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What's so Great About Consistency?

Carlos Mariscal & David Rondel

Consistency is widely regarded as an extremely important philosophical value. We affirm the value and importance of consistency as one intellectual virtue among a host of others. But we argue that the importance of consistency in philosophy is overstated. Accusation of inconsistency in an argument or across a career carries a stigma to be rebutted or explained. Consistency, we argue, is not as central in our intellectual lives as it might initially seem. More particularly, we argue that individual inquiry is most profitably carried out by keeping several, sometimes inconsistent, lines of research open at once. This is roughly what scientists call the "multiple working hypotheses" approach to inquiry and we argue in this paper that philosophers would do well to embrace this approach. Doing so, we argue, would make philosophical inquiry richer, freer, and ultimately better.

> Do I contradict myself? Very well then I contradict myself, (I am large, I contain multitudes.)
>
> —Walt Whitman, "Song of Myself"

Consistency is so central to the philosopher's self-image and practice that its value and importance goes almost unquestioned. Even a passing familiarity with contemporary professional philosophy will confirm this is true. The sizeable philosophical literature on consistency — from philosophical logic, epistemology, philosophy of language, and philosophy of science — tends to foreground questions about how logical consistency is properly understood and proven, about whether it is possible for an epistemic agent to hold inconsistent beliefs, and about the relationship between consistency and other intellectual virtues, such as rationality or truth. But it is simply taken for granted that consistency is a significant—perhaps pre-eminently significant—intellectual virtue. As Mathias Frisch crisply puts the point, "consistency is not [...] up for negotiation." (Frisch 2005, 25)

We affirm the value and importance of consistency as an intellectual virtue, one among a host of many others. But we claim that the importance of consistency in philosophy is frequently overstated. Consistency, we argue, is not as central in our intellectual lives as many philosophers sometimes make it out to be. More particularly, we argue that inquiry is most profitably carried out by keeping several, sometimes inconsistent, lines of research open at once. This is roughly what scientists call the “multiple working hypotheses” approach to inquiry and, as we argue in what follows, we think philosophers would do well to embrace this approach. We will endeavor to make the case that inquiry—in science and in philosophy alike— becomes richer, freer, and ultimately better, when inquirers worry less about ensuring that their various hypotheses and avenues of research are logically consistent, and focus more on encouraging, pursuing, and keeping open simultaneously a variety of different possibilities.

The next section sketches the reasoning behind why consistency is often treated as the preeminent epistemic virtue. Section III develops three distinct approaches one might have with respect to consistency: (i) foregrounding consistent inquiry such that all of one’s beliefs are analyzed and cohere, (ii) backgrounding it as not central to one’s inquiry, and (iii) actively seeking inconsistency. Section IV provides examples of fruitfully seeking inconsistent explanations for evidence in physics, paleobiology, and in our own classrooms as philosophers. Section V contemplates the benefits of diverse, non-foregrounding investigation at the community and the individual level. Section VI concludes.

1 Inquiry, Progress, and the Value of Consistency

Why do philosophers value consistency as they do? We identify two main reasons, though of course there may be others. First, for better or for worse, consistency plays a vital role in our doxastic lives. From the point of view of an individual believer, it is extremely difficult (if not impossible) to continue to hold a belief that one has deemed inconsistent with other beliefs. While it is true that people often hold inconsistent beliefs, this typically occurs without a believer’s explicit cognizance or approval. It is hard to imagine someone choosing to remain in a state of cognitive dissonance of which they have been made aware. Someone who was completely unperturbed by the revelation that they were simultaneously holding two or more inconsistent beliefs would not be recognizable as a fellow player in what Robert Brandom calls “the game of giving and asking for reasons.” (1998) In this respect, a norm of consistency is a necessary feature of what it means to inhabit the role of normal, healthy, doxastic agent.

We do not deny the important role that consistency plays in our everyday doxastic lives. However, our thesis about the exaggerated importance of consistency concerns, not the bases on which individual people hold and revise beliefs, but the different question about how inquiry is most profitably carried out. We are interested in consistency in inquiry, not consistency simpliciter.[1]

Another reason why philosophers are so keen on consistency is explained by way of a distinction, drawn recently by Philip Kitcher, between two conceptions of progress. Let us take a moment to sketch Kitcher's distinction and indicate its bearing on our thesis. According to Kitcher, progress can be either "Teleological" or "Originary."

