# Functional geometry
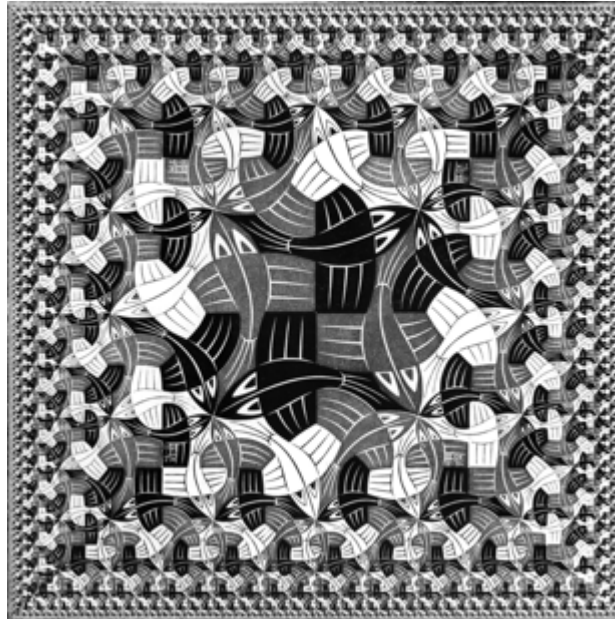
## Picture combinators & recursive fish

### Einar W. Høst

# Peter Henderson

## Functional geometry (1982, 2002)



<= =>

# Inspiration for this talk



<=                                                                                    =>

# SICP videos
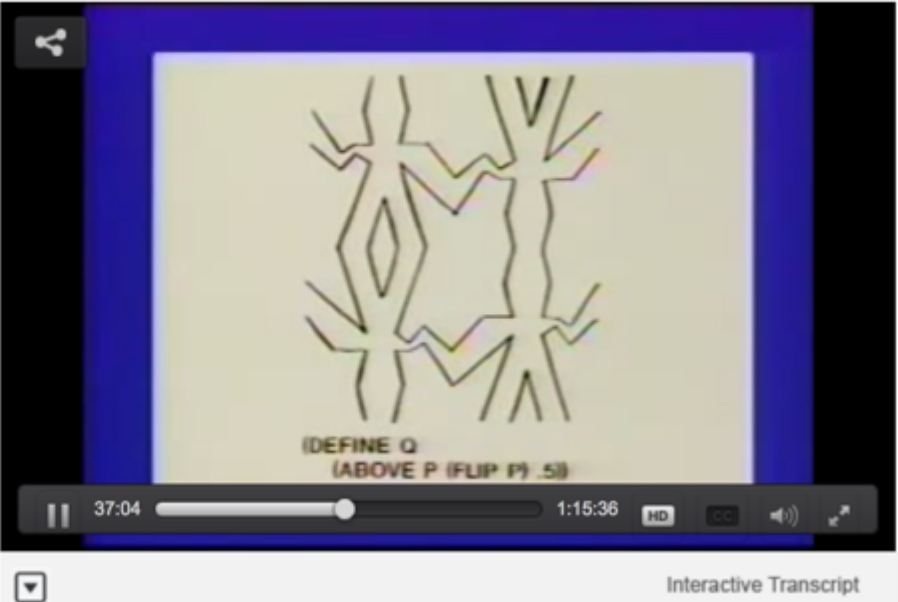
## 3A: Henderson Escher Example



COURSE HOME

SYLLABUS

CALENDAR

READINGS

LECTURE NOTES

VIDEO LECTURES     ❮

RECITATIONS

(DEFINE Q
(ABOVE P (FLIP P) .5))

37:04                                      1:15:36     HD    CC    ◀))    ⤢

▼                                          Interactive Transcript

<=                                  =>

# F# inside



<=                                                                              =>
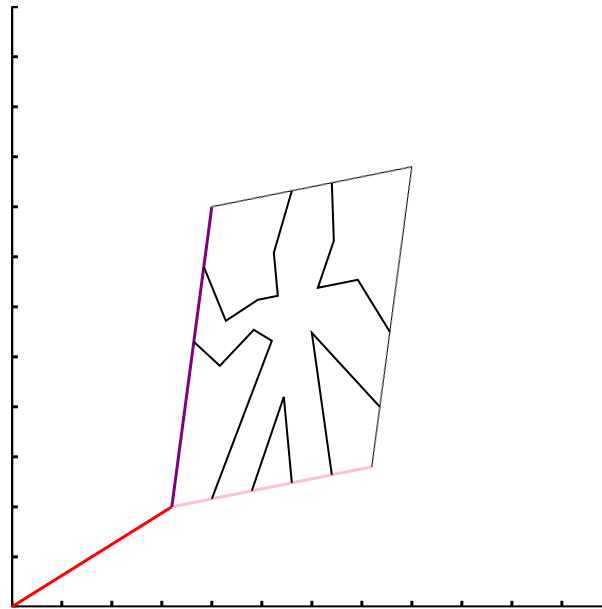
# abstraction



