

Programmable Matter by Folding

multiple shapes, compound folds

To view video: http://erikdemaine.org/papers/Matter_PNAS/.

Figures removed due to copyright restriction.

Refer to: Fig. 4, 5, 7, 8 from Hayley N. Iben, James F. O'Brien, et al.
"Refolding Planar Polygons." In *Proceedings of the 22nd Annual ACM
Symposium on Computational Geometry* (2006): 71–9.

See also <http://graphics.berkeley.edu/papers/Iben-RPP-2006-06/>.

NATURE SERIES.

HOW TO DRAW A STRAIGHT LINE;

A

LECTURE ON LINKAGES.

BY

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OF THE INNER TEMPLE, ESQ.;
MEMBER OF THE COUNCIL OF THE LONDON MATHEMATICAL SOCIETY;
AND LATE SCHOLAR OF TRINITY COLLEGE, CAMBRIDGE.

WITH NUMEROUS ILLUSTRATIONS.



MACMILLAN AND CO.
1877.

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187. g. 16. Digitized by Google

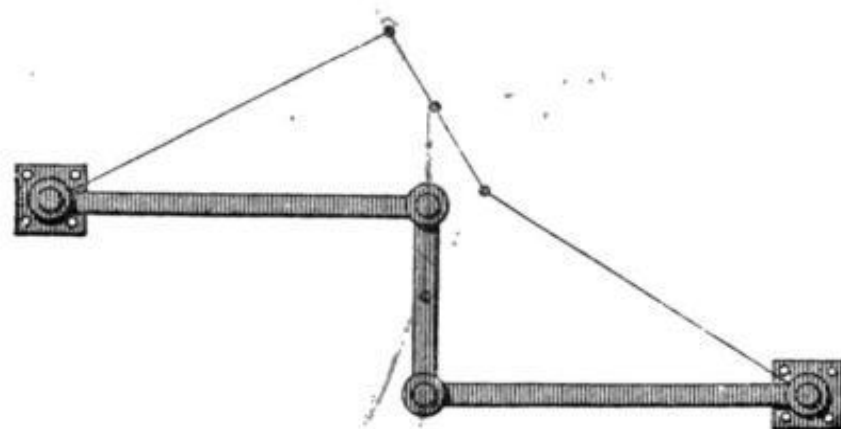


Fig. 2.

Watt 1784

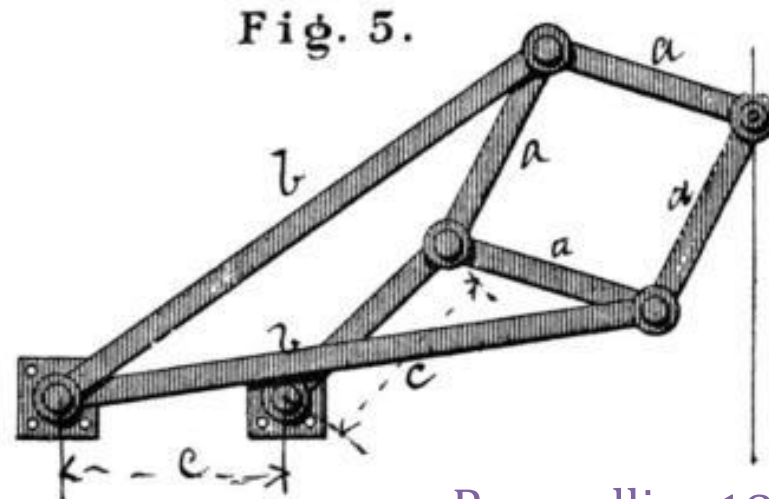


Fig. 5.

Peaucellier 1864

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Source: Kempe, A.B. *How to Draw a Straight Line*. MacMillan and Co., 1877. Co.

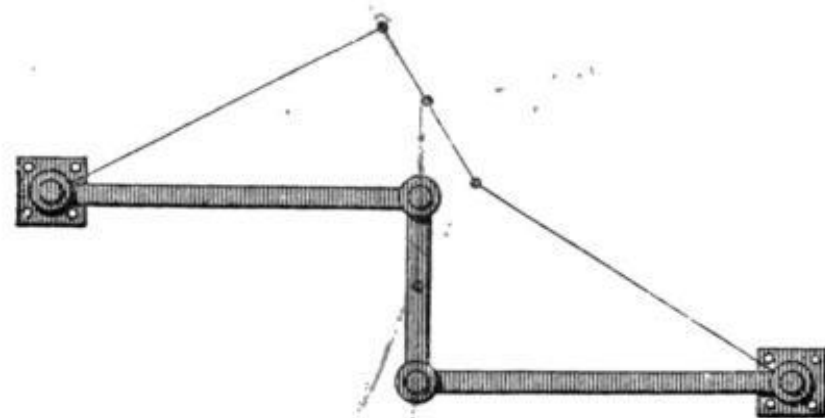
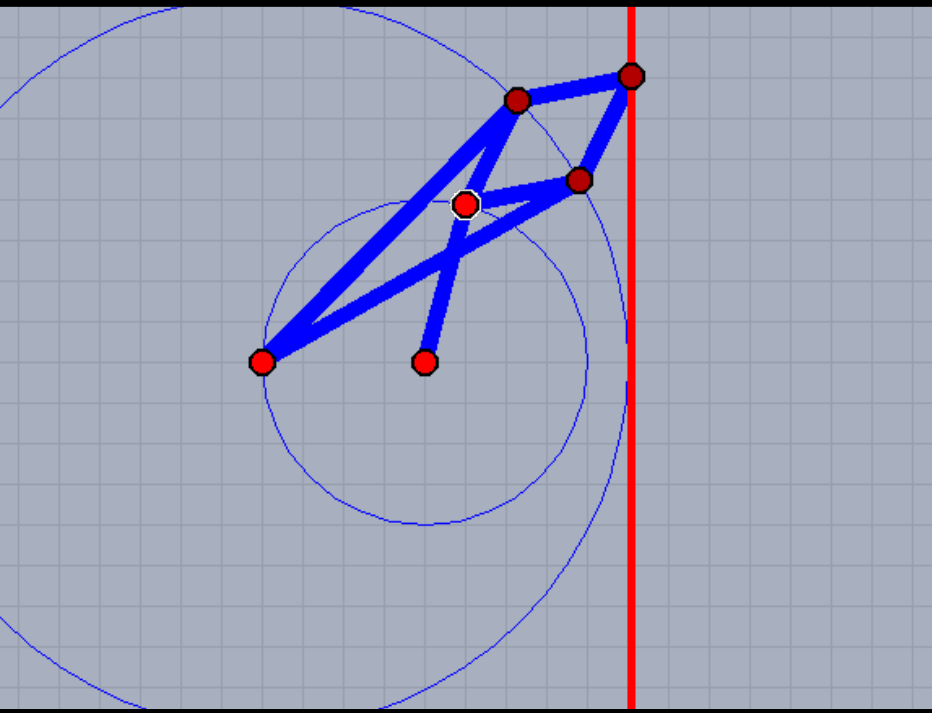
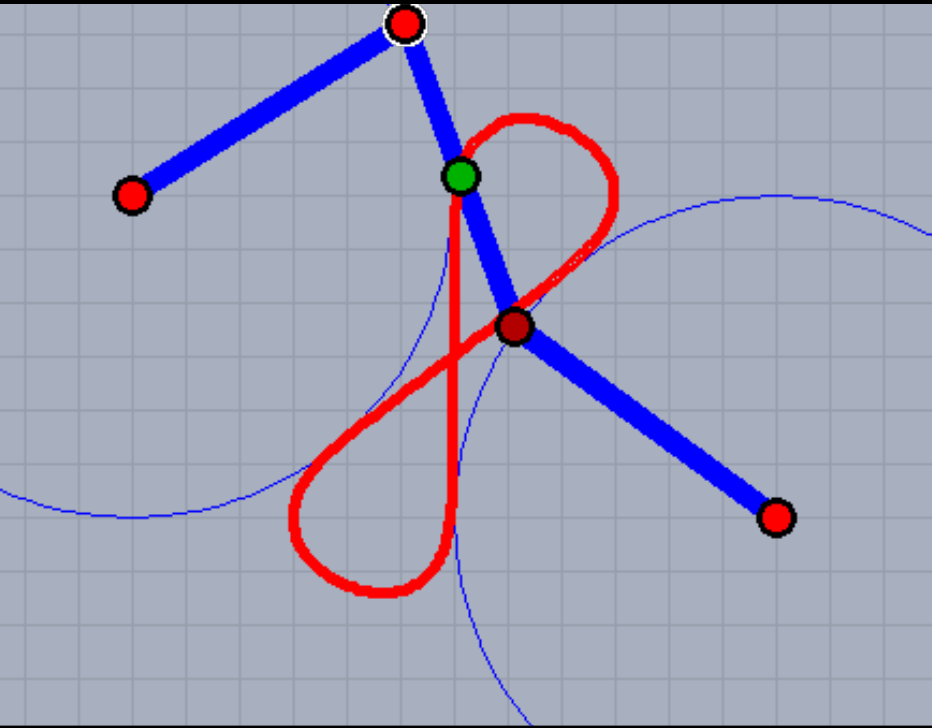


Fig. 2.

