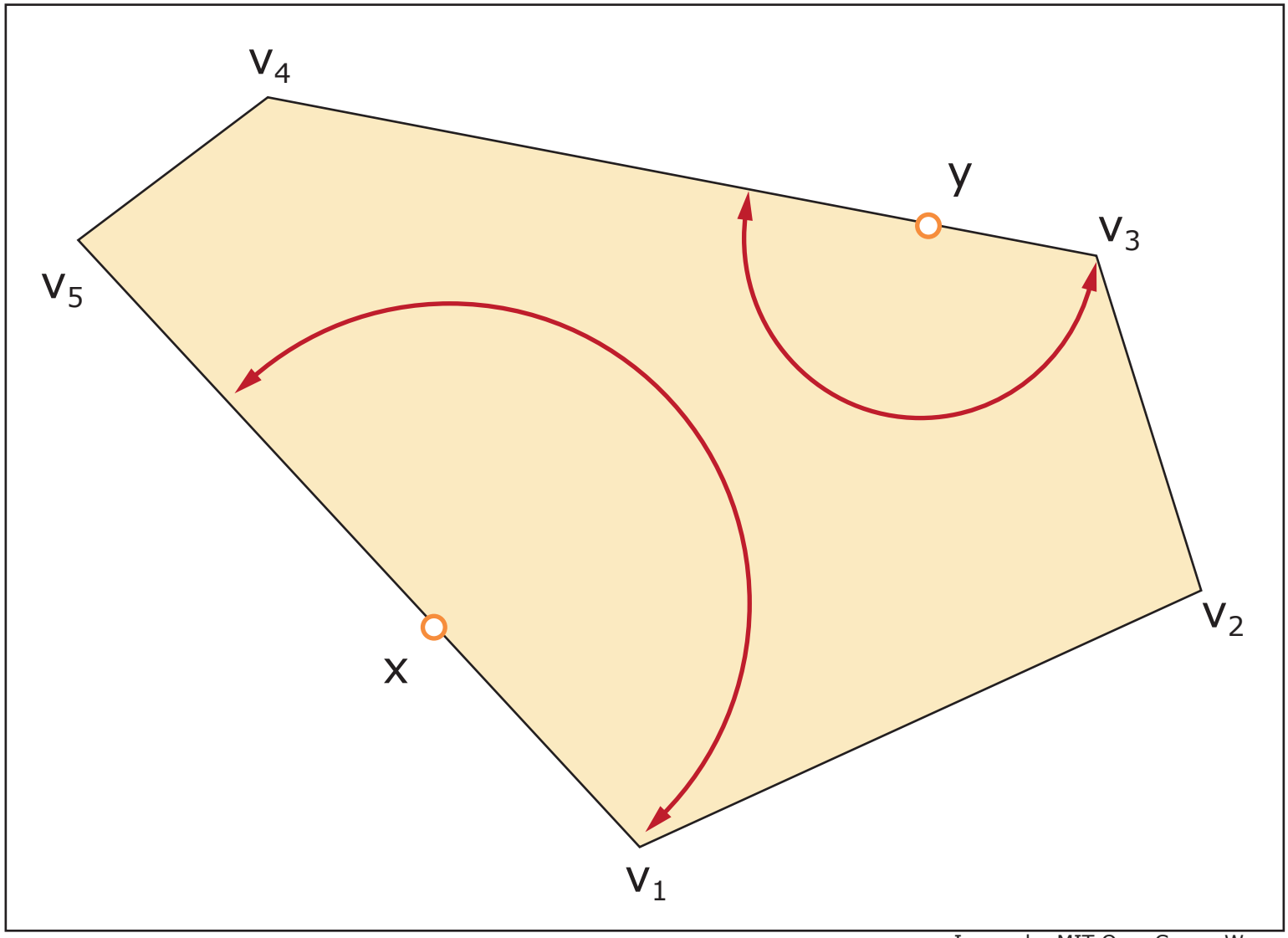


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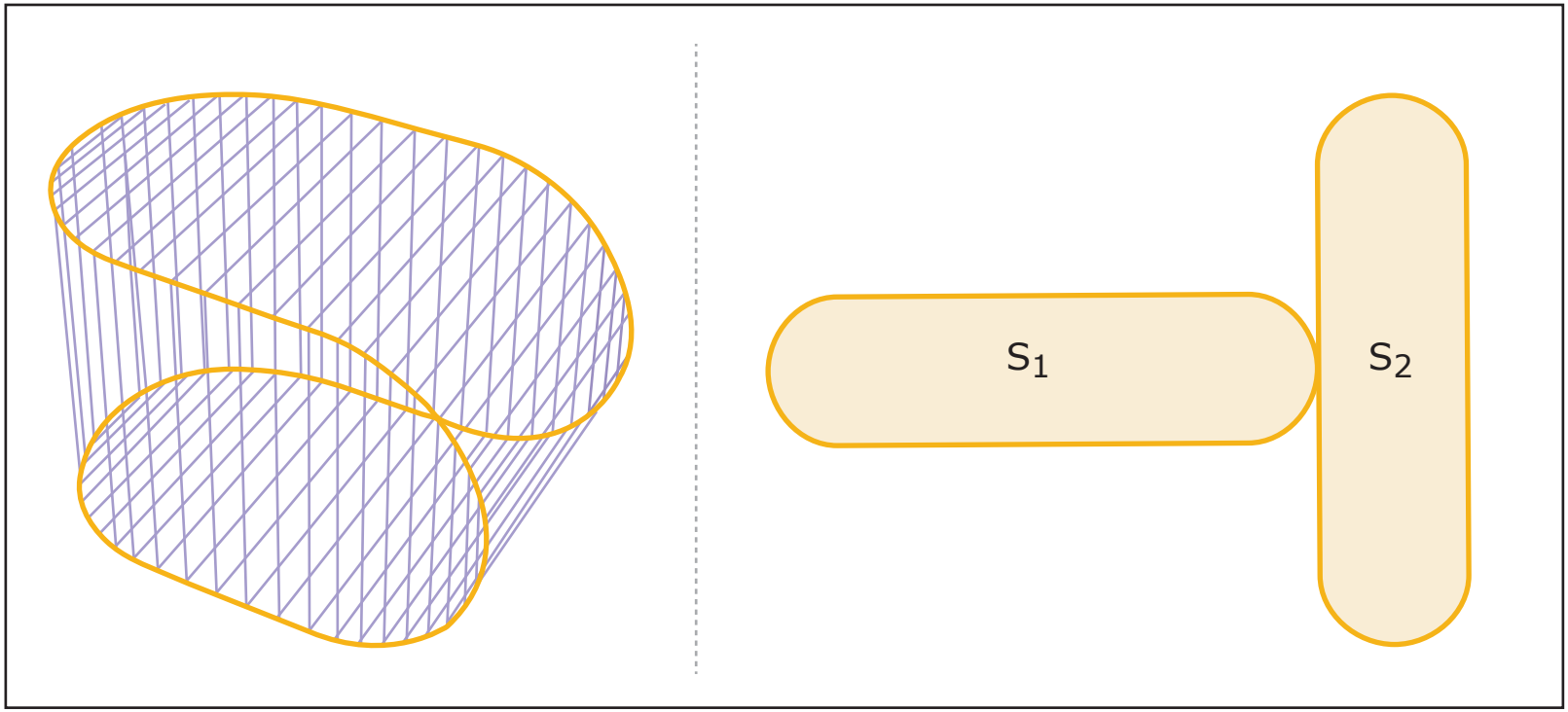


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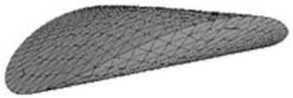
Cover of book removed due to copyright restrictions. Refer to: Sharp, J. *D-Forms: Surprising New 3-D Forms From Flat Curved Shapes*. Tarquin, 2009.

