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Viewpoint

Edited by A Syntetos

Response to Viewpoint on 'Single-machine with a sum-of-actual-processing-time-based learning effect'

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Firstly, we would like thank Professors Kuo and Yang for having pointed out the errors of this paper. In fact, shortly after its publication I also became aware of the problems. However, although theorems 1–10 are wrong, when $p_j \leq \frac{\sum_{i=1}^{n} p_i}{a}$, the theorems are still valid for the relevant results in the provided condition. Secondly, we realized that these theorems are still useful when the learning models are changed to the aging (or deterioration) models (ie, the learning

index is changed to an aging index). The reason is that the mathematical derivation of the proof is correct, but it just holds for the last pairwise interchange. The actual processing time will affect the results of the other pairwise interchanges. Suppose that the actual processing time of the job following a particular pairwise interchange of jobs is reduced. Due to the fact that the learning effect function is a decreasing one, the shorter actual processing times of the other following jobs In summary, the Smallest Processing Time (SPT) rule is not a proper method to solve such scheduling problems with the learning model. However, the SPT rule is a proper method in an aging (or deterioration) model scheduling.

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