Watt 1784

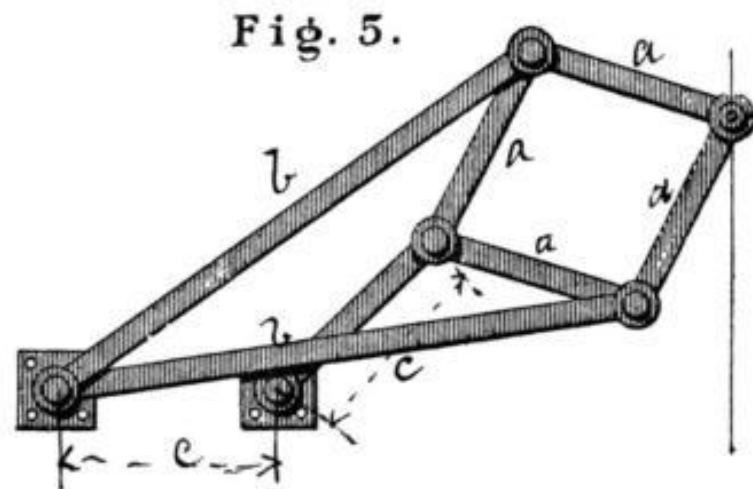


Fig. 5.

Peaucellier 1864

To view videos of DIWire from Pensa Labs: <http://vimeo.com/43278619> and <http://vimeo.com/41460834>.



Courtesy of Zhong You, and Kaori Kuribayashi. Used with permission.

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Refer to: Diagrams (p. 14 and 16) from Hyde, Rob. "[A Giant Leap for Space Telescopes](#)." *Science & Technology Review* (2003): 12–18.

Photograph of Robert J. Lang and his telescope prototype removed due to copyright restrictions.

Refer to: Bell, Susan. "[Know How to Fold 'Em: How Origami Changed Science, From Heart Stents to Airbags](#)," @5 'K YY_`m April 26, 2012.

Image of molecule removed due to copyright restrictions.

Refer to: <http://www.stanford.edu/group/pandegroup/images/PS3-shot-00008.jpg>

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Refer to: Cover of *Science* 271, no. 5252 (1996): 1039–138.

Nazgul 8.1
Jason Ku
2011



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Cerberus
Satoshi Kamiya
2005

Renwick Gallery,
Smithsonian American
Art Museum, 2012



Demaine &
Demaine



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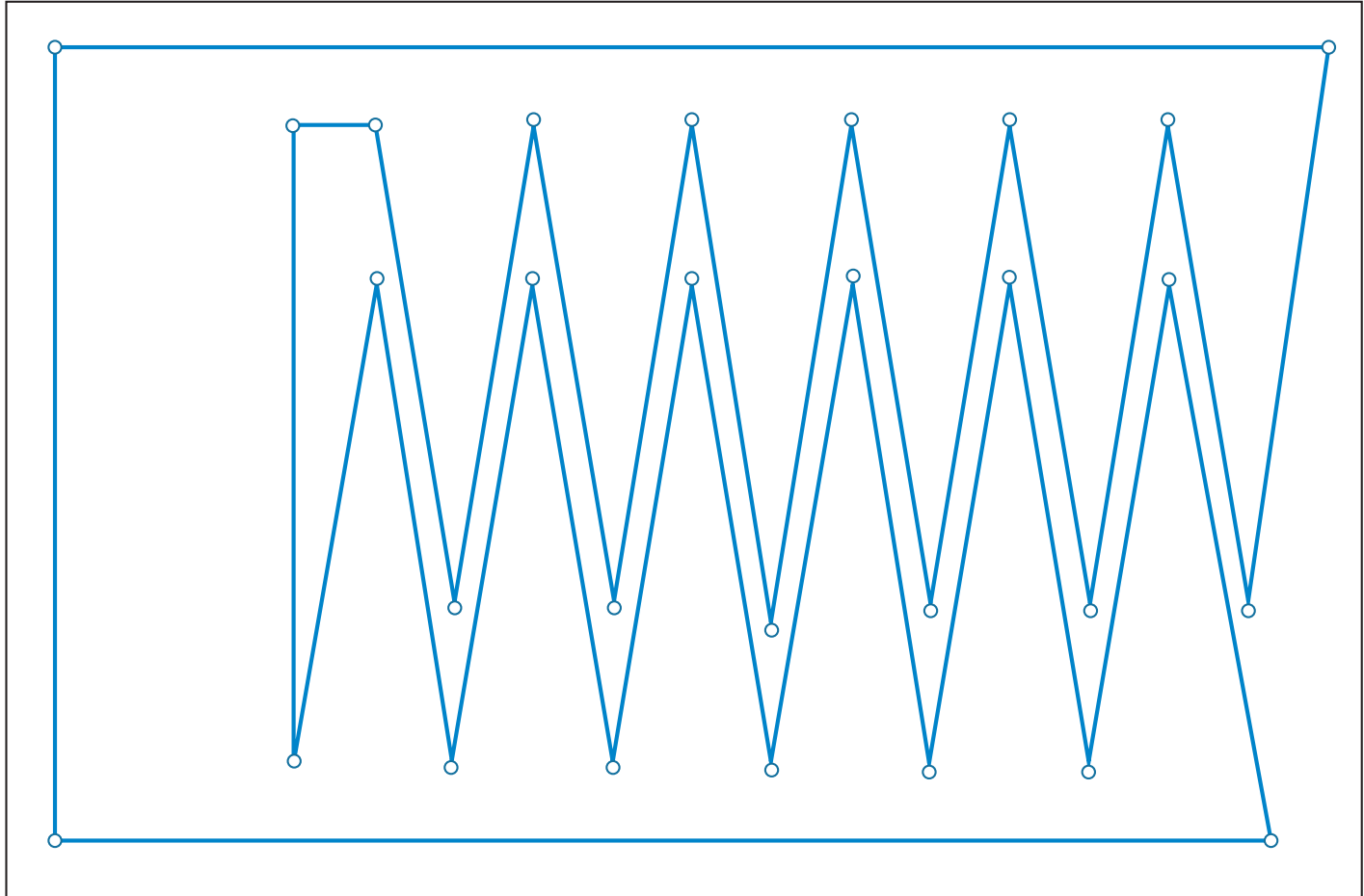


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Refer to: Cantarella, J., E. Demaine, et al. "An Energy-Driven Approach to Linkage Unfolding". *G7; f8('DfcWYX]b[g'cZ\h Y Hk Ybh]Yh\ '5bbi U`Gmā dcg]i a 'cb'7ca di hU]cbU'*; *Yca Yhfm*(2004): 134–43.

[Cantarella,
Demaine,
Iben, O'Brien
2004]

