Corrigenda to the book

Syntax-Directed Semantics – Formal Models Based on Tree Transducers

Monographs in Theoretical Computer Science. An EATCS Series
Springer, 1998

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September 18, 2013

page VII, line -10: drop "the"

page 6, Fig. 1.6: The code fragment on the left should be

"
ADD i
SUB i
MUL i
"

page 11, Fig. 1.10: each occurrence of "$temp = i$" should be "$temp = i + 1$" for $i \in \{1, 4, 6\}$

page 82, line 6: "$i = \{1, 2\}$" should be "$i \in \{1, 2\}$".

page 88, (ii): after the 3rd equality sign "$\tau_{T_2,\bar{q}}(\xi_j \ldots$" should be "$\tau_{T_2,\tilde{q}}(\xi_i \ldots$" and after the 4th and 5th equality sign "$\tau_{T_2',\bar{q}}(\xi_j)$" should be "$\tau_{T_2',\tilde{q}}(\xi_i)$"

page 115, Fig. 4.2: It should be replaced by Fig. 1.

page 124, item L: "$\omega \in (T_\Sigma)^k$" should be "$\omega = (s_1, \ldots, s_k) \in (T_\Sigma)^k$"

page 126, item 2): "... states $q, q' \in Q$ with $q \neq q'$,..."

page 126, line after *Note 4.28*: "... $\Delta = \{\sigma'^{(2)} \mid \sigma \in \Sigma\} \cup \{nil^{(0)}\}$"

page 127, last but one line: "$= \delta(\sigma(z_1, z_2), \alpha, \sigma(\sigma(z_1, z_2), z_2))$"

page 127, last line: "$yield_{g,\tilde{t}}(s) = \delta(\sigma(\beta, \gamma(\alpha)), \alpha, \sigma(\sigma(\beta, \gamma(\alpha)), \gamma(\alpha)))$"

page 130, proof of Lemma 4.34, 4th bullet: "$\tilde{t} = (t_1, \ldots, t_r, z_{r+1}, \ldots, z_{mx})$" should be "$\tilde{t} = (t_1, \ldots, t_r, \beta, \ldots, \beta)$ for an arbitrary $\beta \in \Delta^{(0)}$".

page 132: Replace the first eight lines by: " We apply the decomposition of Lemma 4.34 to M_{bal}. Then $mx = 2$ and we obtain the top-down tree transducer $T = (Q', \Sigma, \Gamma, q', R')$ with

- $Q' = \{q'^{(1)}\}$
- $\Gamma = \{\sigma'^{(0)}, \alpha'^{(0)}\} \cup \{\alpha_1^{(0)}, \alpha_2^{(0)}\} \cup \{c_3^{(3)}, c_2^{(2)}\}$
- R' consists of the rules

  1') $q'(\sigma(x_1, x_2)) \to c_2(q'(x_2), c_2(q'(x_1), \alpha_1))$
  2') $q'(\alpha) \to c_3(\sigma', \alpha_1, \alpha_1)$

and the function $g : \Gamma^{(0)} \to T_\Delta(Z_1)$ with $g(\sigma') = \sigma(z_1, z_2)$, $g(\alpha') = \alpha$, $g(\alpha_1) = z_1$, and $g(\alpha_2) = z_2$. "

page 132, Lemma 4.36: The proof of inclusions 2) and 3) is wrong, hence they should be dropped.