1.0.1 Teleological Progress:

When there is a goal state, progress consists in increased proximity to that state. This concept of progress is analogized well by travel. Usually, though not always, "journeys have destinations, and we measure our progress by the diminishing distance to the goal." (Kitcher 2015, 477-78)

1.0.2 Originary Progress:

Progress is measured, not by proximity to some final goal, but by distance from the starting point.

Neither Teleological nor Originary progress should be thought of as superior *tout court*. Each one better describes what it means to "make progress" in some domains of inquiry better than others. The quest to find your missing keys is probably best conceived of in Teleological terms. You make progress in this quest insofar as you get closer to your final goal — locating your keys. But many domains of inquiry are less amenable to Teleological explication.

What Kitcher calls "Pragmatic" progress is one species of "Originary" progress. Roughly, it involves overcoming problems in the current state. The quest to improve cell phones is an instructive example: there is no Perfect Form of a cell phone, but there are many ways phones can be improved: they

1 Although our topic is related to the philosophical debate about consistency in science, our target is different. Philosophers of science (e.g. Feyerabend 1975, Meheus 2002, Vickers 2013, Bueno and Vickers 2014, del Rosario Martínez-Ordaz andand Estrada-González 2017) interested in consistency are often concerned about notions of truth and justification when it comes to apparently contradictory empirical evidence. We are interested in a widespread attitude among professional philosophers, about how philosophical inquiry is best carried out.

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can be smaller, faster, more capacious, more connected, etc. Even cases involving human health may be "originary," as people can and do disagree as to whether it is preferable to live longer, run faster, have more acute senses, or more capacious memories. (Kitcher 2015, 478) Pragmatic progress consists in removing glitches and overcoming limitations. It involves responding to problems and anomalies thrown up by experience, not to arrive at some final, fixed, unified state of knowledge. Inquiry, on the Pragmatic view of progress Kitcher commends, is more or less another name for problem-solving.

We believe that a majority of philosophers and scientists remain committed (implicitly or explicitly) to a Teleological conception of intellectual progress, and that this commitment goes a long way to explaining the frequently exaggerated importance placed on the virtue of consistency. Once again, Kitcher brings the issue helpfully into focus.

> When people talk about scientific progress, there's a pronounced tendency to do so in teleological terms. Science makes progress through delivering more and more of the truth – that is The Whole Truth About The Universe. This approach to progress envisages something we may call Nature's Book, a volume in which all the true sentences are written. The state of science at a time can be represented by a collection of accepted sentences, and progress consists in modifying this collection so that it is closer to Nature's Book: sentences that don't belong are eliminated, and more of those that do are included. (Kitcher 2015, 481–482)

The idea of Nature's Book and the Teleological conception of intellectual progress upon which it rests sheds light on the importance that philosophers frequently place on the value of consistency. A set of statements is consistent, recall, if they can all be true at the same time. (This is not to say, of course, that a consistent set of beliefs ensures that any of them are true. A fully consistent set of false beliefs is a genuine possibility, too.) After all, in the complete and final draft of Nature's Book, no two propositions shall be inconsistent. Everything will hang harmoniously together. Inconsistency will be impossible, since two true propositions can never contradict. The prospect of a final draft of Nature's Book reveals one important feature about the desirability of consistency: if a person's goal is to have a comprehensive set of true beliefs, then this set of beliefs will and must be consistent.

We conjecture that the importance habitually placed by philosophers on the value of consistency is bound up with the desire to hold true beliefs and avoid error. In classical logic, one can derive any proposition from a contradiction. One prominent reason why philosophers prize consistency in the process of inquiry is that they desire the possibility of holding all and only true beliefs. As a result, the counsel that one should minimize inconsistent commitments in the process of inquiry is widely held. We reject this widely held counsel and argue instead that inquiry is more effective and free when inquirers worry less about avoiding inconsistency, and worry more about pursuing multiple working hypotheses. We note that it may turn out that the path to Nature's Book involves steps that are mutually inconsistent. A mode of inquiry and the final result need not cohere. So even if philosophers accept a teleological notion of progress, steps may need to be originary.

