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Facing Facts, by Stephen Neale. Oxford: Clarendon Press, 2001. Pp. xv + 254. H/b £25.

This book consists of a detailed, careful and thorough examination of the so-called slingshot argument. To be sure, the slingshot comes in different versions – but why devote a whole book to the slingshot? Because it is a serious argument which allegedly has an enormous consequences: (i) that if there are any facts, there is only one of them, and (ii) that no connective having certain features can be non-extensional – the first consequence is taken to be a consequence of the second. Given the number, importance and influence of non-extensional logics and theories postulating facts, whether to account for truth, causation, modality, change or whatever, the slingshot cannot pass unexamined.

There are (at least) two versions of the slingshot, one that figures in the work of Davidson, Quine and Church (which uses a principle about the substitution of logically equivalent sentences) and one that can be reconstructed from things Gödel said (which uses a weaker principle about the substitution of a subclass of logically equivalent sentences). Neale examines the details of the functioning of both slingshots, examines how adopting different theories of definite descriptions affects what the slingshots prove, and evaluates those alleged consequences of the slingshots.

The book consists of eleven chapters and one appendix. The first seven chapters are, in different ways, preparatory. While chapter 1 is introductory, chapters 2, 3 and 4 examine features of the philosophies of Davidson, Frege and Russell respectively. Chapter 5 presents Gödel's slingshot as Neale reconstructs it from Gödel's short remarks in a footnote. Chapters 6 and 7 are rather technical: their purpose is to discuss certain inference principles and logical notions ('extensional', 'scope') that will be used in the subsequent chapters.

In Chapter 8 the real work begins: there Neale sets out Davidson's slingshot in the form of a deductive proof. The same is done to Gödel's slingshot in chapter 9. Neale argues that this proof delivers an exacting constraint on non-extensional logics.

To get the reader a sense of what Gödel's slingshot is, let me give an abbreviated version of what Neale presents as such. Let us say that a connective is $+\iota$-conv if it allows the mutual substitution <u>salva veritate</u> of sentences like 'Fa' and 'a = $\iota x(x = a \ \& \ Fx)$'; and let us say that a connective is $+\iota$-subs if it allows the mutual substitution <u>salva veritate</u> of sentences differing only in that they contain different definite descriptions uniquely applying to the same thing. Then let '@' be an arbitrary connective which is both $+\iota$-conv and $+\iota$-subs; let 'Fa' be an arbitrary true sentence; then we have:

1.	Gb	Premiss
2.	a ≠ b	Premiss
3.	@(Fa)	Premiss
4.	@(a = $\iota x(x = a \ \& \ Fx)$)	3, @+ι-conv
5.	@(a = $\iota x(x = a \ \& \ x \neq b)$)	2, 4, @+ι-subs
6.	@(a ≠ b)	5, @+ι-conv
7.	@(b = $\iota x(x = b \ \& \ a \neq x)$)	6, @+ι-conv
8.	@(b = $\iota x(x = a \ \& \ Gx)$)	1, 7, @+ι-subs
9.	@(Gb)	8, @+ι-conv

Strictly speaking this shows that if a connective is $+\iota$-conv and $+\iota$-subs then it allows the mutual substitution <u>salva veritate</u> of truths for truths – but as Neale carefully shows (pp. 185-6) one can prove the stronger result that if a connective is $+\iota$-conv and $+\iota$-subs then it is fully extensional. By putting Gödel's slingshot in this abstract way Neale is able to abstract from the peculiar features of any connective in particular and conclude in full generality that being $+\iota$-conv and $+\iota$-subs entails being extensional (he also puts Davidson's slingshot in such an abstract way (p. 173), thereby showing that being +PSLE – that is, allowing mutual substitution <u>salva veritate</u> of logically equivalent sentences – and being $+\iota$-subs entails being extensional). That no non-extensional connectives can be both $+\iota$-conv and $+\iota$-subs is what Neale calls the <u>Descriptive Constraint</u> on non-extensional logics (p. 186).

