Deconstructing the Laws of Logic

STEPHEN R.L.CLARK

Abstract
I consider reasons for questioning 'the laws of logic' (identity, non-contradiction, excluded middle, and negation), and suggest that these laws do not accord with everyday reality. Either they are rhetorical tools rather than absolute truths, or else Plato and his successors were right to think that they identify a reality distinct from the ordinary world of experience, and also from the ultimate source of reality.

Discontinuities

The 'laws of logic', classically understood, are not infrequently challenged by postmodern or feminist critics,[1] and the reaction of rational realists (like myself) is usually to regard the challenge as absurd. There is also a considerable literature from an intuitionist standpoint (which dispenses with the law of excluded middle, at any rate). Others have examined the 'vagueness' of most or many of our concepts, and sought either to alter the classical laws or else, more usually, to accommodate 'vague' propositions within them. Graham Priest has challenged the universal application of the Law of Non-Contradiction, in the name of dialetheism.[2] Penelope Maddy has argued for a naturalistic understanding of our fondness for the laws, with the half-spoken corollary that they *bind* neither ourselves nor nature.[3] But what follows should rather be considered a *pre-modern* challenge (and certainly not an exhaustive account of the contemporary literature on logic). My aim is to show that the laws cannot be read off from experience, nor are they formal

[1] See Andrea Nye *Words of Power: a feminist reading of the history of logic* (Routledge: London 1990). Cf. Val Plumwood 'The Politics of Reason: Towards a Feminist Logic': *Australasian Journal of Philosophy* 71 (1993), pp. 436–462.

[2] See most recently Graham Priest *Doubt Truth to be a Liar* (Clarendon Press: Oxford 2006). Priest does not doubt *all* the received laws: 'though nothing is completely uncontentious, there is hardly *any* disagreement about the correctness of [the Law of Identity]': ibid., p. 13.

[3] Penelope Maddy 'A Naturalistic Look at Logic': *Proceedings and Addresses of the American Philosophical Association* 76 (2) 2002, pp. 61–90.

10.1017/S0031819108000296 ©2008 The Royal Institute of Philosophy

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

conditions for reasonable speech. Our belief in them rests on a metaphysical intuition – and even that is not the final word.

Consider the central laws: Identity, Non-Contradiction and Excluded Middle, which by classical standards are logically equivalent.

1. If p, then p [Identity].
2. Not both p and not-p [Non-Contradiction: NC].
3. Either p or not-p [Excluded Middle: EM].[4]

How could anyone rationally *challenge* those laws? Even the attempt to rid ourselves of them depends on them: if they are *not* obligatory, valid or true, then we cannot definitely reject them (since they could still be obligatory, valid or true even if they also weren't), nor successfully maintain that rejection (since nothing that we said need mean the same from one moment or one context to another). But maybe these arguments themselves are dubious, and even if they are, in the end, compelling, there are difficulties to be dealt with on the way.

A simple argument[5] demonstrates that NC and EM together imply that change and difference are impossible. Consider any such difference, whether in time or space: from L1 to L2, we'll say, an object x is A, and from L2 to L3, that object x is not-A (by not being A). Consider what is true at L2 itself. Is x at L2 A or not-A? If it is both then NC fails; if it is neither EM fails. Perhaps the laws of logic only apply within a discontinuous world, where there are no points *between* adjacent points, so that the object is A from L1 to L2, and not-A from L2* to L3, but though L2 and L2* are different, there are no points at all between them. This may not be so surprising: after all, it seems to be true that energy comes in *packets*, that electrons can only occupy particular orbits around their nucleus, that even light is a stream of particles.[6] There is nothing

[4] Strictly, it might be better to express these immediately as *ontological* and not logical claims: everything is identical with itself; nothing is both itself and something other than itself; everything is one thing or another. But this would be to assume their metaphysical status from the beginning (and make their contentiousness too obvious). I prefer to begin by examining them as if they were merely logical, rules about how to speak and think.

[5] Which is at least intimated in Parmenides: see Richard Sorabji *Time, Creation and the Continuum* (Duckworth: London 1983) for discussion of atomistic and continuous theories of time and change.

[6] A readable account of the reasonings that have led to these conclusions can be found in Brian Greene *The Elegant Universe* (Cape: London 1999).

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

'in between' such atoms, and abrupt changes can be accepted as the unexpected truth.[7]

But what is this 'nothing' that is between the atoms (whether they are spatial or temporal)? The atoms cannot be literally 'next' to each other, any more than the atoms of Epicurus could touch each other. If they did, there would be some point common to them both, and they would be indissolubly united as a single, literal atom (points, after all, cannot be dismembered). This is one reason that Epicureans have postulated 'the void', to divide one atom from another. But must not that very void have a last point, that is either coincident with or contiguous with the first point of the atom? And is not that then subject to just the same argument as before? Or has the void no properties at all, being merely negative? In which case, it is neither A nor anything *other* than A (and so there is, in a way, something that is not anything at all – which is why 'the void' has always seemed, at least, a strange hypothesis).

Alternatively, there are no truths *at* points at all – but in that case it is *false* that x is A at any point between L1 and L3 (although it is also *false* that x is anything other than A at any of those points). While it may seem that, if there are truths, they must be true at any point in the period during which they are true, we might conclude instead that periods are *not* made up of points. That is: our reality is ineradicably *continuous*, and there are therefore no abrupt changes of the kind that language and logic might lead us to suppose. Nothing changes from A to not-A 'abruptly': all such change involves its being, by degrees, less A until we judge that there is 'too little' of A-ness left to count (though the very fact that such change is by imperceptible degrees implies that we can never tell that there is no imperceptible A-ness left). During one period it is day, and during another, night: but there is no single line between the two, and each may always remain as a seed within the other. By the time we judge (correctly) that it is night, night has fallen, but there was no particular moment when it fell, not even an unknown moment.[8]

Again: consider, by example, how we deal with the claim that if x is A then x cannot also not be A. But a piece of cloth could easily both be

[7] See also Brian Greene *The Fabric of the Cosmos* (Penguin: London 2004), p. 351.

[8] For further logical exegesis of the so-called sorites paradox see J.C. Beall, ed., *Liars and Heaps* (Clarendon Press: Oxford 2003). Unfortunately few if any of the papers in this volume are comprehensible to any but dedicated logicians, and none make any attempt to persuade non-logicians that this matters.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

red and not be red (for example, by also being blue). That is, it could partly be red, and partly not be red (or be partly not-red) – and the parts are distinguishable precisely in that one part is and the other isn't red.[9] But anything that is red is bound to be extended (there are no dimensionless red points), and may therefore also *not* be red in some of its parts. So as far as colour goes, at any rate, *anything* that is red may also not be red. Not only is there no guarantee that there are entities which must be uniformly one thing and not another since they have no distinguishable parts (that is, atoms, in the original sense), the truth is that such atoms wouldn't *be* red (or much else) at all. And in not being red, they do not thereby become not-red (coloured in some other way than red, whether blue or yellow). By parity of arguments any number of seemingly contradictory claims may all be true (or false). Whatever is actually red may also be other than red (and so not absolutely red). Anything that *couldn't* be both red and other than red (since it has no distinguishable parts) would in fact be neither (and not being red does not imply being other than red (that is, not-red).[10]) Predication in other categories than Quality may have slightly different effects, but in all cases it seems that a given object can in fact both be A and not be A (and all but atoms can be both A and not-A). The cloth can be both here and not-here, heavy and not-heavy, mine and not-mine. The seeming impossibility is eliminated by distinguishing its parts, modes, aspects or whatever. So the laws do not so much describe as prescribe: they require us to invent distinctions that would otherwise be unnoticed.

Can this always be done, or is there some purely atomic level whose elements cannot simultaneously be A and not-A? How else could anything become *less* A than by some atom of A-ness vanishing? If there are such atoms, then they will prove utterly unlike anything in our experience (and will probably be neither A nor not-A, despite being postulated solely to accommodate undifferentiated A-ness!). That there are or could be such absolutely discrete items

[9] See Jonardon Ganeri *Philosophy in Classical India* (Routledge: London 2001), pp. 132ff.

