Jump Detection

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The jump time series is defined as

$$x_t = \frac{r_t}{f_t \sigma_t} \tag{1}$$

where $r_t = \ln(p_t/p_{t-1})$ is 1-minute return, f_t is an estimator of intraday periodicity, and σ_t is an estimator for the local volatility. The σ_t is defined as

$$\sigma_t^2 = \frac{\pi}{2K} \sum_{i=1}^{390} |r_{t-i}||r_{t-i+1}| \tag{2}$$