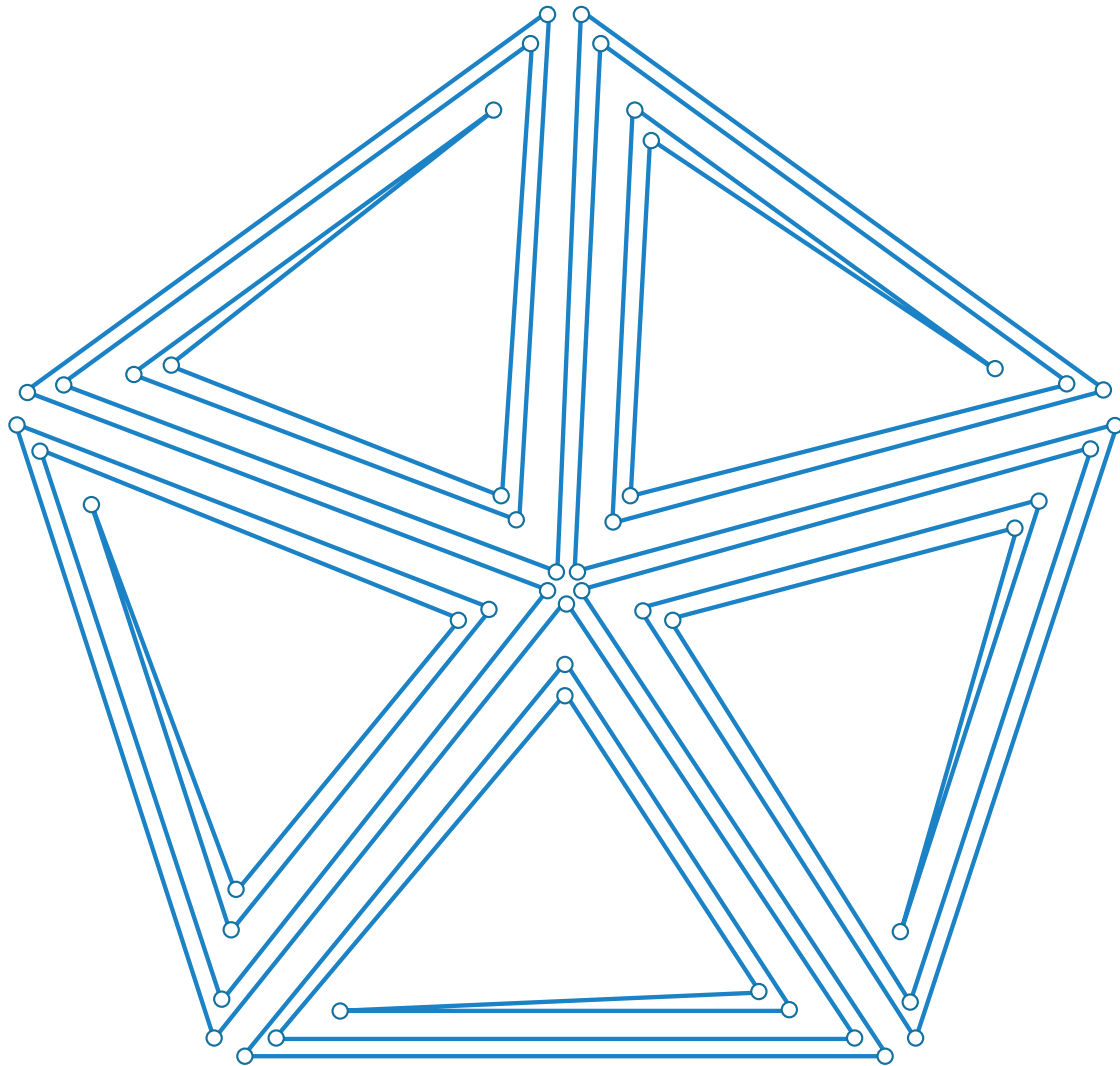


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[Cantarella,
Demaine,
Iben, O'Brien
2004]

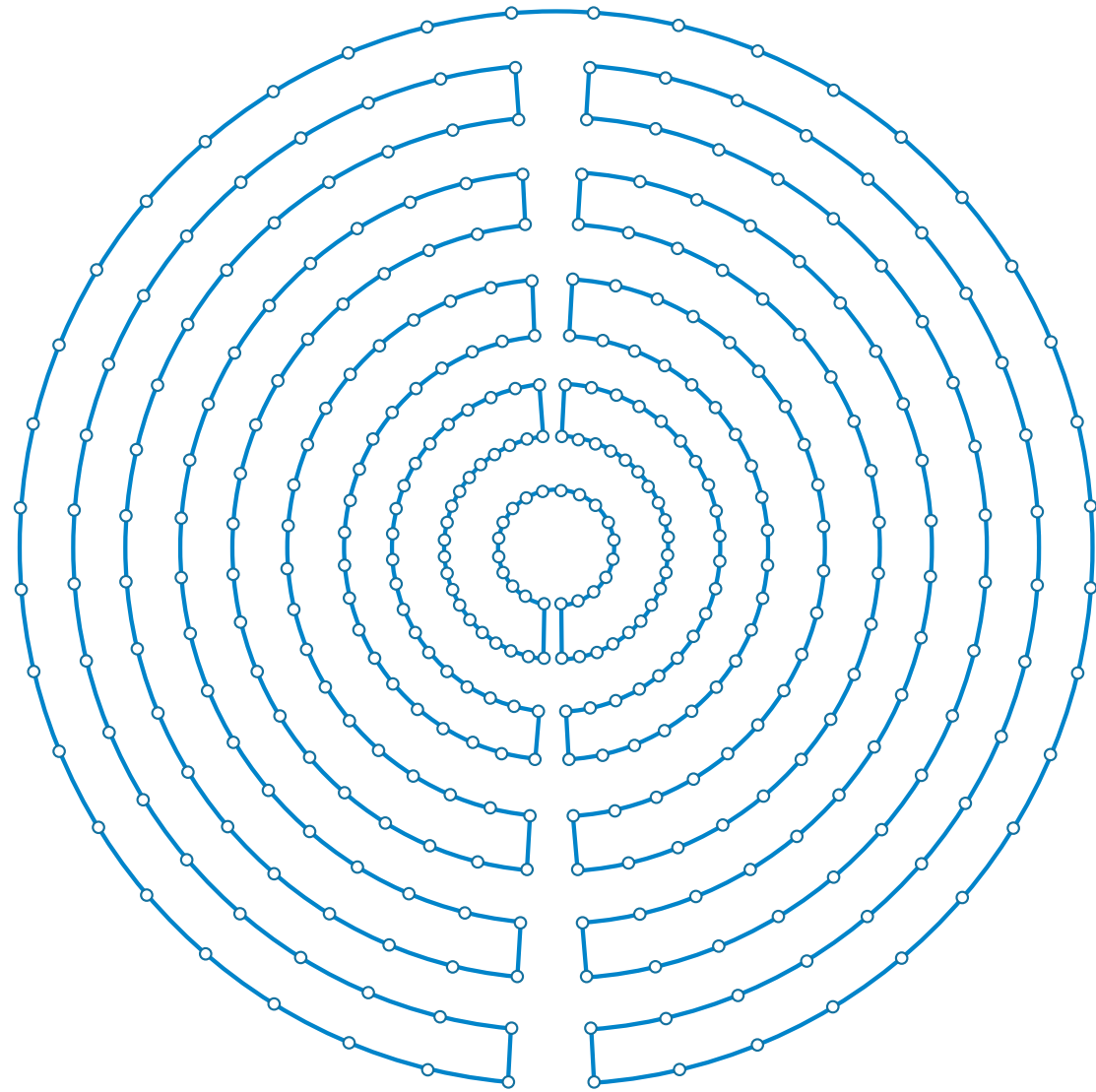


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[Cantarella,
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Iben, O'Brien
2004]