Photographs of steel and applied D-forms removed due to copyright restrictions.

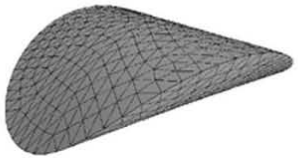
**Two ellipses**

The dForm of two circles is always unexciting no matter where the initial connection is made. The next simplest shape might be considered to be two ellipses. If they are initially joined at the same position on each perimeter then the result is just a flat sheet. However if one ellipse is rotated with respect to the other before the initial join then more interesting solids result. Some computer generated examples are given below for 3 different rotation angles and two different ellipse radius ratios.

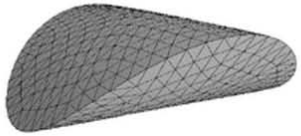
Rotation by 22.5 degrees
Ellipse radii are 0.8 and 1.0
[DXF file]



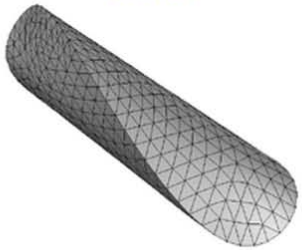
Rotation by 45 degrees
Ellipse radii: 0.8 and 1.0
[DXF file]



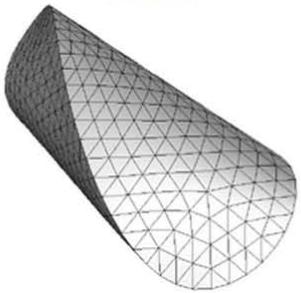
Rotation by 90 degrees
Ellipse radii: 0.8 and 1.0
[DXF file]



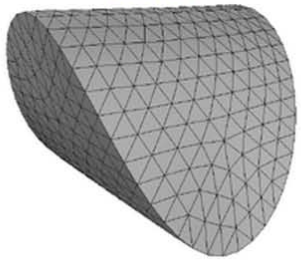
Rotation by 22.5 degrees
Ellipse radii: 2.0 and 1.0
[DXF file]



Rotation by 45 degrees
Ellipse radii: 2.0 and 1.0
[DXF file]

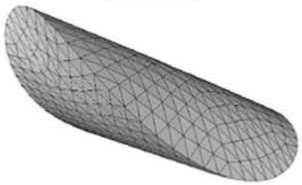


Rotation by 90 degrees
Ellipse radii: 2.0 and 1.0
[DXF file]

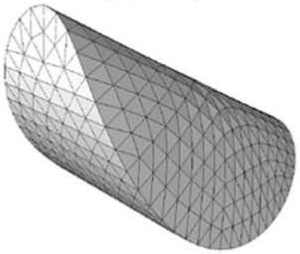


**Ellipse and circle**

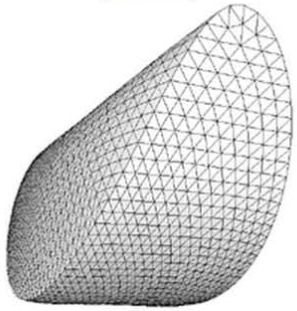
Ellipse radii ratio: 1.5 to 1
[DXF file]



Ellipse radii ratio: 2.5 to 1
[DXF file]



Ellipse radii ratio: 4.0 to 1
[DXF file]



concept by
Tony Wills

surface modeling
using Evolver
by Kenneth Brakke

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DOI 10.1007/s00454-009-9218-7