<=                          =>
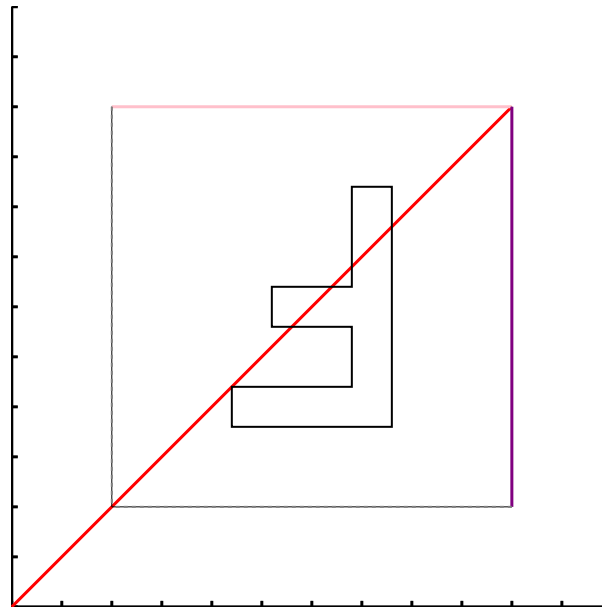
# picture

type Picture = Box -> Rendering



<=                              =>

# turn

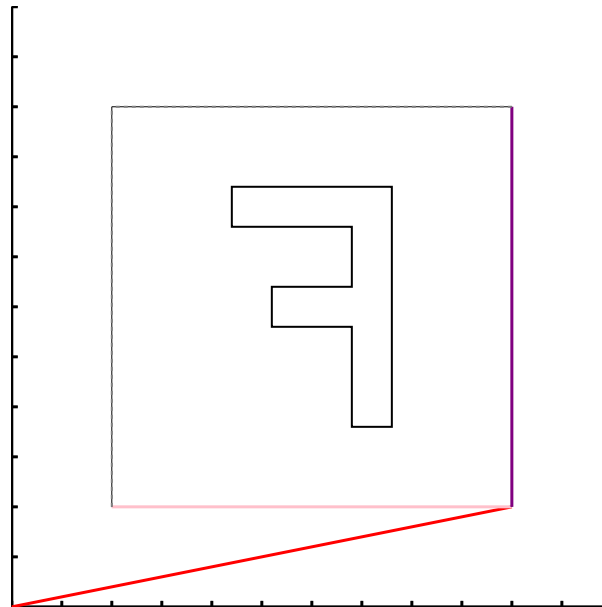$$(a', b', c') = (a + b, c, -b)$$

<= =>

# flip

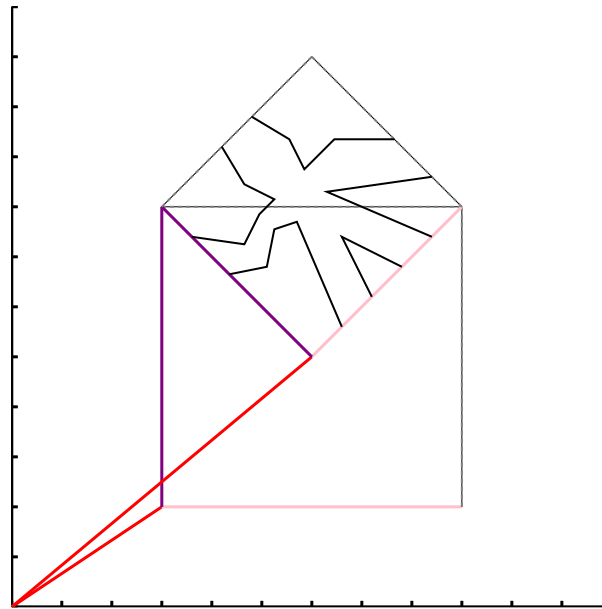$$(a', b', c') = (a + b, -b, c)$$



<=                                        =>

