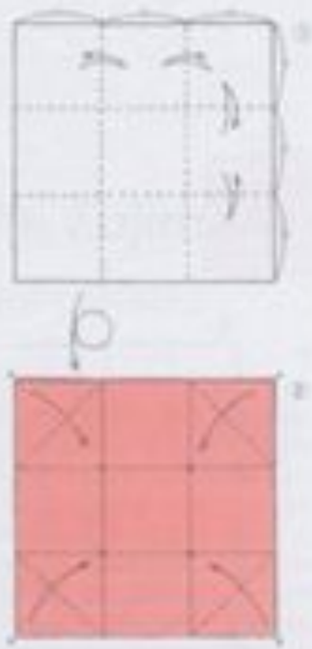
The Hosoya Cube—Folding Two Components and Then Assembling Them to Make a Cube

Haruo Hosoya

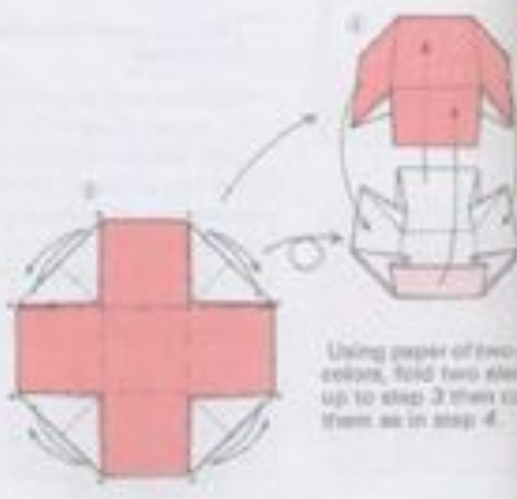
Please do not consider it a technological regression to use two sheets of paper to form a cube after having learned how to fold a splendid one from a single sheet.

The paper is divided into three equal parts as shown on page 28.



Whereas the Fujimoto cube represents a superb ... order, the Hosoya cube is a superlative idea. Both Haruo Hosoya, who teaches at the Ochanomizu ... men's College, and Shuzo Fujimoto employ ... the classroom to explain molecular and crystal structures.

The great charm of origami made from two ... paper is the possibility of color combinations. ... it is possible to make bicolor origami like the ... cube (pp. 30-35) by employing the obverse and ... sides of a single sheet of paper, the process is ... The topic is not dealt with in this book, but I ... would derive considerable pleasure from thinking ... origami made with three sheets of paper.



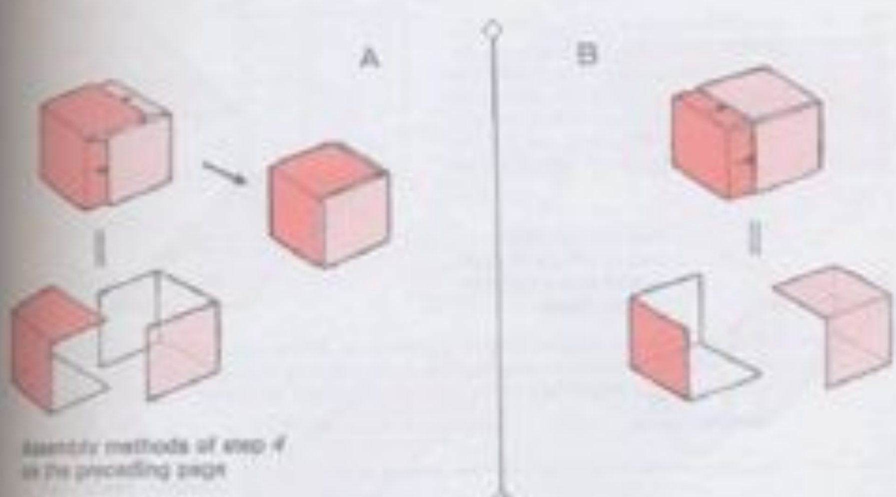
Using paper of two diff... colors, fold two element... up to step 3 then comb... them as in step 4.