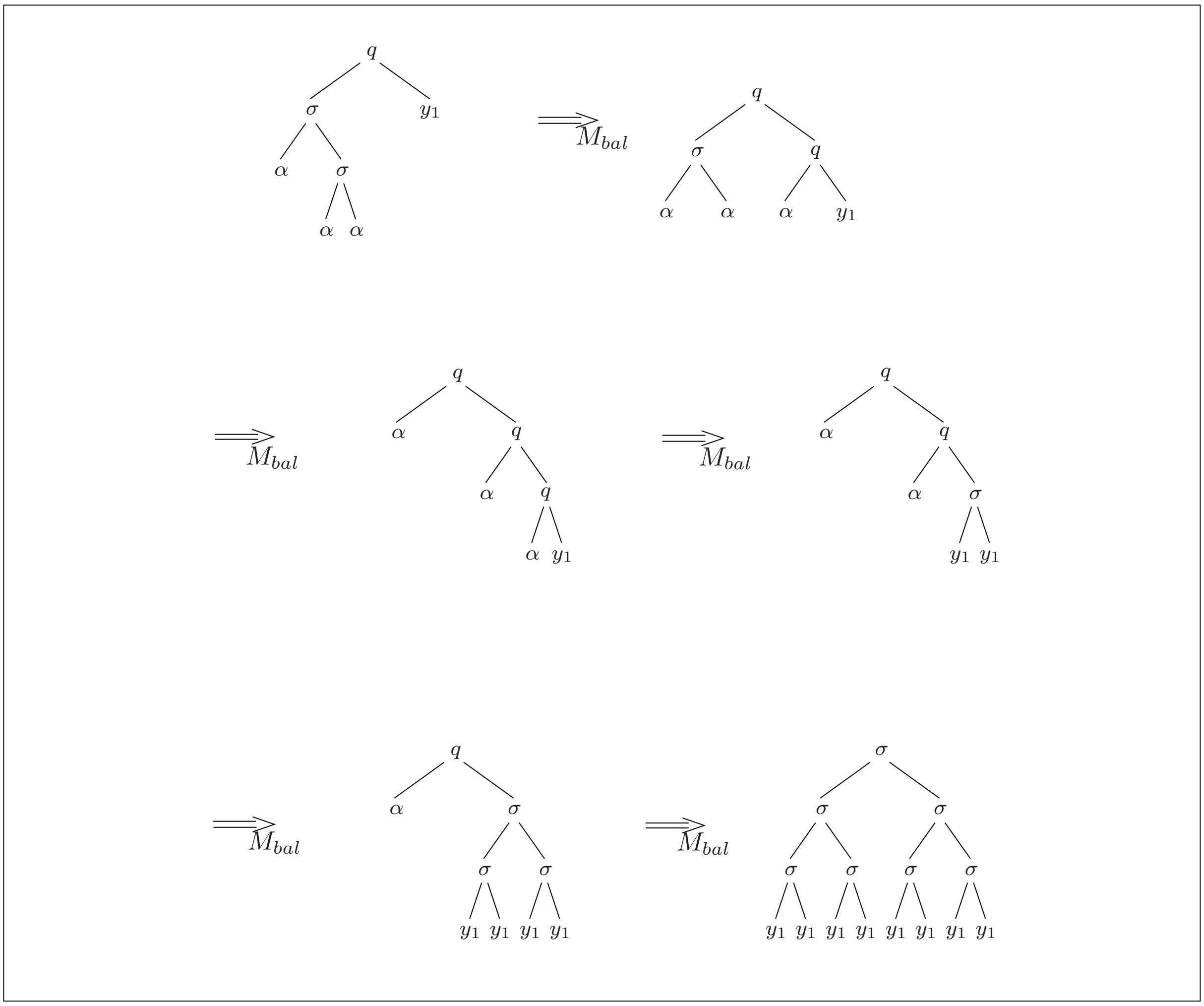

Figure 1: A sequence of derivation steps of the macro tree transducer M_{bal}.