[10] A point that explains why Aristotelian logic does not permit obversion, the inference from a's not being X to its being not-X: the traditional Square of Opposition is made coherent by the assumption that propositions of the form A & I have existential import, while those of the form E and O do not. And 'it is false that x is A' implies that 'x is not A' only if that in turn does *not* imply that 'x is not-A' (which is actually reasonable enough: it is false (or at least, not true) that the King of France is bald, but he doesn't for that reason have a head of hair.)

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

is perhaps more peculiar than the thought that anything could be both A and not-A. It is worth recalling that the founder of systematic logic was himself fond of the expression 'in a way' (*pos*), remarked that it is the mark of an educated man that he expects no greater accuracy than is appropriate to the subject, and readily used many labels to refer to hybrids and in-betweens in a continuum. 'Nature stretches *without a break* from lifeless objects to animals through things that are animated but not animals, so that there seems to be very little difference between one thing and the next, they are so close together.'[11] He was himself the one to offer the suggestions that there are *no* truths at an instant, that there is no 'first moment' of any change, that not being A does not require being not-A, and that not all well-formed statements (for example, ones about future contingencies) manage to be either true or false.[12] Strictly, this last claim is not a complete rejection of bivalence (that for any proposition p, either p is true or ¬p is true): if p is true, then (p v ¬p) is true; if p is not true, because unsettled, then (p v ¬p) is still true, just in that ¬p is true.[13] But this is on the understanding that ¬p does not mean 'p is false', but rather 'p is not true'. So in that sense, we do reject bivalence: it is not true that what isn't true is false, nor that what isn't false is true.

Again: the classes we employ in conversation are irreducibly vague: so even if there is *something* that 'being A' excludes, we usually have no definite idea what it is (on which, see below). Even without invoking the pointillist argument I gave before, it is clear that 'red' and 'blue', for example, are not exclusive categories: the 'very same colour patch' may be a reddish blue or else a bluish red. Understanding and Not Understanding do not exhaust our possibilities, and neither does one absolutely exclude the other.

It is not enough to say that the concepts involved are 'vague' ones, and that the problems I have outlined would be solved by

[11] Aristotle *De Partibus Animalium* 643b10ff; see *Physics* 5.227a10f.

[12] See Aristotle *On Interpretation* ch.9. There is a large literature on the interpretation of this one chapter. My reading is that Aristotle accepts that it will be true tomorrow that there is either a sea-battle or there isn't, but that it is not *now* true either that there will be or there won't. Symbolically, F(p v ¬p) does not imply Fp v F¬p, any more than x's not being A implies that x is not-A. At the moment, nothing determines either that there will be or that won't be a sea-battle: neither claim is yet true.

[13] As F.J. Pelletier & R.J. Stainton point out (against Timothy Williamson *Vagueness* (Routledge: London 1994)) in 'On "the Denial of Bivalence is Absurd"', in *Australasian Journal of Philosophy* 81 (2003), pp. 369–382.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

'precisification' (a barbarous expression signifying their replacement by concepts exact enough to be subject, supposedly, to the laws of logic). The problem posed by change and difference is not that we do not *know* when the change from being A to not being A occurs ('epistemicism'), nor even that we have not made the concept of A precise enough for there to be a determinate answer to the question when the change occurs ('supervaluationism').[14] Neither of these suggestions solve these problems. However precise we made the concept A (say, red) it would still be possible to inspect, at least in imagination, the moment or moments when something ceased to be, precisely, red: it would in fact be easier. Even the problem of vagueness is not resolved by these suggestions. The moral of the gap or overlap is not that there is a real classification which we do not know (the epistemicists' claim), nor even that we have not yet settled what the meaning of these terms should be (the supervaluationists' claim). We already know all that we need to know about what red, blue and not-red may be, and it is because of that very knowledge that we know they are not incompatible. Rather than removing vague concepts (ones without an exact boundary) we have to live with them: why not?

Implications

Speech depends on there being a myriad unvoiced implications of anything we say. That is why computer translation is a vanishing goal: 'the frame problem', so called, is that a computer faced by real-life conversation or instruction cannot tell what implications are relevant or plausible and which not.[15] At the same time, speech depends on leaving all manner of things unsettled. In a world where any statement was instantly equivalent to a complex world-picture, no truths could ever be distinguished. To say anything would always be to say just about everything, and so always to say much the *same* thing:[16]

[14] For an introduction to the very large recent literature on vagueness see R. Keefe & P. Smith, eds., *Vagueness: A Reader* (MIT Press: Cambridge, MA 1996). See also the bibliography maintained by Justin Needle at http://www.btinternet.com/~justin.needle/articles.htm (accessed 1.5.2006).

[15] See Zenon W. Pylyshyn, ed., *The Robots Dilemma: The Frame Problem in Artificial Intelligence* (Ablex: Norwood, New Jersey 1987).

[16] In a fully determinist world this would be absolutely true: nothing could be any different than it is without altering everything else (see Alexander *On Fate* 191, 30–192, 28: A.A. Long & D.N. Sedley eds., *The*

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

God's Word may have that virtue, ours do not. The more 'literal' a statement is, the clearer are its conversational implications, and the narrower. But in that case, any such statement is *conversationally* compatible with all manner of *distant* possibilities, even when it is not *logically* so compatible. Suppose it were otherwise: if I can claim to *know* p, I must also know what I can clearly see is *logically* implied by p. But one thing thus implied is that there is no powerful bunch of alien mischief-makers who deceive me on the truth of p, no 'Googols'.[17] But hardly anyone would firmly claim to *know* that there were no Googols, and how then can we know, for any p on which we *might* be deceived, that it is true?[18] Either I know nothing, or I don't know even the clearest implications of my actual knowledge - if those implications lie outside the vaguely defined circle of propriety. Or to put it differently: even if it is true that I am typing these words onto a screen, it may also be true that there are Googols who deceive me into thinking this is true (that is, who *create* this truth while simultaneously rebutting it).

The latter *reply* to sceptical argument – that ordinary knowledge claims are not as absolute as some have thought – is all too close to scepticism. If the only claims to *knowledge* that can be defended are ones that make our knowledge compatible with absolute ignorance, then we seem to have no recourse but to 'appearances'. We dare not profess that what we believe is *true*, but only that we shall go along with it, within a vaguely imagined field of action and debate. The very notion of 'truth' must then be dubious: for all practical purposes, truth will only be what we find ourselves believing (or rather, merely 'believing'), and there is no reason to expect these 'beliefs' to be consistent. The more robust response would be to say that we *do* after all,

---

Hellenistic Philosophers (Cambridge University Press: Cambridge 1987) 55 N: vol.1, p. 337), and a fully competent intelligence could therefore deduce every from any truth. Our own world, probably, has a little more flexibility, but it is not utterly discontinuous. Scientific theory aspires to the absolutely unified condition (on which more below).

[17] See Keith Lehrer 'Why Not Scepticism?' in *The Philosophical Forum* 5.1971, pp. 289–298; reprinted in *The Theory of Knowledge: Classical and Contemporary Readings* (third edition), ed. Louis Pojman (Belmont: Wadsworth, 2003), pp. 56–63.

[18] The occasional abrupt response that we have no positive evidence for the existence of such 'Googols' is clearly irrelevant. How, after all, could we expect such evidence if they do indeed exist? And their mere possibility is enough to show that we don't *know* they don't, and that 'therefore' we *know* nothing of what we formerly believed.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

at this moment (which is admittedly a different one for you and me), *know* that no Googols are deceiving us about our present circumstances, whatever they may do to others, or at other times. But the robust response still leaves us unsatisfied: what *are* our present circumstances, and what would their continuation bring? Maybe you and I are united, or must believe ourselves united, in our appreciation of this very sentence here. But what does that sentence imply, positively or negatively? And what then does it mean, to either or both of us? All authors, I guess, know how weird their own words sound when echoed back to them by critics or believers. The only useful sentences, indeed, are ones whose implications, for their hearers, are more extensive than their authors knew.[19] In which case, I have reason to suspect that we are *not* united in our understanding even of this essay (and the comments of some readers confirm me in this suspicion!). The more useful it turns out to be, the less I shall have anticipated its interpretation. The more I am in charge of what it means, the less worth writing it.

