

DISTRIBUTIONS OF SUPREMA OF LÉVY PROCESSES VIA THE HEAVY
TRAFFIC INVARIANCE PRINCIPLE

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Abstract: We study the relationship between the distribution of the supremum functional $M_X = \sup_{0 \leq t < \infty} (X(t) - \beta t)$ for a process X with stationary, but not necessarily independent increments, and the limiting distribution of an appropriately normalized stationary waiting time for G/G/1 queues in heavy traffic. As a by-product we obtain explicit expressions for the distribution of M_X in several special cases of Lévy processes.

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