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RESPONSE TO JOAQUIN AND AGREGADO

Michael Shenefelt and Heidi White

Why do logical truths exist at all, and how can our belief in them be justified? In an earlier article ('What on Earth is Logic?', THINK *45) we contended that at least some aspects of logic must always be assumed, without argument, and that 'logic is a horizon beyond which none of our earnest and self-reflecting arguments can help us see'. We also contended that logical truths are independent of physical facts, of social rules, and of the anatomical features of our brains. Nevertheless, in a further article in this volume, Jeremiah Joven Joaquin and Jose Emmanuel Agregado have challenged our view. We respond to their criticisms.*

Response to Joaquin and Agregado

We are grateful to Professor Jeremiah Joven Joaquin and to Jose Emmanuel Agregado for their observations in the preceding article, and we do indeed deny that logical truths are the way they are merely because of how our brains happen to behave. We also deny that logic rests on the rules of language, or on the rules governing human conventions. Rules are intelligible in the first place only because they have logical implications, and so (we contend) a sense of logical implication is already presupposed in any attempt to lay down rules for language – or rules for behaviour. Instead, we think that a pre-existing sense of what is logical and what isn't makes possible the development of languages, social conventions, and anything else that depends on rules.

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Nevertheless, these issues seem to us by no means simple, and so we believe that Professor Joaquin and Mr Agregado make a valuable contribution to the discussion of such questions. In response to their criticisms, we would like to offer three points in reply.

1. The authors seem to argue in paragraphs 2–5 of their article *against* the notion that 'ordinary human beings have the capacity to distinguish the logical from the illogical'. And yet their apparent reason for thinking this is that human beings often make logical mistakes.

By analogy, human beings have a capacity to add and subtract numbers, and yet we know from experience that human beings often make mistakes in adding. Does it follow that they therefore have no such capacity? Shouldn't we say, instead, that human beings do indeed have such a capacity, but the capacity is one that can be improved and refined by study?

Our guess is that the authors actually mean to say something deeper here about the origins of logical intuitions in ordinary people. A common view, one that we happen to share, is that logic as a science builds on a pre-systematic sense of what hangs together logically and what doesn't, and that the systematic development of logic then seeks to sharpen and refine this sense. Perhaps the authors are challenging this widespread view (and they would have every right to do so), but in that case, how do they think logic as a discipline arises at all?

2. The authors say that there are actually many 'logics' today, many systems that describe validity and invalidity, and these systems sometimes give dramatically different results. From this fact, it might then seem to follow that there is actually no consistent set of logical intuitions among human beings that might be refined and sharpened in the first place. Analogously, there might also seem to be no consistent set of logical truths. Instead, so-called logical truths might seem more like mere opinions – inconsistent, arbitrary, and perhaps even a dime a dozen.

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This outlook has gained ground in the last half-century, especially with the development of non-classical logics, and we think it useful for readers to become aware of this outlook. Nevertheless, the outlook rests on greatly exaggerating the extent to which different logical systems disagree.

After all, these divergent logical systems exist in the first place only because they seek, in different ways, to deal with *special cases* – cases that have long bedevilled logicians, like the problem of inconsistent premises (the aim of paraconsistent logics), or the problem of interpreting conditionals (the aim of relevance logics, also called relevant logics, which focus on problems that go all the way back to the ancient world).

Nevertheless, the thing to remember is that there are countless *other* examples where all plausible logical systems must agree – since otherwise they would appear patently absurd. For example, if all dogs are droolers, and if Chester is a dog, then Chester is a drooler. Disagreements in *exotic* cases do nothing to establish any sort of widespread disagreement in obvious cases. More broadly, in logic as in arithmetic, there are still some right answers and some wrong answers, and divergent logical systems arise in just those areas where our ordinary intuitions seem to fail us.

3. There is a crucial difference between justifying logical truths and explaining why they exist at all – and we have certainly tried to defend claims in both of these areas. But we try to handle these different areas differently.

So far as justification goes, we think it is definitely possible to justify some logical truths by appeal to other ones, but we deny that it is possible to justify *all* of them simultaneously – not without circularity. And it makes no difference whether one calls the resulting circle 'vicious' or 'virtuous'. Either way, no such circle can be rationally persuasive. Why not? The best answer, perhaps, is to express the problem as a dilemma. If all elements of the circle depend for their acceptance on all the other elements – each element being justified by appeal to the rest – then there are only two possibilities: either all elements are accepted, or none are. If all are

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accepted, the circle is superfluous. (We are already persuaded.) If none are accepted, the circle is unpersuasive. (No one says, 'I am persuaded by your reasons, but I don't accept them'.) In other words, circular arguments can never rationally change our minds. Instead, either we have already embraced all the points to be proved by the circle, or we have embraced none of them – in which case we have no reasons for changing our minds.

As to explanation, in contrast to justification, our view is different. We are justified in believing that there is lightning, because we have seen it, but it is quite another thing to explain why lightning exists in the first place. Just so, we think some logical truths are justified because they seem intuitive and self-evident, and others are justified because they follow from intuitive ones. Nevertheless, it is another thing to explain why there should be any such truths at all.

We deny that logical truths exist in virtue of how the human brain is formed. On the contrary, human brains have their peculiar form, in part, because of the constraints of logic. Illogical brains don't normally survive to reproduce – and so logical constraints are part of the causal explanation for why human brains are the way they are. But it makes no sense to say that the constraints of logic cause human brains to have a certain form, and, simultaneously, that the existence of human brains causes the logical constraints to exist. The nature of the brain is a matter of neuroscience, but there is no such thing as a 'virtuously circular' explanation in science. When it comes to causes, we expect to see causal chains, not circles. (This same objection will also arise if we think in terms of the causes of human language, or the causes of social conventions – or of various other ways in which one might try to explain why logical truths exist. All other sciences presuppose logical truths, but none can actually 'explain' why those truths exist in the first place.)

Whoever is right about these matters, of course, the larger point is that these questions are philosophically important, because our logical sense, wherever it comes

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from, is vital to our survival and rationality. But why does this sense exist at all? And what is it really a sense *of*?

These are questions that every thoughtful person can ponder, and we are grateful to Professor Joaquin and to Mr Agregado for advancing the discussion. For those who wish to pursue these matters further, we have also considered a number of other objections to our outlook in our book *If A, Then B: How the World Discovered Logic* (Columbia University Press, 2013).

Michael Shenefelt and Heidi White both teach at New York University and are the authors of If A, Then B: How the World Discovered Logic*, published by Columbia University Press.* michael.shenefelt@nyu.edu

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