Charles Babbage's argument in his *Ninth Bridgewater Treatise* is relevant. The 'very same computer program' (as we would now call it) may conscientiously progress from 1 to 2 to 3 to every number up to 100,000,001. The obvious inference is that it will continue 'in like fashion', adding 1 to each succeeding number – yet the numbers that follow are instead 100,010,002; 100,030,003; 100,060,004; 100,100,005; 100,150,006 'and so on' until the 2672nd term.[20] The rule has not changed – but until we passed the hundred million mark there could be no way to distinguish the actual rule from the 'obvious' one. This is a more alarming, because a better founded, argument than Nelson Goodman's 'grue'. Any term we apply to anything, any line we draw around some fragment of the world, has both descriptive and predictive sense – but it now turns out that infinitely many predictions are equally compatible

[19] Cf. Augustine *De Doctrina Christiana* 1.1: 'these thoughts which the Lord has already vouchsafed to me with a view to undertaking this work will, as soon as I begin to impart them to others, be multiplied by His grace.'

[20] Charles Babbage, *The Ninth Bridgwater Treatise*: *a Fragment* (London, 1838; re-issued by Frank Cass: London 1967), pp. 36ff. The treatise is so called not because Babbage had written eight earlier ones, but because it was an uncanonical addition to the eight Bridgwater Treatises composed by other leading 19th century thinkers. The machine which Babbage describes is the fragment of his much larger, projected machine, and was built in 1833. Babbage himself suggests that the computer ('the Calculating Engine') is operating a 'new rule', while the actual mechanical process that engenders it is just the same.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

with any present description. We cannot know what is meant when we speak even of such simple things as acorns, cats or children, since we cannot know what even such things would be or will be under different conditions.[21] All speech gestures at the infinite, but cannot grasp it. All shared understandings even of a simple sentence merely conceal the indefinite variety of inferences we variously make.

The ambiguity, vagueness and manifold extendability of our ordinary concepts creates a further problem for standard logical argument.

> Every species is vague, every term goes cloudy at its edges, and so in my way of thinking, relentless logic is only another name for stupidity—for a sort of intellectual pigheadedness. If you push a philosophical or metaphysical enquiry through a series of valid syllogisms—never committing any generally recognized fallacy—you nevertheless leave behind you at each step a certain rubbing and marginal loss of objective truth and you get deflections that are difficult to trace, at each phase in the process. Every species waggles about in its definition, every tool is a little loose in its handle, every scale has its individual.[22]

In other words, it may be honestly true (as true as any such remark) that all A are B, and that all B are C, and yet it be highly contestable that all or even most A are C (since it is really only *most* A that are B, *most* B that are C). This problem can, in principle, be avoided by 'precisification', but the more precise we make the terms the more likely we are to end with a pair of vacuous premises, true because we insist on keeping them as 'true', and not because they actually reflect reality.

[21] Robert Chambers followed Babbage in proposing this model for evolutionary change: what were once dinosaurs begin to beget birds when the proper moment comes: see Robert Chambers *Vestiges of the Natural History of Creation* (1844: reissued by Leicester University Press: Leicester 1969). I have discussed this at greater length in *Biology and Christian Ethics* (Cambridge University Press: Cambridge 2000), pp. 22ff.

[22] H.G. Wells *First and Last Things* (Constable: London 1908), chapter 1.5 'The Classificatory Assumption', cited by Ray Sorenson in the Stanford Encyclopedia essay on vagueness http://plato.stanford.edu/entries/vagueness/, accessed 22 August 2006. Wells' text can be found at Project Gutenberg http://www.gutenberg.org/dirs/etext03/frsls10.txt, accessed 22 August 2006.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

Contradictions

The Principle of Excluded Middle and the rest are also logically equivalent to the Principle of Double Negation:

4. If p then not not-p (DN)

That is, whatever is incompatible with p must be false if p is true. What else, indeed, could it be? And if there were nothing thus incompatible with p, what could p amount to? Any meaningful statement, in brief, must surely exclude *something*.[23] For every meaningful statement p, there is a meaningful statement q, such that p and q are incompatible ('they cannot both be true'). The simplest and least informative way of forming such a statement q is by the convention of negation (that is, calling it 'not-p', and ignoring for the moment the problems of where, in English and cognate languages, to place the 'not'), but we should be prepared to entertain the thought that this is to beg a question. *Is* there such a statement q, meaningful in its own right, for every meaningful statement p? Even if every such statement p excludes *something*, is it possible to say what it is that it excludes? After all, I have already suggested that, in practice, we do not acknowledge any of the class of Googol-fantasies as ones strictly incompatible with what we say we know. So what would be incompatible with any particular p? What could not *possibly* be true if it is true that I am typing this on a rainy Tuesday afternoon in late July? That it's actually quite sunny? But somewhere, obviously, it is (even if only in the broad fields of the sky, where day never shuts his eye). That I'm staring into space instead? But sometimes, obviously, I am.

'But what p excludes is whatever statement q that itself excludes p.' So if p is understood in terms of what it excludes, and what it excludes is understood in its turn by what it itself excludes (that is, p), then the pair cannot be understood separately. Some such argument has led some to conclude that 'God exists' is comprehensible only on condition that 'God does not exist' (that is, 'It is not the case that God exists') is also and simultaneously comprehensible: that is, God's non-existence must be as thinkable as His existence, and Anselm was mistaken. But perhaps this argument is inconclusive.

But let us suppose that the story is correct. To *mean* at all we must exclude as well as assert: there must be some meaningful statement incompatible with something we meaningfully assert. So what

[23] See Ganeri op.cit., pp. 106ff on the Yogacara Buddhist, Dinnaga, who identified concepts primarily by what they *excluded*.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

about the Laws (Identity, Non-Contradiction, Excluded Middle, and Double Negation)? How can they be meaningful statements if there is nothing meaningful that they exclude? If they cannot themselves intelligibly be contradicted, how can they avoid Death by a Thousand Qualifications? Apparently, these Laws say nothing.

The point can indeed be made with particular reference to the Law of Identity: how – to address the ontological claim – can we be so confident that A is only and entirely A? Are there not innumerable qualifications that we must add? What is *now* A may turn out not to be A quite soon, or else not be A in a different light or situation. Is there any finite and definitive formulation of the law, avoiding all possible counterexamples? What is A cannot, in respect *of the same* quality, quantity, time, place, relation, state, activity, action, passion, *not* be A: but who is to determine that this list of categories is complete? And how shall we invoke a notion of *the same* to do the job of specifying what must be identical? Did Babbage's 'Calculating Engine' operate with the same rule when following 100,000,000 by 100,000,001, and the latter by 100,010,002?

Or put it another way, in line with earlier remarks about obversion. We may ordinarily allow or even insist upon the inference from x's not being A to x's being not-A (and vice versa): that is, we deny A to x on the sole condition that there is some other property, not-A, which it possesses. The cloak can only not be red by being not-red, which is to say 'some colour other than red'. But the number Seven, obviously, is not red, without being any other colour either, nor even being colourless. Such reasonings can be used to build up a notion of categories (red, colour, quality; seven, number, quantity), but there seems little reason to think that we can know beforehand what all those categories are. We are therefore unable to insist on knowing what *else* it is that something positively is when it is not such-and-such. Often we can only deny that x is A, without having any idea what *other* thing, what not-A, it positively is. And why should we insist that it must be *any* positive thing, when all we know are the things it isn't? And as before, how can we be sure exactly where or when something ceases to be A?[24] Maybe the Law is vacuous: a way of saying that there are no actual As at all, since nothing is ever itself in all respects and in answer to all enquiries.

One familiar response is indeed to agree that all such 'Laws', being tautologous, are strictly meaningless: part of the framework of

[24] See also Graham Priest *Beyond the Limits of Thought* (Clarendon Press: Oxford 2002; 2nd edition), pp. 271ff.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

meaningful discourse, not its content. To seek to *state* them is to create a fantasy which must dissolve: an imagined world where they do not apply. But if we can at least *imagine* chaos well enough to know what we are excluding, what gives us the *right* to exclude it? And if we can't, what is it that we are excluding?

