sustained engagement with individual and communal experience. This should not be read as the claim that logical rules are constitutive of the social practice of reasoning in the sense discussed by Massolo (2023): Peirce's norms are not fixed constitutive rules but dynamically self-correcting habits that operate at two distinct levels – the practical *logica utens* and the theoretical *logica docens*. Reasoners from time to time review the norms they have been using,[10] which

[10] This review operates at two levels: at the level of the individual reasoner, it takes the form of periodic self-criticism of one's inferential

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is why the reasonings we conduct based on *logica utens* are generally correct. As Peirce stated,

> … if he has the habit of calling himself to account for his reasonings, as all of us do more or less, he will gradually come to reason much better; and this comes about through his criticism, *in the light of experience*, of all the factors that have entered into reasonings that were performed shortly before the criticism. Occasionally, he goes back to the criticism of *habits of reasoning* which have governed him for many years. (Peirce 1992–1998: 2.534 n.6; italics mine)

However, for various reasons, an individual's critical reflection on their own habits of reasoning (*i.e.*, norms) is not always prompt and often lacks the systematicity that most serious scientific inquiry requires. This is primarily why a discipline focused on the rigorous codification of reasoning habits emerged, which is *logica docens* – the systematic, scientific counterpart to *logica utens*. This gives us the opportunity to place reasoning and its norms under thorough examination within a broad scientific community, including inquiry into the purpose of reasoning and the sources of reasoning norms.

In the 1903 Lowell Lectures, Peirce proposed that after refuting LOGI, the most important focus should be: What does right reasoning consist in? From his theory of normative science, which includes logic (as *logica docens*), Peirce argued that good reasoning is 'such reasoning as shall be conducive to our ultimate aim' (Peirce 1992–1998: 2.252). The norms of reasoning, meaning 'how one ought to reason', need to be considered in conjunction with the purpose of reasoning, because 'the word "ought" has no meaning except relatively to an *end*' (Peirce 1931–1958: 5.594). The purpose of human reasoning meshes well with the aim of scientific inquiry, which is 'finding out the truth.' Thus, the norms representing ideal methods of reasoning are those that help us efficiently (quickly, cheaply, securely, and fruitfully) achieve the goal of seeking truth. The question then is which methods of reasoning best serve this goal. Peirce insisted that, aimed at the purpose of finding out the truth, there are three types of reasoning methods worth pursuing by the community of inquirers: deduction, induction, and abduction. Each type of reasoning has its own distinctions between good

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habits; at the level of the community of inquirers across generations, it takes the form of the evolutionary refinement of those habits – a dimension of Peirce's account that the present paper does not develop in full.

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and bad. Good deductive reasoning is *truth-preserving*, meaning that true premises lead to true conclusions. Good inductive reasoning is *truth-approximating*: the consistent application of sound inductive methods will, in the long run, correct any errors and converge on true conclusions. Good abductive reasoning is *truth-conducing*, meaning it is the only way in which there can be any hope of attaining a *rational* explanation – one that adopts for examination a hypothesis whose consequences are capable of experimental verification and which renders the observed facts necessary conclusions.[11] The three types of 'good reasoning' differ in the strength of their conclusions, but collectively they can *rapidly advance* our discovery of truth: abduction initiates inquiry by generating (and, on some interpretations, also ranking) candidate hypotheses suitable for experimental testing; deduction draws out the implications of those hypotheses – including both strictly necessary and, where applicable, statistical predictions – that can be compared with experience; and induction evaluates those predictions against observational results to assess the degree of support for the hypothesis.[12]

4.3. Norms are self-imposed for the agents of reasoning; they indicate potential future courses of action, thereby influencing actual inferential behavior to some extent, but they cannot replace actual reasoning activities

Peirce repeatedly reminds us that when one draws a rational conclusion by reasoning, they not only regard it as true, but treat similar reasoning as appropriate in every analogous case. This implies that reasoning agents are *committed* to general norms – norms they have in some sense adopted as their own. Whether this commitment is best understood as a belief (cognitivism), an attitude of acceptance, or a practical stance need not be settled here; what matters for Peirce's argument is the *functional* role of such commitment in guiding and evaluating inference, not its precise metanormative status. For those who have adopted these norms, the question of why they should be bound by them does not arise: the commitment itself

[11] For a detailed explication of the three types of goodness, see Atkins (2023). More on Peirce's account of the normative basis of deduction specifically, see Finley (2024) and Pietarinen (2012).

