P_0

ε

P_1

$2L$

v_1 P_4

v_2

L

v_3

P_3 P_2

a_1

a_2

a_3

a_n

v_n

v_0
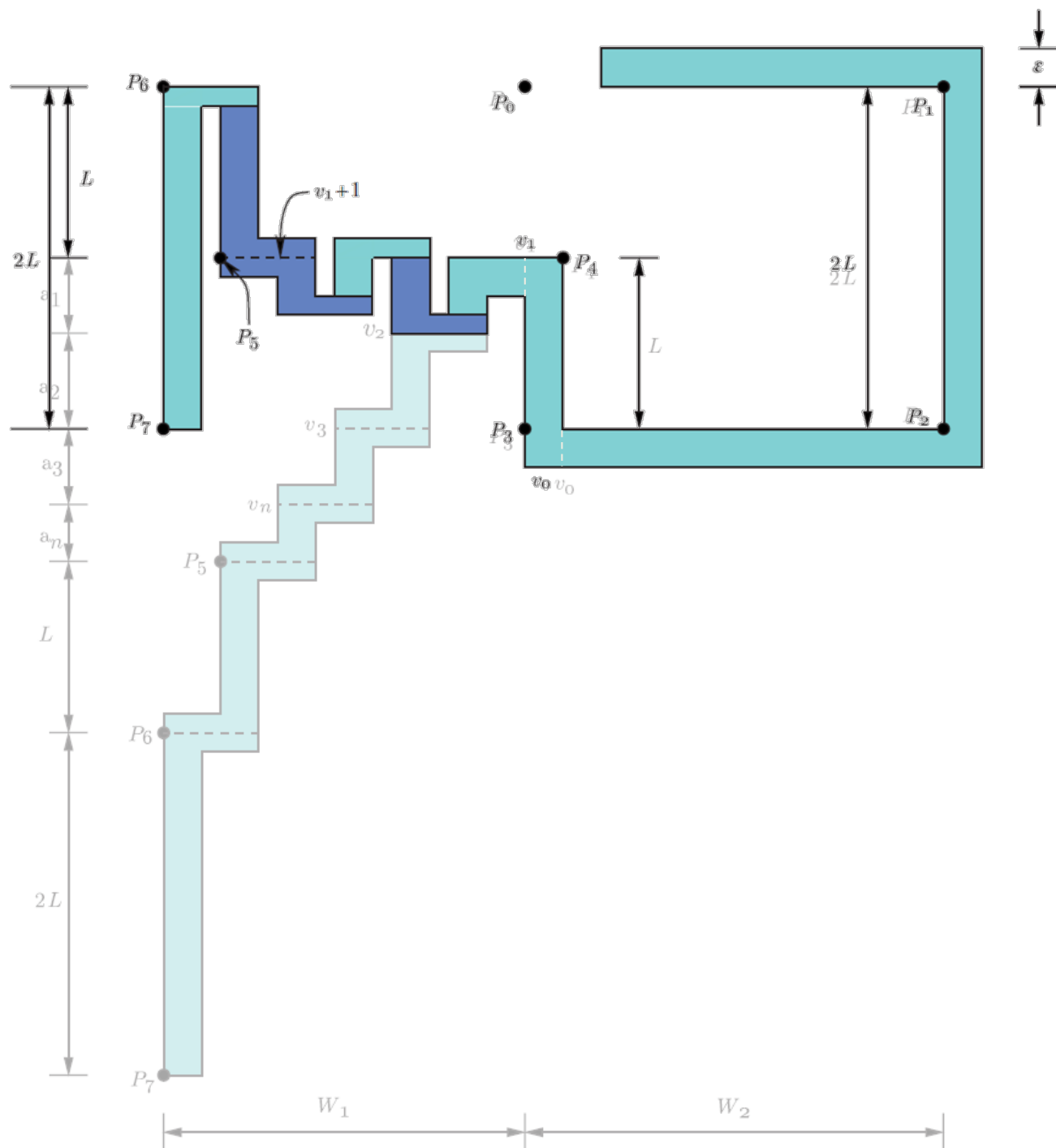