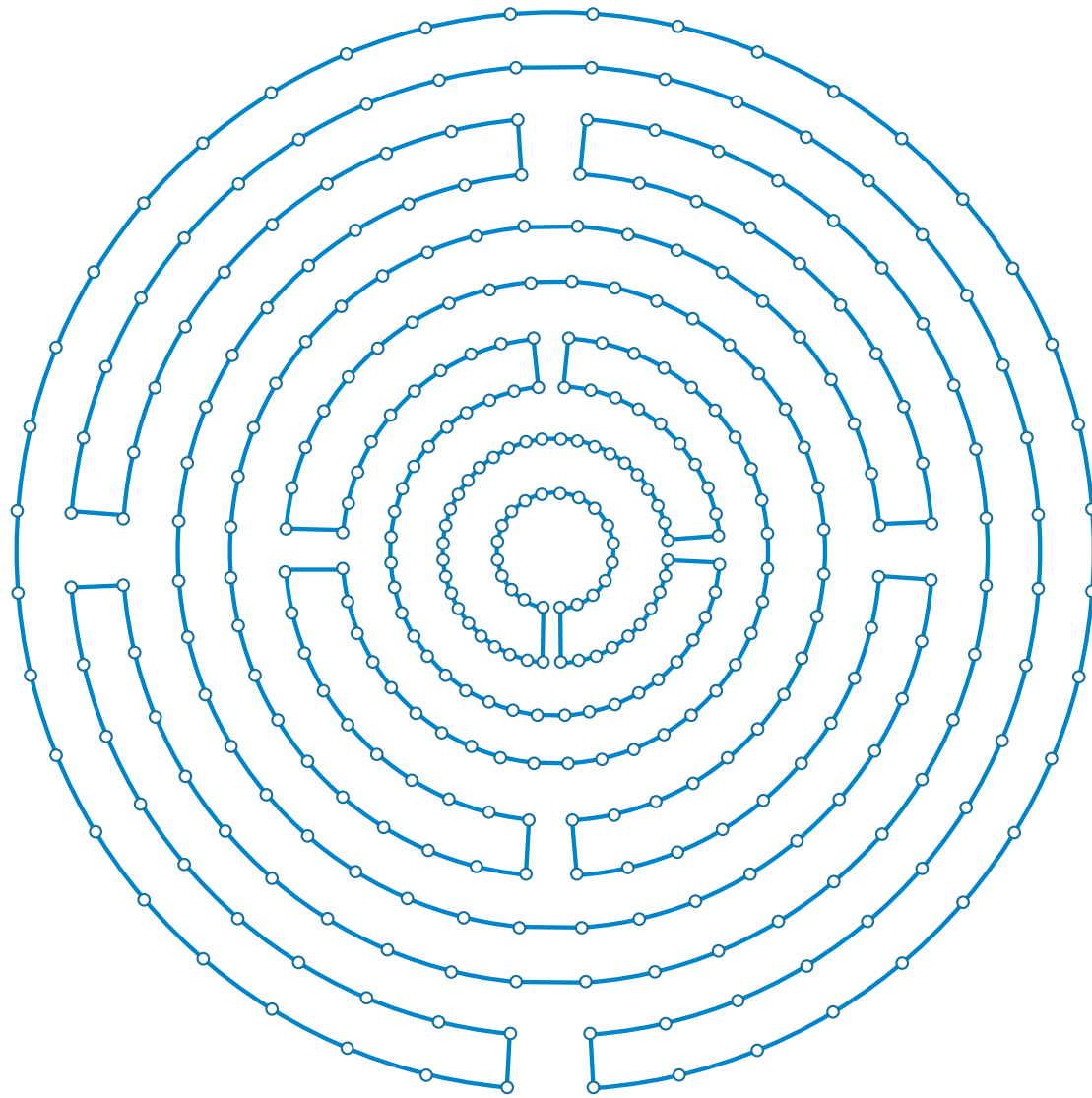
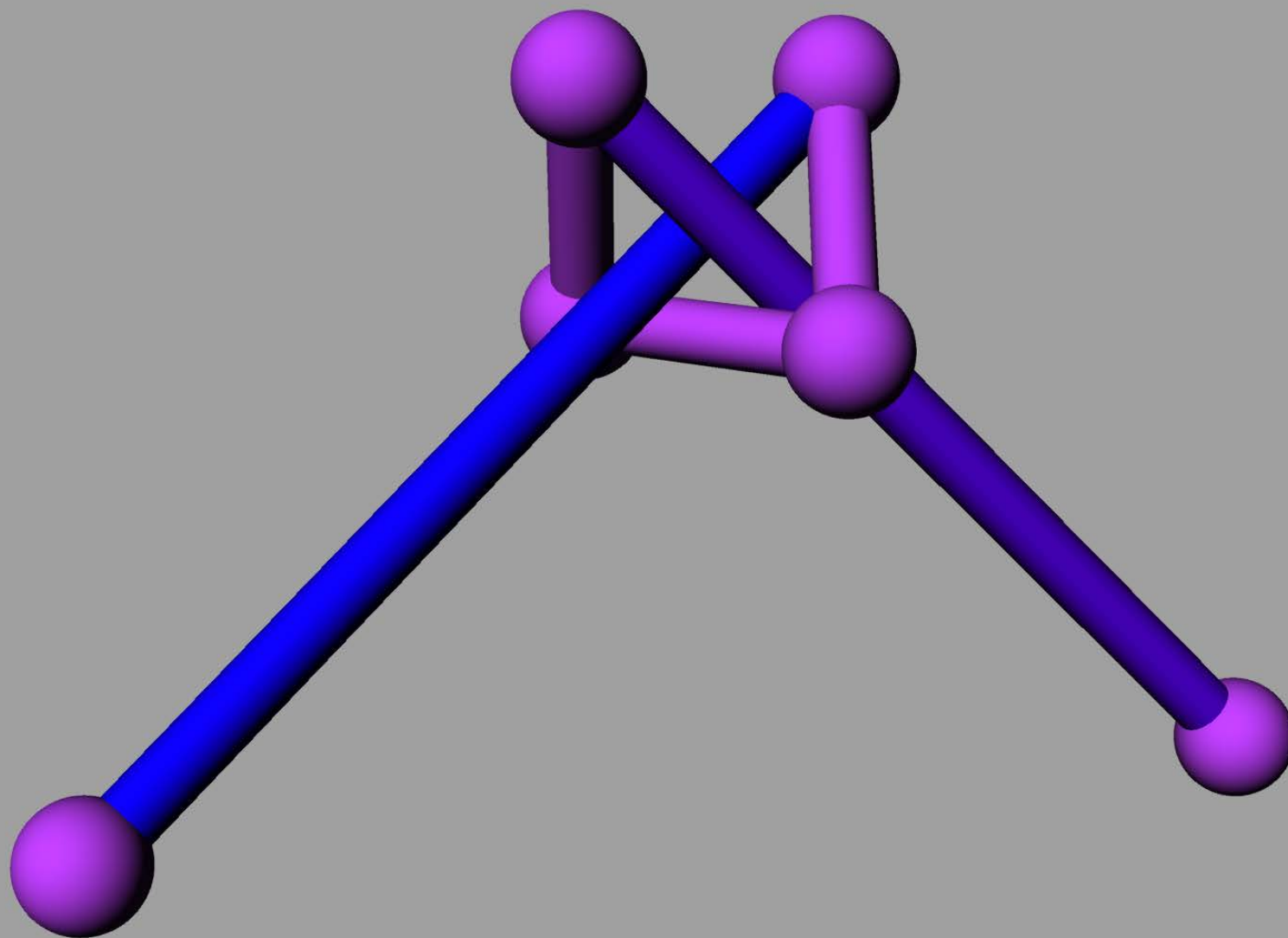


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[Cantarella,
Demaine,
Iben, O'Brien
2004]



[Cantarella & Johnston 1998]

