

# List of Errata for ATTAPL Chapter on Typed Operational Reasoning

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**Proof of Lemma 7.5.7 (page 265):** On line 1 of page 265, replace

“For any frame stack  $S, \dots$  we deduce that  $\emptyset \vdash S[\sigma(t)] =_{\text{ctx}} S[\sigma(t')] : \sigma(T)$ ”

by

“For any frame stack  $S$  satisfying  $\emptyset \vdash S : \sigma(T) \multimap T'$  for some  $T', \dots$  we deduce that  $\emptyset \vdash S[\sigma(t)] =_{\text{ctx}} S[\sigma(t')] : T'$ ”.

[Thanks to Chris Casinghino.]

**Proof of Lemma 7.6.8 (page 269):** On line 18 of page 269 replace

“iff  $\langle S, [x \mapsto F']t' \rangle \downarrow$  (by Theorem 7.4.4 again)”

by

“iff  $\langle S', [x \mapsto F']t' \rangle \downarrow$  (by Theorem 7.4.4 again)”

[Thanks to Derek Dreyer.]

**Corollary 7.5.8(v) (page 265):** Replace “where  $\Gamma \vdash \tau : \forall X.T$ ” by “where  $\Gamma, X \vdash \tau : T$  with  $X \notin \text{ftv}(\Gamma)$ ”.

[Thanks to Benjamin Pierce.]

**Lemma 7.6.8 (pages 268, 269):** In the statement of the **Equivalence-respecting** property, the type of  $t'$  and  $t'_1$  should be  $T'$ , not  $T$ . Similarly, in the statement of the **Admissibility** property, the types in  $F'$  should be  $T'_1$  and  $T'_2$  rather than  $T_1$  and  $T_2$ .

[Thanks to Derek Dreyer.]

**Proof of 7.6.13 (page 272,273):** On page 272, replace

“For the reverse inclusion it suffices to prove  $\dots$  we use the following simple property”

by

“For the reverse inclusion we use the following simple property”

(so the incorrect inclusion (7.21) disappears); and on page 273, line 6, replace

“thus we have proved the inclusion in (7.21), as required.”

by

“thus we have proved the inclusion  $\text{fun}(r_1, (r_2)^{st})^{stv} \subseteq \text{fun}(r_1, (r_2)^{st})$ , as required.”

[Thanks to Benjamin Pierce.]

**Proof of 7.6.15 (page 274):** Replace “idempotent” by “inflationary”.

[Thanks to Benjamin Pierce.]

**Section 7.8 Notes (page 288):** Delete “*contextual equivalence!vs. bisimilarity*” from the beginning of the third paragraph.

[Thanks to Geoff Washburn.]

**Solution notes for Exercise 7.6.18 (page 511):** Replace

“By definition of  $F_{n+1}$  and Corollary 7.5.8 we have  $\emptyset \vdash f_{n+1} v_1 =_{\text{ctx}} [f \mapsto F_n][x \mapsto v_1]t$ ; and similarly  $\emptyset \vdash F'_{n+1} v'_1 =_{\text{ctx}} [f \mapsto F'_n][x \mapsto v'_1]t'$ .”

by

“By definition of  $F_{n+1}$  and Corollary 7.5.8 we have  $\emptyset \vdash f_{n+1} v_1 =_{\text{ciu}} [f \mapsto F_n][x \mapsto v_1]t$ ; and similarly  $\emptyset \vdash F'_{n+1} v'_1 =_{\text{ciu}} [f \mapsto F'_n][x \mapsto v'_1]t'$ .”

[Thanks to Benjamin Pierce.]