# My ZFC Inconsistency Odyssey
## By Jim Rock

**Abstract:** My progress in understanding ZFC's inconsistency is chronicled through the papers reviewed in this document.

**Introduction:** For a long while I have thought that ZFC was inconsistent, but getting other people to see this has been challenging. We will take a journey through the papers listed below to see how the inconsistency arguments developed and matured gradually. The basic elements common to all the papers are shown first. There generally was only one point of contention: Argument #1 step two. In the three papers we gradually come to see the truth of this step in ZFC, upon which the entire inconsistency argument depends.

**For all rational numbers *a* in [*0, 1*] let the collection of all R*a* sets be { *y* is a rational number | $0 \leq y \leq a$ }**
**A.** The entire collection of R***a*** sets form a hierarchy of sets.
**B.** Each set contains all the elements in sets below it in the set hierarchy.
**C.** Each set contains a single element that is not in any set below it in the set hierarchy.
**D.** We take the largest element out of each set in the entire collection.
**E,** The set containing zero becomes the null set.
**F.** The previous largest element of every R***a*** set is now missing from each set. However, all R***a*** sets remain in the same position in the hierarchy of sets in descending order as { *y* is a rational number | $0 \leq y < a$ }

**Argument #1: Each R*a* contains a largest element.**
**1)** Each R***a*** contains the former largest elements of the subsets below it in the set hierarchy.
**2)** Each R***a*** contains element(s) not in any subset below it in the set hierarchy.
**3)** Let ***c*** and ***d*** be two elements of a single R***a*** set with ***c* > *d***.
**4)** ***d*** is an element of R***c***, which is a proper subset of R***a***.
**5)** For any two elements in R***a*** the smaller element is contained in a proper subset of R***a.***
**6)** By steps 2) and 5) each R***a*** set contains a single largest element not in any set below it in the hierarchy.

**Argument #2: No R*a* contains a largest element.**
**1)** Suppose there is a largest element $a'$ in some individual R***a***.
**2)** $a' < (a' + a)/2 < a$.
**3)** Let $b = (a' + a)/2$.
**4)** Then $b$ is in R***a*** and $a' < b$.
**5)** $a'$ is in R***b*** a proper subset of R***a***.

When a largest element is assumed in Argument #2, it leads to a contradiction; so there is no largest element. Every R***a*** element is in one of the proper subsets below R***a*** in the set hierarchy. It is a valid proof by contradiction.

**Argument #1 Step 2) explored.** We initially consider this step to be false**[1]** and only gradually recognize its truth within ZFC. First we can see **[2]** there has to be element(s) in each set that are not in the subsets below it in the hierarchy or the entire hierarchy would collapse. But this needs further elucidation to be accepted by the skeptics. Illumination comes in the next paper**[3].**

The R***a*** sets are in descending hierarchical order. In every position below each individual R***a*** for every rational ***x* < *a*** is an R***x*** set{ *y* is a rational number | $0 \leq y < x$ }.

Since each R***a*** and its collection of R***x*** subsets are part of the entire descending set hierarchy, **there exists at least one R*a* set element *s* ≥** (all values of) ***x*. Otherwise, there is no descending set hierarchy.**

As shown in Argument #1 steps 3), 4) and 5) for any two elements in R***a***, the smaller element is contained in a proper subset of R***a. There is at most one R*a* set element*** missing from all the R***x*** subsets.

Thus, **there must be a single largest R*a* set element** missing from all the R***x*** subsets.

**[1]**https://vixra.org/abs/2302.0145 **[2]**https://vixra.org/abs/2303.0105 **[3]** https://vixra.org/abs/2304.0008

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