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Could time itself be logarithmic? WILLIAM GEORGE, Department of Aeronautics, Imperial College, SW7 2AZ London UK — This presentation hypothesizes that increments of time may be logarithmic and measured from an initial instant – the log of absolute time if you will. In this alternative view all equations involving time must be written with $\ln t/t_o$ where t is measured in linear increments from the beginning of the universe and t_o is the universal time scale. All equations involving time derivatives must be written not as d/dt but $d/d\ln t/to = td/dt$. An immediate consequence, for example, is that our definition of mass in Newton's Law must change as well: from $mdv/dt = F$ to $m_*dv/d\ln t/to = m_*tdv/dt = F$ where F is force applied and v is velocity (however defined). $m_* = m/t$ is the 'true' or absolute mass. Since we have been measuring for only about 500 years and the universe is estimated to be about 18 billion years (millions of billions of seconds) old, the differences are impossible to measure; i.e., $ln(t + \delta t) - \ln t \approx \delta t/t$. It is only when we look backwards towards the beginning of the universe that we notice the difference – mass, $m = m_*t$, appears to be missing. So we need "dark matter" to make our equations balance – when in fact it might be our "linear-time" equations and definitions that are wrong.

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