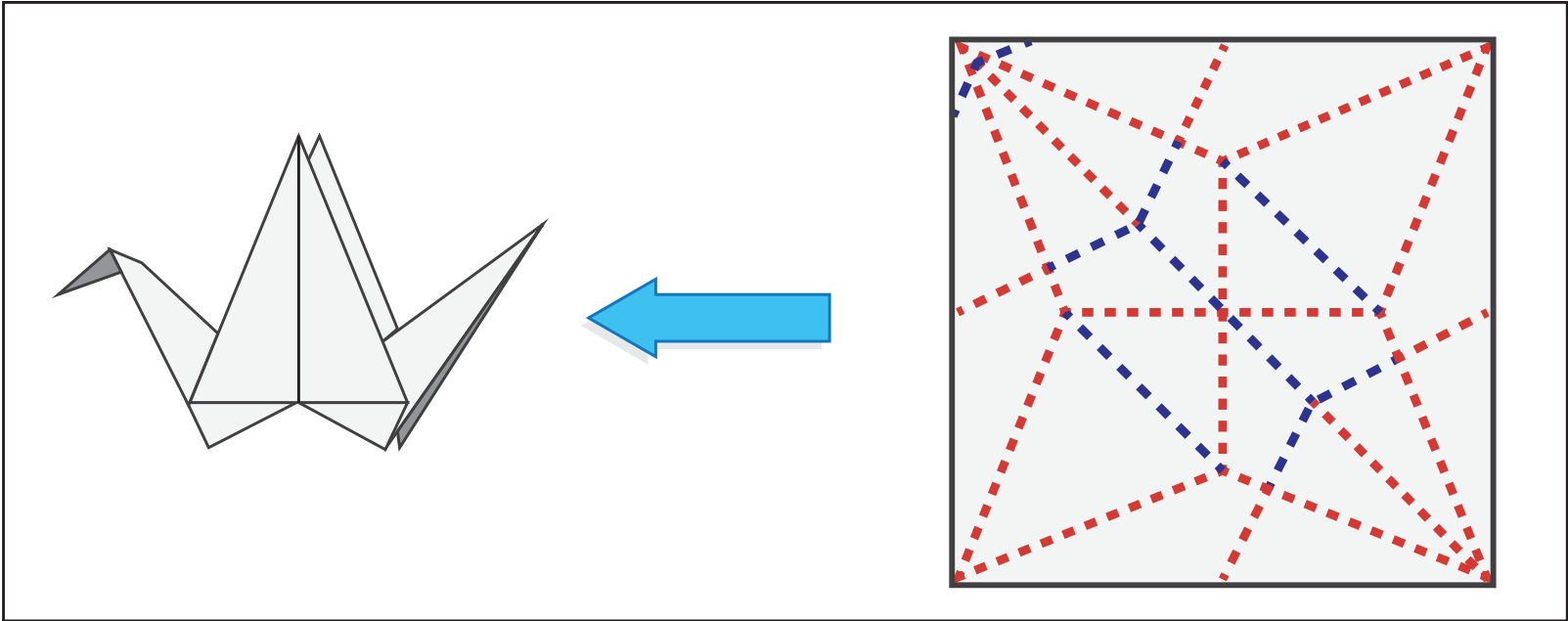
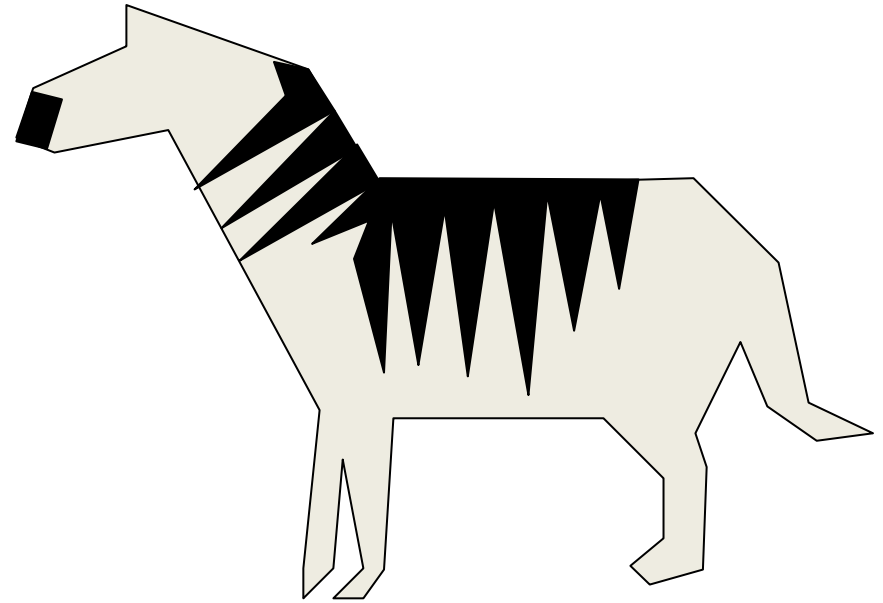
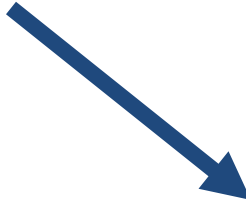
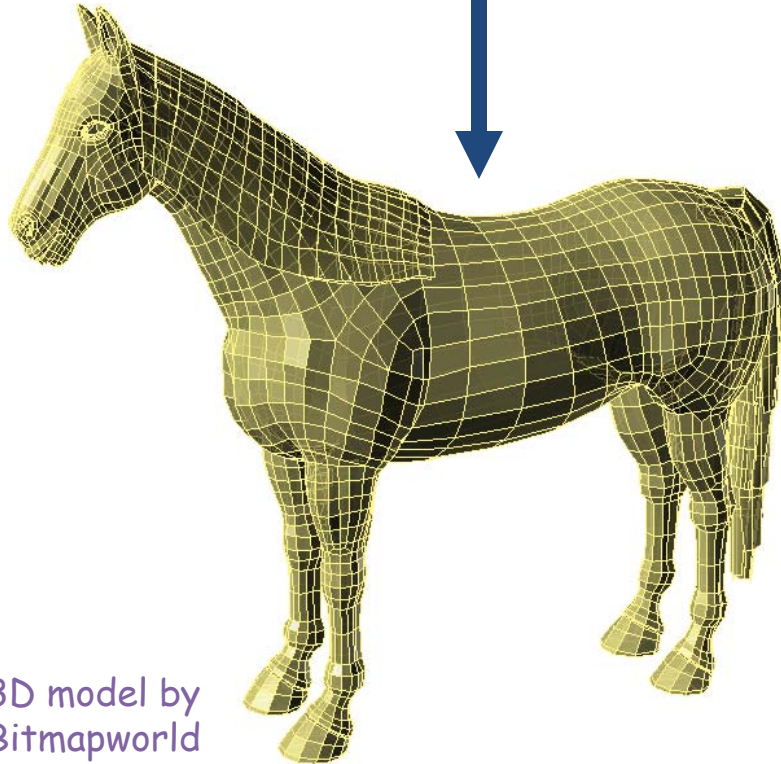
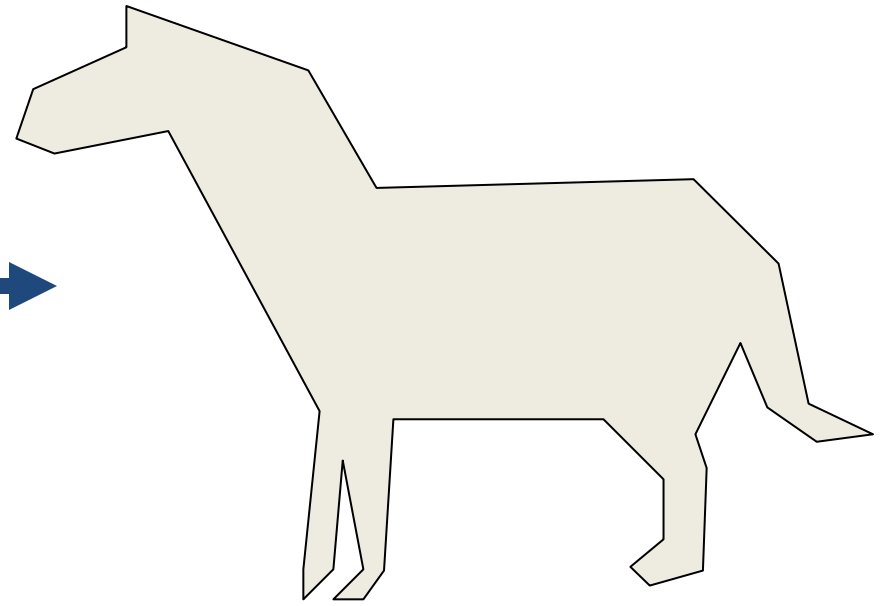
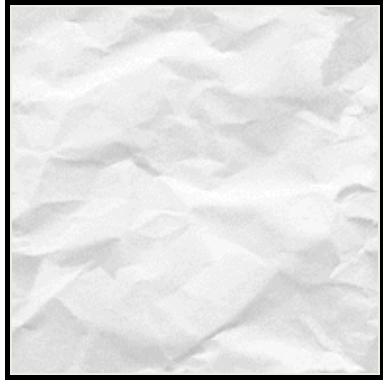


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3D model by
Bitmapworld

[Demaine, Demaine, Mitchell 1999]

Origamizer

[Tachi 2006;
Demaine & Tachi
2009-2012]

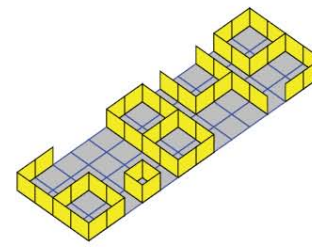
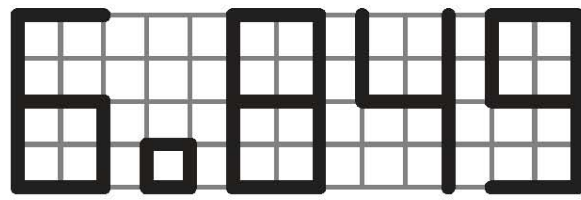


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Tomohiro Tachi

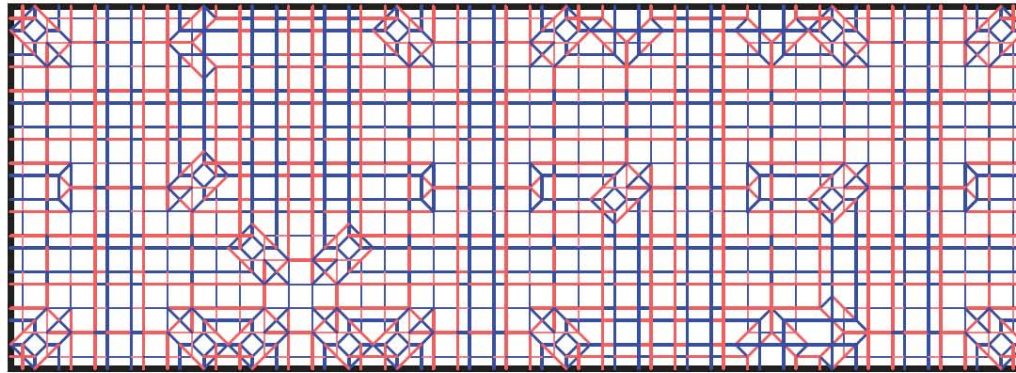
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CONCEPTUAL DESIGN



