

Dear Editors and Reviewers,

Thank you for your comments and suggestions on our manuscript SCICO-D-19-00114R2. We have carefully revised it by taking your comments into consideration.

The following are the point-by-point responses to your comments.

Thank you very much for your time.

Sincerely yours,

Yuanrui Zhang, Hengyang Wu, Yixiang Chen, Frederic Mallet

Reviewers' comments:

Guest editor: Please make a final pass on the paper and proofread it again, to fix the small mistakes that remain.

Some of them are listed below by the reviewer.

[\[Response to Reviewer comment No. 1: We have again proofread the whole paper and fix some small problems. \]](#)

Reviewer #3: The present version is a good improvement of the previous version.

However, some sentences are still not good, and the paper should be carefully read by all authors before submission. And, please spell-check the paper before submission.

The good news is that such a polish should be quick to do. Hence I recommend a minor revision.

Abstract:

L5: "extends the first-order": remove "the"

[\[Response to Reviewer comment No. 2: We have corrected it. \]](#)

L8: add comma between "specifications" and "which"

[\[Response to Reviewer comment No. 3: We have corrected it. \]](#)

L11: add "logic" between "dynamic" and "formula". (What is a "dynamic formula"? A formula that changes with time?)

[\[Response to Reviewer comment No. 4: In our paper, we use the term ``dynamic formula'' to mean a formula with modalities, such as  \$\[p\]\phi\$ . However, we found that this term would cause misunderstandings so we remove it and use ``a logical formula of the form  \$\[p\]\phi\$ '' to replace it. \]](#)

Last sentence: just write "We analyze and prove the soundness ..." and remove "and give their proofs"

- "proof system of CDL" -> "proof system for CDL"

[\[Response to Reviewer comment No. 5: We have corrected it. \]](#)

For the rest, I use the authors' line numbering:

4: "page 169, [3]" -> "[3, page 169]"

[\[Response to Reviewer comment No. 6: We have corrected it. \]](#)

7: Never start a sentence with an abbreviation like "E.g.,"

[\[Response to Reviewer comment No. 7: We have corrected it in the paper. \]](#)

8: add comma (,) after "i.e."

[\[Response to Reviewer comment No. 8: We have corrected it. \]](#)

12: "since the time model" -> "where the ..."

[\[Response to Reviewer comment No. 9: We have corrected it. \]](#)

14: "between clocks": maybe better to write "between events"

[\[Response to Reviewer comment No. 10: We have corrected it. \]](#)

16: "speeicification": USE SPELL-CHECKER before submitting

[\[Response to Reviewer comment No. 11: Thank you. We have corrected it and similar problems in other places of the paper. \]](#)

23: "e.g." -> "such as"

[\[Response to Reviewer comment No. 12: We have corrected it. \]](#)

25: remove "and" before "that"

[\[Response to Reviewer comment No. 13: We have corrected it. \]](#)

25: "problem for" -> "problem with"

[\[Response to Reviewer comment No. 14: We have corrected it. \]](#)

26: add comma aftr "e.g."

[\[Response to Reviewer comment No. 15: We have corrected it. \]](#)

27: add comma after "solvers"

[\[Response to Reviewer comment No. 16: We have corrected it. \]](#)

29: "different technique": I would use "method" here, since verification is not a single "technique"

[\[Response to Reviewer comment No. 17: We have corrected it. \]](#)

30: "state exploration" -> "state space exploration"

[\[Response to Reviewer comment No. 18: Thank you. We have corrected it. \]](#)

31: "technique" -> " method"

[\[Response to Reviewer comment No. 19: We have corrected it. \]](#)

32: add "a" before "Hoare triple"

[\[Response to Reviewer comment No. 20: We have corrected it. \]](#)

33: "and dynamic" -> "or a dynamic"

[\[Response to Reviewer comment No. 21: We have corrected it. \]](#)

51: "into a reletively": SPELL-CHECK! and should be "as a relatively"

[Response to Reviewer comment No. 22: Thank you. We have corrected it. ]

57: "; The" -> "; the"

[Response to Reviewer comment No. 23: We have corrected it. ]

65: "CDL, it" -> "CDL. It"

[Response to Reviewer comment No. 24: We have corrected it. ]

77: "Algorithm 1-5" -> "Algorithms 1-5"

[Response to Reviewer comment No. 25: We have corrected it. ]

86: "extended from [27]" -> "extends [27]"

[Response to Reviewer comment No. 26: We have corrected it. ]

89: "the the" (check entire paper carefully)

[Response to Reviewer comment No. 27: We have corrected it. ]

94: "build" -> "define"

[Response to Reviewer comment No. 28: We have corrected it. ]

98: move "in Coq" to end of sentence: "SEPs, in Coq."