From step 2 of the traditional Japanese *masu*, or measuring-box, fold (p. 55)

Applications of the Hosoya Cube

Masterpieces often seem perfectly simple. Haruo Hosoya himself remarks that he cannot understand why other origamians failed to discover his cube before he did. Columbus might well have wondered why none of his predecessors had not already got the idea the Earth is round from observing an egg.

Interesting variations of the Hosoya Cube are possible. For instance, in addition to assembly *A* below, assembly method *B* is a clear possibility. Or the elements themselves may be varied, as is shown on the left, into the traditional Japanese *masu* or measuring-box form, which may be easily combined as in C, which produces a slightly larger cube that is conveniently the same size as the 6-unit cube (pp. 42-44).



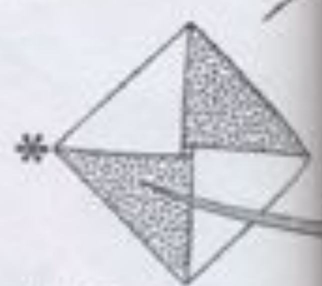
Assembly methods of step 4 on the preceding page

Folding for Identical Obverse and Reverse Surfaces

Panda
Kunihiko Kasahara

Ordinary origami paper has color on one side (the obverse) and is white on the other side (the reverse). Most origami folds are designed to reveal the colored and conceal the white side. The Panda (*A*), however, makes more extensive use of the reverse white side than of the obverse black one. In the Malay Tapir (*B*), on the other hand, obverse and reverse are revealed to about equal extents.

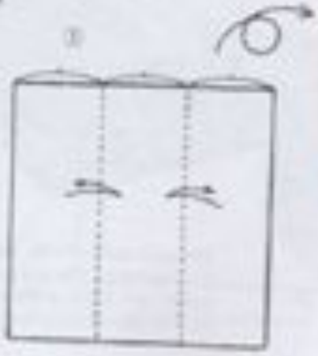
But this is not what is meant by "folding for identical obverse and reverse surfaces." Equalizing the obverse and the reverse is achieved by the remarkable object called the Moebius strip, a band of paper or similar substance joined to form a loop in such a way that the obverse of one tip overlaps with the reverse of the other, producing something in which both are one. Applying a similar principle, Toshikazu Kawasaki developed his iso-area fold, shown in plane form in *D* and in solid form in *E*.

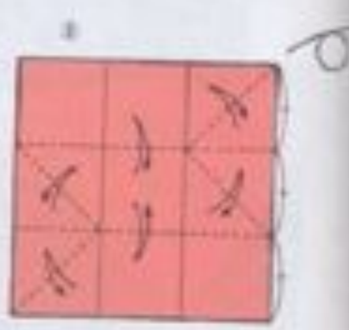


Iso-area (Obverse/Reverse) Folding Example I—Coaster #1

Toshikazu Kawasaki

The paper is divided into three equal parts as shown above (this is the best way).



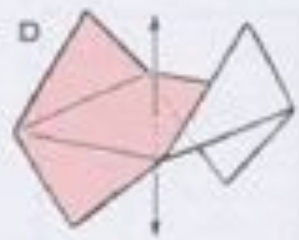


Comparing this fold with the traditional *menko* makes clear the significance of iso-area folding.

sahara

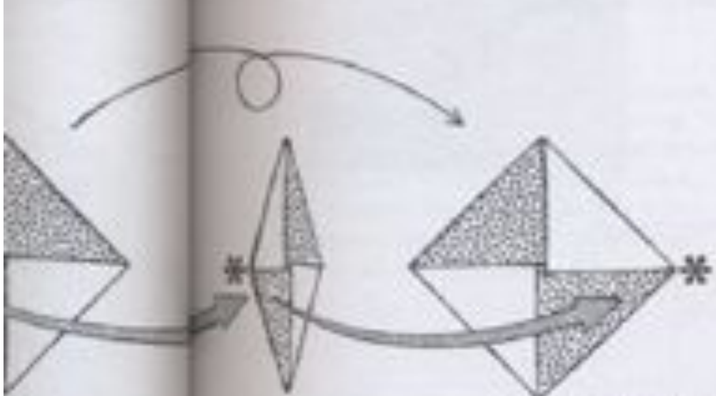
B **Malay Tapir** (p. 114)
Jun Maekawa

C **Moebius Strip**



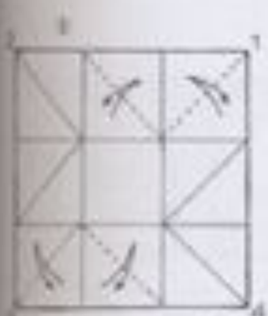
Principle of Iso-area Folding

In Solid Form (pp. 30 and 34)



