

An application of the Kurzweil-Stieltjes integral in financial markets

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Traders in financial markets take decisions based on the past evolution of the prices. The memory structure (the so-called return point memory) involved in their trading strategies is the same as in mechanics (plasticity) or electromagnetism (ferromagnetism, piezoelectricity). We therefore propose to describe the trading process by Kurzweil variational inequalities and, more specifically, by Prandtl-Ishlinskii hysteresis operators. We show that discontinuities both with respect to time and with respect to the memory variable can be described in an elegant way by the Kurzweil-Stieltjes formalism.