CORRIGENDUM FOR
‘CREDAL NETWORKS UNDER EPISTEMIC IRRELEVANCE: THE SETS OF DESIRABLE GAMBLES APPROACH’

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ABSTRACT. This document lists errors in Reference [1] and provides corrections for them.

ERRORS AND THEIR CORRECTIONS

In Example 4, the expressions for $\mathscr{D}_G$ and $\operatorname{marg}_O(\mathscr{D}_G\rfloor A_I)$ are wrong. The correct expressions are

$$\mathscr{D}_G := \mathscr{E}\big(\{\mathbb{I}_{A_I}g\}\big) = \big\{f \in \mathscr{G}(\mathscr{X}_G)\colon (\exists\lambda \in \mathbb{R}_0^+)\ f \geq \lambda\mathbb{I}_{A_I}g \text{ or } f > 0\big\}$$

and

$$\operatorname{marg}_O(\mathscr{D}_G\rfloor A_I) = \mathscr{E}\big(\{g\}\big) = \big\{f \in \mathscr{G}(\mathscr{X}_O)\colon (\exists\lambda \in \mathbb{R}_0^+)\ f \geq \lambda g \text{ or } f > 0\big\}.$$

The only difference is the addition of the λ’s.

In the text that follows Theorem 10, we state that its proof is similar to that of Proposition 6. This should be Proposition 5 instead. The correct statement is ‘Similar to what we have done in the proof of Proposition 5, we construct a joint probability mass function to perform the separation. However, in contrast with the proof of Proposition 5, a factorising probability mass function is no longer sufficient.’

In Footnote 16, we state that we follow References [3]—Reference [7] in the original paper—and [2]—Reference [22] in the original paper—in naming our graphoid properties. This is not correct; the terminology in Reference [3] is different from ours. The correct statement is ‘We follow Reference [22] in naming these properties. Moral [76] uses almost the same terminology; the only difference is that he interchanges the meaning of direct and reverse intersection. Vantagi [...]’.

There are three typos in the proof of Theorem 15. In the proof for reverse contraction, ‘implying that the path from i to s’ should be replaced by ‘implying that the path from s to o’. In the proof for reverse intersection, ‘then the path from s to i is blocked’ and ‘$\mathrm{AD}(S,O|C \cup O)$’ should be replaced by ‘then the path from s to o is blocked’ and ‘$\mathrm{AD}(S,O|C \cup I)$’, respectively.

Theorem 16 requires an additional assumption: $I \cap C = \emptyset$. Without this assumption, it might be that $g(\cdot, x_{I\cap C}) = 0$ and therefore also that $g\mathbb{I}_C f = 0 \notin \mathscr{D}_G^{\mathrm{irr}}$, which contradicts the theorem if $\mathbb{I}_C f \in \mathscr{D}_G^{\mathrm{irr}}$. This assumption should be added to the theorem. In the proof, it would then be best to replace $g(\cdot, x_{I\cap C})$ by g [although, strictly speaking, this is not necessary because the added assumption makes them identical]. There is also a typo in the proof of this theorem: in the last line, $f(\cdot, x_{O\cap I})$ should be $f(\cdot, x_{O\cap C})$.

REFERENCES

[1] Jasper De Bock and Gert de Cooman. Credal networks under epistemic irrelevance: The sets of desirable gambles approach. *International Journal of Approximate Reasoning*, 56(B):178 – 207, 2015.

[2] Fabio G. Cozman and Peter Walley. Graphoid properties of epistemic irrelevance and independence. *Annals of Mathematics and Artificial Intelligence*, 45(1–2):173–195, 2005.

[3] Serafín Moral. Epistemic irrelevance on sets of desirable gambles. *Annals of Mathematics and Artificial Intelligence*, 45:197–214, 2005.