# toss

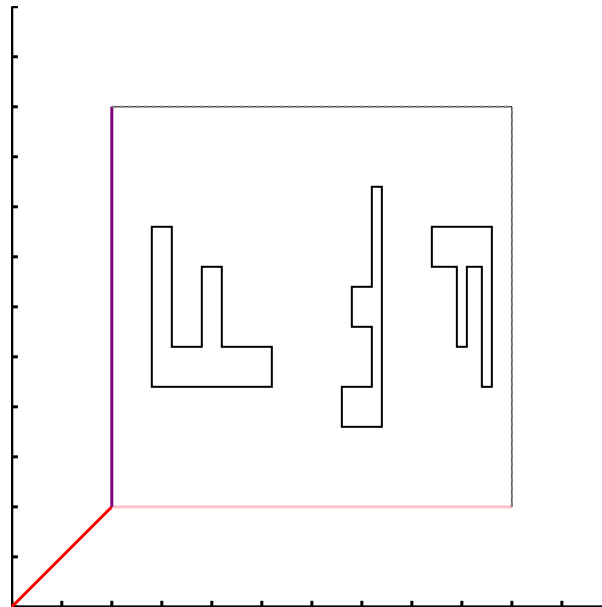$$(a', b', c') = (a + (b + c) / 2, (b + c) / 2, (c - b) / 2)$$



<=                                              =>

# above

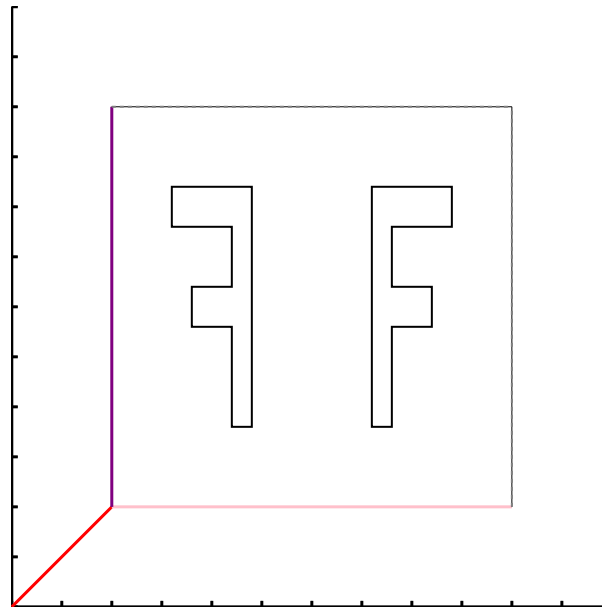put first picture above second picture



<=                                        =>
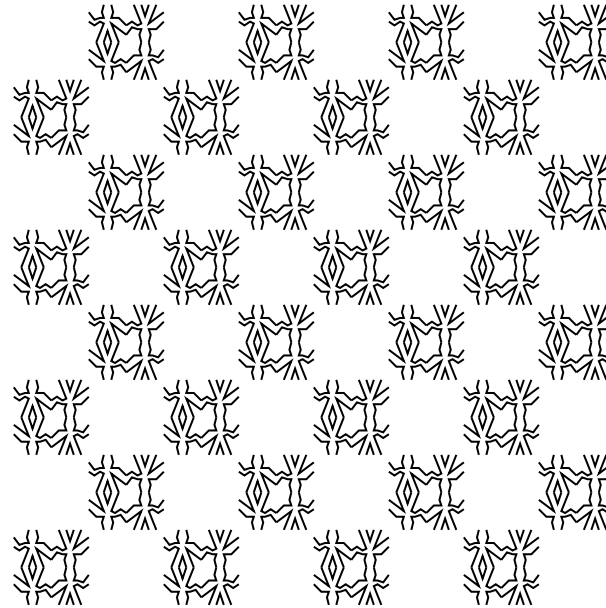
# beside

