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Correction to: Undecidability of First-Order Modal and Intuitionistic Logics with Two Variables and One Monadic Predicate Letter

Correction to: Studia Logica

The original version of the paper contains three errors. The first concerns the way the results of Kontchakov, Kurucz, and Zakharyschev [12] are used to obtain Theorem 2.6. The second concerns the definition of the intuitionistic Kripke frame $\mathfrak{F}$ and a-suitable models based on $\mathfrak{F}$ used in the proof of Lemma 3.6. The third concern the definition of formulas in Section 2.3.

To correct the errors, the following changes need to be made to the original version of the paper:

The discussion in the first three paragraphs of Section 2.2 should be disregarded; Section 2.2 should be read starting from the sentence "Let φ be a (closed) formula containing monadic predicate letters $P_1, \ldots, P_n$." on page 700.

Lemma 2.5 should be restated to apply only to L-suitable (where $L \in \{\mathbf{QK}, \mathbf{QGL}, \mathbf{QGrz}\}$) formulas, defined as follows: ψ is L-*suitable* if it contains only monadic predicate letters and either ψ is not L-satisfiable or ψ is satisfiable in an L-model $\mathfrak{M}$ with the downward inheritance property for monadic predicate letters: $\mathfrak{M} \models \Diamond P(x) \rightarrow P(x)$, for every monadic letter P.

In the proof of Theorem 2.6, the translation e should be applied not to the formulas ξ_T, but to slightly modified formulas, defined as follows: first, replace in the formula χ_T [12, p. 433] every occurrence of $D(x)$ by $\neg D(x)$; then, in thus obtained formula, replace every subformula $\Box \psi$ by $\Box(\forall x\, Q(x) \rightarrow \psi)$; last, in thus obtained formula replace $succ_H(x,y)$ by $\Diamond(\neg Q_1^H(x) \wedge \neg Q_2^H(y))$ and $succ_V(x,y)$ by $\Diamond(\neg Q_1^V(x) \wedge \neg Q_2^V(y))$. The resultant formula is L-suitable (where $L \in \{\mathbf{QK}, \mathbf{QGL}, \mathbf{QGrz}\}$); this permits application of the corrected Lemma 2.5.

The definition of the frame $\mathfrak{F}$ on page 711 should be amended so that $\mathfrak{F}$ contains, alongside worlds depicted in Figure 1, a world d_2' accessible from a_2^0, b_1^0, and b_2^0. The definition of an a-suitable model based on $\mathfrak{F}$ given on page 711 should be amended to require that $I(d_2', P) = \{\langle b \rangle\}$.

The definition of formulas $\delta_i^k(x)$, $\alpha_k(x)$, and $\beta_k(x)$ in Section 2.3 should be amended as follows: add the cojunct $\Box \Diamond^{i+1} P(x)$ to $\delta_i^k(x)$, the conjunct $\neg \Diamond^3 \delta_2^k(x)$ to $\alpha_k(x)$, and the conjunct $\Box \Diamond P(x)$ to $\beta_k(x)$.

The corrected text of the paper can be downloaded from the url https://arxiv.org/abs/1706.05060.

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