Changes for Submission 1 to SI:EXPRESS/SOS'18 (2nd Round)

Unique Solutions of Contractions, CCS, and their HOL Formalisation

Once more, we would like to thank the reviewers for many useful comments and suggestions. We believe we have taken into account all the points raised; we only comment below the most important ones.

Our answers are marked with a " R: " at the beginning.

Best regards,

Chun Tian and Davide Sangiorgi
December 20, 2019

- "Overall the authors did address the minor comments. But the paper still contains quite a few grammatical and other minor mistakes, also in the newly added text. Below are a couple that I found just browsing again through the paper; but this is certainly inexhaustive and the authors should do some more careful proofreading."

  R: We have done a careful proofreading, amending all grammatical problems we found, and also trying to improve the presentation in several places.

- "In fact, one of the corrections appears to have introduced a new bug: Theorem 4.7 in the new version is wrong; I guess Def. 4.6 should be about weak transitions. In the original submission, there was verbatim copied proof code, which was however correct. But as it stands now, it suffers from the famous problem with weak bisimulation up-to found by the second author (one can simply use the same counterexample $\{(\tau.\, a, 0)\}$)."

  R: This was a (embarassing) typo; we have corrected it (it was in fact correct in the HOL code – otherwise the script would not have reported success!). We also put the HOL definition back, to show the correspondence between the informal and formal definitions.

- sec 4.2: I'm now totally lost on the meaning of $(\alpha, \beta)CCS$. First β is a label, then an action, and then there is some mystifying text between brackets (l328) about how this is not explained. *Please* just explain clearly what α and β mean in $(\alpha, \beta)CCS$.

  R: We have reformulated a few sentences explaining this. In particular, with reference to the CCS syntax in Section 2, α and β represent, respectively, the set of agent variables and the set of names (the CCS syntax being parametric with respect to these sets).

- 608 "This theorem is of special interests to us, because within our framework it seems impossible to prove it without any limitation" interests => interest; also, I do not really understand this sentence (which limitation?)

  R: We have reformulated the sentence.

- 985 Is there anything fundamentally interesting going on in the proof? Otherwise perhaps remove it or replace by a high-level description?

  R: We have reformulated, trying to highlight its (possible) interests. The (simple) proof of the other proposition (5.2) has been removed.

- page 30: some the text in these lemma's is essentially (informal) explanation, with the HOL code giving the formal statements. Perhaps move the text out of the lemma environment? This will also make it look better, as it's now a full page of lemma's.

  R: We consider the (informal) explanation both a statement and as a support (easier to read) for the formal code. We have followed this schema throughout the paper, here it might appear heavy because

there is a sequence of (small) lemmas. Still, here we prefer to be homogeneous wrt the rest of the paper.

- 1160: So the idea is that, whenever we replace a variable by a hole and view the other variables as constants, this is a single variable context - right? Perhaps this (expressed in line 960) can be emphasised again around here (but not entirely sure).

R: We have added the sentence (thanks).