Leibniz, Principles, and Truth

Leibniz was a man of principles. Throughout his writings, one finds repeated assertions that his view is developed according to certain fundamental principles. Attempting to make sense of the different articulations of such principles provides for an interesting interpretive challenge. One finds in the secondary literature much discussion concerning the relation of two particular principles: the principle of contradiction [PC] and the principle of sufficient reason [PSR]. Leibniz remarks in several places that the PSR and the PC ground different sorts of truths. He claims that the PC grounds all necessary truths and that the PSR grounds all contingent truths. A natural puzzle arises, however, when we consider what grounds the PC and the PSR.

The principles are expressed as sentences and so it is natural to take them to be true sentences (grounding one's thought on falsities seems like a bad idea). But truths are either necessary or contingent. If the principles are necessary, then they are grounded in the PC, if they are contingent, they are grounded in the PSR. There is reason to believe that Leibniz does not think that the principles ground each other, and it is certainly bizarre to think that the principles ground themselves. Thus, on the assumption that the principles are truths, it follows that the principles are neither necessary nor contingent. But since every truth should be necessary or contingent, we've landed ourselves in something of a paradox.

Did Leibniz base his system on falsehoods? I don't think so. But I do think the source of this puzzle lies in the assumption that because the principles are described by sentences, the principles are therefore truths. If we reject this assumption, the puzzle is dispelled. My discussion here thus aims to provide room for interpreting Leibniz so that the principles are not truths. It's not clear yet what we can say positively about the nature of the principles, but we can work out constraints on a reasonable interpretation.

The paper will run as follows. The first section of this paper explores the variety of ways that Leibniz articulates his principles, making room for an interpretation according to which the principles are not truths. The next section provides a regimentation of the ways in which the principles ground truths and govern reasoning. In the process, we will see that proper attention to Leibniz' presentation of his principles and clearly distinguishing the different domains associated with each principle is essential to understanding how the principles relate to each other. The fourth section contains a conclusion, with some gestures towards a positive account of the nature of Leibniz’ principles.

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1 I would like to thank Ben Cleary, Hope Sample, and Juan Garcia for helpful conversation. Thanks go especially to Julia Jorati for helpful feedback and discussion.
2 Most of my references regarding Leibniz' own writing will be to the following texts: Leibniz, Gottfried Wilhelm, Philosophical essays, eds. Roger Ariew and Daniel Garber (Hackett Publishing, 1989); and Leibniz, Gottfried Wilhelm, The Shorter Leibniz Texts: A Collection of New Translations (Continuum, 2006). The former will be abbreviated by ‘AG’, the latter by ‘SLT’.
3 See, e.g.: Fifth Letter to Clarke, §9; Fifth Letter to Clarke, §10; Theodicy §174; On Freedom and Possibility, AG 19.
1. The Principles

If Leibniz viewed his principles as truths, one would expect him to express them with a specific formulation and to remain consistent on this formulation. He does not do so. I argue here that attending closely to the various ways that Leibniz expresses his principles suggests an interpretation according to which they are not truths.

So, just what are the Principle of Contradiction and the Principle of Sufficient Reason? Gonzalo Rodriguez-Pereyra and R.C. Sleigh have summarised a variety of different formulations. Here are six formulations of the PC:

(PC1) For any two contradictory propositions p and q, one is true and the other is false.

(PC2) For any proposition p, p is either true or false.

(PC3) For any proposition p, p is not both true and false.

(PC4) For any proposition p, if p implies a contradiction, then p is false.

(PC5) For any proposition p, if p is false, then not-p is true.

(PC6) For any proposition p, if p is an identical proposition, then p is true.

Several of these formulations are not even inter-derivable, let alone synonymous, and so it is curious why Leibniz labelled them all as the Principle of Contradiction. A plausible interpretation, offered by Rodriguez-Pereyra, is to take it that ‘Principle of Contradiction’ is a “name of whatever principle played a certain function in [Leibniz’] theory—roughly, a principle that, in his view, excluded true contradictions and served to ground mathematical and necessary truths in general”.

I think we can refine this hypothesis a little. We might be able to further characterise the relevant function as something like a reassurance that reasoning is a practice that does not lead one from truth to falsehood. The various articulations of the principle are then not mere instances or proposals for fulfilling this function, but representations of this background function. Call this rough characterisation the ‘functional interpretation’. Interpreting ‘Principle of Contradiction’ this way suggests that the principle is not a truth, because functional roles are not things that are true or false.

We must also make room for interpreting the PSR in a similar way. Leibniz gives at least three distinct formulations of the principle of Sufficient Reason:

(PSR1) Nothing occurs without a sufficient reason why it is so and not otherwise.