So to return to Anselm: his argument was that 'God' did not name the sort of thing that might or might not exist. To understand what God-talk is about is to realize that it makes no sense to imagine that God 'does not or might not exist' (as it does make sense to suppose that the Loch Ness Monster might or might not exist, that something or other amounts to such a Monster or that nothing does). Imagining His non-existence is like imagining chaos, or absolute non-being. We cannot seriously suppose that there is no truth, that nothing at all is true: it does not follow that it makes no sense to suggest that something or other *is* true. On the contrary, it *must* be true that something or other is true!

Perhaps the laws are not descriptions, statements, would-be veridical utterances, but rather just commands, *laws* in the Hobbesian sense. Why, if that is what they are, must we obey? It takes no great skill, after all, to contradict oneself, or to refuse to draw appropriate inferences from what one has said before. Why must we insist on such a game? If members of a purely oral society are confronted by some simple 'logic-test', they don't know *why* they should answer.

> "In the far north where all is snow, all bears are white. Novaya Zembla is in the far north and there is always snow there. What color are the bears?" Here is a typical response, "I don't know. I've seen a black bear. I've never seen any others". You find out what color bears are by looking at them. Who ever heard of reasoning out in practical life the color of a polar bear?[25]

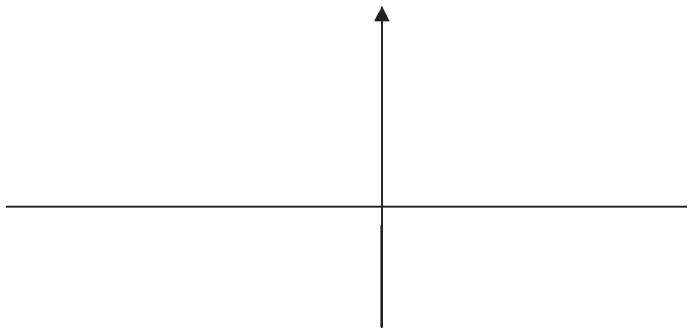
To our ears this is curiously obtuse. But that is because we insist on holding each assertion to be true in the same way, and at the same time. We think it *must* follow that the bear was white, because its being any other colour would be incompatible with the premises stated. But why should the premises be accepted as absolute? And why should we assume that there *are* bears in Novaya Zembla? If I were to say that all the coins in my pocket are silver, would it

[25] Walter J. Ong *Orality and Literacy: the technologizing of the word* (Methuen: London 1982) pp. 52–3, after A.R. Luria *Cognitive Development: its Cultural and Social Foundations*, ed. M. Cole, tr.M. Lopez-Morillas & L. Solotaroff (Harvard University Press: Cambridge, Mass 1976), pp. 108f.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

follow that a 2p piece would be silver, if it were in my pocket? 'Persons not academically educated ... tend to go beyond the statements themselves, as one does normally in real-life situations or in riddles.'[26]

Consider Lev Shestov's case. How many lines can be drawn at a right angle to a given line through a given point on the line?



The obvious answer is 'One'. But now move the baseline, in your mind's eye, forward from the page. At once it is clear that infinitely many such perpendiculars can be drawn.[27] Nothing in the *actual* stated conditions of the thought experiment excluded this result, even though it is unlikely that those actual conditions were the ones that you expected.[28] Partly, this is the same puzzle as Babbage's: we do not know what to expect under changed conditions when we haven't even noticed what the conditions are at present. But it is also indicates a separate problem: how can we tell what contradicts a statement? Apparently, all *seeming* contradictions could instead be riddles – as members of traditional societies have always known. Indra promises the demon that he will not die on dry land or on water, by night or day, from wet or dry, or hot or cold. So Indra

[26] ibid, p. 53, after James Fernandez, in I. Karp & C.S. Bird, eds., *Explorations in African Systems of Thought* (Indiana University Press: Bloomington, Indiana 1980), pp. 44–59.

[27] Lev Shestov *Potestas Clavium*, tr.B. Martin (Ohio University Press: Athens, Ohio 1968; 1st ed. 1923), p. 341. See also Brian Horowitz 'The Tension between Athens and Jerusalem in the Philosophy of Lev Shestov': *Slavic and East European Journal* 43 (1999), pp. 156–73.

[28] Some years ago, my young son, engaged in putting marbles into a jar, asked me if the jar was full. When I said it was, he said 'Aha!', and poured a glass of water into the jar.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

slays the demon at twilight on the sea-shore, with the foam of the waves.[29]

Let us grant that all assertion *attempts* to exclude something: the laws of logic attempt to exclude riddles and changes of focus. They require us to affirm a world where, in the end, all riddles are made clear, all circumstances and conditions known. Logic does not rule in *our* world, since we don't know enough to recognize its limits. Husserl speaks for all philosophers – even perhaps those who boast of their post-modernism, scepticism or species-relativism – in declaring that 'what is true is true absolutely, in itself; the truth is one, identical with itself, whatever may be the beings who perceive – men, monsters, angels or gods.'[30] But how can we tell what that Truth is, or what fantasy it excludes? Even if all our attempts to suggest the contrary of Husserl's claim are tainted – as Aristotle argued – with self-contradiction,[31] how does it follow from our *failure* that there is one single Truth? Maybe I cannot intelligibly or coherently declare that there *isn't*, but does it follow that there *is*? Does that not depend for its force on just the sort of inference we have already seen good reason to suspect? I cannot intelligibly declare that everything I say is false, but does it follow that anything I say is true? Clearly not: consider the following argument, which narrows down the unworkable class of 'everything I say' to a mere two (a and b):

(a) The moon is made of green cheese
(b) Both statements identified within this paper as (a) and (b) are false.
(c) If the statement labelled (b) is true, then it is false

[29] Wendy O'Flaherty *Hindu Myths: a sourcebook translated from the Sanskrit* (Penguin: Harmondsworth 1975) p. 83f (from *The Mahabharata*). See also Mary Douglas *Purity and Danger: an analysis of concepts of pollution and taboo* (Routledge & Kegan Paul: London 1966) for further anthropological reflections on boundary-crossing.

[30] E. Husserl *Logische Untersuchungen* I, p. 117, cited by Lev Shestov *Potestas Clavium*, tr. B. Martin (Henry Regnery: Chicago 1970; 1st published 1923), p. 305

[31] Aristotle *Metaphysics* 1.1012b, cited by Shestov op.cit., p. 296. See Michael Degnan 'Does Aristotle Beg the Question in His Defense of the Principle of Non-Contradiction?': *Proceedings of the American Catholic Philosophical Association*, 1990, pp. 146–159. Cf. Graham Priest '"To Be and Not to Be – That Is the Answer": On Aristotle on the Law of Non-Contradiction' in *Logical Analysis and History of Philosophy, Volume 1: Philosophiegeschichte im Uberblick*, eds. Albert Newen & Uwe Meixner, (Schoningh: Paderborn, 1998), pp. 91–130, reprinted with revisions in Priest *Doubt Truth to be a Liar* op.cit., pp. 7–42.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

(d) Therefore, by the *consequentia mirabilis*, the statement labelled (b) *is* false (if p implies ¬p, then ¬p).
(e) If the statement labelled (b) is false, then at least one of the statements labelled (a) and (b) is true.
(f) Therefore, since it cannot be that (b) is true, (a) must be true.
(g) Therefore the moon is made of green cheese.

Clearly, we cannot allow the conclusion to stand. But in that case we have no general ground to hold that what cannot intelligibly be denied (as it might be, that there is a discoverable truth) must actually be true. I cannot *deny* that there is, but it doesn't follow that I would be right to affirm it. Even if the argument shows that the initial assertions (a) and (b) amount to asserting (a), this does not prove that (a) is true (any more than my saying 'The moon *isn't* green or I'm a Dutchman') proves that the moon isn't green merely because I am not Dutch. So the answer to Anselm might be that even if we could not intelligibly *deny* the existence of the God he means, it does not follow that we would be right to affirm it. It may be that the price is still too high for most rational atheists: namely, to admit that what cannot be denied without contradiction might still, in a curious way, be false – even though we cannot say so. That is, there is a reality that transcends speech (on which, more below).

The Inference Explosion

The standard argument for the Law of Non-Contradiction is that anything at all can be legitimately inferred from a contradiction. Including such a contradiction in one's system therefore entails that every possible proposition is equally, and demonstrably, true.

