Amdahl's Law

The necessity to parallelize

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- We expect - or at least hope - that parallelization shortens runtime significantly.

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- Amdahl's law now can be formulated as the following:

$$Q_{\text{speed up}}(N) = \frac{1}{S + \frac{P}{N}} = \frac{1}{(1 - P) + \frac{P}{N}}, \tag{2}$$

Where N is the number of parallel threads, and the runtime S was expressed in the denominator using equation (1).

Sample outputs of method I.