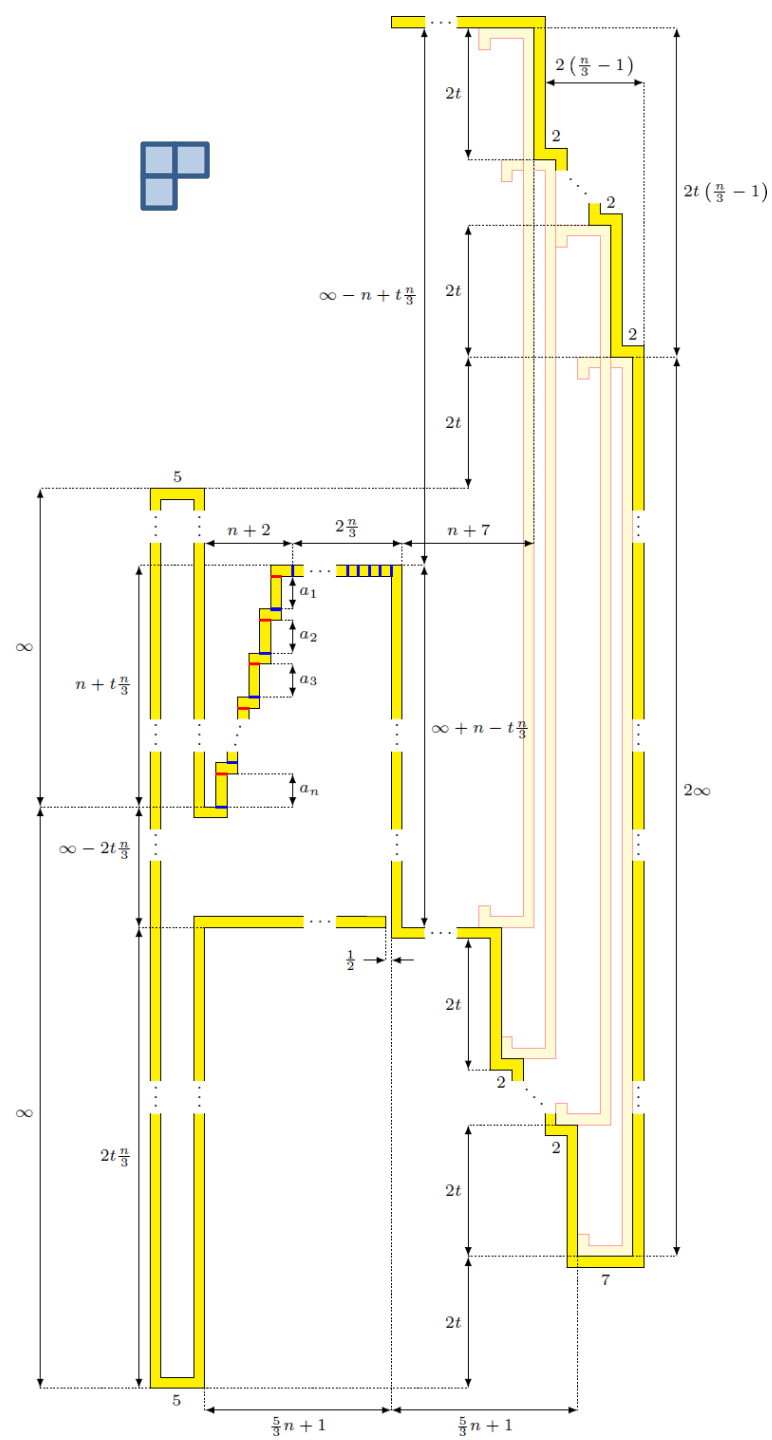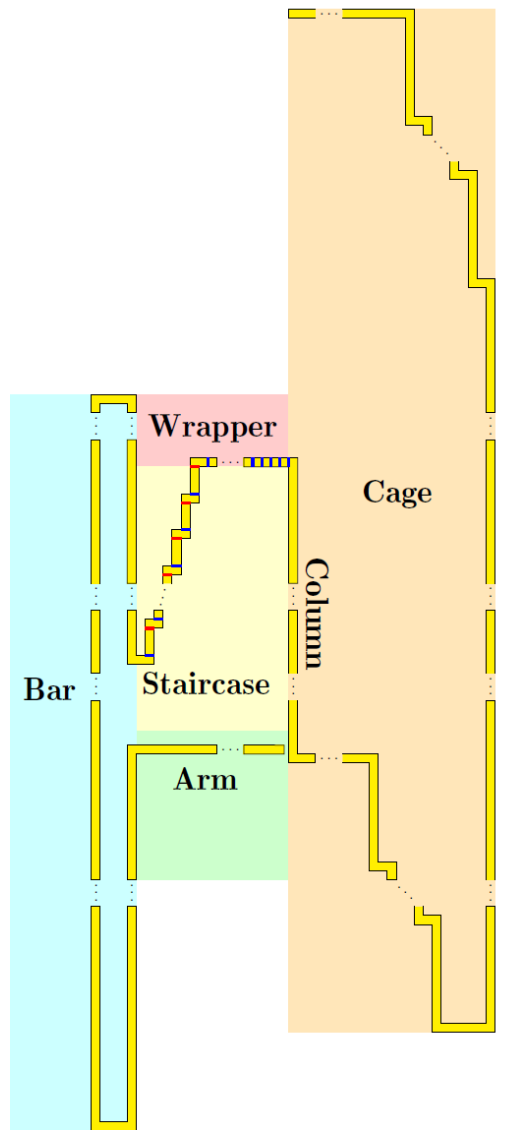
P_5