The argument runs as follows:

1. p & ¬p (assumed for the sake of argument)
2. p (from 1: if *both* p and ¬p, then p)
3. p v q (from 2: if p, then either p or any arbitrarily chosen other claim is true)
4. ¬p (from 1: if *both* p and ¬p, then ¬p)
5. q (from 3 & 4: if either p or q is true, and it isn't p that's true, then it must be q)

But this argument, obviously, begs the question. We can only move from 3 & 4 to 5 if the truth of ¬p excludes the truth of p: but that is, exactly, the law of non-contradiction itself.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

Is it enough to answer that '¬p' just *means* 'Strike out p', and 'p' means 'Affirm p'? That is: we should distinguish the purported content identified by 'p' and the semantic act that may also be identified by 'p'. There would then be no further need to identify the content of the supposed alternative and exclusionary truth ('q'), such that the world is divided absolutely into p and q. The Law would instead insist that we don't simultaneously affirm and strike out a given thesis, p.[32] But if that were all that 'p & ¬p' involved (namely, affirming and denying the same thing), how could there be any inference explosion? To affirm and deny would be as much as to say nothing – and nothing need follow from silence.[33] Insofar as anything is supposed to follow from 'p & ¬p' (especially if *everything* is supposed to follow), it must have some content. But the more content it has the less we can insist that its opposite [¬(p & ¬p)] is vacuously true.

And why *shouldn't* we both affirm and deny things? Many questions are best answered by a ruminative 'Well, it is and it isn't'. No doubt we can expand the answer, distinguishing the different aspects – but once again, what reason do we have to suppose that there is an ultimate level of description that can avoid such ambiguities? It may seem obvious that what is true cannot also be false: but actually what is true is very often also false (at another time or in another sense, no doubt, but no-one can specify all possible qualifications in advance). Priest's dealetheism is a response to paradoxes such as the Liar: the Liar's own admission that he always lies is both true and false.[34] My own argument is larger in its implications. We live with seeming contradictions, especially when scientific theory enters the equation. Kelvin's theory of solar dynamics demonstrated that there had not been enough time for Darwin's evolutionary processes to occur: in the absence of better theories, each was maintained without reference to the other. Einstein's General Relativity Theory and Quantum Mechanics are in conflict, but both, in their appropriate station, are maintained.[35] Eliminative materialists who believe

[32] See H.W. Johnstone 'The Law of Non-Contradiction': *Logique et Analyse* 3: pp. 3–10 for a critical discussion of this 'regulative' conception of the law.

[33] See Priest *Doubt Truth to be a Liar* op.cit., pp. 31–3 on negation as cancellation.

[34] See Priest *Beyond the Limits of Thought* op.cit., ch.10.

[35] 'In this respect physicists are like ordinary people. If they can't resolve a contradiction, and the contradiction is not pressing, they just disregard it and give their attention to those aspects of the theory (or theories)

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

that there are no reasons, beliefs or sentiments (any more than there are planetary spirits) employ exactly the same personalist vocabulary as the rest of us. Maybe, in all these cases, it is to be hoped that the contradictions *will* eventually be resolved (and what does that hope, that faith, rest on?), but in the meantime those who maintain them can still reject more ordinary falsehoods.

In fact, it is not only *possible* to believe two 'contradictory' claims, but epistemically necessary! After all, none of us suppose that we are infallible, and must therefore agree that some of our beliefs are false.[36] But since they *are* our beliefs, we simultaneously believe them true.

> At any street corner we may meet a man who utters the frantic and blasphemous statement that he may be wrong. Every day one comes across somebody who says that of course his view may not be the right one. Of course his view must be the right one, or it is not his view.[37]

Taking {p,q,r,s. . . .} to be the set of my beliefs, it is clearly true (?) that I believe p to be true, and I believe q to be true, and so on. It ought to follow that I believe that p and q and r and so on to be true, but unfortunately I do *not* believe that the entire set of my beliefs is true (since I believe that at least one of my beliefs is false). Do I 'really' not believe the very beliefs I have, or must I admit that I have contradictory beliefs (namely (i) that p and q and r and so on are all true, and (ii) that not all of {p and q and r and so on} are true?). So all reasonable people believe, and should believe, both that all their beliefs are true and that some are not.[38]

---

that are pleasantly consistent': Shimon Malin *Nature Loves to Hide* (Oxford University Press: New York 2001), p. 90.

[36] 'Complete self-confidence is not merely a sin; complete self-confidence is a weakness. Believing utterly in one's self is a hysterical and superstitious belief like believing in Joanna Southcott': G.K. Chesterton *Orthodoxy* (Fontana: London 1961; 1st published 1908), p. 14

[37] Chesterton ibid., p. 32. See also William Blake, speaking of 'doubt which is self-contradiction': *The Everlasting Gospel* (1910): *Complete Works*, ed. Geoffrey Keynes (Oxford University Press: London 1966), p. 753

[38] Is it enough to reply that I believe that I *could* be mistaken but that in actual fact, fortunately, I'm not, and so that I believe all my beliefs are true? But believing in such good fortune seems even more irrational than believing that not all my beliefs are true.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

And even if the conclusion of the Inference Explosion Argument were correct, what would that matter? What is to show that it is *false* that every possible proposition is true?[39] There are, after all, respectable physical (the Everett Many-Worlds hypothesis) and metaphysical (the Lewis Many-Worlds hypothesis) theories which assume exactly that: every possible state of affairs is actual.[40] Adding 'in some world' is redundant: the worlds in question are defined only by the specified states of affairs. Is there also a world where these hypotheses are *not* true? Obviously, yes: since this world here is one that, supposedly, depends on eliminating all but one possible future.[41]

Even if we draw back from such openly metaphysical speculation, the experiments on which the Many-Worlds Hypothesis is founded are already enough to cast doubt on Double Negation. If photons or electrons fired one at a time through twin slits somehow create an interference pattern on the screen (as they do), it seems necessary to suppose that they are each traversing all the possible routes from their source to the screen.[42] So the fact that they travel one way

[39] Priest *Doubt Truth to be a Liar* op.cit., pp. 56–71 rejects 'trivialism' (that every proposition is true, including, presumably, the proposition that not all propositions are true), because this amounts to endorsing any number of utterly insane and unreasonable propositions. This is not necessarily a good argument.

[40] See David K. Lewis *On the Plurality of Worlds* (Blackwell: Oxford 1986); David Deutsch *The Fabric of Reality* (Penguin: Harmondsworth 1998).

[41] See Greg Egan *Quarantine* (Gollancz: London 1992) for an almost successful account of what it would be like if this were not so: 'until one of our ancestors [long before they were human] learnt this trick [of collapsing the wave function and fixing one possibility as the only real], the universe must have been a radically different place from the one we know. *Everything* happened simultaneously; all possibilities coexisted. The wave function *never* collapsed, it just kept on growing more and more complex.' (p. 117)

[42] This was Richard Feynman's interpretation of the results: see Greene op.cit., pp. 108ff. Stephen Hawking and Thomas Hertog have recently drawn the conclusion that all possible histories have been traversed up to the present moment, and that, correspondingly, we are ourselves responsible for determining what 'really' happened: Amanda Gefter 'Mr Hawking's Universe', *New Scientist* 22 April 2006, pp. 28–32. Another speculation, founded in the thought of Eugene Wigner, is that only the last possible observer will determine what has happened: see Stephen Baxter *Timelike Infinity* (Collins: London 1992) for a fictional version of this imagining, after E.P. Wigner 'Remarks on the

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

does not preclude their travelling all the *other* ways as well, and it cannot be said that if they go this way, it is not the case that they go a different way. There is no route strictly incompatible with any route they take. So 'p & q' is possible (because actual) even though 'q' stands for some state of affairs ordinarily or seemingly inconsistent with p.