put first picture to the left of second picture

<=                                              =>
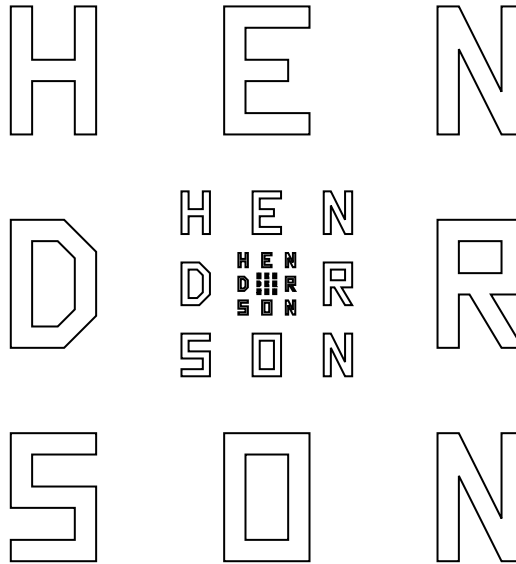
# quartet

create a quartet of four pictures

<= =>
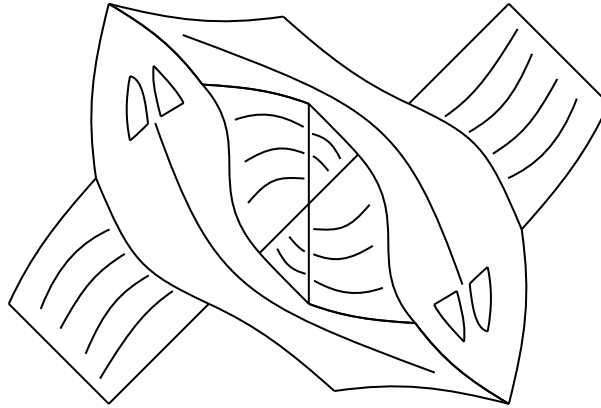
# nonet

create a nonet of nine pictures

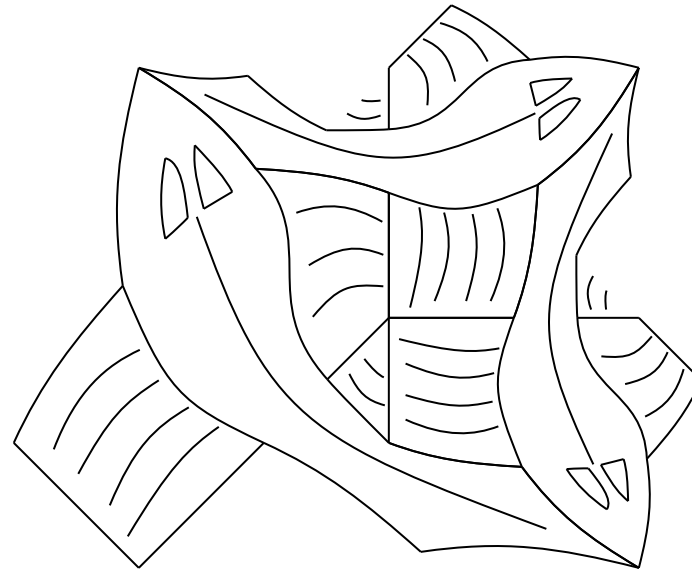# over

overlay two pictures inside the same box



<=                              =>

# ttile

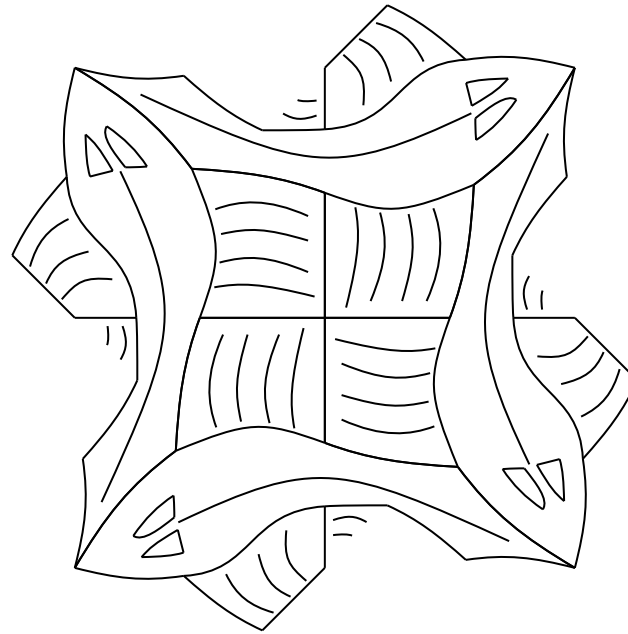create the t-tile in square limit



<=                    =>

# utile

create the u-tile in square limit

<=                              =>

# side



<=                                                                                              =>