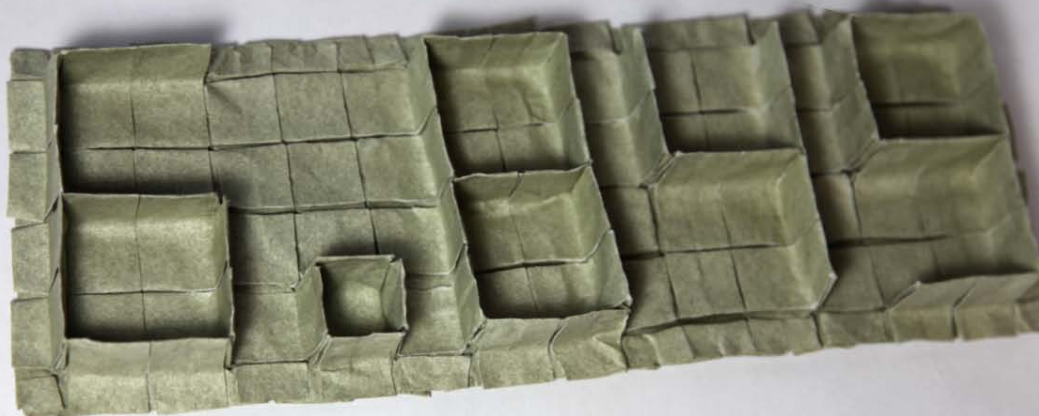
MAZE FOLDING ALGORITHM
[demaine, demaine, & JASON KU, 2010]



CREASE PATTERN

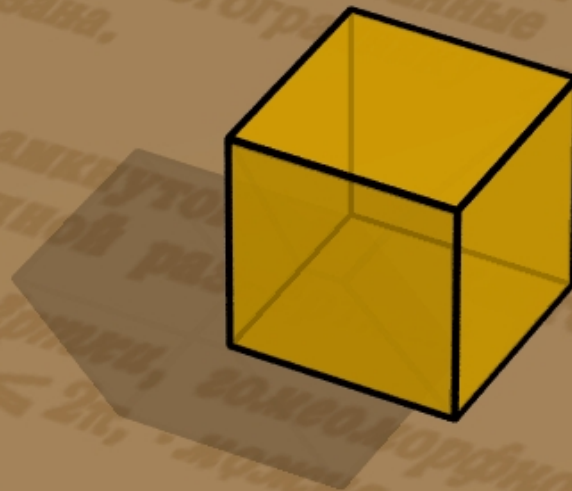


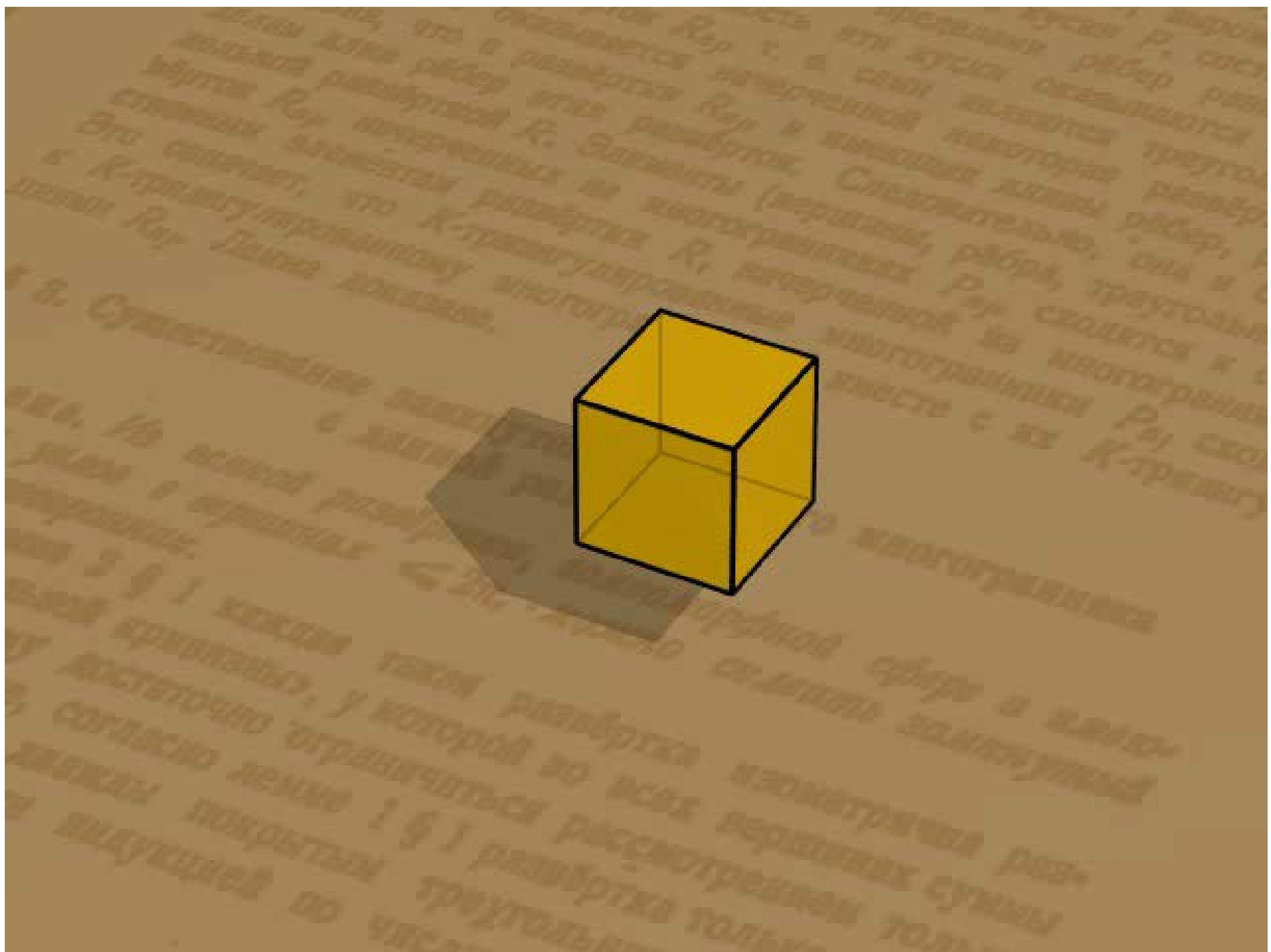
ACTUAL FOLDING
[Jenny ramseyer & ELI davis, 2012]

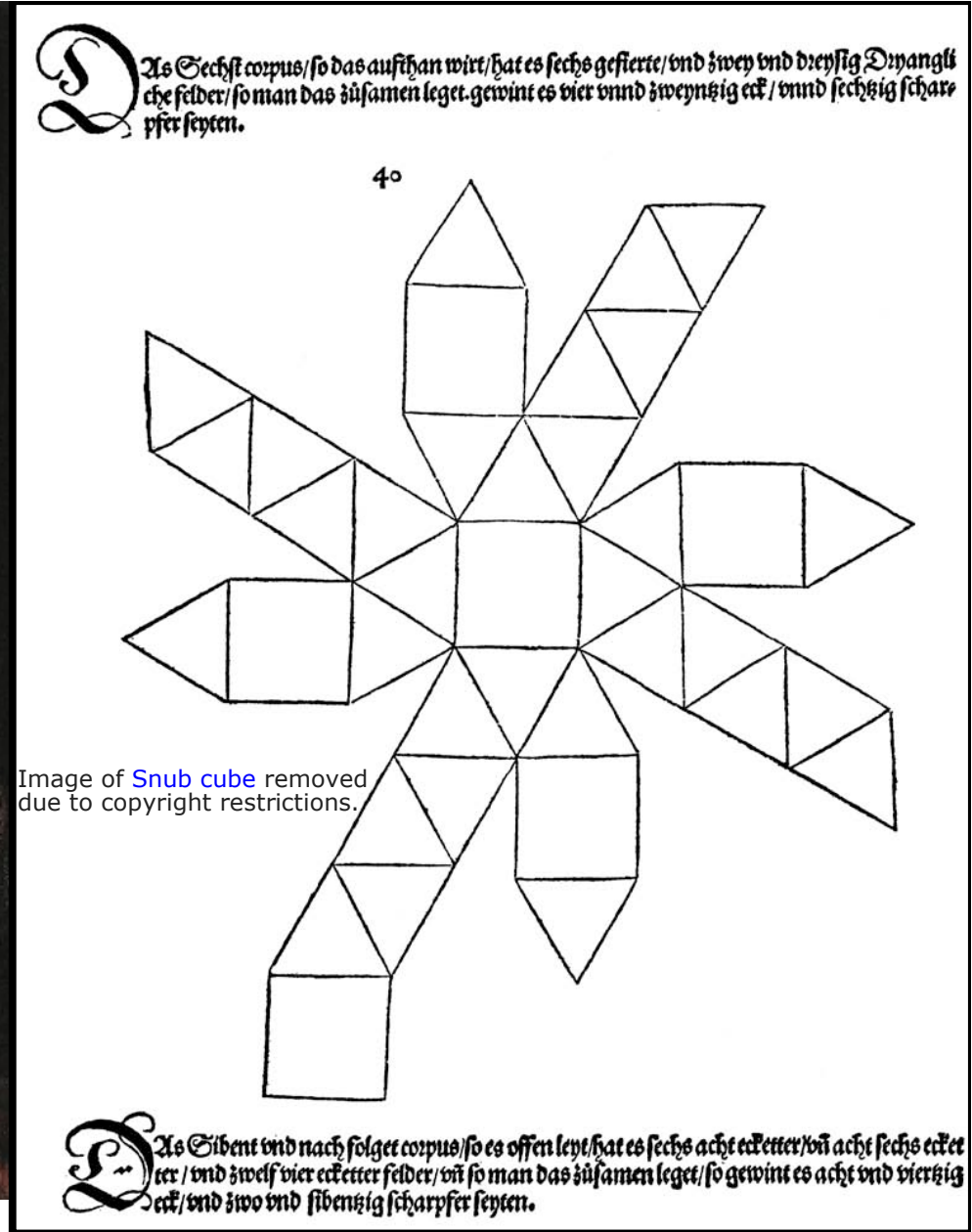


Metamorphosis of the Cube

Demaine, Demaine, Lubiw, O'Rourke, Pashchenko 1999







Dürer's self-portrait and scan of Dürer's *The Painter's Manual* are in the public domain.