Appeal to the Many-Worlds Hypothesis is also a standard way of accommodating the idea that we might, somehow, 'change the past'. Even God, logicians tell us, cannot literally *change* the past, for this would be to ensure that both p and some incompatible q were true at the same time. It would be true, for example, *both* that the Southern States won the War Between the States *and* (by some strange intervention) that the North won the Civil War.[43] Since incompatible stories cannot *both* be true, we are to suppose, it must be impossible even for God to remedy any past disaster: even God cannot do 'what is logically impossible'. All that could happen (at best) would be that an alternative history was brought into being: in one time-line (the 'original') the South won, and in the other the North. This is the solution favoured, for example, by the physicist and science-fiction writer Gregory Benford in *Timescape*, though he also suggests that the apparent paradox can be avoided in other ways.[44]

This argument of course requires us to be realists about the past. Those who suppose that the truth of past-tensed assertions is wholly determined by present evidence have no reason to doubt that many sometime truths have been lost entirely (as the evidence for them vanishes). For them, the law of excluded middle either does not apply or must be read more carefully (as it must in the case of future contingencies): if it is not the case that Caesar had porridge for breakfast before crossing the Rubicon (that is, there is no proof that he did), it does not follow that he didn't have porridge for breakfast (for there is no proof of that either). For a while it was true – perhaps – that he did (since the evidence existed), and then

---

mind-body question' in I.J. Good, ed., *The Scientist Speculates* (Heinemann: London 1962), pp. 284–301.

[43] See Ward Moore *Bring the Jubilee* (Heinemann: London 1955).

[44] Gregory Benford *Timescape* (Pocket Books: New York 1981), pp. 73ff: if a 'past' receiver and 'future' transmitter are so linked that the receiver turns off the transmitter *before* it sends out a message pastwards, if and only if the receiver receives the message from the future, the resultant state hovers between transmission and non-transmission, though 'we don't know what the intermediate, hung-up state means'.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

it wasn't (since the evidence has gone).[45] Mathematical intuitionists have a similar opinion about theorems that have not yet been proved (or whose proof has been forgotten?): so far, they are neither true nor false. Those who suppose that there are real evidence-transcendent truths 'about the past' (that Caesar *really did* have porridge, even if we can never prove either that he did or that he didn't[46]) will be less accommodating to the possibility of reversal. If he really did have porridge then it can never be that he didn't, even if – fantastically – there turns out to be another time track where he had some other dish, or none. Real truths cannot be unmade – unless, of course, they can.

For can we actually be so sure? Even if we grant that the South won, why is it impossible to make it be the case that they absolutely didn't? There would be no contradiction (even if contradictions are to be outlawed) if the South had won until 1951 and *then* something happened to ensure that they didn't. It would not be true in 1952 *both* that they did *and* that they didn't. In 1950 it would have been true that they did. In 1952 it would be true both that they didn't *and that they never had*. This would indeed be a radical discontinuity, throwing our usual conceptions of time's passage into disarray – but the laws of logic (as above) actually demand discontinuities. What – in logic – would count against that one?

This has, of course, the unfortunate implication that our actual present history may shortly be erased 'as if it had never been', and exist thereafter only in the 'delusions' of whatever traveller has instigated the event.[47] This may feel absurd: what could be better known than our own present being? Obviously (we are inclined to say) we here-now are real, and nothing could ever make it be or have been the case that we were not. But that brute conviction of our present and unalterable reality rests not on any 'law of logic' but on simple egoism. What would even be odd about the discovery that I am radically deluded, and that some resolution still to come will reorder or eliminate my reality? How can philosophers prepared to entertain the thought that 'I' is a delusion, the self a useful fiction, be so confident that our present history will always be or

[45] See my 'Orwell and the Anti-Realists' in *Philosophy* 67 (1992), pp. 141–54.

[46] Rather as Einstein insisted, *contra* standard interpretations now associated, perhaps wrongly, with Heisenberg, that particles really must have some definite position and velocity even if it will forever be impossible to discover both at once. Most modern physicists maintain that he was wrong (see Greene op.cit., p. 114).

[47] See Orson Scott Card *Pastwatch: the Redemption of Christopher Columbus* (Tom Doherty: New York 1996).

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

even have been the truth? The only 'real' history will be the one to be established at the end of all possible changes and observations (if there is such an end).

> Are we not free to admit that certain things among all those which have been will never be effaced, but that others *will* disappear and become non-existent, and that, consequently, the principle of contradiction, submitting to the commands of a superior principle, will to the end of time protect certain pages of the past and utterly destroy others, so that the past itself will be modified?[48]

That digression, into the theory of time travel, is a reminder that the art of 'eliminating contradictions' may not even be able to exclude those scenarios that are usually reckoned contradictory. Even if the laws of logic rule, they do not actually rule *out* anything, but merely encourage the making of distinctions or fantastic stories. Nor is it any more helpful to require that in *moral* reasoning we must not contradict ourselves. The possibly apocryphal American major who said that his forces 'had had to destroy the town in order to save it'[49] would have had no difficulty making explicit the distinctions that, in irony or for shock effect, he ignored. Again, it is indeed *ethically* absurd to think it wrong 'in general' to kill or abuse, but right to do so when the victims have some particular character that has no bearing on their vulnerability (as it might be, they have red hair, or a tail). But it is easy to avoid any strictly 'logical' contradiction. 'Logically impossible' identifies nothing at all.

[48] Lev Shestov *Athens and Jerusalem*, tr. B. Martin (Ohio University Press: Athens, Ohio 1966), p. 418.

[49] The only witness to this remark is Peter Arnett, who attributed it, in *the New York Times* on 8 February 1968, to one Major Brown after the destruction of the Vietnamese village Ben Tre. The remark has since taken on a life entirely of its own, and is variously assigned to colonel or marine or press officer, with the added, gratuitous, assumption that the speaker was unconscious of its oddity. Arnett's own later account, in *The Daily Mirror* on 1 April 2003, reads 'During the Tet Offensive in Vietnam, I entered a US-held town which had been totally destroyed. The Viet Cong had taken over and were threatening the commander's building so he called down an artillery strike which killed many of his own men. The Major with us [presumably 'Major Brown'] asked: "How could this happen?" A soldier replied: "Sir, we had to destroy the town to save it."'(from http://www.mirror.co.uk/archive/tm_method=full%26objectid=12795678%26siteid=89520-name_page.html, accessed 16 June 2007). Others have denied that the remark was ever made at all.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

Modus Tollendo Tollens

But how can any of this be acceptable? If we cannot count on the standard laws, can we even rely on arguments of the *Modus Tollendo Tollens*? And if we cannot, how can we ever reach any proper conclusion, even the ones that I was reaching earlier (which mostly depended on *MTT*)? Long before Karl Popper, Plato had suggested that we should test hypotheses by seeing what followed from them: if the hypothesis leads to some internal or external contradiction (if it is either internally inconsistent or has some unacceptable implication) we may reasonably abandon it.[50] If p implies q, but q is absurd or false or simply unacceptable, then p must be dismissed as well.

In practice, of course, this demonstration is a lot more difficult than either Plato or Popper ordinarily conceded. Even the sight of a single black swan does not actually refute the claim that all swans are white (since the 'black swan' may be dyed, or oddly lit, or not a swan at all), and all interesting theories are a lot more complex than such simple generalities. Our observations never test a single, simple hypothesis, but rather a complex series of assumptions which may be indefinitely modified before any one of them is at last abandoned. Notoriously, old theories are rarely rigorously refuted – they simply stop being worth defending (and may someday be resurrected.[51])

But though this may be (probably is) a truth, arguments of the appropriate form remain a necessary resource. If we can't absolutely refute any moderately complex theory, we can surely still make it rationally untenable: if the butler knifed Lord Greystoke, he would have bloody hands; he hasn't, and so he didn't. Maybe he wore surgical gloves, or had time to wash, or moved the knife by telekinetic power, or.... Each sub-hypothesis in turn can be examined and rebutted by considering what else would have to have been true (but clearly isn't) if things were so. We shall never fully exhaust this process (since there is no necessary or known limit to the number of sub-hypotheses that *might* be relevant). Of course this would not make a satisfactory *fiction:* 'Everybody knows that the universe contains enough spies or enough spectres to kill the most healthy and vigorous vicar. The drama of detection is in discovering

[50] See Plato *Phaedo* 102.

