

Corrections to A. S. Troelstra, H. Schwichtenberg, Basic Proof Theory, 2nd ed.

Last revised August 31, 2009. The list includes a list of corrections brought to our notice by Yiorgios Stavrinou of the University of Athens, Greece, July 2003.

- 9¹¹ replace “linearly” by “well-ordered”.
- 11₅ replace “ $FV(x^A) = x^A$ ” by “ $FV(x^A) = \{x^A\}$ ”
- 15₆ replace the first “=” by “ \succeq ”.
- 19^{3,6} the rules for **k**, **s** should have been given for terms instead of variables.
- 19₆ add “ $\lambda^*x^A.c^B := \mathbf{k}^{B,A}c^B$ for c a constant”
- 39 in the first proof tree the second rule is $\rightarrow E$, not $\rightarrow I$.
- 42 remove * after exercise **2.1.8B♠**; add * after **2.1.8D♠**.
- 47 in the case of the intuitionistic absurdity rule \perp_i read $FV_a(E_A^\perp(t)) := FV_a(t)$.
- 52¹² read for “and $\rightarrow I$ and $\rightarrow E$ ” instead “ $\rightarrow I, \forall I$ and $\rightarrow E$ ”.
- 52_{1,2} read: “and the rules $\rightarrow I, \forall I$ and $\rightarrow E$ only”.
- 63 in the last line above the second group of proof trees delete “, in the right deduction $x \notin FV(B)$ ”.
- 69^{5,6} read “ $\text{Set}(\Gamma') \subset \text{Set}(\Gamma)$ ” for “ $\text{Set}(\Gamma') \subset \Gamma$ ”.
- 69¹⁰ read “ $\text{Set}(\Gamma') \subset \text{Set}(\Gamma)$ ” for “ $\Gamma' \subset \text{Set}(\Gamma)$ ”.
- 71¹⁰ read “we have $\vdash \neg\neg A \rightarrow A, \Gamma \Rightarrow A$ if $\vdash \Gamma, \neg A \Rightarrow$ ”.
- 71 in the second proof tree in the proof of the lemma, a double line should appear below the axiom $A \Rightarrow A$.
- 71 replace in the fourth proof tree in the proof of the lemma the axiom $\perp \Rightarrow$ by

$$\frac{\perp \Rightarrow}{A, \perp \Rightarrow}$$

88₁₂ replace Γ by $\Gamma \Rightarrow \Delta$.

88₉ replace Γ' by $\Gamma' \Rightarrow \Delta'$.

- 92₅ read “ $\vdash A\Gamma' \Rightarrow \Delta'$ ” for “ $A\Gamma' \Rightarrow \Delta'$ ”.
- 96²⁰ middle of page, read “produces a deduction \mathcal{D}'' such that”.
- 97¹⁹ “This is transformed into a deduction \mathcal{D}^* .”
- 97 in the lines above the second proof tree from below, delete the first sentence “The new cut ... remove this cut.”
- 100²¹ read “rank” for “degree”.
- 100 in the proof trees at the bottom read “ \mathcal{D}_{00} ” for “ $\mathcal{D}_{00}[y]$ ”.
- 101 delete B in the conclusion of the rule Multicut.
- 103⁸ read “ $R\forall$ ” for “ $R\exists$ ”.
- 103⁸ read “*dp-invertible*” for “*invertible*”.
- 103⁹ add “and under “depth-preserving weakening””.
- 103₇ read “ Γ, Γ' ” for “ Γ ”.
- 104² delete Δ in the second line of the first displayed proof tree.
- 105_{6,5} read “in $\bigwedge \Gamma \rightarrow \bigvee \Delta$ where \bigwedge and \bigvee are used for iterated conjunction and disjunction respectively.”
- 116_{4,3} the negation sign is actually redundant in these lines.
- 117⁸ read “ \perp ” for “ $\perp \rightarrow \perp$ ”.
- 117₂ read “ $\Gamma A \Rightarrow \Delta BC$ ” for “ $\Gamma A \Rightarrow \Delta C$ ”.
- 118₉ read “ $\Gamma, B, C \Rightarrow D$ ” for “ $\Gamma, A \rightarrow B, C \Rightarrow D$ ”.
- 137^{13,15,18,20,21} replace \mathcal{S} everywhere by S , \mathcal{N} by F and \mathcal{P} by G . This change brings the notation here in line with the notational conventions of subsection 1.1.4 (pages 5–6).
- 158₁₆ add “ $A_1 := \neg P_1, B_1 := \neg Q_1$ ”.
- 182²⁵ read “and is the only critical cut in \mathcal{D} ” for “and is the only maximal segment in \mathcal{D} ”
- 200₁₅ replace “ At ” by “ $A(t)$ ”.
- 200₁₄ replace “ As ” by “ $A(s)$ ”.
- 210₁₁ the first line of the lemma should end with “ Comp_A ”.
- 211⁹ read “We prove $ts \in \text{Comp}_C$ ”.

211₄ delete “strongly”.

212⁷ read “ Let $FV(t_1) \subset \{y:B, x_1:A_1, \dots, x_n:A_n\}$ ”.

212₁₂ read “ $\psi(\forall xA) := (Q \rightarrow Q) \rightarrow \psi A$ ” for “ $\psi(\forall xA) := (Q \rightarrow Q) \rightarrow A$ ”.

214² read “ $\mathcal{D}_n(P^n, Q^n)$ ” for “ $\mathcal{D}_n(P, Q)$ ”.

261_{7,6} types do not match in definitions of *evcur*, *curev*: switch *A* and *B*.

294^{5,6} interchange “(L \wedge ,R \wedge)” with “(L \wedge' ,R \wedge')”.

300^{12,17} read “**G1i** $\vdash !\Gamma \Rightarrow A$ ” for “**G1i** $\vdash \Gamma \Rightarrow A$ ”.

300¹⁸ read “**S4** $\vdash \Box GG^\circ \Rightarrow A^\circ$ ” for “**S4** $\vdash \Gamma^\circ \Rightarrow A^\circ$ ”.

317 The definition of $\text{Ind}(A, x)^*$ should read

$$\text{Ind}(A, x)^* \quad \forall x(\forall y < x A[x/y] \rightarrow A) \rightarrow \forall xA.$$

341 $\bar{\alpha}(x)$ is defined as usual, as $\langle \alpha 0, \alpha 1, \alpha 2, \dots, \alpha(x-1) \rangle$.

341¹⁵ for “ $\{\alpha | Q(\bar{\alpha}x)\}$ ” read “ $\{\alpha | \forall x Q(\bar{\alpha}x)\}$ ”.

341²³ for “ \leq ” read “ $<$ ”.

367 read “**2.1.8D**” for “**2.1.8B**”.