2 Three Attitudes About Consistency

There are at least three distinct attitudes someone might embrace with respect to consistency and inconsistency in inquiry. We outline three characters, the Foregrounder, the Demoter, and the Seeker as representatives of these attitudes. Our three characters probably lack pure analogues in the real world. In this respect, the three characters are like Weberian "ideal types." Most people will have a mixed or hybrid attitude about the importance of consistency. And the same inquirer can, depending on the context and domain of inquiry, emphasize any of these attitudes. Even so, we maintain that our typology is useful for fixing ideas and for seeing more clearly what is at stake in the debate about the proper place of consistency in inquiry.

2.0.1 • **The Foregrounder** is someone who foregrounds the value of consistency. They regard the elimination of inconsistency as a (or the) primary goal of inquiry. Whenever they are made aware of inconsistency, they work to resolve it.

2.0.2 • **The Demoter** is someone who values consistency but does not take it as a decisive, or perhaps even central, consideration. He or she is committed to entertaining inconsistent hypotheses unless or until one is determined to be clearly superior.

2.0.3 • **The Seeker** is someone who intentionally seeks out inconsistency. He or she is committed to pursuing multiple inconsistent alternatives simultaneously. Consistency thus plays a central, motivating role for both Foregrounders and Seekers, albeit in a diametrically opposed way.[2]

Our argument, put roughly, is that it is usually bad to be a Foregrounder, which we take to be the paradigmatic or most widely-held attitude in professional philosophy today.[3] We remain agnostic about the comparative merits and demerits of the Demoter and Seeker attitudes. It may be that one domain or context of inquiry is more amenable to Seekers, while another is more amenable to Demoters. But more generally, we defend the conclusion that philosophers should be less enamored of logic, and more committed to experimentalism. Philosophy will be more exciting, interesting, and productive if philosophers adopt the attitudes of the Demoter and the Seeker more frequently. The foregrounding strategy tends to limit inquiry in a way that might lock us into intellectual *cul-de-sacs*. It also precludes some of the more fruitful inquiries we describe in the next section. The upshot is that philosophy should consciously alter its self-image, not to be continuous with the empirical sciences as such, but rather to absorb and enact the following

2 What is the relationship between our ideal types and the Kitcherian conceptions of intellectual progress described above? We maintain that the Foregrounder attitude is loosely connected with a Teleological conception of progress, though remain agnostic with respect to how Demoters and Seekers may perceive intellectual progress. As always, these connections are not necessary, and it is possible to imagine counterexamples.

3 Some readers have encouraged us to name names. We want to avoid this because we are attempting to describe a tendency that is prevalent across the field as a whole. Little can be gained by adjudicating whether Hilary Putnam, Timothy Williamson, or Martha Nussbaum, say, are best read as *Seekers* or *Demoters*.

slogan: It is fruitful to keep many (sometimes inconsistent) lines of research open at once. We believe that adherence to this slogan will make philosophical inquiry richer and more imaginative. Let us turn to our defense of the slogan now.

3 Inconsistent Inquiry in Action

In this section, we illustrate how entertaining inconsistent hypotheses sometimes yields fruitful inquiry, and inversely, how embracing the attitude of the Foregrounder can sometimes block the path of inquiry. To be clear, we are not merely defending the platitude that philosophers should consider different possibilities and passively adopt an "open minded" approach to inquiry. What we are claiming to show goes much further than that. Our view is that actively pursuing inconsistent claims can benefit inquiry as an active, investigative strategy.

In our first two examples — *Physics* and *Paleobiology* — we show how inquiry can be benefitted from the adoption of "multiple working hypotheses". After that, we consider how it might benefit philosophical inquiry in particular.