(PSR2) Nothing occurs without a cause.

(PSR3) Every truth has an a priori proof.

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Rodriguez-Pereyra argues that a functional interpretation of the PSR is less apt than it was for the PC, since there is evidence that Leibniz ran (PSR1), (PSR2) and (PSR3) together as identical claims:

... a principle of the need for giving a reason, to the effect that every true proposition which is not known per se has an a priori proof, or, that a reason can be given for every truth, or as is commonly said, that nothing happens without a cause. (A 6 4 1616/MP 75)

Viewing the PSR as just one proposition poses a problem for my desired interpretation, because it would naturally follow that the principle should be true. But it’s not clear that this is sufficient evidence to undermine a functional interpretation of the PSR.

Here’s why. It may well be true that Leibniz thought of the different formulations as equivalent, but his running them together could simply be evidence that Leibniz saw these different formulations as being much more perspicuously similar than those given for the PC. That is, he may have seen them as sufficiently similar formulations such that stating them together could serve to help better identify the appropriate background function in the theory. In this case, it would be a reassurance that a pursuit of an explanation for the way things are will be successful.

But there remain problems for the functional interpretation of the PSR. Firstly, Leibniz occasionally calls those things that fill the functional role ‘propositions’, and secondly, Leibniz frequently uses other principles to fill this sort of role. For example, The Principle of Perfection or the Principle of the Best at times take the role of the PSR as the ground of all contingent truths:

There are two primary propositions: one, the principle of necessary things, that whatever implies a contradiction is false, and the other, the principle of contingent things, that whatever is more perfect or has more reason is true. [A]ll truths concerning contingent things or the existence of things, rest on the principle of perfection.

If the functional role interpretation is to be plausible, we must make sense of this quotation.

I have several remarks to make in response to these problems. Let’s tackle the principles-as-propositions problem first. Firstly, the cited text is from early in Leibniz’ writings. This suggests that his labelling of the principles as propositions may be a quirk he later rejects. Having recognised the number of different ways in which he wanted to articulate the principle, he may have come to recognise that it was not propositions that he needed as the foundation for his reasoning. Secondly, Leibniz was known to be capable of holding many conversations at once of varying sophistication and levels of complexity. His remarks in Freedom and Possibility may not have reflected his more considered

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6 I view propositions as the bearers of truth. That is, something is propositional if and only if it has a truth value.

7 Related problems may emerge when attempting to interpret a distinction between a Principle of Contradiction and a Principle of Identity: Leibniz did not seem to distinguish these.

8 “On Freedom and Possibility”, (AG 19). See also Fifth Letter to Clarke, §9.
opinion on these matters, but may instead have simply reflected his attempts to make his position more easily comprehensible for a lay audience. My remarks here depend heavily on attention to the context in which Leibniz was writing. I will suggest in the next section that there are deeper philosophical reasons for rejecting Leibniz’ characterisation of the principles as propositions as the best characterisation of his view.

Now let’s turn to the problem that many principles are claimed to fill these functional roles. There is a sense in which Leibniz’ remarks about which principle plays the relevant functional role supports my intended interpretation. If Leibniz suggests that several different formulations of the principle best characterise the function for the purpose at hand, then the principles aren’t truths. That a particular functional role admits of different names and different characterisations is not problematic, but expected if that role is not truth apt; for were it truth apt there would be but one proposition that expresses it.

Moreover, it is remarks like the following (in two of Leibniz’ more considered texts) that suggests Leibniz thought of PC and PSR as occupying the same sort of fundamental position in his system:

> Our reasonings are based on two great principles, that of contradiction [...] And that of sufficient reason. 9

What Leibniz suggests here is that PC and PSR have the same sort of fundamental role in reasoning and argumentation. Of course, it is not clear that being equally fundamental tells us anything about the similarity in nature of the principles themselves. It is, however, an important question to ask just how much the two principles have in common given the apparent similarity of importance within the system. Given the level of importance and the position in which Leibniz places them with respect to the rest of his system, it seems natural to conclude that Leibniz intended that each principle ought to fulfil some particular function. This suggests an importance of the position in Leibniz’ system, a position which may lack straightforward articulation. Were it articulable in a single proposition, it seems that Leibniz would have done so, and remained consistent on such a formulation. Consequently, that Leibniz formulates a variety of principles in a variety of ways to fill this role suggests that what the PSR is really trying to get at is a particular function in Leibniz’ system.