L

P_6

$2L$

P_7

W_1 W_2

[Arkin, Bender, Demaine, Demaine, Mitchell, Sethia, Skiena 2000]

[Arkin, Bender, Demaine, Demaine, Mitchell, Sethia, Skiena 2000]
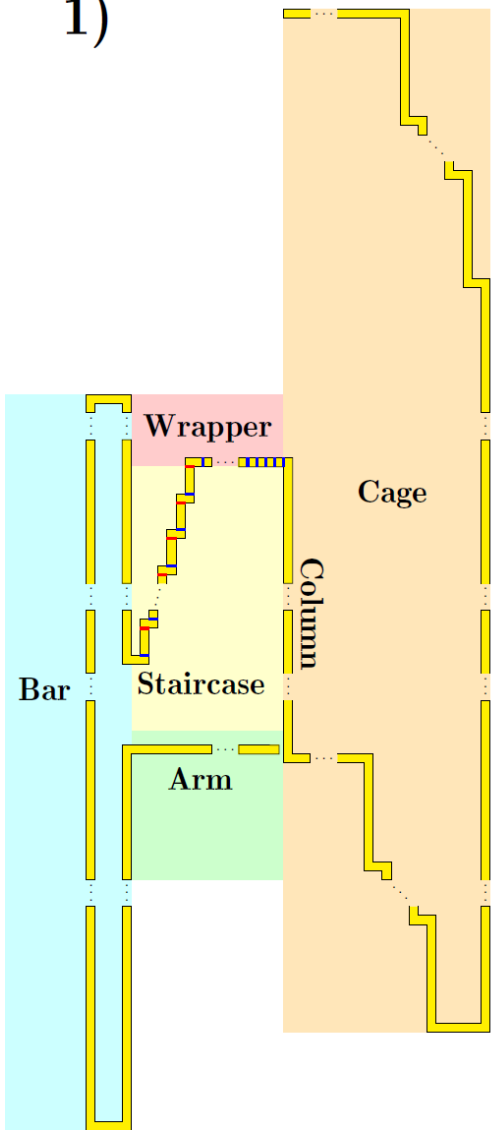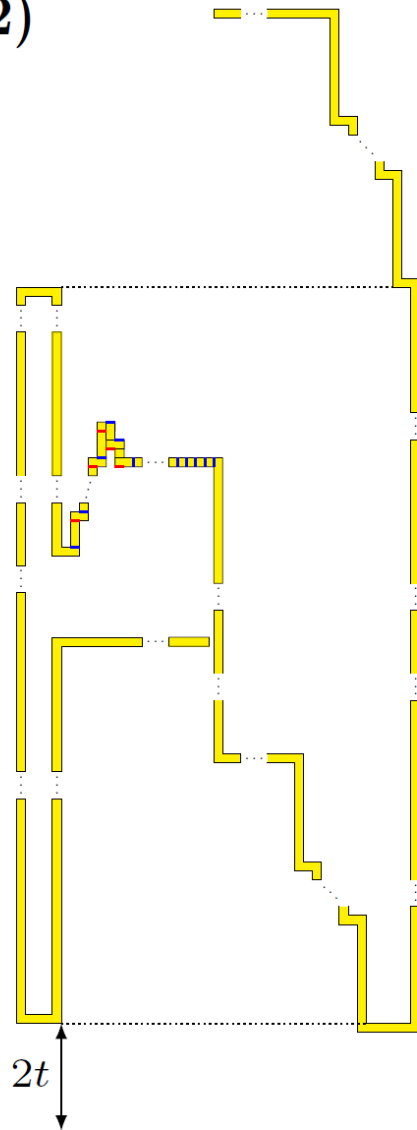
Reduction from 3-Partition