# corner



<=                                                        =>

# square limit

## Henderson's replica of square limit
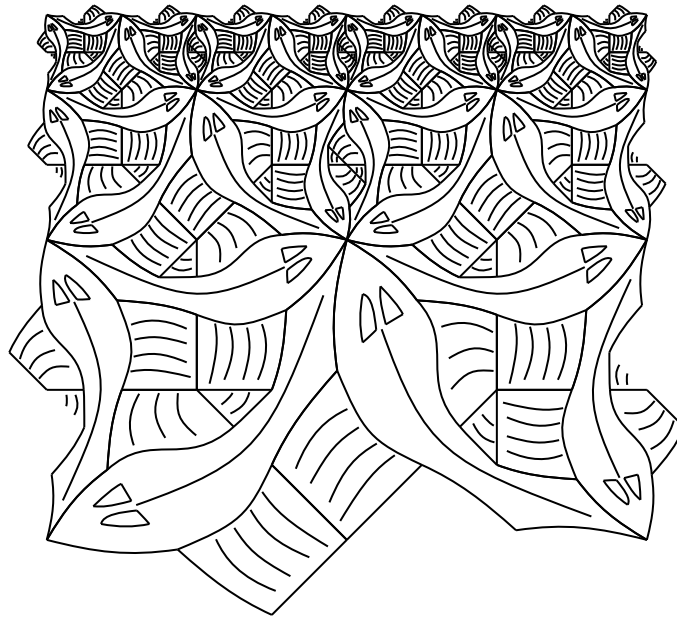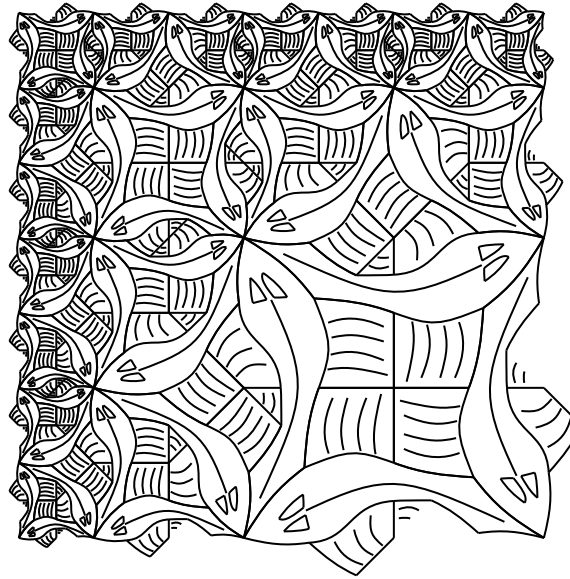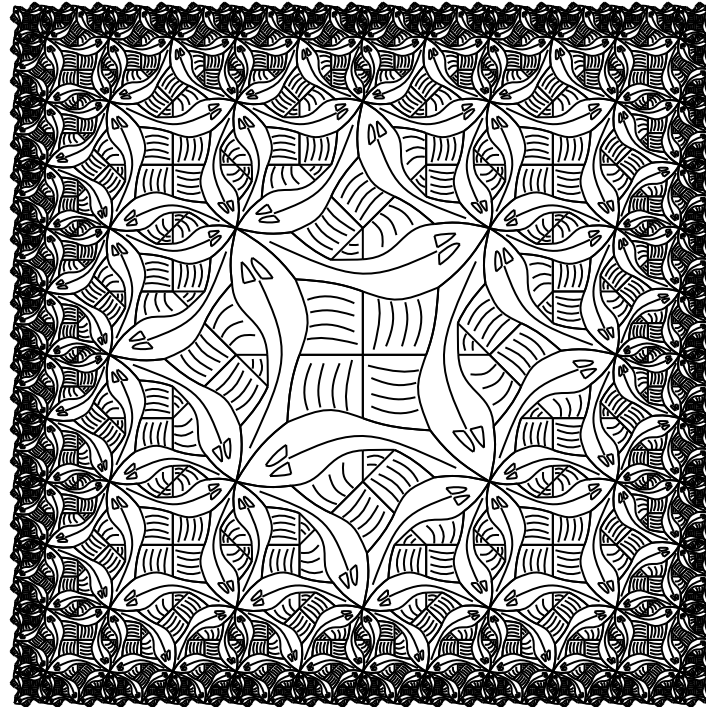
<=                                                                           =>

hue



<=                                    =>

# square limit