Perhaps some things can be said about the presence of other principles in Leibniz’ texts that muddy the waters when it comes to determining what PC and PSR are. It certainly seems wrong to identify the Principles of Perfection and of the Best with the PSR, though their presence in Leibniz’ work and the similarities of the functions they play in his system deserve closer examination. I suggest that ‘Principle of Sufficient Reason’ names a functional role in Leibniz’ theory, a functional role that is supposed to complement that played by the PC. ‘Principle of Perfection’ is then another name of such a role; it is just associated with alternative attempts to articulate what the role is.

I have argued that we should view Leibniz as thinking that PC and PSR are principles that occupy specific functional roles in his system. In particular, I argued that

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9 *Monadology*, §§31-2 (AG 217). See also *Theodicy* §44.
because Leibniz articulates these principles in several incommensurable ways whilst consistently placing them in foundational locations in his system, we have reason to think that Leibniz did not view his principles as propositional (at least not single propositions). It remains to be argued whether or not Leibniz should have viewed his principles as propositions. The next section explores why the answer to that question is negative. My argument here serves only to open the possibility of interpreting Leibniz’ principles as non-propositional, suggesting that we might view them as occupiers of functional roles in his theory. I gesture towards a more detailed positive characterisation of this interpretation in section 3.

2. The Various Domains

I suggested in the introduction that a puzzle arose from viewing Leibniz’ principles as truths. In this section, I examine this puzzle, explore some aspects of the principles that are ambiguous, then discuss various features of this disambiguation as it bears on the goal of this paper.

We can regiment the puzzle introduced in the introduction, call it Modality, as follows:

a) PC and PSR are propositions.
b) Propositions are either true or false.
c) All necessary truths are grounded in the PC.
d) All contingent truths are grounded in the PSR.
e) All truths are either necessary or contingent.
f) The PC and the PSR are not grounded in either the PC or the PSR.

(b) is just (PC2), which Leibniz evidently endorsed. (c) and (d) are claims that Leibniz certainly held throughout his career (modulo claims in the previous section about whether being grounded in the principle of the best or of perfection amounts to being grounded in the PSR). I take (e) to be uncontroversial. (f) is more controversial, but I do not think Leibniz would be inclined to reject it given his remarks about fundamentality. Thus, though (a) is a natural assumption to make, I argue that it should be rejected in order to avoid this inconsistency.

A related puzzle, call it Fundamentality, arises by combining (a) and (b) with the following claims:

g) There must be a sufficient reason for the truth of PC and PSR.
h) If there is a sufficient reason for a truth, then that truth is not fundamental.
i) PC and PSR are fundamental.

(g) results from an application of (PSR1). (h) seems to be a reasonable interpretation of what it means to be fundamental, particularly if fundamentality consists, at least in part, in a failure to be demonstrable or in a lack of grounds.10 Moreover, with regard to (i), it

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10 Given PSR3, this connection seems obvious. However, there is evidence that Leibniz would have rejected such a formulation of the PSR at other times in his life. See Sleigh (1983).
seems reasonable to interpret Leibniz as committed to the claim that the principles are fundamental.\footnote{See Rodriguez-Pereyra, “The Principles,” §3 for discussion.}

Both of these puzzles are problematic. I argue that the inconsistencies are best resolved by rejecting (a) (though I allow that the second puzzle may be resolvable some other way). Before we can argue for this, we must get clear on, what I will call, the “domains” associated with each principle.

I distinguish between what it means for a principle to apply to, to entail, and to ground certain objects, as well as what it means for the principles to legitimise certain inferences. I therefore distinguish between four sorts of domains with which the principles can be associated (I will for the time being remain silent about the nature of the elements of the domains besides their relevant association with the principles).\footnote{Such a distinction expands upon that already acknowledged in R. C Sleigh, “Leibniz on the Two Great Principles of All Our Reasonings”, Midwest Studies in Philosophy 8, no. 1 (1983), p.195 and Rodriguez-Pereyra, “The Principles”, p.4.}

1. The first sort of domain is the collection of things to which the principle applies, the things of which the principle is true. Call this the ‘application domain’.
2. The second domain is the collection of things that are derivable or logically provable from the principle, the things that can be reduced to the principle. Call this the ‘theorem domain’.
3. The third domain is the collection of things that depend upon the principle for their being the case, the things whose truth or fact-hood is grounded in or obtains in virtue of the principle. Call this the ‘grounding domain’.
4. The fourth domain is the collection of inferences or deductions that are valid in virtue of the principle. Call this the ‘inference domain’.

Note that a domain associated with the PSR may be distinct from the domain associated with the PC in the same way, or the domains may be identical.

Let us take a closer look at the extension of each domain for each principle, as well as the nature of the elements therein. In the process, we shall attempt to see which domains can be distinguished from each other and which are best thought to be identical. This should serve to help better understand the nature of the principles themselves.

