

Report on the manuscript “Decomposer type functions on groups”

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Reviewer’s decision

The manuscript under review studies the concept of decomposer function on a group, which has been introduced recently in [1]. In particular, the author provides a general form of the solution of certain decomposer equations in groups, which have been considered in [1]. The results, obtained by the author, seem to be of certain (probably, moderate) interest to the algebraic community, and, therefore, the paper deserves to be presented to a broad audience. There are, however, ceratin issues, which should be carefully addressed before publication. More precisely, in the first place, the manuscript has a (quite considerable) number of typos, which should necessarily be removed, and, in the second place, there are some mathematical points (mostly, related to the lack of information on certain notations of the author), which should be taken into account as well.

In view of the above discussion, it is our opinion that the manuscript needs a minor revision before it could be accepted for publication in “BRITISH JOURNAL OF MATHEMATICS & COMPUTER SCIENCE”. To facilitate the adjustment process, the author is advised to consult the two subsequent sections (which are called “Misprints” and “Mathematical issues”, respectively), which contain recommendations of the referee on the possible improvements of the manuscript.

Misprints

Below is the list of misprints found in the paper as well as possible language style improvements. The author is strongly advised to check carefully the English language of the manuscript before submitting its revised version.

1. Page 1, line 2 of Abstract: “on” should be “in”. On the next line, a comma after “and” is missing, “ $f : G \rightarrow G$ ” should be “ $f : G \rightarrow G$ is a map” (this pattern is to follow throughout the paper), and “ f right” should be “ f is a right” (the pattern “ f is a [some type of] decomposer” (and also “ f is a [some type of] separator”), i.e., using the indefinite article “a”, is to follow throughout the paper).
2. Page 1, line 8 of Abstract: “is group” should be “is *a* group”.

3. Page 1, line 13 of Abstract: a comma at the end of the line in question is missing. On the next line, “us for study” should be “us in the study”.
4. Page 1, line 16 of Abstract: “characterized” should be “characterize”. On the next line, a comma after “groups” is missing, and “give general” should be “give *a* general”.
5. Page 1, line 1 of Section 1: a comma is missing after “In [3]”. On the next line, “have so” should be “have”.
6. Page 1, line 3 of Section 1: “[1,2,3]” should be “[1, 2, 3]” (the spaces after the commas are missing). On the next line, “ $f : G \rightarrow G$ ” should be “ $f : G \rightarrow G$ is”, and a comma after “factor of G ” is missing.
7. Page 1, line 6 of Section 1: a comma after “fact” is missing, and “that recently” should be “that have recently”.
8. Page 2, line 1: “by” should be “for every $x \in G$ by”. The respective “ $\forall x \in G$ ” on the next line is then redundant.
9. Page 2, line 3: “[resp.” should be “[resp.” (the space is redundant).
10. Page 2, line 8: the space before the comma in the middle of the line in question is redundant. Similar remark, for line 4 of Example 1.1 on the page in question; page 5, line 9 of Theorem 2.5; page 6, line 4 from below.
11. Page 2, line 9: “is endomorphism” should be “is *an* endomorphism”, and a comma after “i.e.” is missing.
12. Page 2, line 2 up from Example 1.1: “**Additive Notations**” should be “**Additive notations**” (no capital letter), “is additive” should be “is *an* additive”. On the next line, a comma before “and” is missing.
13. Page 2, line 2 of Example 1.1: a comma before “denote” is missing.
14. Page 2, line 6 of Example 1.1: “*function* , respectively” should be changed to “*function*, respectively” (the space before the comma is redundant).
15. Page 2, line 2 of Section 2: “is as a solution” should be “is a solution”.
16. Page 3, line 6: “In each” should be “In each of”, and a comma after “parts” is missing.
17. Page 3, line 3 of Remark 2.2: “for every x, y ” should be changed to “for every $x, y \in G$ ”.
18. Page 3, line 19: “separator]. Because” should be “separator], since” (please, mind the comma). The pattern of using “since” for “because” is to follow throughout the paper.
19. Page 3, line 6 up from Example 2.3: “prperty” “property”.

20. Page 3, line 4 up from Example 2.3: the colon after “that” is redundant.
21. Page 3, the definition of “ $f(x)$ ” at the bottom of the page: “ $x \ x \in \Omega$ ” should be “ $x, \ x \in \Omega$ ”, and “ $bx \ x \notin \Omega$ ” should be “ $bx, \ x \notin \Omega$.” (please, mind both the comma and the period at the end). This pattern is to follow throughout the paper.
22. Page 4, line 3: “numbers” should be “number”. The pattern “number group” is to follow throughout the paper.
23. Page 4, line 7: a comma after “so” is missing. This pattern is to follow throughout the paper.
24. Page 4, line 9: the comma before “for every” is redundant. The pattern of no comma before “for every” (and also “for all”) is to follow throughout the paper.
25. Page 4, line 13: “Also it is left decomposer, similarly.” should be changed to “Similarly, it is also a left decomposer.”. On the next line, “and define” should be “and define a map”.
26. Page 4, line 4 up from Lemma 2.4: a comma is missing at the end of the line in question.
27. Page 4, line 1 up from Lemma 2.4: “an standard” should be changed to “the standard”.
28. Page 4, line 7 of Lemma 2.4: “is standard” should be “is the standard”.
29. Page 4, line 5 from below: a comma before “then” is missing.
30. Page 4, line 2 from below: “theorem) , thus” should be “theorem), and thus,”. The pattern “... , and thus, ...” (please, mind the commas) is to follow throughout the paper.
31. Page 4, the last line: a comma before “so” is missing. This pattern is to follow throughout the paper.
32. Page 5 line 3: “similar” should be “the”.
33. Page 5, line 8 from below: a comma before “hence” is missing.
34. Page 5, line 3 from below: a comma after “On the other hand” is missing. This pattern is to follow throughout the paper.
35. Page 6, line 5: a period is missing at the end of the line in question.
36. Page 6, line 7: a comma before “for some” is redundant.
37. Page 6, line 12: a comma after “(clearly)” is missing.