3.0.1 Physics

Philosophers of science may have already considered the example of contemporary physics. There are two dominant paradigms in physics: Relativity, which explains the behavior of objects (roughly) larger than atoms, and Quantum Mechanics, which focuses on the atomic and subatomic scale. This case is particularly illuminating as it concerns two of the most predictively successful theories in science. If physics can be fruitful given such a glaring inconsistency, we argue, we should also be less wary of accepting inconsistent inquiry. These two field theories are thought to be adequate descriptions in their own domains but not broadly applicable outside of their domain, and particularly inapplicable to each other. (Chiao 2004; Landau and Lifshitz 2013)

The Theory of Relativity links light, mass, energy, speed, acceleration, gravity, and the geometry of space and time. It is hard to emphasize how bewildering the theory of relativity is, but some accepted conclusions follow:

- acceleration is equivalent to gravity
- mass is equivalent to energy

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- the speed of light is fixed, but the passage of time and shape of space is not
- objects become more massive (and require more energy) as they accelerate
- nothing with mass greater than a photon can travel faster than 300,000 km/s

These claims have withstood more than a century of the most intricate tests at the scales of stars, black holes, and even galaxies. (Eddington 1923, Greenstein et al. 1971, Abbott et al. 2016) We even use the theory of relativity daily in our technology: maintaining satellites in sync with GPS requires relativistic equations.

Quantum Mechanics (QM), on the other hand, considers determinism, causation, interaction, symmetry, speed, momentum, spin, and several other properties of particles. If Relativity is weird, QM is mind-boggling. Among other conclusions of the most widely accepted interpretation of QM:

- quantum states do not have a definite location until they interact with other particles
- there is an inverse relationship between how much one can know about a particle's momentum and its location
- particles behave in ways that are fundamentally indeterministic such that knowing every fact about every particle in the Universe would still not inform you about where those particles will be in a short while
- nevertheless, *aggregates* of particles behave in ways that are probabilistically precisely determinable (e.g. radioactive atoms have a 'half-life' that only operates at the scale of ensembles of particles, not on individual particles themselves)

It may not be obvious why QM and Relativity conflict, but unifying the two has been an active project beset by frustration and abandoned or ignored by many practicing physicists. (There is nothing unique about this, of course: unifying philosophy is also a project ignored by most philosophers.)

Physicists accept four "fundamental" forces: gravity, electromagnetism (light and electricity), the strong nuclear force (which keeps subatomic particles together), and the weak nuclear force (which keeps atoms together). The former two are well articulated using the Theory of Relativity and the latter are understood in QM. There are proposals for unifying some or all of these forces such that QM and Relativity can be shown to be consistent or replaced by a so-called Grand Unified Theory, but none have widespread acceptance and some are fundamentally unexaminable in our universe. (Lüst and Theisen 1989; Rovelli 2004) So, after about a century of attempts, many (but not all) physicists have given up on such projects and accepted an explicit inconsistency in the foundation of their science. The few theoretical physicists who work on Grand Unified Theories are examples of *Foregrounders*, whereas the rest of the community, which has accepted the tentative truth of both foundational theories, are probably best described as *Seekers* or *Demoters*. That physics continues to be an exciting and fruitful field is evidence that inconsistency is not a devastating obstacle to a domain of inquiry.

3.0.2 Paleobiology

Another example has to do with explaining the sudden mass extinction of terrestrial dinosaurs 65 million years ago, marking the boundary between the Cretaceous (K) and the Paleogene (Pg) eras. This "K-Pg event" has long been of scientific and popular interest, given its recency, its impact in clearing the world for our mammalian ancestors to take over, and its status as the fifth largest mass extinction, responsible for killing three-quarters of all species. (Jablonski 1994) With respect to the K-Pg event, most people now are aware of the scientific consensus on a large asteroid causing the mass extinction of dinosaurs, known as the Alvarez Hypothesis. (Alvarez et al. 1980) But before that hypothesis became accepted canon, scientists had debated the cause of the event for decades. In fact, initial proposals for the large asteroid/comet hypothesis referred to it as "One More Hypothesis." (De Laubenfels 1956) This example, as we'll see, shows how multiple investigations culminated, not with the success of one theory to the exclusion of others, but by eventually integrating the theories that had previously been seen as inconsistent.