Gödel's slingshot is more powerful than Davidson's because Gödel's uses a weaker assumption than Davidson's, for although that a connective is +PSLE entails that it is +ι-conv, that it is +ι-conv does not entail that it is +PSLE. Since Davidson's slingshot requires substitution of logically equivalent sentences containing definite descriptions, the validity of the argument depends on the semantics of definite descriptions. Given that in chapter 8 Neale argued that on a Russellian account of descriptions the argument establishes something weaker than what Davidson and Quine were trying to show, namely the impossibility of facts and non-truthfunctional connectives, chapter 10 is about the impact that a referentialist theory of descriptions could have on the slingshot. Neale examines different versions of Fregean and Strawsonian theories of descriptions, and Hilbert and Bernays' theory.

The Descriptive Constraint on non-extensional logics provides a Descriptive Constraint on theories of facts, namely that the fact identity connective 'the fact that ϕ is identical to the fact that …' cannot be both +ι-conv and +ι-subs (p. 185). For if such a connective is both +ι-conv and +ι-subs, then it is extensional and, if so, there is at most one fact. So we have a test of adequacy for theories of facts. Chapter 11 is an exploration of these metaphysical consequences of the slingshot. Neale argues that Russell's theory of facts passes the test, for on that theory the fact identity connective is neither +ι-conv nor +ι-subs. This is because Russell takes facts to be complex entities composed by particulars and properties. So the fact that $a = (\iota x)(x = a \,\&\, Fx)$ contains properties not present in the fact that Fa and, given Russell's Theory of Descriptions, the facts that $a = (\iota x)(x = a \,\&\, Fx)$ and $a = (\iota x)(x = a \,\&\, Gx)$ also contain different properties (p. 204).

But the situation is not so clear with other theories of facts. For Wittgenstein the fact identity connective is +ι-conv and +PSLE but it is not clear whether it is +ι-subs. Neil Wilson takes the fact identity connective to be +ι-subs but it is not clear whether he takes it to be +ι-conv or +PSLE. And Neale argues that Austinian theories of facts are likely to succumb to the slingshot (pp. 205-09).

The book finishes with an appendix that discusses the Russellian notion of 'incomplete symbols', where Neale discusses worries on incompleteness and contextual definition that appear to have led Gödel astray in his assessment of Russell's Theory of Descriptions.

Let me just note a couple of typos. In page 103, line 3 '(25b)' should read '(25a)' and in line 5 '(25a)' should read '(25b)'. In page 132, lines 3-4 from bottom,

'the number $\underline{x}$ such that $((\underline{x} = 1) \bullet \phi)$ or $((\underline{x} = 0) \bullet \sim\phi)$' should read 'the number $\underline{x}$ such that $((\underline{x} = 1) \bullet \phi)$ or $((\underline{x} = 0) \bullet \sim\phi) = 1$'.

Facing Facts is a rich book that contains many interesting and provocative assertions and theses. Here I would like to make just a couple of critical points on some things Neale says. One of these is Neale's assertion that logical equivalence is not the real issue when it comes to the force of slingshot arguments (p. 223). This is presumably because since Gödel's more powerful slingshot does not invoke logical equivalences, what matters is whether a certain connective is $+\iota$-conv or $+\iota$-subs. This is why Neale claims that the task for the fact theorist, apart from doing justice to the semi-ordinary and semi-philosophical idea of what facts are and permitting facts to do some philosophical work, is to give a theory according to which the fact identity connective is not both $+\iota$-conv and $+\iota$-subs (p. 223).

But whether what really matters is whether the relevant connective is $+\iota$-conv or $+\iota$-subs depends on something Neale does not discuss, namely <u>what is a slingshot argument?</u>

Neale says that a slingshot argument is a <u>collapsing</u> argument, where a collapsing argument is one that purports to show that 'there are fewer items of a given kind than might be supposed previously' (p. 9). Neale is not equating slingshot arguments and collapsing arguments, he is just saying that being collapsing arguments is a necessary feature of slingshot arguments. If Neale had equated slingshots with collapsing arguments he would have been wrong, for there are many collapsing arguments that are completely unlike Davidson's and Gödel's slingshots (think of the traditional arguments for monotheism, for instance).