[51] As Paul Feyerabend pointed out, in *Against Method* (NLB: London 1975), p. 49: 'After Aristotle and Ptolemy, the idea that the earth moves - that strange, ancient and "entirely ridiculous", Pythagorean view – was thrown on the rubbish heap of history, only to be revived by Copernicus and to be forged by him into a weapon for the defeat of its defeaters.'

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

how he can be killed decently and economically, within the classic unities of time and place.'[52] Even in science fiction, where these speculations are allowed, there must be *some* limits, some sense of closure. It is not so obvious that these rules apply to reality. But though the argument can't give us certainty, it is still the only route we have away from total error. Could the argument form itself be false (it be false, that is, that it is necessary for p to be false if p necessarily implies a falsehood)?

Modus Tollendo Tollens requires that p's implying q at once demands that not-q implies not-p ($(p > q) > (\neg q > \neg p)$). The practical difficulties I have just mentioned really only suggest that the antecedent is a lot more difficult to prove than we at first imagine: it may be that p *doesn't* imply q, and it is therefore no surprise that not-q need not imply not-p. But suppose that we grant the antecedent: what then follows? Could it imaginably, somehow, be possible for p to imply q, but not-q to be compatible with p (that is, not to require that p be absolutely false)? Plainly – if the earlier arguments are persuasive – yes.

We do have practical reasons for wanting to rule out some hypotheses. Some contradictions do indeed seem insupportable. People afflicted with anorexia may acknowledge that they must now take smaller sizes, or have new holes punched in their belts, while simultaneously insisting that they are grossly overweight. If they are too tired to exercise (as others would say, because they are starving themselves) their conclusion is that they should eat still less, since they can no longer burn off the 'excess' through strenuous activity. They are likely to believe, simultaneously, that others should eat more if they are not to be ill, and that they themselves, no different in species or physique, must eat much less. They live by a regimen as strict as any monk's or nun's, but still yearn over fashion magazines and cookery books. They may cook special treats for friends and family, but throw the completed product away at once, as being unworthy. They may buy new clothes which they are then unable to wear. The very fact that they *want* or think that they would like a particular piece of food is a reason for them to refuse it. Their lives, in brief, make no sense at all to any outward view, nor to themselves. Those who care for them may simultaneously pray for reason to return and acknowledge that their *craftiness*, at any rate, is unsurpassable. The only goal that seems to make sense of what they do is their own, slow, self-destruction – but they will resent and resist this observation, holding instead that their wellbeing depends on eating

[52] G.K. Chesterton *Fancies versus Fads* (Methuen: London 1923), p. 95.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

less, that they are perfectly well even when they cannot concentrate, or exercise, or eat.[53]

All this is agony, and it is understandable that one reaction must be to pray that the victim recover reason and purge herself of contradiction. But the victim is as likely to think that *purging* is indeed what she must do: that her condition requires a radical dissociation from all ordinary desires and thoughts. After all, most of us may acknowledge that we consume far more than 'our fair share' of earthly goods, that we have no absolute right to exist in the way we do, that Simone Weil was acting upon principle in refusing food beyond what was available to her kindred in occupied France, that saintliness and even philosophical consistency will often involve being gentle to others and fierce with oneself. 'Holy Anorexia' is an abiding pattern in human history:[54] if we admire, however grudgingly, the saints and ascetics of the past, how can we consistently object to modern anorexics, even if they read a rather different gospel? Who exactly is being 'illogical'? And is it exactly 'logic' that we wish these mad men and women to recover?[55] Like others, they 'contain multitudes'. Like others, they may live with 'contradictions' or invent subtle reasons why they aren't, after all, inconsistent. 'Cognitive Behaviour Therapy', in which the victim is encouraged to reason her way to truth, is a valuable resource (far better than invasive questions about how she 'feels', or amateurish detective work about her past). But it is not logical argument, but constant, attentive discipline that has most success in restoring 'reason'. What they have lost is not their reason, but their faith.

Maybe the point of logic lies in 'scientific' argument, in that area of our common life that transcends our ordinary confusions?[56] But even such elegant reasonings as Galileo's can be questioned. Galileo pointed out that the Aristotelian law of falling bodies (that heavier

[53] See Peggy Claude-Pierre *The Secret Language of Eating Disorders: The Revolutionary New Approach to Understanding and Curing Anorexia and Bulimia* (Doubleday: New York 1998) for an empathetic and helpful account of the condition.

[54] See Rudolph M. Bell *Holy Anorexia* (University of Chicago Press: Chicago 1986).

[55] 'The madman is not the man who has lost his reason. The madman is the man who has lost everything except his reason': Chesterton *Orthodoxy* op.cit, p. 19.

[56] See Robin Horton 'African Traditional Thought and Western Science', in *Africa* 37 (1967): 50–71 and 155–187 (also in Robin Horton *Patterns of Thought in Africa and the West: Essays on Magic, Religion and Science* (Cambridge University Press: Cambridge, 1993), pp. 197–258).

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

things fall faster) led to a contradiction: one two-pound weight must be falling faster than two one-pound weights, even when the two are bound together into one (that is, it must be falling faster than itself).[57] The proof is both elegant and persuasive – but of course it depends on the (admittedly plausible) assumption that magic does not work, that things do not behave differently simply by our calling them something different. And the rule that Galileo seemed to prove is itself contradicted in our everyday experience (in which the lighter object often falls more slowly). Only in a pure vacuum is the Galilean law, however logical, even approximately accurate.

It begins to seem as if the only context in which MTT actually helps will be the logic game. In such games as Mastermind or Su Doku we eliminate possibilities by showing that they lead to contradictions: one and the same spot would have to be occupied both by one colour or number and by another. But this is merely to accept the rules of the game: not everyone (as above) is willing to play such games, and most of us would acknowledge that life outside the game is a lot more complex!

It is probably necessary to add that my conclusion, that *Modus Tollendo Tollens* is not 'logically' compelling, in no way invalidates or refutes or disposes of the arguments that I have used before. In the first place, the anti-logician's use of 'logical reasoning' may be *ad hominem*: if the laws of logic lead to absurdity or confusion, it is the *logician* that should be troubled. To answer that the arguments against logic aren't compelling because they *depend* on logic for their efficacy is confused – as confused indeed, and for just the same reasons, as to suggest that *reductio ad absurdum* is self-contradictory, in that it *assumes* as premises the opposite of the conclusion. The point of a *reductio* is to show that certain premises lead to confusion, and so to suggest that they should be reassessed, reformulated or abandoned. In the present context, the anti-logician is proposing that the laws of logic, *on the logician's terms*, also lead to confusion, and should, for the same reason, be considered false (or at any rate, not true).

In the second place, the argument against supposing that the laws of logic, and *Modus Tollendo Tollens*, are absolutely compelling is – even on the logician's terms – compatible with our making use of all those laws. That they are not *absolutely* compelling does not show that they may not, sometimes or even usually, be persuasive. Not all swans are white – but it does not follow that none are.

[57] See Galileo Galilei *Dialogues concerning Two New Sciences*, tr. Henry Crewe & Alfonso de Salvio (Macmillan: New York 1914, reissued by Dover Publications 1952; 1st published 1638), pp. 63f.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

Accordingly, anti-logicians may use the laws *ad hominem*, and also use them when it seems to them that the particular application of the laws sounds plausible. Why not? This requires us to rely on judgement rather than the mechanical application of rules, but this is no surprise. As Aristotle said, we need *bendable* rules, and a sense of how best to apply them.[58]

The Far Side

So what is the moral? I have argued elsewhere that the fundamental truth of reason is that 'there *is* an Is',[59] and that what thus *is* cannot at the same time *not* be. By these ladders of logic, so Chesterton informed us, 'St.Thomas besieged and mounted the House of Man, ... climbed up the turrets and talked with angels on the roofs of gold'.[60] Attacking reason, as Chesterton also taught us, is 'bad theology'.[61] How then can I now entertain the thought that what *is* is also *not*, that 'the ladders of logic' may be, at the last, abandoned?[62]

I am, of course, in excellent company in suspecting this. The world of phenomenal experience 'rolls between being and non-being',[63] a region where thought does not wholly rule. Plato did not suppose that the laws of logic could be read off from our ordinary experience, and thence concluded, precisely, that that ordinary experience was less than absolute. In *this* world there is nothing that is just itself and not some other thing as well (and so nothing that is 'really' a self at all). In *this* world, for any opposites we find there is some 'inbetween'. Logic shows us a higher reality, on which this fluctuating world depends. Reality is – so Parmenides taught us – what can be thought *without contradiction* (and so is radically unlike the world of present appearances).[64] In Reality, there is no change, nor is there non-being. In Reality, there is no gap between fact and understanding, the intelligible and the intellect. In Reality, every truth is but one

[58] Aristotle *Nicomachean Ethics* 5.1137b30f.