[Response to Reviewer comment No. 29: Thank you and we have corrected it. ]

Formula around L106: The upper part of the large brace is weird

[Response to Reviewer comment No. 30: Sorry we don't know how to fix it and we thought it must be a print problem of this template because the same code works well in our other papers. ]

around 113: "where the schedule  $\sigma = \{\dots\}$ " is not well-formed. Just remove "the schedule"

[Response to Reviewer comment No. 31: We have corrected it. ]

125: "we will give in Example 3.1.": remove "we will give" (it's already there :)

[Response to Reviewer comment No. 32: We have corrected it. ]

131 and 135: add "a" or "the" before "clock relation"

[Response to Reviewer comment No. 33: We have corrected it. ]

136: remove "as"

[Response to Reviewer comment No. 34: We have corrected it. ]

139: not "propose". Use "introduce" or "define" instead

[Response to Reviewer comment No. 35: We have corrected it. ]

142 and "154": "formula of CDL" -> "formulas of CDL"

[Response to Reviewer comment No. 36: We have corrected it. ]

146: "a testing" is not correct; use just "testing" or (better) "a test"

[Response to Reviewer comment No. 37: We have corrected it. ]

151: "The testing" ....

[Response to Reviewer comment No. 38: We have corrected it. ]

154?: "for a finite": remove "for"

[Response to Reviewer comment No. 39: We have corrected it. ]

155: add "and" before "a"

[Response to Reviewer comment No. 40: We have corrected it. ]

156: "dynamic formula" -> "dynamic logic formula"

[Response to Reviewer comment No. 41: We have corrected it. ]

165: "testings" just looks wrong. "tests"??

[Response to Reviewer comment No. 42: We have corrected it. ]

166: ") 1."

[Response to Reviewer comment No. 43: Sorry we don't understand what you mean here. Do you mean we should not use the footnote and use citation? ]

169: "formula" -> "formulas"

[Response to Reviewer comment No. 44: We have corrected it. ]

204: " $n \in \mathbb{Z}$ ": can  $n$  be 0?

[Response to Reviewer comment No. 45: Yes. But of course when  $n$  is 0, it can not be  $\_ / n$ . ]

219? "They should not be confused in the context.": What on earth does this mean? Maybe just remove it?

[Response to Reviewer comment No. 46: OK, we have removed it. ]

236: comma after "e.g."

[Response to Reviewer comment No. 47: We have removed it. ]

237: add "the" before "other"

[Response to Reviewer comment No. 48: We have removed it. ]

239: again, don't start a sentence with "E.g.,"

[Response to Reviewer comment No. 49: Thank you we have fixed all similar places in the paper. ]

245 and elsewhere: do not capitalize "Feeder" and "Filter"

[Response to Reviewer comment No. 50: We have corrected it. ]

259: "for infinitely": remove "for"

[Response to Reviewer comment No. 51: We have corrected it. ]

261: "must cause" -> "causes"

[Response to Reviewer comment No. 52: We have corrected it. ]

272: remove "in its language"

[Response to Reviewer comment No. 53: We have corrected it. ]

297: "play the" -> "play a"

[Response to Reviewer comment No. 54: We have corrected it. ]

298: remove "the" before "clock relations"

[Response to Reviewer comment No. 55: We have corrected it. ]

305: "to to"

[Response to Reviewer comment No. 56: We have corrected it. ]

306: "states as" -> "given in"

[Response to Reviewer comment No. 57: We have corrected it. ]

318: "more flexible" makes no sense; use "easier" or "more convenient"

[Response to Reviewer comment No. 58: We have corrected it. ]

328?: "all execution of p1" -> ... executionS ...