# Generalized D-Forms Have No Spurious Creases

**Erik D. Demaine · Gregory N. Price**

Received: 21 December 2007 / Revised: 28 July 2009 / Accepted: 28 July 2009 /
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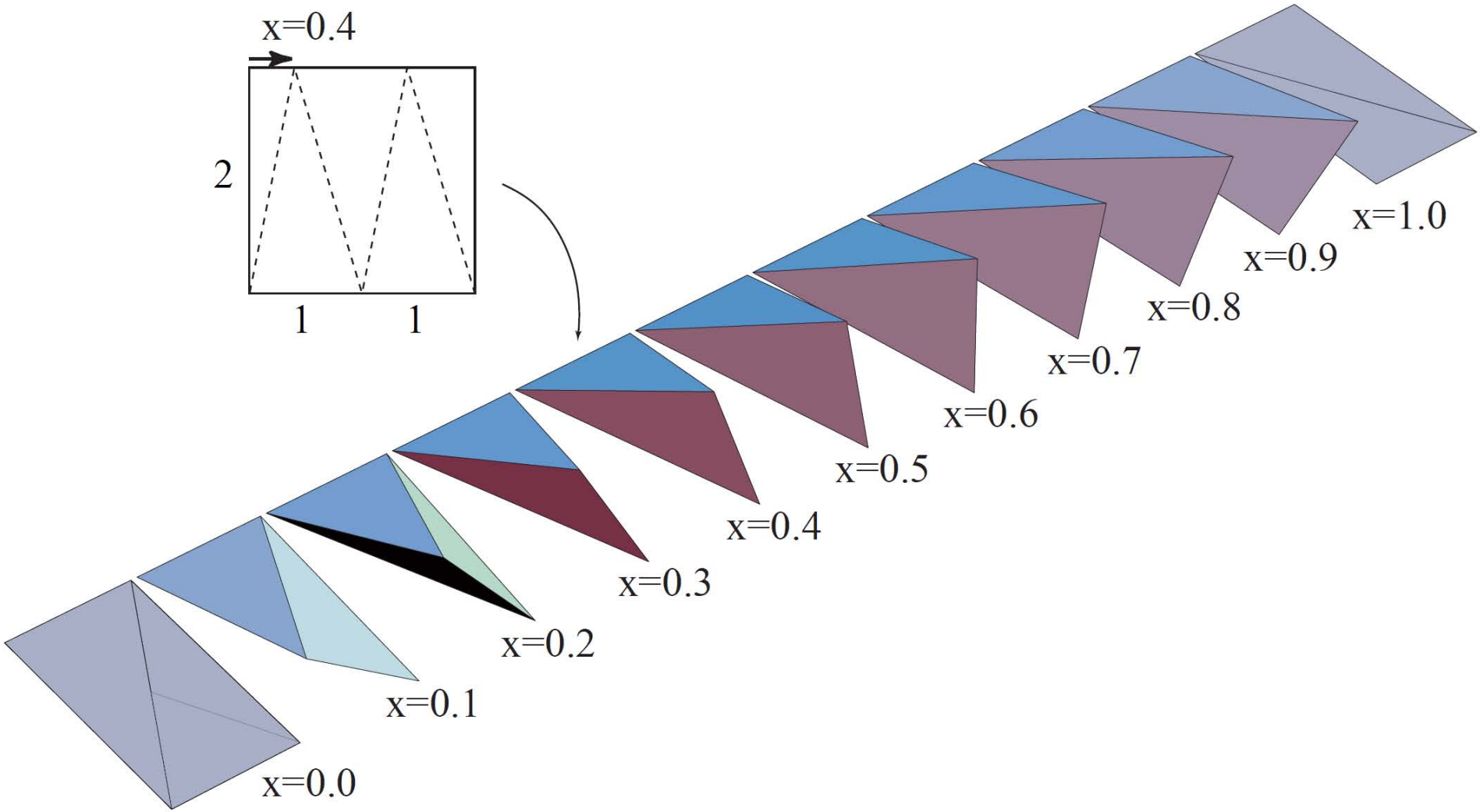
**Abstract** A convex surface that is flat everywhere but on finitely many smooth curves (or *seams*) and points is a *seam form*. We show that the only creases through the flat components of a seam form are either between vertices or tangent to the seams. As corollaries we resolve open problems about certain special seam forms: the flat components of a D-form have no creases at all, and the flat component of a pita-form has at most one crease, between the seam's endpoints.

