Re: Rational numbers, irrational numbers: each dense in real numbers

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On Sep 20, 10:17 pm, "Ross A. Finlayson" <r...@xxxxxxxxxxxxxxx> wrote:

> A well ordering is an ordering relation on elements of a set such that
> each subset of the set has a least element by the ordering.

Close.

R is a well ordering on S <−> (R is a strict total ordering on S &
every nonempty subset S has an R−least member).

> (At least I consider each element to be in the universe,

Obviously any object mentioned in a theory is a member of any universe
of a model of the theory.

> and when
> collections are defined by their elements

The axiom of extensionality stipulates that a set is determined only
by its elements, if that's what you mean.

> and have the element−of and
> subset defined that they're sets.)

I don't know what that is supposed to mean.

> What's your point?

Your wrote:

"In ZFC, with standard definitions of the real, rational, and
irrational numbers, let p_i be an irrational number between zero and
one for i from a suitably large well−ordered index set X. With the
well−ordering of the index set, let the i'th element p_{i+1} be an
irrational number between zero and p_i, where i+1 is the least
element
of the well−ordering X_i setminus i, that is defined to equal X_{i
+1}."

Take it step by step:

Let R be a well ordering of X non−empty.

Let p be a function from X into {r | r is irrational & r e (0 1)}.

After that, your formulation is incoherent (but it's still not the
fatal flaw, since we could still fix your incorehent formul