Albrecht Dürer (self-portrait)

The Painter's Manual [1525]

Snub Cube drawn by Cyp, licensed under Creative Commons Attribution-Share Alike 3.0 Unported

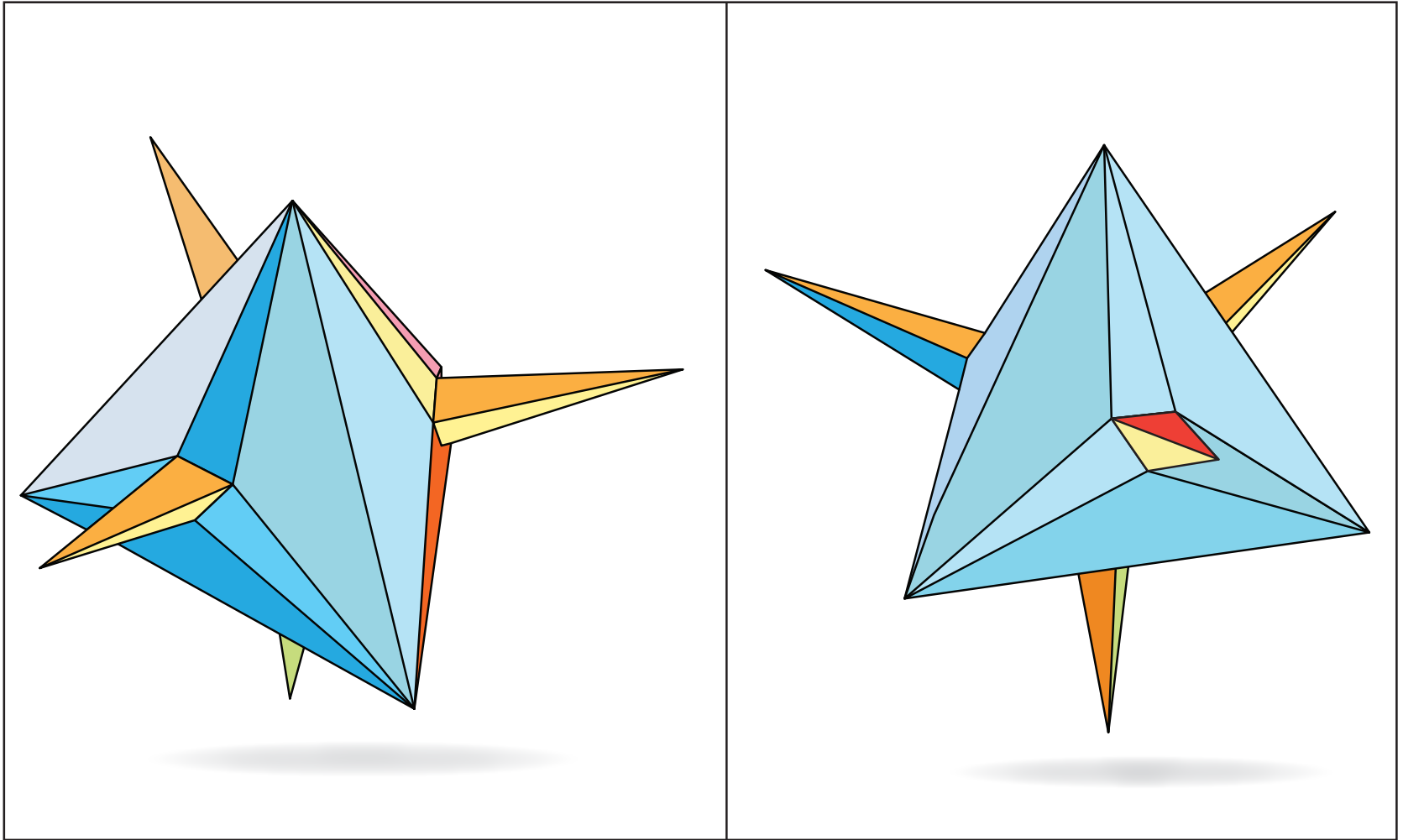
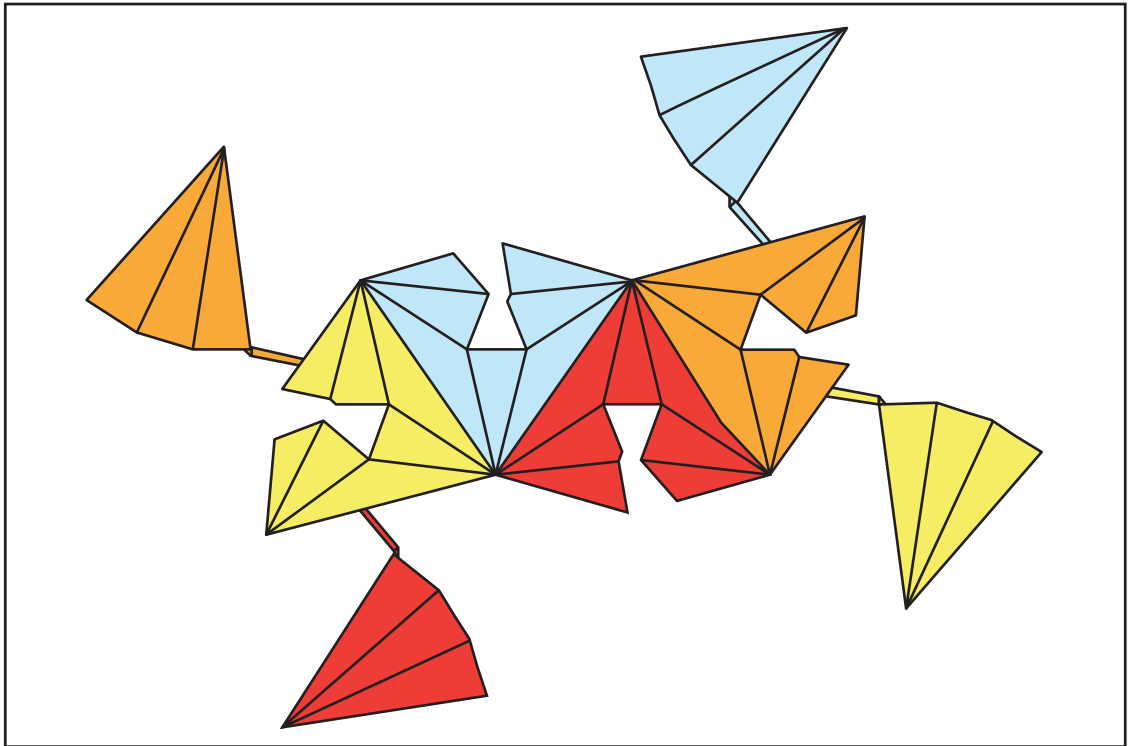
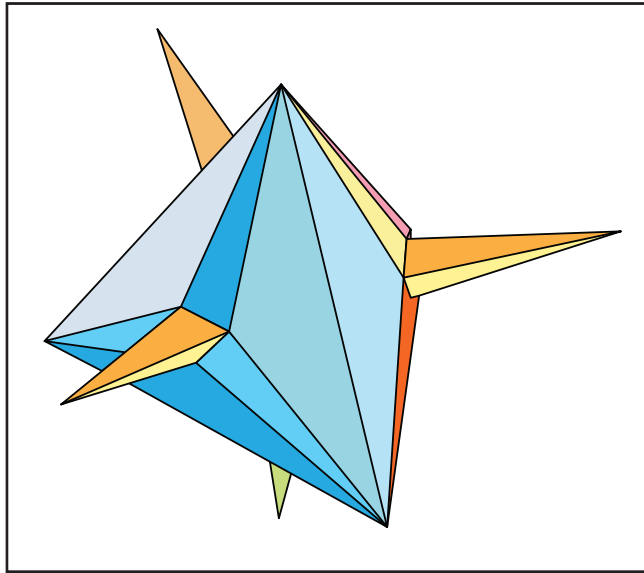


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See also <http://erikdemaine.org/papers/Ununfoldable/>.