So what is a slingshot argument? What makes Davidson's and Gödel's slingshots interesting is that they are collapsing arguments based on the fact that every connective with certain logical features must allow the substitution <u>salva veritate</u> of truths for truths (NB: those features make the relevant connectives fully extensional, but what makes the arguments collapsing is that connectives with those features allow substitution <u>salva veritate</u> of truths for truths – the full extensionality of the connectives, i.e. that they also allow substitution of falsehoods for falsehoods is not required to make the arguments <u>collapsing</u>). Thus I take it that slingshots are any arguments purporting to show that there are fewer items of a given kind than might be supposed previously on the basis of a general argument to the effect that a connective

with certain logical features must be extensional, or at least it must allow substitution <u>salva veritate</u> of truths for truths.

But then consider the following argument, where '@+conj' means that @ allows the substitution <u>salva veritate</u> of a conjunct for a true conjunction and '@+disj' means that @ allows the substitution <u>salva veritate</u> of a true disjunct for a disjunction (NB: extensional connectives are no less +conj and +disj than they are +ι-conv and +ι-subs):

1.	p	Premiss
2.	q	Premiss
3.	@(p)	Premiss
4.	@(p & (q ∨ ¬q))	3, @+PSLE
5.	(q ∨ ¬q)	Logical Truth
6.	@(q ∨ ¬q)	4, 5, @+conj
7.	@(q)	2, 6, @+disj

It is plausible to think that facts are identical if and only if they make true the same propositions. But then the above argument is a slingshot if one lets '@(…)' be the truthmaker connective 'the fact that p is a truthmaker of the proposition that …'. For 'q' in the above argument stands for any <u>true</u> sentence. So the generalized conclusion of this is that every fact makes true every proposition, and so there is only one fact. (Note that even without the claim that facts are identical if and only if they make true the same propositions, this argument is extremely damaging for any sensible truthmaker theory, since every sensible truthmaker theory will postulate that some propositions are made true by different facts – indeed this argument is very damaging even for those truthmaker theories that take some truthmakers to be entities other than facts).

My point is not to argue that facts are identical if and only if they make true the same propositions, or that the connective 'the fact that p is a truthmaker of the proposition that …' is +PSLE, +conj and +disj. It is sufficient that these claims have some degree of plausibility, as I think they have. For my point is that when it comes

to the force of a slingshot argument what matters need not be whether the relevant connective is +ι-conv or +ι-subs. The descriptive constraint that the above slingshot imposes on the truthmaker theorist is that the truthmaker connective must fail to be +PSLE, or +conj or +disj.

Note that if a connective is +PSLE then it is +ι-conv and so if a connective is not +ι-conv, then it is not +PSLE. So someone could insist that even in the case of this slingshot it is relevant whether the connective in question is +ι-conv. But the slingshot above can be reformulated invoking a notion tighter than mere logical equivalence. Thus one might demand of the truthmaker connective not that it be +PSLE but that it be merely +PSLE*, where a connective is +PSLE* if it allows the mutual substitution <u>salva veritate</u> of sentences like 'p' and 'p & (q ∨ ¬q)'. When so reformulated, whether the connective is +ι-conv it does not matter any longer.

Note also that this slingshot does not force fact theorists, as Neale claims <u>Godel's slingshot</u> does (p.223), to say something about the semantics of definite descriptions. For there is nothing about descriptions in this slingshot. But although this slingshot does not force the fact theorist to say anything about descriptions, saying something about them might be relevant in this context. For instance, by using Russell's Theory of Descriptions a fact theorist could deny that the truthmaker connective is +PSLE. For 'p' and '$(\iota x)(x = a) = (\iota x)(x = a \& p)$' are logically equivalent. But on Russell's Theory of Descriptions, '$(\iota x)(x = a) = (\iota x)(x = a \& p)$' is short for (*):

$$(*) \ (\exists x)((\forall y)(y = a \ \& \ p \ \text{iff} \ y = x) \ \& \ (\exists z)((\forall w)(w = a \ \text{iff} \ w = z) \ \& \ x = z))$$

But 'p' and (*) have different truthmakers, for *a*, whatever it may be, is a truthmaker of (*) but it need not be a truthmaker of 'p'. (Of course the truthmaker theorist could reject that the truthmaker connective is +conj or +disj, or could reject that it is +PSLE without saying anything about descriptions).

