Errata

page 2, Sect. 1.1 *[added Oct. 14]*:

in the definitions of $R \cup Q$ and $R \cap Q$, replace "$\in M$" by "$\in M^n$"

page 4, Sect. 1.3 *[added Oct. 21]*:

replace the definition of *total* by "if $R(x, y)$ or $R(y, x)$ or $x = y$ for all $x, y \in M$."

page 5, Sect. 1.3 *[added Nov. 25]*:

in the definition of a strict partial ordering, replace "on a set M" by "on a non-empty set M"

page 12, Ex. 2.1 and 2.2 *[added Oct. 21]*:

replace every A and B by P and Q.

page 12, Ex. 2.2 *[added Oct. 21]*:

replace the second sentence by "Then $\mathrm{pol}(F, 1) = \mathrm{pol}(F, 12) = \mathrm{pol}(F, 221) = -1$ and $\mathrm{pol}(F, \varepsilon) = \mathrm{pol}(F, 2) = \mathrm{pol}(F, 21) = \mathrm{pol}(F, 22) = \mathrm{pol}(F, 11) = 1$."

page 16, Prop. 2.7, Proof *[added Oct. 21]*:

replace G_2 by H_2.

page 19, Prop. 2.9, Proof *[added Oct. 21]*:

replace "$\mu_1(H[F]) > \mu_1(H[G])$" by "$\mu_1(H[F]_p) > \mu_1(H[G]_p)$"

page 20, "Satisfiability-preserving Transformations" *[added Oct. 21]*:

replace "$H[P] \wedge (P \leftrightarrow F)$" by "$H[P]_p \wedge (P \leftrightarrow F)$"

page 24, Sect. 2.5 *[added Nov. 25]*:

in the pseudocode for the Davis-Putman-Logemann-Loveland procedure, replace "unit clause P" and "unit clause $\neg P$" by "unit literal P" and "unit literal $\neg P$"

page 26, "Restart" *[added Nov. 25]*:

replace "adopted" by "adapted"

page 42, "Theory of an Algebra" *[added Nov. 25]*:

replace "sets of algebras" by "classes of algebras"

page 46, "The Complete Picture" *[added Nov. 25]*:

replace $\Rightarrow^*_{OCNF}$ by $\Rightarrow^*_{CNF}$

page 48, "Miniscoping" *[added Nov. 25]*:

add an additional rule

$$H[Qx\,G]_p \quad \Rightarrow_{\mathrm{MS}} \quad H[G]_p$$

(this rule is only needed if we start with a formula in which x does not occur at all freely in G; otherwise the remaining rules are sufficient)

page 50, Thm. 3.11 *[added Nov. 25]*:

replace "completeness proof for resolution" by "completeness proof for general resolution"

page 51, "Proofs" *[added Nov. 25]*:

replace "a a set" by "a set"

page 52, "Soundness and Completeness" *[added Nov. 25]*:

replace "a proof Γ" by "a proof in Γ"

page 60, Thm. 3.20, Proof *[added Nov. 25]*:

replace "If" by "The"

page 61, "General Resolution through Instantiation" *[added Nov. 25]*:

insert space between the formulas $P(a,a) \vee \neg Q(f(a,b))$ and $\neg P(a,a)$.

page 63, Prop. 3.23 *[added Nov. 27]*:

add after "quasi-ordering": "(i.e., a reflexive and transitive, but not necessarily anti-symmetric relation)"

page 64, "SU: Main Properties" *[added Nov. 25]*:

replace $E = x_1 \doteq u_1, \ldots, x_k \doteq u_k$ by $E = \{x_1 \doteq u_1, \ldots, x_k \doteq u_k\}$.

page 65, Thm. 3.27, Proof *[added Nov. 25]*:

replace "Noetherian" by "terminating"

page 65, "Rule-Based Polynomial Unification" *[added Nov. 25]*:

replace $t_i/p_i = x_{i+1}, t_n/p_n = x_1$ by $t_i|_{p_i} = x_{i+1}, t_n|_{p_n} = x_1$.

page 66, "Properties of PU", Note *[added Nov. 25]*:

replace "different form" by "different from"

page 68, Thm. 3.36 *[added Jan. 31]*:

replace "first-order formulas" by "closed first-order formulas"

page 69, "Resolution Calculus $Res^{\succ}_{\mathrm{sel}}$" *[added Jan. 31]*:

replace "atom ordering $\succ$" by "ordering $\succ$ on ground atoms"

page 71, "Avoiding Rotation Redundancy" *[added Jan. 31]*:

replace twice "orderings restrictions" by "ordering restrictions"

page 73, Thm. 3.40, Proof *[added Jan. 31]*:

replace "let" by "Let"

page 78, Sect. 3.14 *[added Feb. 6]*:

replace in (i) "strictly maximal in $D_i\sigma$" by "strictly maximal in $D_i\sigma \vee B_i\sigma$;
replace in (iii) "maximal in $C\sigma$" by "maximal in $C\sigma \vee \neg A_1\sigma$"

page 81, "Classification of Formulas" *[added Jan. 31]*:

replace every X and Y by F and G.

page 81, "Tableaux: Notions" *[added Jan. 31]*:

In the definition of "maximal" replace "each non-atomic formula F on P" by "each formula F on P that is neither a literal nor $\bot$ nor $\top$"

page 83, Thm. 3.48 *[added Jan. 31]*:

insert "the" after "Then"

page 83, "Consequences" *[added Jan. 31]*:

insert "the" after "dramatic impact on"

page 86, "Free-Variable Tableaux" *[added Jan. 31]*:

delete "is" after "This feature is what"

page 90/91, Sect. 4.1 *[added Jan. 31]*:

replace every p by P.

page 91, Prop. 4.1, Proof *[added Jan. 31]*:

replace the sentence "Now for every Σ-term t ... $\mathcal{B}(\beta)(\tilde{G}) = \mathcal{A}(\gamma)(G)$" by

> For any $\mathcal{A}$-assignment γ choose some $\mathcal{B}$-assignment β such that $\mathcal{B}(\beta)(x) \in \mathcal{A}(\gamma)(x)$ for every x, then for every Σ-term t we have $[\mathcal{B}(\beta)(t)] = \mathcal{A}(\gamma)(t)$, and analogously for every Σ-formula G, $\mathcal{B}(\beta)(\tilde{G}) = \mathcal{A}(\gamma)(G)$.

page 91, Sect. 4.2 *[added Jan. 31]*:

in the definition of a rewrite relation, replace s/p by $s|_p$.

page 93, Lemma. 4.5 *[added Jan. 31]*:

replace $s, t \in \mathrm{T}_\Sigma(X)$ by $s, t \in \mathrm{T}_\Sigma(Y)$

page 93, Lemma. 4.5, Proof *[added Jan. 31]*:

insert at the beginning of the proof:

> Without loss of generality, we assume that all variables in $\vec{x}$ are contained in X. (Otherwise, we rename the variables in the equation. Since X is countably infinite, this is always possible.)

page 101, Lemma. 4.21, Proof *[added Jan. 31]*:

replace $s \succ s'$ by $s \succ_{\mathcal{A}} s'$

page 105, "Path orderings" *[added Jan. 31]*:

in the last item replace "to each function symbol f with arity$(n) \geq 1$" by "to each function symbol $f/n \in \Omega$ with $n \geq 1$"

page 117, "Dependency Graphs" *[added Jan. 31]*:

in the definition of a cycle replace "non-empty path" by "non-empty path in K"

page 118, Thm. 5.1, Proof *[added Jan. 31]*:

replace $t_1 \in T_\infty$ by $t_1 \in T_\infty^\sharp$.