Nuno Maia

Text 1) "[...] Frege's formalisation does capture our naïve notion [of set]. At any rate, I am not aware of any substantial criticism – other than it is inconsistent – to the effect that it does not."

(in Priest, G., 2006, In Contradiction, Oxford University Press)

Text 2) "By an aggregate, we are to understand any collection into a whole M of definite and separate objects m of our intuition or our thought."

(in Cantor, G. 1895, *Beiträge zur Begründung der transfiniten Mengenlehre*, Mathematische Annalen 46, pp. 481-512)

Text 3) "THEOREM. Every set *M* possesses at least one subset M_0 that is not an element of *M*.

Proof. [...] If now M_0 is the subset of M that, in accordance with Axiom [of Separation], contains all those elements of M for which it is not the case that $x \in x$, then M_0 cannot be an element of M. For either $M_0 \in M_0$ or not. In the first case, M_0 would contain an element $x = M_0$ for which $x \in x$, and this would contradict the definition of M_0 . Thus M_0 is surely not an element of M_0 , and in consequence M_0 , if it were an element of M, would also have to be an element of M_0 , which was just excluded.

It follows from the theorem that not all objects x of the domain D can be elements of one and the same set; that is, <u>the domain D is not itself a set</u>, and that disposes of the Russell antinomy so far we are concerned."

(in Zermelo, E. 1908, *Untersuchungen über die Grundlagen der Mengenlehre I*, Mathematische Annalen 65, pp. 261-281).

Text 4) "In order for there to be a variable quantity in some mathematical study, the 'domain' of its variability must strictly speaking be known beforehand through definition. However, this domain cannot itself be something variable, since otherwise each fixed support for the study would collapse. [...] <u>Thus every potential infinite, if it is to be applicable in a rigorous mathematical way, presupposes an actual infinite."</u>

(in Cantor, G., 1887, *Mitteilungen zur Lehre vom Transfinitten 1, II*, Zeitschrift für Philosophie und philosophische Kritik 91)

Text 5) "Now, what is a set? It cannot be the extension of "() is set", since this extension would be a universal set [...] but there is none. So in standard set theory there is no set/extension corresponding to our usage of "() is a set". [...] <u>Standard set theory is using a fundamental notion that cannot be explained by this theory! Or uses a fundamental notion that is incoherent given that very theory!</u>

(in Bremer, M. 2005, *An Introduction to Paraconsistent Logics*, Frankfurt a.M.: Peter Lang)

Text 6) "There seems to be no reason why classes could not be elements of (some) other classes. The general inhibition to elementhood seems to be an exaggeration." (Ibid.idem)

Text 7) "[...] once having admitted proper classes as objects, clearly individuated by means of unambiguous identity conditions, what can we put forward as an argument against accepting collections of such objects? [...] <u>Surely the idea of a definite thing</u> which cannot be put into collections with other things is completely unintelligible."

(in Mayberry, J., 1977, *On the Consistency Problems of Set Theory*, British Journal for the Philosophy of Science 28, pp. 1-34)

Text 8) "[...] assuming the cumulative hierarchy to be the correct account of set, the semantics of set theory [...] becomes impossible to specify in a coherent fashion." (in Priest, 2006)

Text 9) "[When defining logical consequence] one now talks about any interpretation. And the domain of interpretation is arbitrary. It may be a set of arbitrary high rank. So the supposed definition talks about all sets of an arbitrary high rank (i.e. of the completed hierarchy), but in ZFC we can never get all sets! <u>So it seems that our</u> <u>understanding of consequence cannot be modelled by ZFC.</u>" (in Bremer, 2005)

Text 10) "Given a property φ and a function δ , such that, if φ belongs to all members of u, $\delta(u)$ always exists, has the property φ , and is not a member of u; then the supposition that there is a class Ω of all terms having property φ and that $\delta(\Omega)$ exists leads to the conclusion that $\delta(\Omega)$ both has and has not property φ ".

(in Russell, B., 1903, *Principles of Mathematics*, Allen and Unwin)

Text 11) "If two paradoxes are of different kinds, it is reasonable to expect them to have different kinds of solution; on the other hand, if two paradoxes are of the same kind, then it is reasonable to expect them to have the same kind of solution. [...]

The only satisfactory uniform approach to all these paradoxes is the dialetheic one, which takes paradoxical contradictions to be exactly what they appear to be."

(in Priest, G. 1995, Beyond the Limits of Thought, Cambridge University Press)