Transformations Between Structural Specifications of Programming Language Semantics

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C. Bach Poulsen, P.D. Mosses
Department of Computer Science
Swansea University
Swansea, UK
{cscbp,p.d.mosses}@swansea.ac.uk

As promised, we have now made our full suite of Coq proofs available at `http://www.plancomps.org/jlamp2015/`. In the submitted paper, Propositions 17, 18 and 19 were stated without proof, appealing to similar results by Nakata and Uustalu [1, 2]; similarly for Propositions 30 and 31. We have subsequently realised that the desired correspondences can be stated and proved more directly, as shown in the accompanying updated version of the paper, where the above Propositions have been replaced by Theorems 17 and 28, respectively. The completed Coq proofs refer to the numbering of results in the updated version. All changes between the updated version and the submitted paper are listed below, and are marked by change bars in the margin.

- p. 2: Removed sentence in list of contributions: "Our trace-based semantics is in the style of Nakata and Uustalu [7], but uses a single relation instead of two."
- p. 8: Corrected referencing error in proof of Theorem 12: the proof uses Lemma 11, not Lemma 5.
- p. 10: Proposition 16 said that bisimilarity is a setoid in relation to trace-based evaluation. This fact is not essential at this point in the paper. We have changed Proposition 16 to state determinism instead.
- p. 11: Propositions 17, 18, and 19 in the submitted version alluded to a correspondence between trace-based semantics and pretty-big-step semantics. Since submitting the paper, we have proven an alternative correspondence. We have replaced Propositions 17, 18, and 19 by Theorem 17 and an outline of its proof. This changes the theorem numbering in the rest of the paper.
- p. 17: Propositions 30 and 31 in the submitted version alluded to a correspondence between our derived trace-based semantics and Nakata and Uustalu's original trace-based semantics. Since submitting the paper, we have proven an alternative correspondence. We have replaced Propositions 30 and 31 by Theorem 28 and an outline of its proof.
- p. 18 and 25: The IA-Assign rule in the submitted version had a typo. We have corrected the typo.
- p. 25 and 26: The rules in Appendix B and C are inductive, *not* coinductive. We have changed the headings of the Appendices to reflect this.

References

[1] K. Nakata, T. Uustalu, Trace-based coinductive operational semantics for while, in: TPHOLs'09, Vol. 5674 of LNCS, Springer, 2009, pp. 375–390.

[2] K. Nakata, T. Uustalu, Resumptions, weak bisimilarity and big-step semantics for while with interactive I/O: an exercise in mixed induction-coinduction, in: SOS'10, Vol. 32 of EPTCS, 2010, pp. 57–75.