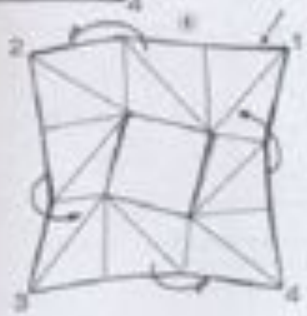
Since obverse and reverse are identical, this form is different from the traditional *menko*.

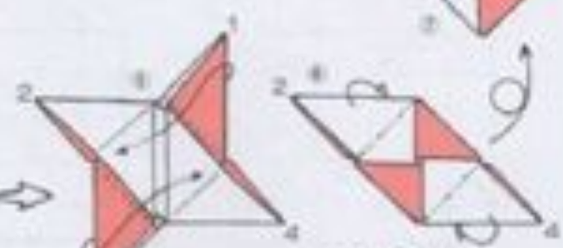
ing



with ... ding.

In the *menko*, obverse and reverse are different.





Completed fold

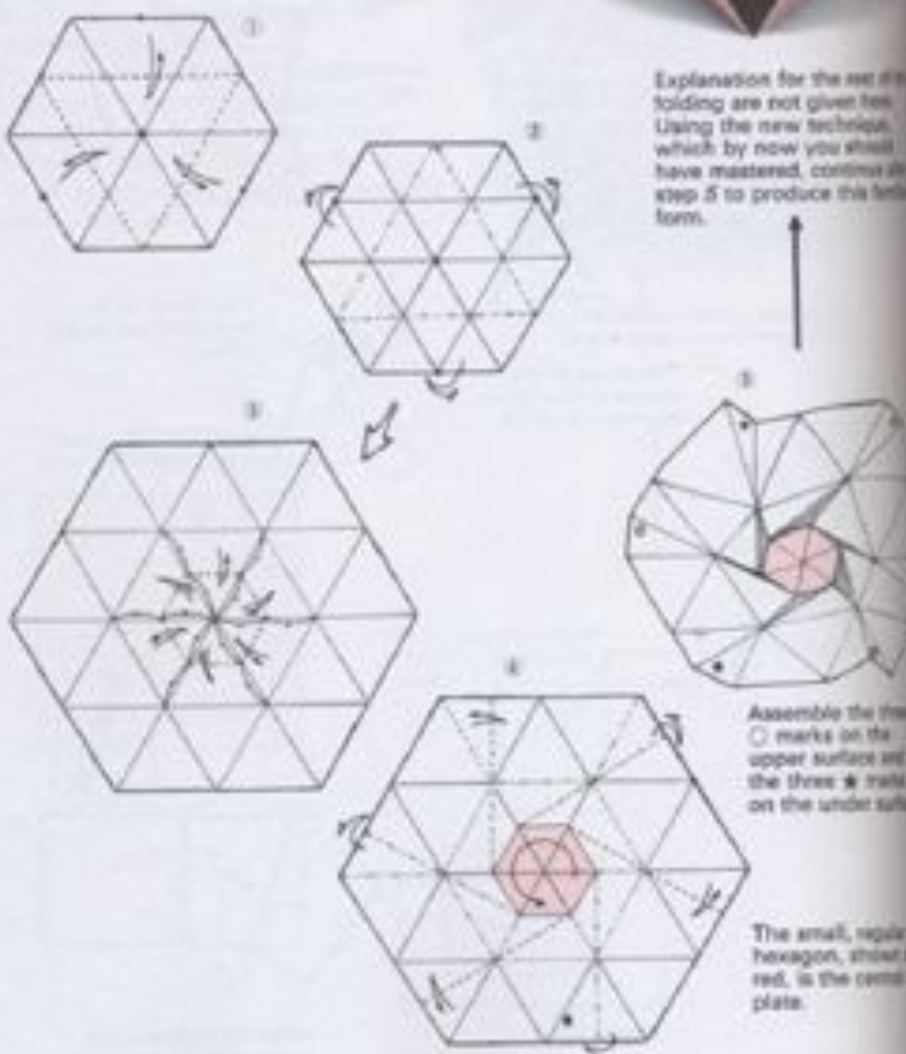
Later *2* and *4* are assembled together.