38. Page 6, line 16: the line in question should run as “So, f is a right decomposer. The proof of the remaining parts is similar, employing”. On the next line, “for” should be “of”.
39. Page 6, line 21: “right Separator” should be “right separator” (no capital letter). Three lines down, a comma before “but” is missing.
40. Page 6, line 8 from below: “Consider” should be “Consider, e.g.,”.
41. Page 6, line 6 from below: “Right separator” should be “right separator” (no capital letter). On the next line, “Define” should be “Define a map”.
42. Page 6, line 3 from below: a comma before “but” is missing. On the next line, “Right decomposer” should be “right decomposer” (no capital letter).
43. Page 7, line 1: “Right strong decomposer” should be changed to “right strong decomposer” (no capital letter).
44. Page 7, line 3: “Right semi-strong decomposer” should be changed to “right semi-strong decomposer” (no capital letter).
45. Page 7, line 5: “nonstandard” should be “non-standard” (the dash is missing), “Now see” should be “Now, we consider” (please, mind the comma), and the colon after “examples” should be a period.
46. Page 7, line 6: a comma at the end of the line in question is missing.
47. Page 7, line 8: commas after “decomposer” and “Finally” are missing. On the next line, a comma before “but” is missing.
48. Page 7, line 2 of Section 3: a comma before “where” is missing.
49. Page 7, line 3 of section 3: “we say A is” should be “we say that A is a”, and a comma at the end of the line in question is missing. On the next line, “ $\{e\}$ and say A is” should be “ $\{e\}$, and say that A is a”.
50. Page 7, line 8 of Section 3: “nonempty” should be “non-empty”.
51. Page 7, line 3 up from Example 3.1: a comma before “where” is missing.
52. Page 7, line 2 up from Example 3.1: the comma at the end of the line in question is redundant.
53. Page 7, line 3 of Example 3.1: a comma before “where” is missing.
54. Page 7, line 5 from below: the comma before “from” is redundant.
55. Page 8, line 4: “arbitrary” is redundant.
56. Page 8, lines 3, 5 of Theorem 3.2: “ P_Ω :” should be “ P_Ω :” (the space before the colon is redundant).

57. Page 8, line 4 of Theorem 3.2: “Also, general” should be “Also, *a* general”.
58. Page 8, line 1 of the proof of Theorem 3.2: a comma before “we have” is missing.
59. Page 8, line 7 up from References: a comma is missing at the end of the line in question. Similar remark, three lines down.
60. Page 8, line 2 up from References: a comma after “first part” is missing.
61. Page 9, line 1 of item [3] of References: “Decomposer and Associative Functional Equations” should be “Decomposer and associative functional equations” (no capital letters). Similar remark, for item [5] of References on the page in question.
62. Page 9, line 1 of item [8] of References: “Szabo” should be “Szabó”.

Mathematical issues

Below are the mathematical issues, which raise the concern of the referee, and which, therefore, should be addressed by the author in the revision of the paper.

1. Page 1, the last line of Abstract: it is not clear to the referee, which paper the author has in mind (i.e., whether it is [1]).
2. Page 2, the paragraph entitled “Additive Notations”: the notation “ $f.g$ ” (please, mind the difference with “ $f \cdot g$ ”) is not explained by the author.
3. Page 3, line 3 up from Example 2.3: the notation “ $f_*(G) \leq G$ ” is not explained by the author.
4. Page 4, line 1: it is not clear to the referee, why the relation “ $x \notin \Omega \Leftrightarrow bx \in \Omega$ ” implies that the map $f : G \rightarrow G$ (defined at the bottom of page 3) is a (standard) right strong decomposer.
5. Page 4, Lemma 2.4: the notation “ $c.f$ ”, “ $f(e)^{-1}.f$ ” is not explained by the author (cf. item 2 of this list).
6. Page 7, line 1 of Section 3: the notation “ $\Delta\Omega$ ” is not explained by the author.
7. Page 7, line 5 of Section 3: the notation “ $\Delta.\Omega$ ” is not explained by the author.
8. Page 8: the manuscript definitely needs a concluding section (called, e.g., “Conclusion”), in which the author emphasizes once again his main achievements, and also briefly sketches possible further developments of his topic of study (e.g., open problems).

As a concluding remark, the referee would like to notice that the author never provides possible applications (however, theoretical) of his obtained results. Thus, the referee has some doubts on the fruitfulness and the necessity of the study of the author. To avoid possible disappointment on the side of the reader, the revision of the paper should address the just mentioned deficiency.

References

- [1] M. H. Hooshmand and H. K. Haili, *Decomposer and associative functional equations*, Indag. Math., New Ser. **18** (2007), no. 4, 539–554.