[12] It should be clear that abduction cannot be identical to Inference to the Best Explanation (IBE). For a comprehensive account, see Campos (2011).

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is the source of the normative constraint. This distinguishes Peirce's position from two alternatives in the contemporary literature: the view that logical norms are Fregean normative facts that hold independently of any reasoner's commitments (Steinberger 2017: 154), and the view that they supervene on descriptive facts about truth-value patterns (Labukt 2021: 1028). For Peirce, norms are neither mind-independent facts nor mere projections onto the world: they are revisable habits adopted by reasoning agents in the course of inquiry.

Conversely, if the alleged norms are not committed to by the agents, or if some agents are unwilling to accept them under any circumstances, then these cannot become 'norms' in their minds and thus cannot constrain their inferential behavior. Peirce (Peirce 1992–1998: 1.56) mentioned that an extreme skeptic might not aim for the truth, and thus, various norms of reasoning established on that goal (including even the law of non-contradiction) would not constrain their inferential behavior. When we criticize an extreme skeptic by saying, 'When you doubt everything, you must also deny your principle of skepticism, thus being self-contradictory,' they might respond, 'The law of non-contradiction is not my "norm of reasoning".'

Even for those who commit to these norms, the binding force of norms is different from any external physical coercion. As discussed in §3, a reasoner can form resolutions about how to infer in specific situations based on existing norms, but these are general schemas and plans, not actual inferential acts. Resolutions may affect the inferential acts occurring at the moment in a potential way, but what directly leads to the acts is not the resolutions but the determinations made in the moment. We do not know the internal mechanisms of determination, but we can at least ascertain that it is affected not only by our prior resolutions but also by unforeseen environmental interferences and internal incentives. Peirce captures this distinction with a legal analogy: the relationship between a court's decree and the sheriff who enforces it. The decree is a general 'ought' that cannot enforce itself; it requires the sheriff's physical intervention. But the sheriff's specific acts of enforcement – and whether they fully comply with the decree – are never wholly predictable. Logical norms stand in the same relation to actual inferential acts: they are directive, not determinative. This is consistent with distinctions drawn in the recent literature between satisfying a rule and following it (McHugh & Way 2018: 181), and between following a rule and merely complying with it (Boghossian 2008: 480): a reasoner may comply with a norm without genuinely following it, and may follow it without

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always complying. As Peirce puts it, they demand *thou ought*, rather than predicting *thou shalt*. This meshes well with the definition of logic as a theory of what reasoning ought to be, not of what it is. Logic was long referred to as a 'directive science', until the term 'normative' was later adopted by the nineteenth-century German philosopher Friedrich Überweg to replace 'directive', to avoid the latter's suggestion that logic is merely a craft or practical science (Peirce 1931–1958: 2.7).

4.4. When norms are used to evaluate the logicality of other people's reasoning, the assessment is primarily external, focusing on the methods employed by the reasoner. This process requires careful consideration and, if necessary, recourse to dialogue and argumentation

The norms of reasoning are self-imposed and are typically used by the agents in a first-person, self-directive manner. This does not suggest that it is irrelevant whether one actually follows the directive. Although an inferential behavior may be uncontrollable at the moment of occurrence, we can evaluate its quality based on whether it meets the norms and thereby indirectly control our similar reasoning in the future. More importantly, while the norms are pre-existent standards that reasoners consciously use to judge their own acts, they do not depend on any individual reasoner for their existence. They are a kind of 'real law' that tends towards the truth (Peirce 1992–1998: 2. 534 n.6). Therefore, for any reasoning agent, there may be two types of failings or, in Peirce's terms, 'false pretenses': (1) The method conceived by them in advance, *claimed to* be the ideal pattern of reasoning, may not actually promote the goal of seeking the truth; (2) They may *claim to* follow a certain method of reasoning that is not actually used in their reasoning. This opens up the possibility of evaluating both the reasoner and their methods from a third-person perspective. In explaining what constitutes valid (*i.e.*, good) reasoning, Peirce said:

> Every argument or inference professes to conform to a general method or type of reasoning, which method, it is held, has one kind of virtue or another in producing truth. In order to be valid the argument or inference must really pursue the method it professes to pursue, and furthermore, that method must have the kind of truth-producing virtue which it is supposed to have. (Peirce 1931–1958: 2.780)

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Two features of this third-person evaluation deserve emphasis. Firstly, since Peirce divides reasoning into deduction, induction, and abduction, the 'truth-producing virtue' we consider when evaluating the claimed methods differs among different types of reasoning: 'truth-preserving' for deduction, 'truth-approximating' for induction, or 'truth-conducing' for abduction. To determine whether a specific inferential act is valid, it needs to be evaluated by category. Then, when evaluating the quality of others' reasoning, it is necessary not only to clarify the premises from which they start (especially those omitted but actually used, since everyday reasoning is likely to be an incomplete argument), but also to understand the general method they *intend* to follow when inferring a conclusion from specific premises (although reasoners often do not voluntarily explain this to interlocutors). It is only through such dialogue – inviting the reasoner to provide more details about their premises and intended method – that one can determine whether they have made a *false pretense*. If a third party points out that a certain method does not achieve the function of truth-preserving, truth-approximating, or truth-conducing, but the reasoner insists it does, further argumentation – sustained dialogue backed by additional experience and evidence – may be needed to bring them around.[13]

5. A Peircean response to all four challenges

The theory of reasoning developed in §§3–4 was Peirce's response to LOGI. I now argue that the same framework addresses the other three challenges. Before proceeding, it is worth stating the overall conclusion in advance: The four skeptical arguments examined in this paper serve, at most, as a cautionary reminder that our understanding of reasoning norms and our evaluations of others' inferences must be sufficiently nuanced and never merely indirect. What they fail to establish is the strong conclusion – that logic is incapable of distinguishing good reasoning from bad.[14]

[13] The reason such patient dialogue and argumentation are necessary is that norms of reasoning are, at bottom, self-imposed; third-person evaluation can only be effective insofar as it is ultimately internalized as first-person self-assessment by the reasoner in question.

[14] This should not be taken to mean that logic offers *no help at all* in distinguishing good reasoning from bad – a claim that would be implausibly strong. The skeptical position is better understood as holding either that logic alone is insufficient to make such distinctions, or that, relative to other

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I begin with the gap-based challenge, then turn to MISUN and FAIL.

While Harman and others focus intently on the seemingly unbridgeable gap between logical knowledge and the norms of reasoning, Peirce's account suggests that the gap-based challenge mislocates the problem: logical knowledge does not stand over against reasoning practice as an external standard, but originates within it – and it is reasoning practice, not logical theory, that is epistemologically prior. The phenomenon of human reasoning is inherently normative, involving the capacity to distinguish good from bad and to evaluate actual reasoning. This normativity is acquired and cultivated through everyday linguistic practice, forming our *logica utens* (logic-in-use). It is only through the higher-order reflection upon this *logica utens* that *logica docens* (systematized logical theory) emerges.

Consequently, the primary task for the philosopher of logic is not to 'bridge' a non-existent chasm, but rather to reveal the intrinsic connections that have been obscured by the increasing formalization and symbolization of logic. The Peircean point is not merely genetic – it is not simply that logical knowledge has a normative origin. It is rather that the E-sentences Russell (2020) identifies as descriptive are themselves abstracted from a practice that is already normatively structured. To ask how we get from E-sentences to normative conclusions is to ask the wrong question: the normative structure was there before the E-sentences were formulated, encoded in the *logica utens* of actual reasoners. Once we ground our understanding of logical knowledge in actual reasoning practice, it becomes clear that the goal of truth-seeking is – as Peirce argued – inherent to both the phenomenon of reasoning and the logical theories derived from reflecting upon it. That said, while E-sentences may be determined by semantic facts, this does not imply that we, as language users, are immune to errors regarding those facts. In subsequent response to MISUN and FAIL, I shall show that in unfamiliar or complex scenarios, individuals can and do make mistakes that are rightly judged as 'invalid reasoning'.