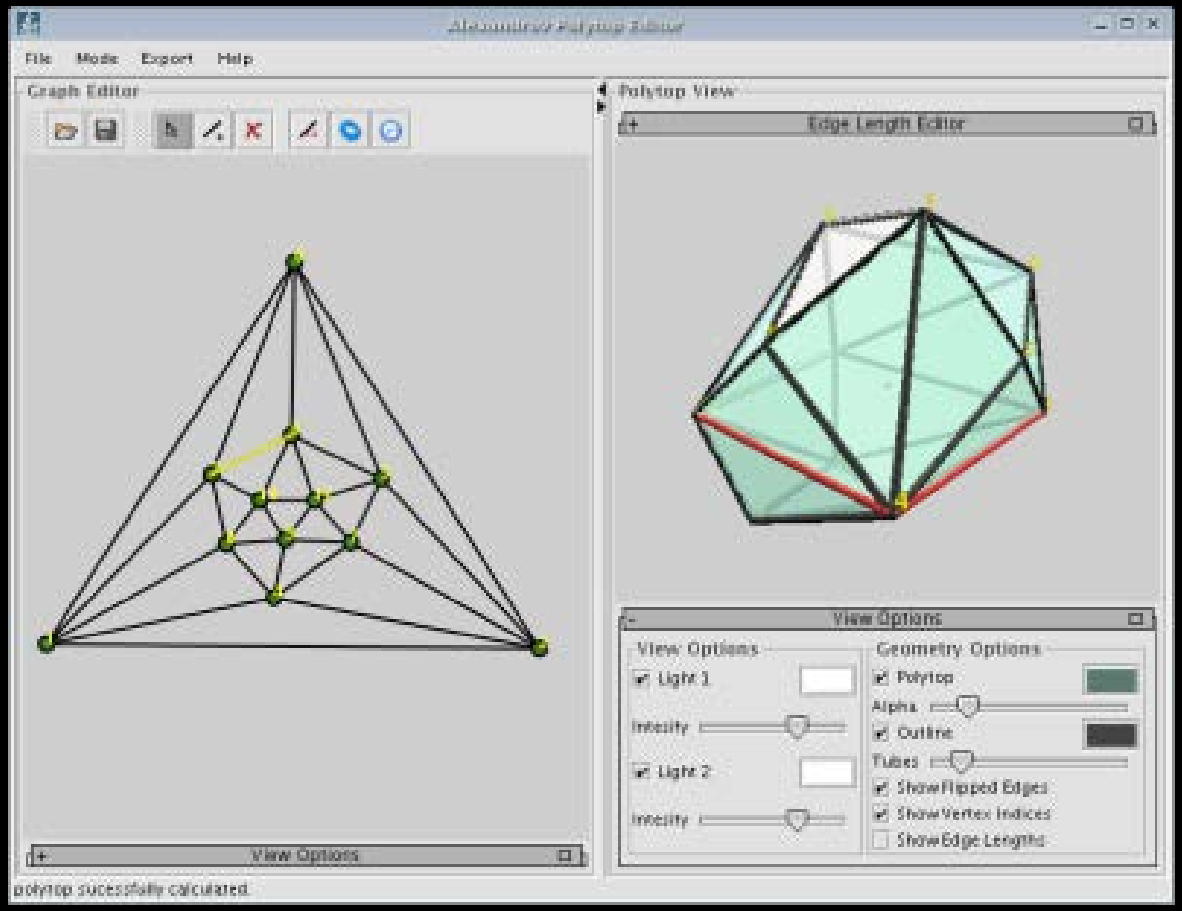
**Can you explain rolling belts again? I am still confused about what exactly they are.**






[Demaine, Demaine, Lubiw, O'Rourke 2002]

**Does that broken applet work now?**




Courtesy of Stefan Sechelmann. Used with permission.

**Wait, is the convex case actually *harder* here? Can we hear about why the nonconvex case is solved?**

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