Octahedron Folded in the Iso-area Way

Toshikazu Kawasaki

This example shows how the iso-area folding method works the same even with nonsquare paper.

Explanation for the rest of the folding are not given here. Using the new technique, which by now you should have mastered, continue from step 5 to produce this final form.

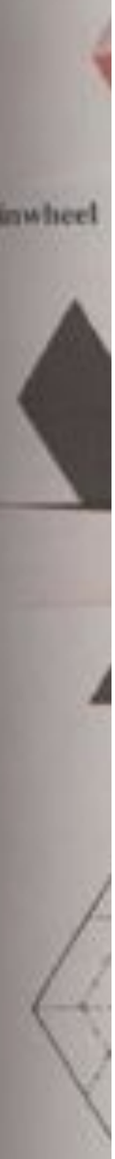


Assemble the three ○ marks on the upper surface and the three ★ marks on the under surface.

The small, regular hexagon, shown in red, is the central plate.

Regul

Pinwheel



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Regular-hexagonal Coaster

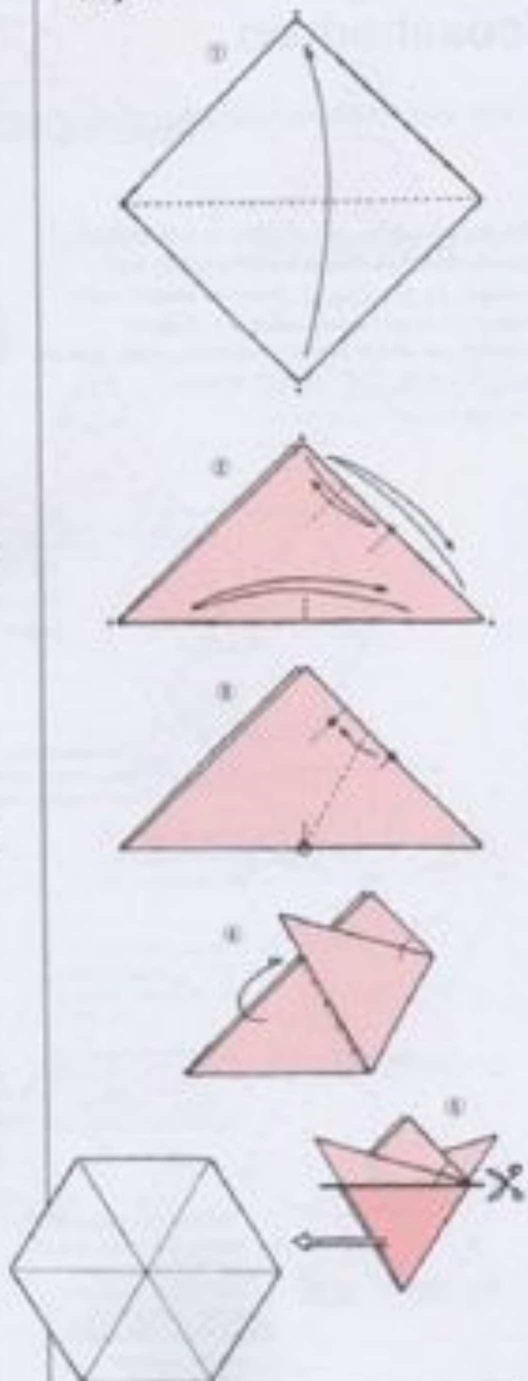
wheel

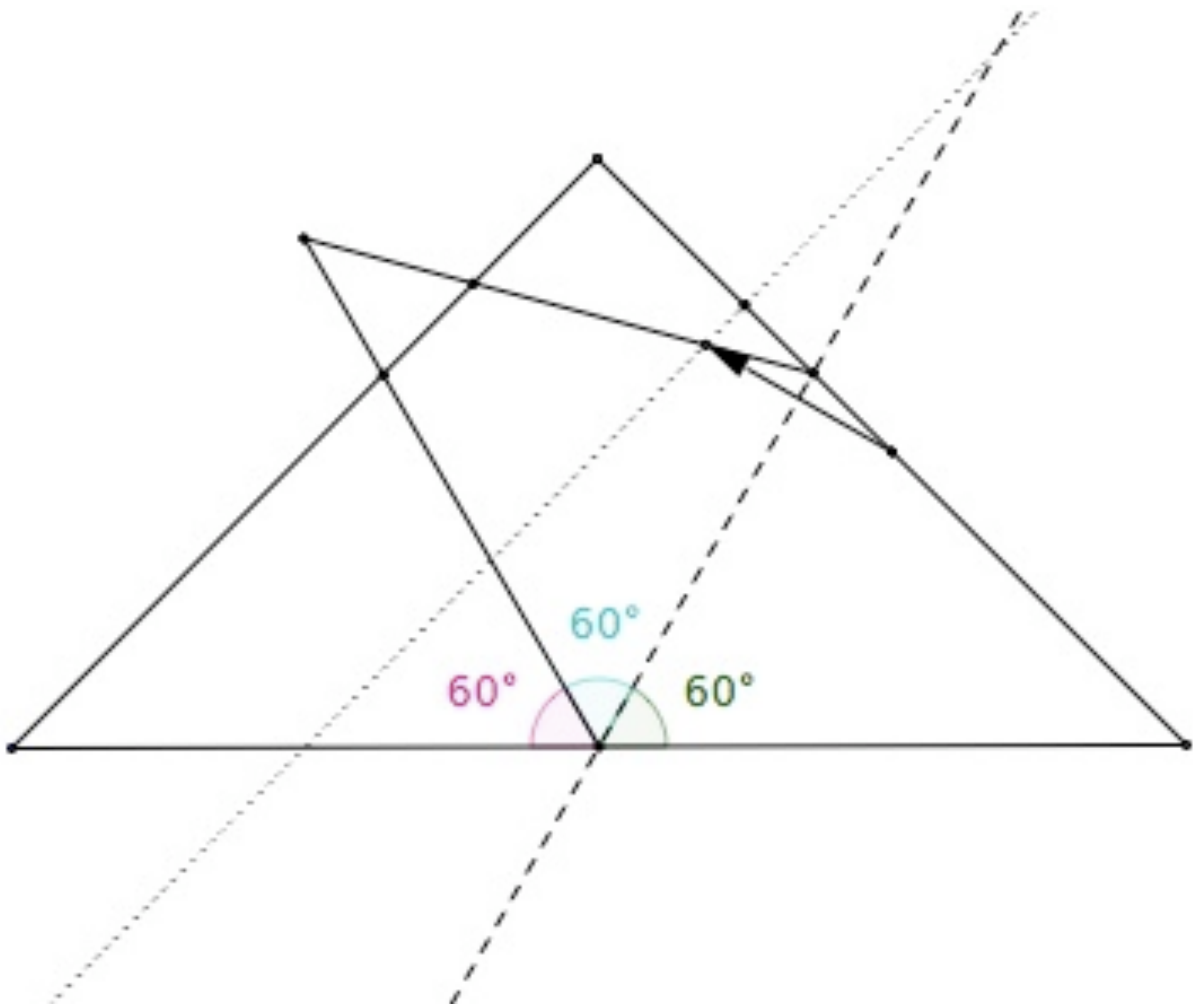
Intermediate steps not shown.

Intermediate steps not shown.

For review, fold the shapes shown above.

Preparing Regular-hexagonal Paper

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60°
60°