The response to MISUN operates at a more local level – not the origins of logical theory, but the evaluation of specific inferential acts

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disciplines (such as psychology of reasoning), logic offers no distinctive advantage in doing so. The Peircean framework is designed to refute the former claim – that logic is incapable of distinguishing good reasoning from bad – not the latter.

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in discursive practice. Indeed, rules of reasoning are primarily normative for the first person. Whether a reasoning is valid is initially an internal assessment, and the reasoning agent may not be satisfied with all their inferential acts. When we attempt to evaluate the logicality (*i.e.*, validity in Peirce's sense) of some specific reasoning from a third-person perspective, one must proceed with care, as the third-person evaluator may not easily capture what is genuinely employed from the first-person viewpoint. First, one should inquire whether the reasoner used any contextual information or additional beliefs as implicit premises and allow them to formally organize and restate their set of premises to eliminate semantic and pragmatic misunderstandings as much as possible. Then, one should ask what general method they followed when inferring a conclusion from such a set of premises, so that any misunderstanding about their intention can be eliminated. For example, in the Selection Tasks, to ensure that subjects have properly understood the task, experimenters must do two things. First, they should eliminate sources of difficulty that are irrelevant to the subjects' logical abilities – such as unfamiliar or abstract content. Second, they should clarify, or pretest, whether experimenters and subjects are using key terms such as 'if' and 'are' in the same way. If multiple usages are found, at least one common 'meaning' should be agreed upon or just postulated, allowing the subjects to beware of the possible ambiguities. After such an agreement, one should also ask what general method they pretended to follow and then evaluate whether it has the truth-producing virtue corresponding to one type of good reasoning. Modified tests of this kind would, we expect, yield more favorable results regarding subjects' logical competence. However, this shows only that *logica utens* is generally sufficient to guide subjects toward correct reasoning, but it *does not* mean that fallacies will never occur, as some subjects may still make *false pretense* about what follows from what.

If we evaluate one's reasoning so cautiously, many other seemingly illogical phenomena discussed in academia can be fairly explained. Consider Harman's (1986) Mary case, which I noted briefly in §1: Mary wanted to have cereal for breakfast and then went to the cupboard. But she did not find any cereal. So, she decided to have crispy rice for breakfast. Before making the final decision, Mary believed two things:

> If she went to the cupboard, she would see a box of cereal;
>
> She went to the cupboard.

But she would never infer the obviously false belief

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She saw a box of cereal

from these beliefs alone according to MP (*i.e.*, 'if ϕ then ψ, and ϕ, therefore ψ'). One might conclude that the MP rule is simply inapplicable to ordinary reasoning. The Peircean procedure suggests otherwise.

According to the Peircean procedure above, we should determine what beliefs served as premises and conclusions in Mary's reasoning at that time and place, and then ask what general method she followed. Although MP is indeed a truth-preserving method, and although Mary did have a similar 'resolution' before, the actual inferential act that occurred may not have been entirely as expected. Mary's act at that time may have been to infer the *dis*belief

I would see a box of cereal if I went to the cupboard

from the beliefs

I went to the cupboard

and

I did not see any cereal in the cupboard,

and she might have claimed to follow a deductive method other than MP, such as

If ϕ is true and ψ is false, it cannot be true that if ϕ then ψ.

Here, her complete reasoning would be deemed valid. Conversely, if another 'Mary' inferred the conclusion

If I went to the cupboard, I would see a box of cereal

from the premises

I went to the cupboard

and

I did not see any cereal in the cupboard

and claimed to follow a method identical to MP, then, since the actual method used was not MP, their complete reasoning could be deemed invalid.

