

Why is the Russell Paradox necessary?

Source: <http://sci.tech-archive.net/Archive/sci.math/2007-03/msg01015.html>

- *From:* "Calvin" <crice5@xxxxxxxxxxxxxxxx>
 - *Date:* 5 Mar 2007 19:31:57 -0800
-

In ordinary set theory, in which Russell's Paradox is used to show that assuming the existence of a set of all sets leads to that paradox, ie. a contradiction, I wonder why the Russell Paradox method is necessary.

We know that the cardinality of the set of all subsets of a given set is greater than the cardinality of the given set. But if we assume the existence of a set of all sets, by definition it contains all of its subsets. Therefore the cardinality of the set of all subsets of the set of all sets cannot be greater than the cardinality of the set of all sets, which is a violation of what we know about cardinality. Hence there is no set of all sets.

.