

# Appendix

## 2

**It is Logically Impossible  
to cross an Infinity**

# THESIS: It is logically IMPOSSIBLE to cross an infinity

## LOGIC-1

P1. Definition: In Philosophy of Mathematics, "Potential infinity refers to a procedure that gets closer and closer to, but never quite reaches, an infinite end. For instance, the sequence of numbers 1, 2, 3, 4, ..."

P2. Definition: In Philosophy of Mathematics, "Completed infinity, or actual infinity, is an infinity that one actually reaches; the process is already done."

P3. In this discussion, we are referring to an Actual Infinity when we say that it is IMPOSSIBLE to Cross an Infinity.

--- Note: in this thesis, we are NOT referring to a Potential Infinity (which is mis-named and is not an actual infinity at all).

P4. Definition: Infinity (in Mathematics): "A number greater than any assignable quantity or countable number."

P5. Note that the definition above indicates that infinity cannot be counted to. I.e., it is greater than any countable number.

P6. That means that no matter how long you count you will NEVER reach infinity. Infinity is greater than the greatest number you have (or anyone has) ever counted to.

P7. So, infinity is NOT a number that you can count to. No matter how long you count, you will NEVER reach it. If you reach it, it is NOT infinity.

P8. This is what I mean when I say that "it is IMPOSSIBLE to cross an infinity".

--- An alternate wording is "it is impossible to ever REACH infinity", or "it is impossible to COUNT to infinity" or "it is impossible to count through an infinity to reach its end". They all mean the same thing.

P9. Definition: Infinite set: "An infinite set is a [hypothetical] set whose elements cannot be counted. An infinite set is a set that has NO last element."

P10. So, we cannot count through the elements of a hypothetical infinite set to reach the last element. There is NO last element.

P11. That means that no matter how long you count you will NEVER reach the last element of that hypothetical infinite set. So, again, you CANNOT cross an infinity.

P12. Here is another illustration (to illustrate what I mean when I say that "it is impossible to cross an infinity".)

--- You are hiking, and you come to the edge (shore) of a stream.

--- Can you cross that stream?

--- If the stream is shallow, you could wade across. Or if it is deeper, and there is a row-boat at the shore, you can row across and REACH the other side.

--- How about if you come to a lake?

--- If you had a row-boat, you could row across and REACH the other side.

--- But what if the shore is the shore of an INFINITE ocean?

--- You have a row-boat. BUT, no matter how long you row, you can NEVER actually cross that INFINITE ocean to REACH the other side.

--- This is what I mean when I say that "it is logically IMPOSSIBLE to cross an infinity".

P13. Here is another illustration (to illustrate what I mean when I say that "it is impossible to cross an infinity").

--- Let's say you were born in 1990. You live a year and get to 1991. Then another year and get to 1992. And so on to 2020.

--- That is what I mean by crossing (or counting) a year.

--- If you are infinite years old, you must necessarily have lived through an infinite number of years.

--- That means you have crossed (or counted through in age) an infinite number of years.

--- That is logically impossible (because no matter how long you count, you will never reach infinity, or cross an infinite distance).

P14. The reasoning above applies to ALL actual infinities. And to ALL quantitative infinities.

--- I.e., This is true for any Actual Infinity (or quantitative infinity, or temporal infinity, or spatial infinity, or numerical infinity that you are trying to count through or cross).

P15. So, we can see that it is logically IMPOSSIBLE to cross an infinity.

-----  
CONCLUSION

**C1. It is logically IMPOSSIBLE to cross an infinity.**  
-----