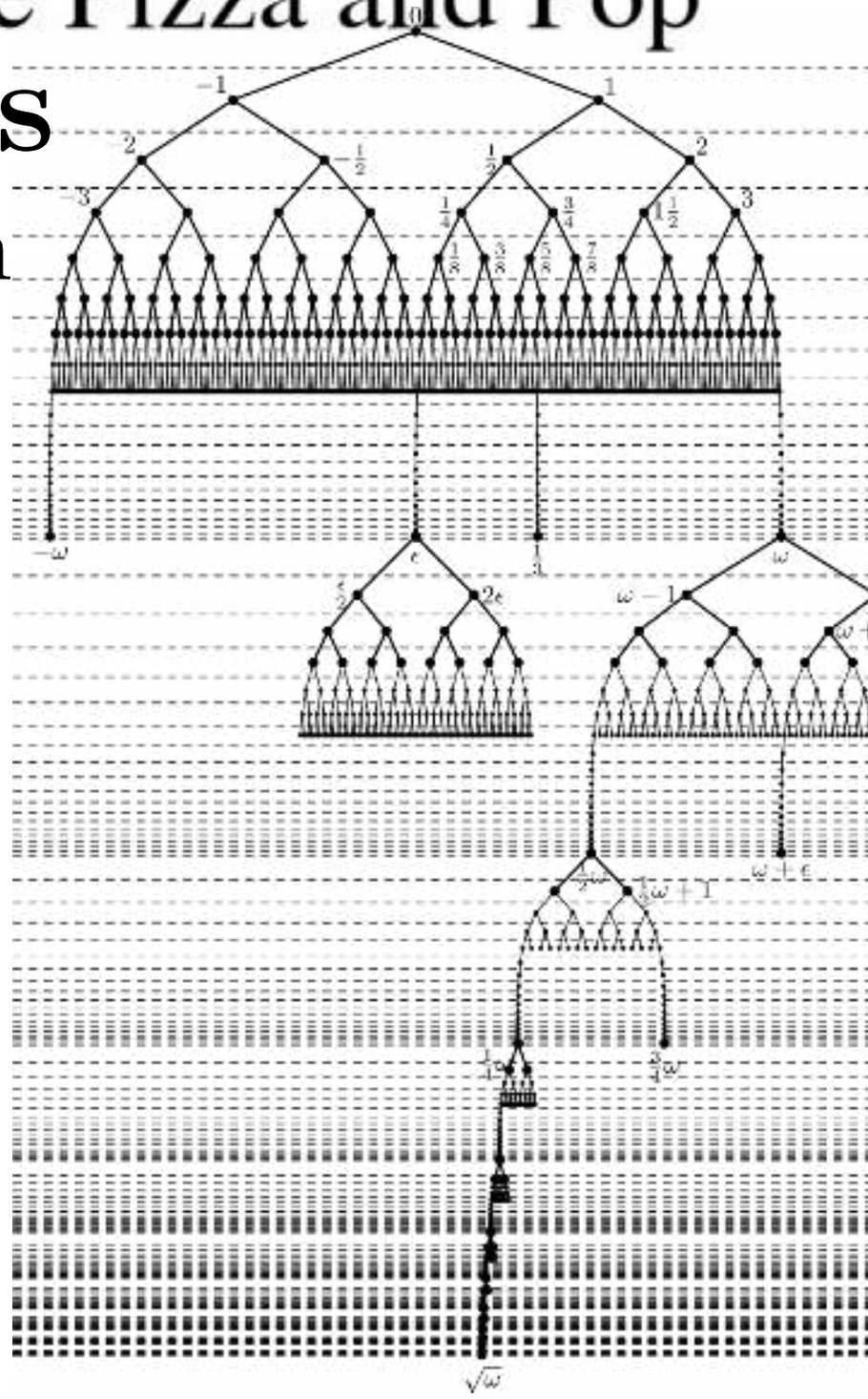
Michigan Math Club

Thursday at 4pm in the Nesbitt Room

Free Pizza and Pop



Surreal Numbers

David Fernández–Bretón

Abstract for
01 December 2016

Imagine a world where expressions such as dy/dx really represent a quotient. In such a world, dx and dy would need to be quite peculiar entities, capable of somehow interacting with real numbers but not being real numbers themselves: they would be smaller than every positive real number, yet nonzero. These peculiar entities, infinitely smaller than real numbers, are called "infinitesimals." The field of Surreal Numbers arises as the result of taking this idea to the extreme: starting with the field of Real Numbers, attaching infinitesimals to it, and then attaching "second order infinitesimals" (quantities that are infinitely smaller than infinitesimals themselves), and afterwards attaching also "third order infinitesimals," and so on... transfinitely many times.