Erratum notification for the technical report:

Herbert Jaeger: Observable Operator Models II: Interpretable Models and Model Induction

H. Jaeger, Oct. 29, 2007-10-29

It has been pointed out to me by Alexander Schönhuth that the proof of Proposition 7 in this techreport is flawed, and the statement is (likely to be) invalid. The purpose which this proposition was intended to serve, namely, the determination of the process dimension from matrices of the M_r type, can be achieved in a simpler way that does not need the statement of Proposition 7, by applying Proposition 8 directly. This replaces the unneccessarily complicated procedure indicated at the top of page 20. The correct procedure runs as follows:

Procedure to determine process dimension *m.* Let $\Sigma^{\leq r} = \{\bar{c} \in \Sigma^* \mid |\bar{c}| \leq r\}$ denote the words of length at most *r*. Let $\bar{a}_1,...,\bar{a}_{k_r}$ and $\bar{b}_1,...,\bar{b}_{k_r}$ be alphabetical enumerations of $\Sigma^{\leq r}$. Let M_r be the $k_r \times k_r$ matrix

$$M_r = \begin{pmatrix} g_{\bar{b}_1}\bar{a}_1 & \cdots & g_{\bar{b}_1}\bar{a}_{k_r} \\ \vdots & & \vdots \\ g_{\bar{b}_{k_r}}\bar{a}_1 & \cdots & g_{\bar{b}_{k_r}}\bar{a}_{k_r} \end{pmatrix} = \left(P(\bar{a}_j \mid \bar{b}_i)\right)$$

Compute $\mathrm{rk}(M_1)$, $\mathrm{rk}(M_2)$, ... Then $\mathrm{rk}(M_i) \leqq \mathrm{rk}(M_{i+1})$ and if $\mathrm{rk}(M_r) = \mathrm{rk}(M_{r+1})$, then $\mathrm{rk}(M_{r+1}) = \mathrm{rk}(M_{r+n})$ for all *n*, and $\mathrm{rk}(M_r) = m$.

A proof is implicit in the proof of Proposition 8. A proof is also given in the technical report as per proof of proposition 2 in

Mingjie Zhao and Herbert Jaeger: Norm observable operator models. Technical Report Nr. 8, July 2007. School of Engineering and Science, Jacobs University Bremen. (Online at http://www.jacobs-university.de/research/reports/index.php).