Errata for "Jose M. Peña. Reading Dependencies from Polytree-Like Bayesian Networks. In *Proceedings of the 23rd Conference on Uncertainty in Artificial Intelligence*, 303-309, 2007"

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The proof of contraction2 in Theorem 5 can be made more precise as follows.

- Contraction2 $dep(\mathbf{X}, \mathbf{YW}|\mathbf{Z}) \wedge sep(\mathbf{X}, \mathbf{W}|\mathbf{Z}) \Rightarrow dep(\mathbf{X}, \mathbf{Y}|\mathbf{ZW})$. Let C denote the closest node to A that is in both $\mathbf{Y}$ and the path $A : B$ in the left-hand side. Such a node must exist for $sep(\mathbf{X}, \mathbf{W}|\mathbf{Z})$ to hold. For the same reason, no node in $A : C$ can be in $\mathbf{W}$, and no head-to-head node in $A : C$ can have a descendant in $\mathbf{W}$ that is not a descendant of some node in $\mathbf{Z}$. Then, $A : C$ satisfies the right-hand side.

We claimed that the proof of intersection in Theorem 5 is like the proof of contraction1. However, this is not correct. A correct proof of intersection follows.

- Intersection $dep(\mathbf{X}, \mathbf{YW}|\mathbf{Z}) \wedge sep(\mathbf{X}, \mathbf{Y}|\mathbf{ZW}) \Rightarrow dep(\mathbf{X}, \mathbf{W}|\mathbf{ZY})$. Let C denote the closest node to A that is in both $\mathbf{W}$ and the path $A : B$ in the left-hand side. Such a node must exist for $sep(\mathbf{X}, \mathbf{Y}|\mathbf{ZW})$ to hold. For the same reason, no node in $A : C$ can be in $\mathbf{Y}$. Then, $A : C$ satisfies the right-hand side unless $A : C$ has a head-to-head node D that has a descendant E in $\mathbf{Y}$ that is not a descendant of some node in $\mathbf{Z}$ (if several such nodes exist, let D be the closest to A and let E be any of the closest to D). If the latter happens, there must exist some node F between D and E that is in $\mathbf{W}$ for $sep(\mathbf{X}, \mathbf{Y}|\mathbf{ZW})$ to hold (if several such nodes exist, let F be the closest to D). Then, $A : F$ satisfies the right-hand side.

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