In an extreme but not inconceivable situation (Peirce 1992–1998: 1.37–38), when we judge someone's reasoning as invalid *deduction*,[15]

[15] It should be noted that the early Peirce (ca. 1868–1869) held a stronger view: that all inference, qua psychological process, is valid or can

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they may insist that they assume their claimed method is truth-preserving. Under further questioning, they might even add this assumption as a 'suppressed premise' to argue that their reasoning is valid deduction. This reminds us of the famous Carroll's (1895) Puzzle, except here 'infinite regress' is to defend a reasoning considered invalid, while the Tortoise's regress is to doubt a reasoning considered valid. It is not difficult to imagine that if such premises are allowed to be continuously added, all seemingly invalid deductions (including but not limited to enthymemes) can be reconstructed as valid deductions. For example, the 'Affirming the Consequent' fallacy mentioned in the Selection Task experiments. If the reasoner infers

> The other side of the card is a vowel

from

> If one side of the card is a vowel, the other side is an even number

and

> One side of the card is 4,

and also assumes

> If ϕ then ψ, and ψ, then necessarily ϕ

as an additional premise, and claims this method is truth-preserving, then their deduction would *no longer* be invalid. However, the possibility of such 'rational reconstruction' does not mean that the reasoning the subject actually performed admits of no evaluation as good or bad; rather, as Peirce reminded us, we must first determine what the complete reasoning is, especially the method in question, before we can fairly judge what type of reasoning it is and whether it is valid. As a self-regulating activity, the agent of *reasoning* is obliged to determine their set of premises and explain the general method they used to infer conclusions from these premises. Once these are determined, one can judge whether the general method has the purported truth-producing virtue (rather than the support of specific premises for specific conclusions), and so decide on the validity of reasoning.

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be reduced to the form of a valid syllogism. The present paper focuses on the mature Peirce of 1903, whose position is more nuanced and more directly relevant to contemporary debates.

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Now turn to FAIL. The diversification of (deductive) logical theories and the 'choice of logic' problem were not prominent during Peirce's era. However, even if we situate this logical pluralism within a Peircean framework, it should not present a problem for his theory. This is because Peirce's criterion for good deductive reasoning – truth-preservation – does not depend on a principled distinction between logical and non-logical terms, or on the characterization of logical constants within a formal system, as contemporary approaches require. Various logical theories may compete in different aspects, but our evaluation of everyday deductive reasoning is not based on a formal system with a fixed demarcation of logical vocabulary. Instead, it focuses on whether a particular method of reasoning preserves truth. This is because truth-preserving deductive methods have 'one kind of truth-producing virtue,' thereby (together with truth-conducive abductive methods and truth-approximating inductive methods) accelerating our pursuit of truth.

For Peirce, the goodness of deductive reasoning lies in its claim that the conclusion always follows necessarily from the premises, that is, it is inconceivable for the conclusion to be false if the premises are true. This can be discerned through the semantical analysis of certain key terms in the premises and conclusion. It is not important which terms logicians traditionally classify as logical terms or what formal notation they use to represent the structure of reasoning. For example, 'everything is quantifiable, so something is quantifiable,' 'the sun will necessarily rise in the east tomorrow, so the sun will rise in the east tomorrow,' and 'this is blue, so it is colored.'[16] If the reasoning agent claims that their method only involves the meanings of terms like 'everything', 'necessarily', and 'blue', then all these can be considered valid deductions, even though the first two patterns of reasoning can be found counterparts in most theories of first-order logic and modal logic, while the third cannot.

Of course, sometimes, without a common translation procedure, we may not be able to determine whether the semantic relationships between key terms in deductive reasoning are analytic facts. In such cases, we can only rely on conversations and cautious evaluation. For example, *cogito ergo sum*. If the reasoner intends to perform

[16] This last one, which resists standard formalization in first-order logic without additional apparatus, is for Peirce a valid deduction, since deductive reasoning encompasses the semantic analysis of terms: the meaning of 'blue' analytically includes being colored (Peirce 2020: 28).

