Dear Reviewer,

I am very grateful for your precise comments on my manuscript. Based on your advice, I have revised the parts mentioned in the comments as follows: The line numbers indicated in this reply reflect those in the old version of the manuscript.

Major concerns

1. L20: 'Figure' seems very generic. Because of the graph-theoretic flavor of the paper, it should be clarified immediately in the abstract that figures here are very simple graphs.

(Revision)

I changed "figural properties" to "graph and non-graph properties" in the Short Abstract.

2. L37: Axisymmetric pairs of figures should be defined here in addition to the definitions of Id*r*, and Nd pairs.

(Revision)

In the Long Abstract, I inserted the following text: "Let us call a mirror-reflected pair of figures an axisymmetric (Ax) pair" and "Mutually isomorphic figures share common structural properties despite differences in shape. Ax pairs and Id*r* pairs are special cases of isomorphic pairs. Furthermore, an Ax pair and Idr pai*r* share most of the superficial feature values, except the relative direction from one location to another location about an axis of symmetry is opposite for an Ax pair."

3. L55:

(Revision)

I changed "graph theoretically defined structural properties" to "graph theoretical structural properties."

4. L120: It would be nice to provide evidence for all numerical values provided.

(Revision)

Regarding Figure 3, I have provided examples of nine isomorphic sets of (*6*, *4*) figures rather than two sets used in the present experiment. I have also referred to Appendix 1 in Harary (1961) to show that there are nine isomorphic sets.

5. L138: Details should be provided on the database.

(Revision)

I listed all 11 graph invariants used in the database by which all (*6*, *n*) figures with *n* ranging from 1 to 6 can be sorted into the numbers of isomorphic sets specified in Appendix 1 in Harary (1961).

6. L142: Although the stimulus figures used in the experiment were named as the figures of isomorphic set 2 and 5, such notation was arbitrary and confusing.

(Revision)

As stated in response 4, I have provided examples of all nine isomorphic sets coded with 1 to 9 in Figure 3. Based on these illustrated examples, it would be natural to use the term isomorphic set 2 and set 5. Of course, in the legend of Figure 3, I have noted that the code numbers 1–9 do not indicate an order.

7. L148: "There were total of 1365 (*6*, *4*) figures". Add a reference or explain it.

(Revision)

Regarding the total numbers of (*6*, *n*) figures, I referred to Corollary 15.1 (a) in Harary (1969).

8. L158: "Candidate figures … were combined to form pairs of candidate figures." How? In all possible ways? At random?

(Revision)

I have completely rewritten the Protocol section. I have explained in detail how to generate Id*r*, Ax, and Nd pairs using the step-by-step calculations from 2.2.3 to 2.2.16.

9. L171: NOTE was unnecessary long.

(Revision)

Although it may still be clumsy, I have rewritten the note: "A line specification format of a (*6*, *4*) figure consists of four sequences of pairs of point labels. It is expressed in accordance with the left label that is always smaller than or equal to the right label inside a pair, and the left label of a previous pair that is always smaller than or equal to the left label of the following pairs."

10. L197: Line lengths depend on the geometry of the vertices not the line specification representation.

(Revision)

Based on the explanation in the Introduction that “Nd pairs were further subcategorized according to differences in the lengths of endlines between the two figures in each pair, with the unit of length set as the side of an invisible regular hexagon,” I have explained the steps in more detail as follows:
“2.2.12. Calculate the total line lengths of the cycles of two figures of an Nd pair. If the total lengths of the cycles between the two figures differ, discard the pairs.
2.2.13. Else, calculate the difference between line lengths of the endlines between two figures. If the length difference is 0, classify the pair as an Nd pair with a tag of 0 and accumulate it in the pool of Nd pairs.”

11. L458 Lines are attached to different points on the circumference of vertex circles.
(Revision)

In the Protocol section, I have explained the formation of stimulus figures as follows. “The six vertices of an invisible regular hexagon are stylized as small filled circles with diameters of 0.4 cm whose centers are shifted 0.2 cm outward from the locations of the vertices on a stimulus screen. With the exception of the stylized points, a (*6*, *4*) figure is projected in a 6.6 x 7.6 cm rectangular area. Two figures of a pair are located at horizontally parallel positions with a between-centers distance of 9.4 cm.” This formation of stimulus figures has long been used by emphasizing the presence of the points where lines connect. I accept your claim that lines should connect to the center of a stylized point. I will use the stylized points with a reduced diameter located at the respective vertices in future studies.

Thank you very much again for your precise advice.

Sincerely,
Fumio Kanbe
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