The year before the Alvarez Hypothesis was published, a review was published that explored the live hypotheses at the time (Russell 1979):

- Climate Change
- Major Glaciation
- Sea Level Change
- Massive Volcanic Activity
- Asteroid/Comet Impacts
- Trophic effects
- Ultraviolet radiation
- Ionizing radiation

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- Supernovae

The paleobiological community came to a quick consensus over the next decade. First, the Alvarez father and son team found a site in the Yucatan peninsula in which an asteroid had struck some 66 million years ago. (Alvarez et al. 1980; Alvarez 2003) The K-Pg event is noticeable in the geological record for a layer of iridium, a metal that is quite rare on Earth, but quite common among asteroids. When the Alvarezes found and dated the 112-mile crater to the right timeframe, this was viewed as an extreme corroboration of the impact hypothesis. The size of the crater determines that the asteroid must have been at least six miles wide and thus one of the largest rocks to hit Earth since the formation of the Moon. Such an impact would have vaporized the rocks in the area, explaining their absence in that layer of the geological record. Such an impact would also have caused many of the other events that had served as competing hypotheses: sea-level change, climate change, and potentially even volcanic activity. The consequences of all of these easily explain the K-Pg mass extinction. In this case, much of the evidence that was later best explained by the Alvarez Hypothesis would not have been discovered had other scientists not uncovered it in their pursuit of alternative hypotheses. As Feyerabend argued, "[l]ogically perfect versions (if such versions exist) usually arrive only long after the imperfect versions have enriched science by their contributions." (Feyerabend 1975, 15)

This example shows the "multiple working hypotheses" model of inquiry at work. For the entire 20th century, scientists were considering many potentially inconsistent hypotheses. When sufficient evidence was uncovered, the scientific community came to a relatively rapid consensus. One hypothesis became accepted as the ultimate cause, while other contending views were found to be additional efficient causes. In this case, most scientists acted as Demoters when pursuing the cause of dinosaur extinction. Instead of working to eliminate inconsistency as a Foregrounder might do, they were content to keep multiple, inconsistent hypotheses in play until one clearly revealed itself as superior. To be fair, several Foregrounders persisted with their pet hypotheses, but all were ultimately unsuccessful except for the Alvarez team, which itself was a fairly late convert to the impact hypothesis.

3.0.3 Philosophy

We have given examples of how entertaining inconsistent beliefs works in practical and scientific contexts. Now let us turn to philosophical inquirers, to whom our argument is primarily addressed. Our contention is that philosophers focus too much on consistency.[4] Philosophers often question each other's work as to how it fits into their other stated commitments, even when those commitments are unrelated to the work at hand.

Imagine we find a previously undiscovered Kant manuscript that says, in no uncertain terms, that one can and should tell lies when they produce optimal consequences. Let us suppose that the authenticity of the manuscript is confirmed. We imagine philosophers will be quite surprised. An inconsistency this blatant in one of history's most diligent and systematic philosophers might be viewed as highly problematic. Nevertheless, such surprise is only justified if we take Kant to be engaged in a project animated by a Teleological notion of progress. (Of course, he almost certainly understood himself that way.) If he—or another scholar—were instead engaged in an Originary project, the discovery of such a manuscript would be no great cause for concern, but merely another of their approaches to understanding moral judgment.

It is striking that philosophers feel so comfortable exploring many alternative views in the classroom, but not in their own research. Classroom discussions can be quite engaging when a professor takes a Seeker approach: taking philosophical problems one at a time and letting students live with the tension of unresolved, incompatible worldviews. When teaching students, we present competing accounts of realism, identity, free will, knowledge, justice, and so on. We may use each alternative to guide reasoning with respect to further issues, trading off each analysis to see the ways in which they differ and the particularities of how they converge. We introduce puzzles and encourage students to solve those problems using the variety of accounts and reasoning tools we have discussed. This approach can be extremely fruitful in classroom discussions, why should we not also employ it in our own research?

