6.885
L24.4
Dec. 8, 2004

Steven Sivek: m×n map folding

- algorithm (similar to Dan Scanlon's)
  - construct partial order on faces from creases
  - NO if there's a cycle
  - if $a \xrightarrow{1} b$ & $c \xrightarrow{1} d$ are edges of same color
    & $a \to c \to b$ then $d \to b$
    & $a \to d \to b$ then $a \to c$
    & $a \to c$ & $b \to d$ then $b \to c$
    } necessary conditions for non-crossing
    (& add transitivity)
- claim: if run out of rules to apply & no cycle then foldable — $O(mn)^4$ time
  - "stable" partial order = all unresolved comparisons can resolve either way & give folded state
  - "safe" is result of applying alg. rules
  - claim: safe ⇒ stable
  - induct on # unresolved comparisons
  - some details remain to solidify...

UPDATE: claim is false...