Note that the range of the quantifiers in most statements of the principles is over all propositions. Hence, it seems plausible to think that the application domain for each principle is the same: they are both true of all propositions.\footnote{Unfortunately, space precludes me from providing substantial discussion about the status of this fourth domain. It should be apparent, however, that the domain is not trivial: an inference from “a is a” to “’a is a’ is true” is valid in virtue of the PC.} Under the assumption that the PC and the PSR are propositions, then, it naturally follows that the principles

\footnote{One might want to argue that Leibniz’ quantifiers are implicitly restricted, so that the principles lie outside the scope of their own application domains. It strikes me that such an interpretation is ad hoc, and raises questions about what other sorts of restrictions on the quantifiers might also be in place.}

\footnote{One might think that the PSR is more general, since it is sometimes formulated as applying to facts or objects as well. However, it certainly seems reasonable to apply certain formulations of the PC to facts and objects, too. For example, certainly no fact both obtains and doesn’t obtain simultaneously, nor is any object both thus and so and not thus and so simultaneously. Because of this I think one can reasonably take the application domains for each principle to be the same, though textual evidence would be required to fully substantiate this claim. Fortunately, I don’t think this matter deeply affects my argument.}
apply to themselves. So, by (PC2), the principles are both either true or false. Presumably, if they are either, they are true. Then, by applying (PSR1), there is sufficient reason for the principles’ truth.\textsuperscript{16}

Thus we seem to have concluded that, if the principles are propositional, then the principles are true and there is sufficient reason for their being true. Thus neither \textit{Modality} nor \textit{Fundamentality} seems resolvable by rejecting (b) or (g). If we hope to resolve \textit{Fundamentality} without rejecting (a), we need to get clearer on what it means for a principle to be fundamental. Relatedly, if one hopes to resolve \textit{Modality} without rejecting (a), one must get clearer on the fundamentality claim in (f).

Though Leibniz does not explicitly state it, there are numerous ways in which he articulates the principles as fundamental:\textsuperscript{17} he claims that the PC is foundational for mathematics,\textsuperscript{18} he claims that our reasoning is \textit{based} on the principles and that we make judgements \textit{in virtue} of the principles,\textsuperscript{19} things \textit{owe their existence} to the principles,\textsuperscript{20} necessity \textit{depends upon} the PC,\textsuperscript{21} and that truths \textit{rest} on the principles.\textsuperscript{22}

A lot is said about how the principles bear these relations to other things, but little is said in the other direction. We can presume, however, that because Leibniz frequently introduced the principles in tandem that they do not bear any of these relations to each other.\textsuperscript{23} Moreover, because these principles are viewed as primary, or as the starting point of reasoning and argumentation, we can assume that the principles are not borne these relations by anything else (i.e. they do not rest on anything else). It strikes me as nonsensical to say that each principle rests on or depends on itself.\textsuperscript{24} So, plausibly, the principles are groundless; they do not rest on anything so ever. As Rodriguez-Pereyra puts it, the principles are “ungrounded grounders.”\textsuperscript{25}

Leibniz talks of the PC as being that upon which all necessary truths depend or rest and the PSR as being that upon which all contingent truths depend or rest.\textsuperscript{26} It is important to note that this talk of dependence is an association of the principles with their respective \textit{grounding domains}. For instance, Mathematical truths are necessary, but (many) nevertheless have a sufficient reason for their being true. Thus (many) mathematical truths are in the application domain of the PSR because the PSR is true of them. This does not mean that their truth depends upon the PSR. Similarly, there may be

\textsuperscript{16} It is entirely obscure what the relevant sufficient reason would be like: what could be the sufficient reason for everything having a sufficient reason for the way it is? There are several places where Leibniz seems to provide reason for the PSR, but all seem rather circular or fallacious. Proper consideration of this issue goes beyond the scope of this paper, but see Robert Merrihew Adams, “The Logic of Countefactual Nonidentity,” in \textit{Leibniz: determinist, theist, idealist}, (Oxford University Press on Demand, 1994), p.68 for discussion.

\textsuperscript{17} See Rodriguez-Pereyra §3-4 for related discussion.

\textsuperscript{18} Second Letter to Clarke, §1

\textsuperscript{19} \textit{Monadology} §§31-2 (AG 217).

\textsuperscript{20} Fifth Letter to Clarke, §9

\textsuperscript{21} Fifth Letter to Clarke, §10

\textsuperscript{22} On Freedom and Possibility, (AG 19)

\textsuperscript{23} This is somewhat controversial, see footnote 14.