If scientists can research multiple working hypotheses, why shouldn't philosophers contemplate and pursue multiple theories? One can imagine a scholar writing an alternative view to "try it out," as with the multiple working hypotheses model. While some philosophers work in the way we are recommending, we also maintain that there is a prominent culture in philosophy—a disciplinary pressure so to speak—which encourages philosophers to develop "views" on various subjects, to defend those views against various objections,

4 An astute reviewer points out that there may be a greater tolerance for inconsistent inquiry in science than in philosophy due to the role of empirical adequacy. We can tolerate the inconsistency of relativity and quantum theory because both are so empirically adequate within their domains, but it's not clear there is an analogue in philosophy. This suggestion strikes us as plausible.

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and to have those views hang consistently together with their other philosophical views. Philosophers are admired for "biting the bullet" or "having a worldview" when they embrace counterintuitive consequences of their views, even on entirely different questions, if they are entailed by their antecedent views. Conversely, they are viewed as uncareful, at best, or irrational, at worst, when their views fail to cohere.

4 Inquiry for Individuals and Communities

Our main argument in this paper is that philosophers routinely overstate the importance of consistency. Philosophers take consistency too seriously and assign it too central a role in the philosophical list of virtues. We are not recommending that philosophers eschew consistency, only that they not let it dictate completely the terms on which inquiry is carried out. In short, we are urging philosophers to abandon the Foregrounder attitude.

Our prescription is primarily intended to guide individual research inquiry and only secondarily the inquiry of the research community in general. It might be argued, in fact, that philosophical inquiry as a whole, understood as a collective pursuit, already embodies a healthy dose of the Demoter and Seeker attitudes we are recommending. Inquiry is best thought of as a general method of problem solving: an anomaly turns up, something is not quite right, calculations are dubious, something is not making sense. Inquiry, then, is the attempt to render this confused or problematic situation smooth and resolved once again. The best way to pursue this end, we argue, is to undertake a variety of (possibly contradictory) inquiring paths. Although it is probably a question that ultimately needs to be settled empirically, we believe that when individual researchers are less concerned with defending a position consistent with their other commitments, the research community is able to reach consensus more quickly. Consider the following scenarios:

(a) Several philosophers arrive at a conference, each undecided between alternative views on a topic, and begin to discuss these views in turn
(b) Several philosophers arrive at a conference, each committed to distinct views on a topic, and begin to discuss these views in turn

Introspection and experience will show how (a) is more likely to yield consensus than (b). In an ideal world, (b) would promote an exciting debate on the relative merits of each option, the conclusion of which would result in the majority of parties switching their partisan affiliation. But perhaps more plausibly, each could maintain their position until they found one of several circumstances forced them to move on (e.g. not being able to publish, not attracting new students, retirement, etc.). The best-case scenarios of (a) and (b) still culminate in a universal consensus; the worst-case scenarios, however, differ dramatically. When in (a), parties are open to investigating alternative options, they are open to any possible consensus all along, whereas in (b), partisans must first be convinced to abandon their views, then to adopt another's.

Partisanship impedes the path of inquiry (not just in politics). Empirical research supports this experience: interactions across belief systems exacerbate conflict. (Myers 1975; Mackie and Cooper 1984; Alizadeh et al. 2014) Of course, there are epistemic reasons to seek out situation (b), as it is the scenario in which each philosopher has the most freedom to hone their arguments and counterarguments, but consensus building is not one of those epistemic reasons.

5 Conclusion

When philosophers are professionally engaged in philosophy, they tend to behave more like the (b) situation described in the previous section. They tend to be partisans. Philosophers are expected to have "views" to defend and persuade others of. When philosophers are teaching philosophy, however, they behave more like (a). They are open to different, contradictory views. They are more democratic and egalitarian in their inquiry. Our argument is that philosophers should behave in contexts of professional research more like they do in teaching contexts. While it is difficult to lay out what this would look like in concrete terms, the attitudinal shift in philosophy that we are describing would have welcome consequences.

The metaphilosophical upshot of our argument is the suggestion that philosophy should be less enamored of logic, and more committed to experimentalism. Philosophy should change its self-image. Not to be continuous with the sciences as such, but rather to take on board one major assumption endemic among working scientists, to restate our slogan: It is fruitful to keep many (sometimes inconsistent) lines of research open at once. We believe

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that the adoption of our slogan would have a salutary effect on the culture of philosophy.*

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