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CORRECTION

BROWNIAN MODELS OF OPEN PROCESSING NETWORKS: CANONICAL REPRESENTATION OF WORKLOAD

BY J. MICHAEL HARRISON

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The paper above contains a substantial error, as shown by example in Section 7.1 of [2]. To correct this error one needs to add a restriction on the data of the model being analyzed, thus making explicit an assumption that is implicit in the original development. To enable a precise statement of that additional assumption, the next paragraph reviews some of the paper's notation and set-up.

Let r, m and n be positive integers, R an $m \times n$ *input-output matrix*, A a nonnegative $r \times n$ *capacity consumption matrix*, and λ an m-vector of *exogenous input rates*. All of the paper's formal propositions relate, at least implicitly, to the following linear program, called the *static planning problem* (here displays are numbered exactly as in the original paper, for ease of reference): choose a scalar ρ and an n-dimensional column vector x of *average activity rates* so as to

$$\text{minimize} \quad \rho \tag{2.1}$$

$$\text{subject to} \quad Rx = \lambda, \qquad Ax \le \rho e \quad \text{and} \quad x \ge 0, \tag{2.2}$$

where e is the m-vector of ones. The dual of (2.1)–(2.2), or to be more precise, one formulation of its dual, is as follows: choose an m-dimensional row vector μ and r-dimensional row vector π so as to

$$\text{maximize} \quad \mu\lambda \tag{2.3}$$

$$\text{subject to} \quad \mu R \le \pi A, \qquad \pi e = 1 \quad \text{and} \quad \pi \ge 0. \tag{2.4}$$

In the primal problem (2.1)–(2.2) one interprets λ_i $(i = 1, \dots, m)$ as the average rate at which a system manager is obliged to consume input i, or the average rate at which type i input must be processed. On page 80 of the paper under discussion, the vector λ is assumed to be nonnegative and nontrivial, but the nonnegativity is never actually used in the ensuing development; if λ_i were negative one could interpret its absolute value as the average rate at which the system manager is obliged to *supply* material i.

To articulate the additional assumption referred to earlier, let us define the polyhedral cone

$$V = \{\upsilon \in \mathbb{R}^m : Rx = \upsilon \text{ for some } x \ge 0\}.$$

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