[Response to Reviewer comment No. 59: We have corrected it. ]

341: "general variable": I don't think that the notion of "\_general\_  
variable" has been introduced

[Response to Reviewer comment No. 60: It has been introduced in Def. 3.1, line 203. We call a normal  
variable  $x$  a "general variable" just to distinguish it from clock-related variables. ]

352: "we say X" -> "we say that X"

[Response to Reviewer comment No. 61: We have corrected it. ]

362: "formula , we"

[Response to Reviewer comment No. 62: We have corrected it. ]

376: "Section3.1" (please check manuscript carefully!)

[Response to Reviewer comment No. 63: We have corrected it. ]

396: "general variables" again ....

[Response to Reviewer comment No. 64: A similar question has been answered above. ]

433: "program following the" -> "program, following an"

[Response to Reviewer comment No. 65: We have corrected it. ]

462: "add "The" before "Function Mer"

[Response to Reviewer comment No. 66: We have corrected it. ]

524 and MANY other places: " $=||$ " (p1": Here it looks like  $=||$  is ONE symbol.

You should have MUCH more space between ' $\equiv$ ' and '||'

This applies to MANY MANY places in the manuscript.

Please fix them all carefully!

[Response to Reviewer comment No. 67: We have fixed all these places and in fact we have defined  $\$\\parallel\$$  as a math operator so they look good now. ]

525: "(where  $\pi = \mu$ )": why don't you just use  $\mu$  directly in the line above instead of  $\pi$ ??

[Response to Reviewer comment No. 68: Thank you for this observation. The reason is just simple. Because we think that  $p_{i-1}$ ,  $\mu$ ,  $p_{i+1}$  looks quite weird without the mention of  $p_i$ . ]

530 and 531 and 565 and many other places: see 524

[Response to Reviewer comment No. 69: We have fixed all these places. ]

552: add comma after "because"

[Response to Reviewer comment No. 70: We have corrected it. ]

Def 3.17: replace "any" with "each" (or "some"??)

[Response to Reviewer comment No. 71: ``each'' is correct, and we have corrected it. ]

592 and 593 and 623: same thing here; replace "any" with either "some" or "each"

[Response to Reviewer comment No. 72: We have corrected it. ]

640: remove "first"

[Response to Reviewer comment No. 73: We have corrected it. ]

644: remove comma after "finite"

[Response to Reviewer comment No. 74: We have corrected it. ]

758 and many places in Algorithms 1 and 2: see 524

[\[Response to Reviewer comment No. 75: We have fixed all these problems. \]](#)

same thing in 796 and the box above 798.

[\[Response to Reviewer comment No. 76: We have fixed all these problems. \]](#)

879: "completeness" -> "relative completeness"?

[\[Response to Reviewer comment No. 77: We have corrected it. \]](#)

924 and 925: "Theo." -> "Theorem"; you have much space!!

[\[Response to Reviewer comment No. 78: We have changed all ``Theo.'' to ``Theorem''. \]](#)

942: comma after "i.e."

[\[Response to Reviewer comment No. 79: We have corrected it. \]](#)

951/footnote 3: as mentioned before, just inline the footnote. That is, write "We have posted ... on the website `\url{https://....}`"

[\[Response to Reviewer comment No. 80: We have corrected it. \]](#)

1038: "are concerned" -> "are considered"

[\[Response to Reviewer comment No. 81: We have corrected it. \]](#)

1053: "for generating" -> "to generate"

[\[Response to Reviewer comment No. 82: We have corrected it. \]](#)

In general, I found the intro to 7.3 and 7.3.2 not very intuitive.

Maybe you can convey better/give a high-level overview of the main

"ideas" here

[\[Response to Reviewer comment No. 83: We have added the main idea of the mechanization at the beginning of Sect. 7.3. In fact, we have already given a general description of the main idea at the beginning of Sect. 7. But in Sect. 7.3, we give a more detailed explanation after introducing the inductive types in Coq in Sect. 7.2.1. \]](#)

1182: "rewrite logic" -> "rewriting logic"

[\[Response to Reviewer comment No. 84: We have corrected it. \]](#)

References:

Refs 5, 10 have problems with (lack of) capitalization

[\[Response to Reviewer comment No. 85: We have modified the problem. \]](#)

Refs 42, 28, and 10 need more info about where it was published (and year, etc)

[\[Response to Reviewer comment No. 86: It turns out that reference 28 is a book not published and only](#)



available online, so we can only add information about where it was posted online. ]

Ref 38: Paper title should start with capital letter

[Response to Reviewer comment No. 87: We have modified the problem. ]