[59] G.K. Chesterton *St Thomas Aquinas* (Hodder & Stoughton: London 1933), p. 199. See my *God, Religion and Reality* (SPCK: London 1998).

[60] ibid., p. 216.

[61] G.K. Chesterton 'The Blue Cross', *Father Brown Stories* (Cassell: London 1929), p. 27.

[62] See Sextus Empiricus *Against the Logicians* II.480f?

[63] Plato *The Republic* VI.567.

[64] This standard interpretation of Parmenides has been interestingly challenged by Peter Kingsley *Reality* (Golden Sufi Center: Inverness, California 2003).

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

theorem of the complete science, implying and implied by all the others. But that Reality is not what we now experience, nor should we be too quick to insist that we have even a notional grasp of it.

The rationalist's hope and conviction is that there *is* a realm where all seeming contradictions are resolved, a theory in which there are no vague or ambiguous concepts, no gaps, no overlaps. 'Is Truth one without a flaw?', enquired Boethius, confronted by seemingly intractable contradictions, 'this discord in the pact of things, this endless war twixt truth and truth'.[65] Our abiding faith in *unity* does not rest on present experience or ordinary belief. It cannot be made incontrovertible, as though nothing else made any sense at all. In the world of phenomenal experience, beautiful things may also be un-beautiful. In the world of Plato's Forms beauty wholly excludes 'un-beauty'. *Reality* contains no contradictions, but we have no more right to suppose that the world of our experience will contain no contradictions than to suppose that a long-running fictional saga contains no contradictions. We aren't surprised if such a saga contains contradictions:[66] what grounds our conviction that either the experienced world (which might, after all, be another and more complicated fiction) or even 'reality' is flawless?[67] Why *must* there be a single story? Platonists insist that everything that 'really is' must be unitary, but it could as readily be argued that Plato found a place for the flawed and temporal world of our common experience. Precisely because logic defines *another* world, it does not reign supreme in this. The first step towards a Platonic enlightenment may be through the tortuous and seemingly fallacious arguments deployed in his *Euthydemus*.[68] Ordinary discourse begins to dissolve, very much as the weird etymologies of his *Cratylus* disintegrate the very words we use.

[65] Boethius *Consolation of Philosophy*: *Medieval Latin Lyrics*, tr. Helen Waddell (Penguin: Harmondsworth 1952; 1st published 1929), p. 59.

[66] Another game is to concoct plausible explanations for the contradictions within, say, the Sherlock Holmes stories: is Dr J.H. Watson's first name John or James? John is the canonical version, but his wife addresses him as 'James'. Perhaps his second name was Hamish, and 'James' an affectionately mocking Anglicisation: Dorothy L. Sayers *Unpopular Opinions* (Gollancz: London 1946), pp. 148–51. Or perhaps Conan Doyle forgot.

[67] See Blake: 'Do what you will, this Life's a Fiction/ and is made up of Contradiction': *Complete Works* op.cit., p. 751.

[68] Most commentators assume that this is a satire on bad argument, or at best an incentive to make better arguments. Perhaps so, but Carl Levenson argues, persuasively, that it is the record of a sort of initiation, and the purpose of the 'arguments' to loosen one's ties to the familiar: *Socrates among the Corybantes* (Spring Publications: Connecticut 1999).

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

And we don't then *discover* that there are no contradictions in reality: we assume it, or 'remember' it.

> We (the undivided divinity operating within us) have dreamt the world. We have dreamt it as firm, mysterious, visible, ubiquitous in space and durable in time; but in its architecture we have allowed tenuous and eternal crevices of unreason which tell us it is false.[69]

Plato, and later Platonists, were convinced simultaneously that ordinary experience was *not* 'logical', and therefore not 'real', and that there was nonetheless a reality that did obey those laws. But they also saw that even the best and most coherent theory, and the intelligible, non-contradictory reality it describes, are less than absolute. Something 'on the far side of intellect and being'[70] matters more than anything the intellect contains. The intellect itself, indeed, exists in turning towards that 'something' (which is not one of a kind, nor any finite and definable entity). We discover order and beauty by seeking to see things, somehow, as unitary. But the order and beauty that we see, 'intelligible reality', is not self-explanatory. The ultimate theory does not say why anything exists at all (unless Anselm was correct). For such an explanation Platonists looked beyond intellect to what they called 'the One', which is absolutely other than anything that can be theorised – and at the same time is its source. A similar paradox occurs in Cartesian rationalism: on the one hand, Descartes sought that theory which resolved all contradictions; on the other, he acknowledged that the laws of logic bound *our* intellect, but not God's. Even modern materialists end in a similar bind, though perhaps to a different effect: until there are truth-speakers there are no truths, and the world as it was 'before mind came to be' was not then structured in the way that minds require. Maybe the earth was once without form and void, but there was then, precisely, no truth of the matter, nor any falsehood. Until there were creatures to experience time, there was no time in the sense we now intend: no events were either slow or fast, and there was no continuity between one 'time' and the next. Nor were there any determinate

[69] J.L. Borges 'Avatars of the Tortoise' (1939), in *Labyrinths*, eds., Donald A. Yates & James E. Irby (Penguin: Harmondsworth 1970; 1st published 1964), pp. 237–42: p. 242 (also in *Other Inquisitions 1937–1952*, tr. Ruth L.C. Simms (Washington Square Press: New York), pp. 114–20, reading – very oddly – 'tenuous, eternal interstices of injustice' rather than 'tenuous and eternal crevices of unreason').

[70] Plato *The Republic* VI.509b; see Plotinus *Enneads* VI.8 [39].16 et al.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press

identities. William James was only wrong in supposing that the original world could even be characterized as 'black and jointless':

> We may, if we like, by our reasonings, unwind things back to that black and jointless continuity of space and moving clouds of swarming atoms which science calls the only real world. But all the while the world we feel and live in will be that which our ancestors and we, by slowly cumulating strokes of choice, have extricated out of this, like sculptors, by simply rejecting certain portions of the given stuff. Other sculptors, other statues from the same stone! Other minds, other worlds from the same monotonous and inexpressive chaos! My world is but one in a million alike embedded, alike real to those who may abstract them. How different must be the worlds in the consciousness of ant, cuttlefish or crab![71]

That 'black and jointless continuity' is characterized by Plotinus as 'the darkness that the gods hate',[72] disguised for us by the beauty painted across it.[73] Looked at one way, the forms we see are 'golden chains' that bind the indifferent, undifferentiated Nothing.[74] Looked at another, they are the 'golden veil' placed between us and the One,[75] the source of light, life, intellect and being. What he says of the One he sometimes seem to say also of Matter, though One and Matter are placed at opposite ends of both the ontological and axiological spectrum. Each, in a way, is the power or the potential that underpins the actual world of being. The difference between them seems to rest in the different attitudes of those who look towards Matter and those who look towards the One. Whichever way we look, or whichever label is the better one, we are faced by mystery. But that is another story.

University of Liverpool

[71] William James *The Principles of Psychology* (Macmillan: New York 1890), vol.1, pp. 288f. I have drawn out some radical implications of this notion in 'Nothing without Mind', in *Consciousness Evolving*, ed. James H. Fetzer (John Benjamins: Amsterdam & Philadelphia 2002), pp. 139–60.

[72] Plotinus *Enneads* V.1 [10].2, 28, after Homer *Iliad* 20.65.

[73] Plotinus *Enneads* II.4 [12].5, 18

[74] Plotinus *Enneads* I.8 [51].15, 24ff.

[75] See Plotinus *Enneads* I.6 [1].9, 34ff.

https://doi.org/10.1017/S0031819108000296 Published online by Cambridge University Press