CORRIGENDUM FOR 'CREDAL NETWORKS UNDER EPISTEMIC IRRELEVANCE: THEORY AND APPLICATIONS'

JASPER DE BOCK

ABSTRACT. This document lists errors in my PhD dissertation [1] and corrects them.

ERRORS AND THEIR CORRECTIONS

In Section 2.3.4 of my PhD dissertation, I state that conditions C1–C4 can be used to characterise the coherence of a conditional lower prevision $\underline{P}(\cdot\rfloor\cdot)$. Although this statement is correct, my explicit formulation of it is not. The correct version goes as follows:

Conditions C1–C4 have a special status because—as the following result by Troffaes and De Cooman establishes—they can be used to characterise coherence.

Proposition 5. (See [96, Theorem 13.33]—[2, Theorem 13.33] in this corrigendum.) *Consider a non-empty subset $\mathscr{B}$ of $\mathscr{P}_\emptyset(\Omega)$ that is closed under finite unions and a linear subpace $\mathscr{K}$ of $\mathscr{G}(\Omega)$ such that $\mathbb{I}_B \in \mathscr{K}$ and $f\mathbb{I}_B \in \mathscr{K}$ for all $f \in \mathscr{K}$ and $B \in \mathscr{B}$. Let $\underline{P}(\cdot\rfloor\cdot)$ be a conditional lower prevision with domain $\mathscr{C} := \{(f,B)\colon B \in \mathscr{B}$ and $f \in \mathscr{K}_B\}$ where, for all $B \in \mathscr{B}$, $\mathscr{K}_B := \{f \in \mathscr{G}(B)\colon \mathbb{I}_B f \in \mathscr{K}\}$. Then $\underline{P}(\cdot\rfloor\cdot)$ is coherent if and only if it satisfies* C1–C4. *Furthermore, for any $B \in \mathscr{B}$, $\underline{P}(\cdot\rfloor B)$ is coherent if and only if it satisfies* C1–C3. *Hence, in this particular case, $\underline{P}(\cdot\rfloor\cdot)$ is jointly coherent if and only if it is separately coherent and satisfies* C4.

My formulation in Section 2.3.4 of my dissertation stated an incorrect variation to this result that imposes less constraints on the domain $\mathscr{C}$, and wrongly attributed that result to Williams. In Section 2.4 of my dissertation, I state a corollary of Proposition 5 that inherits its problems; it should be adapted similarly. The correct version goes as follows:

Corollary 6. *Consider a non-empty subset $\mathscr{B}$ of $\mathscr{P}_\emptyset(\Omega)$ that is closed under finite unions and a linear subpace $\mathscr{K}$ of $\mathscr{G}(\Omega)$ such that $\mathbb{I}_B \in \mathscr{K}$ and $f\mathbb{I}_B \in \mathscr{K}$ for all $f \in \mathscr{K}$ and $B \in \mathscr{B}$. Let $P(\cdot\rfloor\cdot)$ be a conditional prevision with domain $\mathscr{C} := \{(f,B)\colon B \in \mathscr{B}$ and $f \in \mathscr{K}_B\}$ where, for all $B \in \mathscr{B}$, $\mathscr{K}_B := \{f \in \mathscr{G}(B)\colon \mathbb{I}_B f \in \mathscr{K}\}$. Then $P(\cdot\rfloor\cdot)$ is coherent if and only if it satisfies* P1–P4. *Furthermore, for any $B \in \mathscr{B}$, $P(\cdot\rfloor B)$ is coherent if and only if it satisfies* P1–P3. *Hence, in this particular case, $P(\cdot\rfloor\cdot)$ is jointly coherent if and only if it is separately coherent and satisfies* P4.

Given these changes, Footnote 12 in Chapter 2 of my dissertation should also be corrected. Instead of "He requires the domain to be of the form in Corollary 6.", it should state "He requires the domain to be of the form $\{(f,B)\colon B \in \mathscr{B}$ and $f \in \mathscr{K}_B\}$, with $\mathscr{B}$ a non-empty subset of $\mathscr{P}_\emptyset(\Omega)$ and, for all $B \in \mathscr{B}$, $\mathscr{K}_B$ a linear subspace of $\mathscr{G}(B)$."

REFERENCES

[1] Jasper De Bock. *Credal Networks under Epistemic Irrelevance: Theory and Algorithms*. PhD thesis, Faculty of Engineering and Architecture, 2015.

[2] Matthias C. M. Troffaes and Gert de Cooman. *Lower Previsions*. Wiley, 2014.