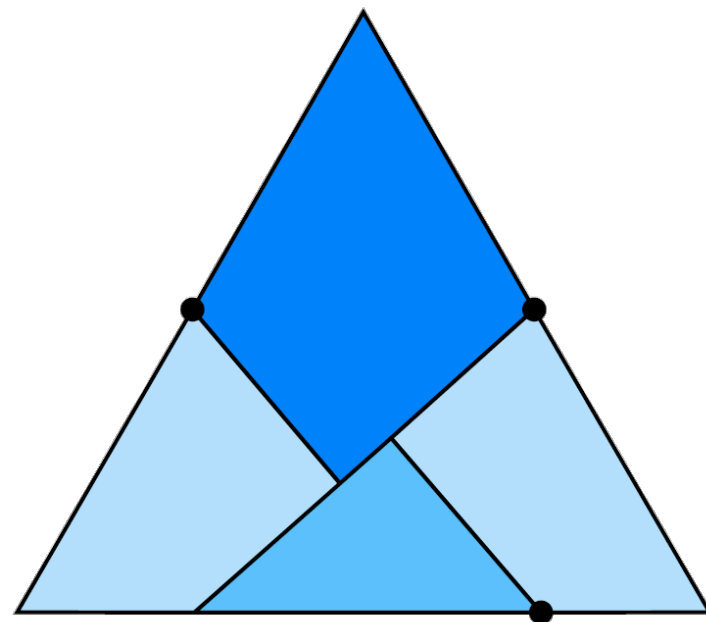
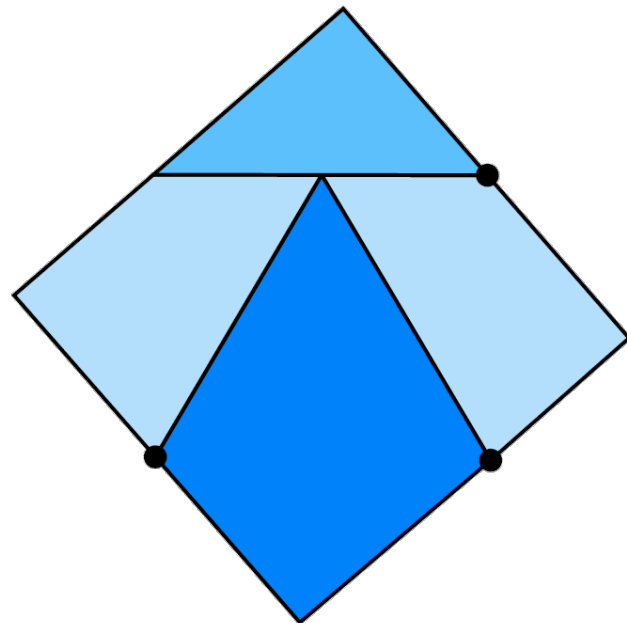
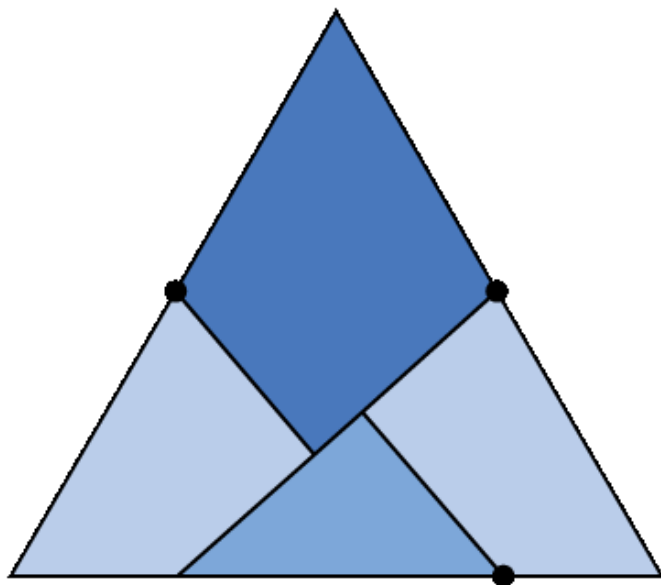
[Bern, Demaine,
Eppstein, Kuo, Mantler,
Snoeyink 2003]



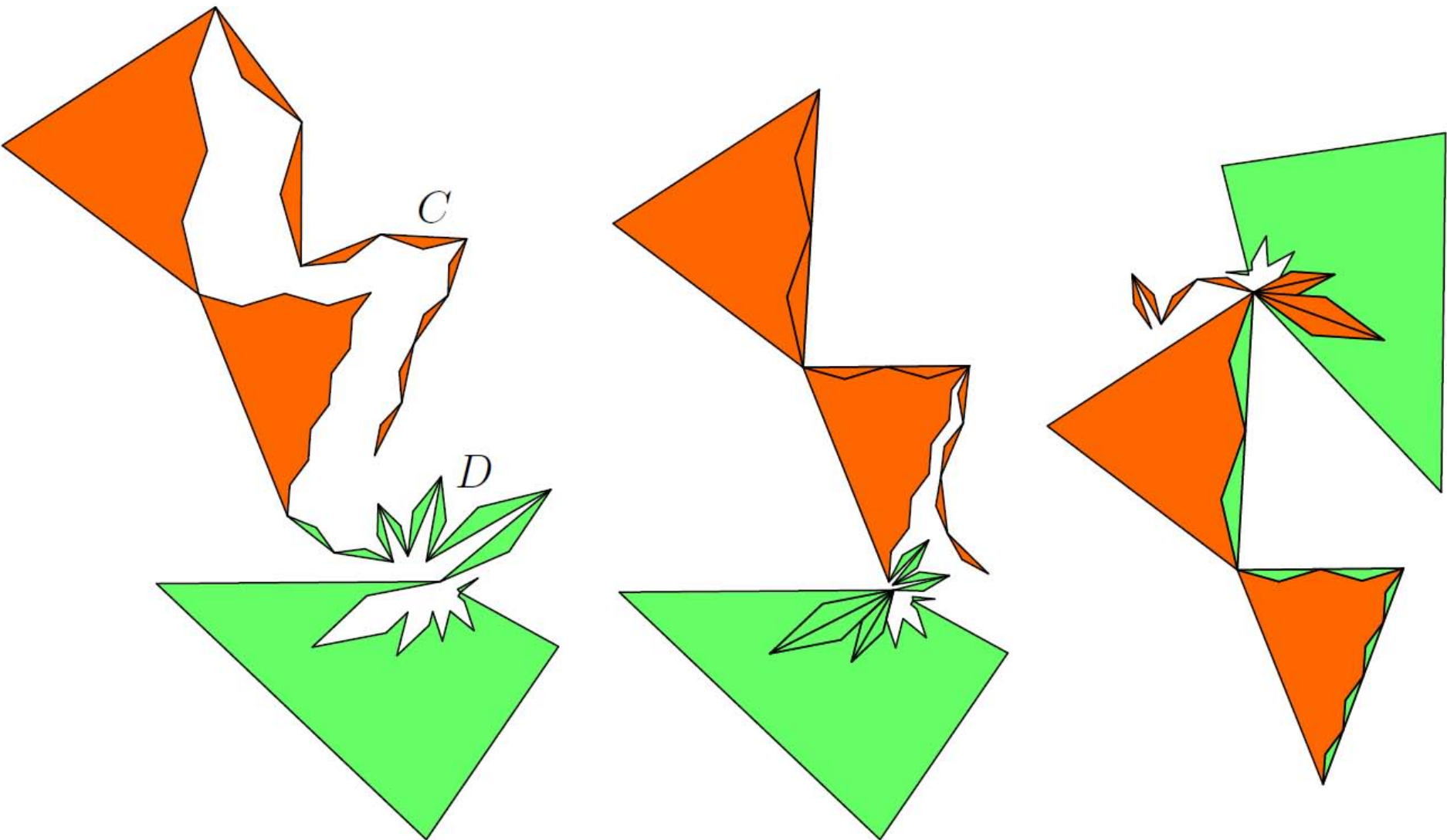
[Bern, Demaine,
Eppstein, Kuo, Mantler,
Snoeyink 2003]

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See also <http://erikdemaine.org/papers/Ununfoldable/>.

[Dudeney 1902]



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[Abbott, Abel, Charlton, Demaine, Demaine, Kominers 2010]

The Helium Stockpile

[Demaine, Demaine,
Palmer 2006]



See also http://erikdemaine.org/papers/HingedPolyforms3D_Leonardo/.

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6.849 Geometric Folding Algorithms: Linkages, Origami, Polyhedra
Fall 2012

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