\textsuperscript{24} A lot more should be said here in defence of this rejection. There may be a plausible interpretation of the principles as resting on themselves in virtue of their self-evidence. Such an interpretation, however, still raises issues about the modal status of the principles: it implies that the PSR is contingent. Absent extra space, I set aside these issues and take it that self-grounding is implausible.

\textsuperscript{25} Rodriguez-Pereyra, §4.

\textsuperscript{26} “On Freedom and Possibility,” (AG 19) and “Concerning the Origin of Evil,” §14 are two such examples.
certain necessary truths that are derivable from the PSR which are not true in virtue of the PSR. Take the existence of God, for example. Leibniz takes it that God’s existence is derivable from the PSR, but His existence does not depend upon there being a sufficient reason that this is so.

Given these remarks, it should be apparent that we cannot resolve Modality by denying (f). Fundamentality is trickier, because we have wiggle room in interpreting what it means for something to have sufficient reason. Given the various articulations of the PSR presented in Section 1, we might think that the existence of a sufficient reason for some \( p \) means that \( p \) is grounded in that sufficient reason. But, as I have shown in this section, a proposition \( p \) that is grounded in the PC may nevertheless have sufficient reason for its truth by virtue of it being deducible from the PSR. Consequently, there may be room to manoeuvre one’s way out of Fundamentality without rejecting (a). It is still clear, however, that the puzzle can be resolved by rejecting (a).

I have argued that the interpretive puzzle raised at the beginning, as well as a related puzzle, gives us reason to reject the assumption that Leibniz’ principles are truths (by rejecting that they are propositions). In the process, I disambiguated various domains to which the principles have been said to relate, and have shown how this disambiguation helps clarify problems that arise in interpreting Leibniz’ principles.

4. Gestures Towards a Positive Account

The foregoing discussion should serve to highlight the issues that arise from too simplistic a reading of Leibniz’ principles. I argued in section 1 that Leibniz is perhaps more charitably read as thinking of his principles in the same way, such that both PC and PSR are principles that play important functional roles within his system (the character of which I loosely gestured towards). In section 2, I raised some issues for ways in which the principles could be seen to be self-related, as well as some thoughts as to why the relations of the principles to relevant domains can be more complex than is commonly taken to be. I want to suggest here something like a positive account as to what the principles could be, if not true propositions.

Building on my positive remarks in section 1, and recognising the relations the principles bear to argumentation and reasoning, one plausible candidate for the status of the principles is that they are *rules of inference*. Interpreting them as such allows us to plausibly deny that they are truths, but affirm that they are foundational in reasoning. But there are reasons to think that this does not capture the unique role that the principles play in Leibniz’ system; it does not clearly capture how the principles could form the grounds for truths, for instance.

Consequently we might look to another characterisation of their role in Leibniz’ system that does justice to the intuitions behind the rules-of-inference interpretation. Building on my suggested interpretation of the principles’ functional roles in section 1, we might view the function played by the PC as a guarantee that our reasoning aims at

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27 This characterisation has been considered and rejected by Sleigh, “Leibniz,” 193.
truth, and that the function played by the PSR is that truth admits of rational inquiry. An anachronistic, but I think helpful, analogy that we might draw here is from soundness and completeness results in contemporary logic. A soundness result for a proof system guarantees that proofs recognised by the system are valid, whereas a completeness result guarantees that every valid argument admits of a proof. We see the same sort of dichotomy in Leibniz’ principles, only that the principles apply to reasoning simpliciter and not merely to some restricted proof system.

One could argue that the pursuit of reasoning depends upon the assurance that truths have reasons for their being thus and so, and that when conclusive reasons are reached we are assured that we have discovered truth. Hence there is a dependence of reasoning on a background assurance of the existence of sufficient reasons for things being the case – that certain truths suffice to make other truths obtain – i.e. some form of the PSR. Similarly, reasoning can be said to depend on a background assurance of consistency – that reasoning is a practice that does not lead one from truth to falsehood – i.e. some form of the PC.

This relation of background assurance seems most naturally interpreted as something like a relation of presupposition. Viewing it this way suggests that rational inquiry presupposes and hence is conditioned by the principles. So, we may view the principles as conditions on the aims and coherence of rational inquiry.

This is by no means a complete account. However, it should serve to motivate discussion for further scrutiny into Leibniz’ use of these principles. Certainly Leibniz’ employment of them was highly sophisticated and could well inform today’s research in philosophical logic.

Bibliography


My presentation of them in this way is inspired by Sleigh (1983), in which it is shown how the principles can plausibly be seen as “contained in the definition of truth”.