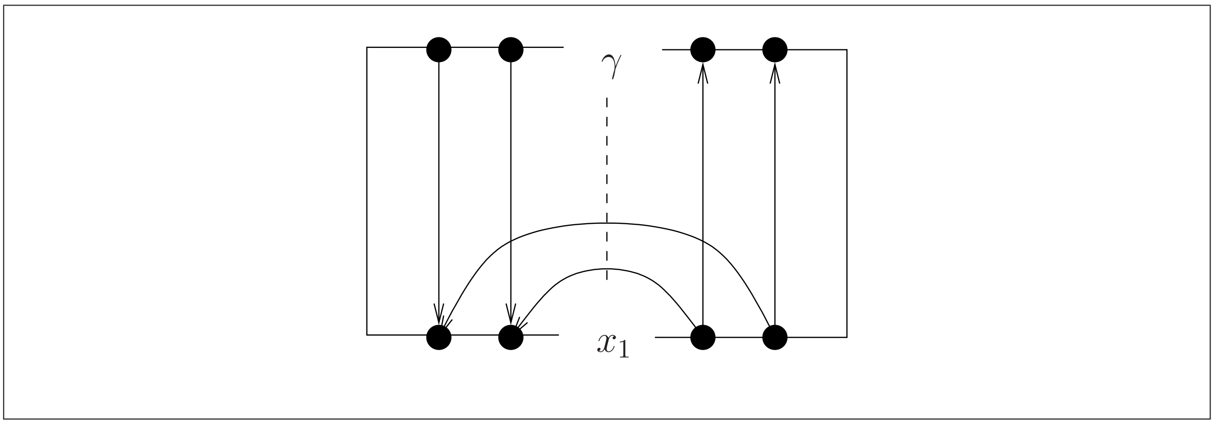

Figure 2: The dependency graph of γ.

page 134, Theorem 4.37: Statements 2) and 3) should be dropped.

page 134, proof of Corollary 4.39: Replace it by the following. "We can prove the inclusions $MAC \subseteq HOM \circ l\text{-}MAC$ and $l\text{-}MAC \subseteq HOM \circ sl\text{-}MAC$ by generalizing the corresponding constructions in the proof of Theorem 3.45 and the proof of Lemma 3.46, respectively. In fact, the parameters of the given macro tree transducer do not interfere with these constructions. Then, by Corollary 3.40, we obtain $MAC \subseteq HOM \circ sl\text{-}MAC$. The other inclusion follows from Corollary 4.38(2)."

page 135, Proof: The first "=" sign must be "$\subseteq$".

page 152, *Example 5.19*, line 2: "ATT_{syn}" should be "Att_{syn}"

page 152, Fig. 5.8: The attribute occurrences "$s_2(\pi 2)$", "$a_2(\pi 2)$", "$a_2(\pi 2)$", and "$a_2(\pi 2)$" at the two descendants of σ should be replaced by "$a_1(\pi 1)$", "$a_2(\pi 1)$", "$b_1(\pi 2)$", and "$b_2(\pi 2)$", respectively.

page 153: in line 7 "$is\text{-}set_a$" should be "$is\text{-}set_A$", and in line 23 "is_4" should be "is_6".

page 180, Fig. 6.3: The dependency graph of γ should be replaced by the one on Fig. 2.

page 183, Lemma 6.21: Replace Statement 2) by "$sl\text{-}MAC \subseteq 1v\text{-}ATT$".

page 185: Replace the last but one paragraph of the proof of Lemma 6.21 by the following. "Now we assume that M is superlinear. By Notes 6.9 and 6.7, and (1) of our lemma, we have $sl\text{-}MAC \subseteq anc\text{-}ATT$. Moreover, the condition that M is superlinear guarantees that each brother graph of A is acyclic. Hence A is one-visit."

page 187, Theorem 6.23: The Statement 2) should be dropped.

page 187, proof of Corollary 6.24: Replace the 3rd and 4th lines by "$\subseteq 1v\text{-}ATT$".

page 187, proof of Theorem 6.25: Replace the 3rd and 4th lines by "$\subseteq HOM \circ 1v\text{-}ATT$".

page 188, Step 2, line 7: Replace "$swp\text{-}MAC$" by "$1v\text{-}ATT$".

page 189, Fig. 6.6: Drop "$swp\text{-}MAC =$".

page 208, line -6: Insert the following sentence after the period: "The m-fold composition of ATT and MAC are also denoted by ATT^m and MAC^m, respectively."

page 209, proof of Theorem. 6.53: Replace "Note 6.9 and Theorem 6.23" by "Lemma 6.21 (2)" in the last line of the first sequence of inclusions and in the last but one line of the second sequence of inclusions.

page 239, proof of Corollary 7.32: Replace "Note 6.9 and Theorem 6.23" by "Lemma 6.21 (2)" in the sixth line.

Acknowledgments We would like to thank Joost Engelfriet, Armin Kühnemann, and Sebastian Maneth for pointing out some mistakes to us.