So here is a slingshot that does not satisfy some of the things Neale says about them.

But it might be said that what has passed under the name of 'slingshot' in the literature are different versions of arguments that involve equivalence conditions on terms and sentences, while the above argument involves an equivalence condition on

sentences only. True, and one is free to reserve the honorific title 'slingshot' for whatever arguments one pleases – but I fail to see what is so relevant in being an argument that involves equivalence conditions on terms and sentences as opposed to being an argument that involves an equivalence condition on sentences only. The reason why Davidson's and Gödel's slingshots are philosophically relevant, and the reason why fact theorists in general should take them seriously, is not that they involve equivalence conditions on terms and sentences, but that they are arguments purporting to show that there is at most one fact on the basis that a connective with certain logical features must be extensional or at least allow substitution salva veritate of truths for truths. And this is a feature shared by the above argument, even if it does not involve an equivalence condition on terms.

Now Neale clearly limited the scope of his work to Davidson's and Gödel's slingshots (or variants thereof) – and there is nothing wrong with that. And so, it might be said, when he says that logical equivalence is not the real issue when it comes to the force of slingshots he is saying something true because he is referring only to Davidson's and Gödel's slingshots (and variants thereof). True, but if restricted in this way, Neale's assertion comes close to triviality. For all it boils down to is that logical equivalence is not the real issue when it comes to the force of a pair of arguments, one of which involves logical equivalence and the other a tighter notion of equivalence. But Neale made his assertion when enumerating the main results of his book, which gives reason to think that he meant with it a substantive claim. However, when taken as a substantive and more general claim his assertion is not true, as we have seen.

The other comment I would like to make has to do with whether avoiding the slingshot commits the fact theorist to an ontology of properties or universals. Given that Russell avoids the slingshot, among other things, by making properties constituents of facts, Neale finds tempting to draw the moral that if one wants non-collapsing facts, one needs properties as components of facts; he suspects this will be proved in due course (210).

But I think this suspicion of Neale's is wrong. One can have a structuralist conception of facts without making properties or universals constituents of facts. I have proposed a view like that (Resemblance Nominalism, Oxford: Clarendon Press, 2002, pp. 85-7). I take facts to be ultimately entirely constituted by resembling particulars (that they are constituted by resembling particulars does not mean that

resemblance is a further constituent of facts – if that were the case facts would not be ultimately <u>entirely</u> constituted by resembling <u>particulars</u>). So facts are identical if and only if they have the same constituents.

But doesn't this resemblance nominalist conception of facts succumb to the slingshot? No, for given Russell's Theory of Descriptions, the facts that a = (ιx)(x = a & Fx) and a = (ιx)(x = a & Gx) contain different constituents, as the former contains all F-particulars but not all G-particulars but the latter contains all G-particulars but not all F-particulars (I am assuming <u>possibilia</u>, of course). So the fact identity connective is not +ι-subs if one combines Resemblance Nominalism with Russell's Theory of Descriptions. And it is not +ι-conv if one combines it with a referentialist semantics of definite descriptions – for then the fact that a = (ιx)(x = a & Fx) will contain only one particular, a, while the fact that Fa will contain all other F-particulars. (It could perhaps be argued that even combined with Russell's Theory of Descriptions Resemblance Nominalism does not make the fact identity connective +ι-conv).

<u>Facing Facts</u> is a lucid and penetrating discussion of a simple but powerful argument that has attracted the attention of the most brilliant philosophical minds of the Twentieth Century. It is strongly recommended to all those who are interested in facts – whether as truthmakers, causal <u>relata</u>, objects of propositional attitudes, etc – and to all those who are interested in non-extensional logics.[1]

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