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deductive reasoning, we need to determine whether the semantic content of *cogito* in linguistic practice includes the semantic content of *sum* before we can judge the validity of the reasoning. However, within a specific community, different individuals may have divergent uses of *cogito* and *sum*. Furthermore, the reasoner may not be performing deductive reasoning, and we do not know what method they intend to follow when inferring *sum* from *cogito*. It is entirely conceivable that different people, in discussing *cogito ergo sum*, are performing quite different pieces of reasoning. Therefore, in such cases, it is necessary to engage in dialogue with the reasoning agent to clarify some hidden premises and unarticulated reasoning methods, and then treat the reasoning as deductive, inductive, or abductive, and evaluate it as valid or invalid. In any case, one can distinguish good from bad reasoning, unless *cogito ergo sum* does not express reasoning at all, for example, when it only has supposed premises and conclusions but lacks a general method.

Additionally, when we judge someone's reasoning as invalid, it does not mean that their conclusion or belief is necessarily wrong or unhelpful to their personal interests. Rather, it means that the method they claim to follow is a *false pretense*. That is, either the method they actually follow is not the one they claim, or the method does not have the virtue of truth-producing they assume. For example, McGee's putative counterexample to MP.[17] When it is determined that the reasoning agent is performing deductive reasoning, we should only look at what method they claim to follow and whether it is really truth-preserving. If the reasoner says their method is MP, or

If ϕ then if ψ then θ, *given* ϕ, therefore if ψ then θ,

since this is indeed the method they use and it has the character of truth-preservation, the deduction can be judged as valid. However, if they believe they are following MP but simultaneously deny that

If ϕ then if ψ then θ, *given* ϕ, therefore if ψ then θ

[17] Based on the polling data in the election scenario, the reasoner maintains two core premises: first, that a Republican victory is imminent given Reagan's commanding lead; and second, that in the event of a Republican win, Anderson would necessarily be the victor if Reagan were defeated. This second belief stems from Anderson's status as the sole alternative Republican, notwithstanding his 'distant third' position behind Carter in the overall polls.

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is truth-preserving (because in some cases the premises are credible but the conclusion is not), this means that MP is not the method they actually follow. Rather, the method they actually follow is likely

If ϕ then if ψ then θ, therefore if ψ then θ,

because when they find

If Reagan does not win the election, then it will be Anderson (if ψ then θ)

incredible, they do not take as given the belief

The Republicans win the election (ϕ).

Since the method they actually follow is not the one they claim to follow, their deduction can be judged as invalid.

Having responded to all four challenges, we can now see what they share: a common presupposition that logical normativity must be established through formal systems, bridge principles, or some external mechanism standing over against actual reasoning practice. Peirce's framework does not meet this presupposition on its own terms – it displaces it. Once reasoning is understood as an inherently norm-governed activity, grounded in the *logica utens* of actual reasoners and oriented toward truth-seeking, the picture of logical normativity that these arguments target is no longer the only picture available. That, rather than any point-by-point refutation, is the deeper force of the Peircean response.

6. Conclusion

Much of the recent literature on logical normativity proceeds by a recognizable pattern: it takes for granted that logic purports to be normative for reasoning, constructs arguments to show that this claim cannot be sustained, and concludes that logic lacks genuine normative authority over thought. This paper has taken a different approach. Rather than contesting the gap-based challenge on its own terms, I have taken seriously a wider range of skeptical arguments – FAIL, MISUN, LOGI, and the gap-based challenge itself – and argued that Peirce's philosophical framework, developed over a century ago in direct response to the earliest version of the problem, provides a unified response to all four. Unlike bridge-principle approaches, which attempt to derive normative conclusions from logical relations treated as descriptive facts,

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Peirce locates normativity within the structure of reasoning itself – in the *logica utens* that precedes and grounds any formal logical theory.

I do not claim that this solution is conclusive, nor that it forecloses every possible line of skeptical attack. My more modest contention is that Peirce's approach points in a genuinely promising direction that the current literature has largely failed to explore. If that is right, then attending carefully to what Peirce said, and why, is not merely an exercise in the history of philosophy. It is a contribution to a debate that remains very much alive.[18]

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