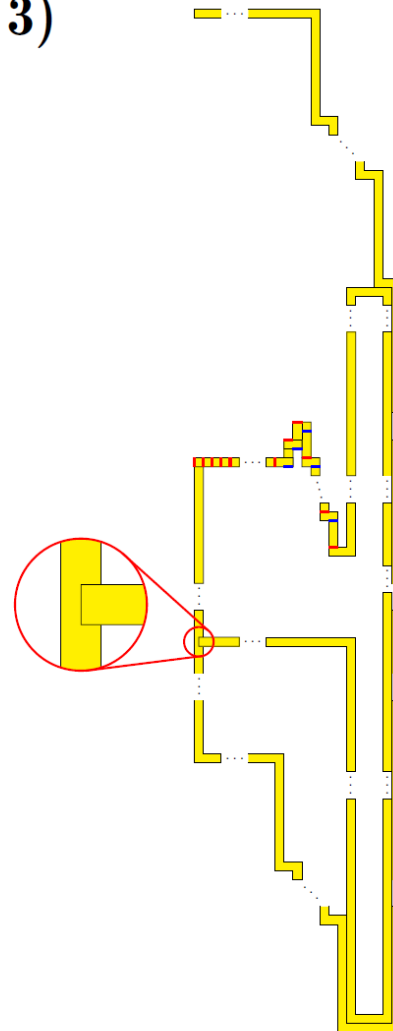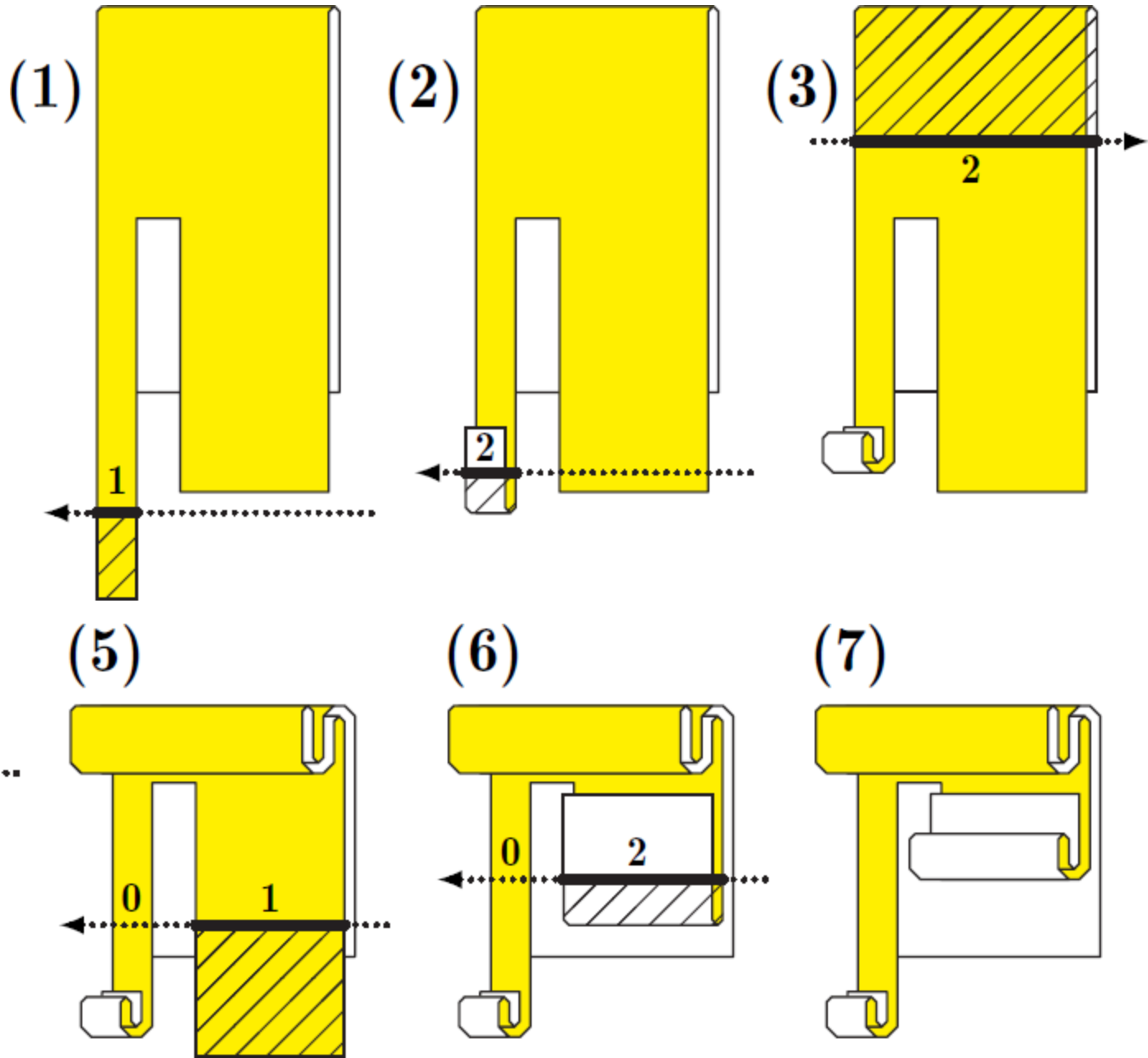[Akitaya,
Demaine,
Ku 2015]

Reduction from 3-Partition

1)

2)

3)

4)

Wrapper

Cage

Column

Bar

Staircase

Arm

$2t$

$2t$

$2t$

$2t$

Simple Folds

(1)

(2)

(3)

(4)

(5)

(6)

(7)
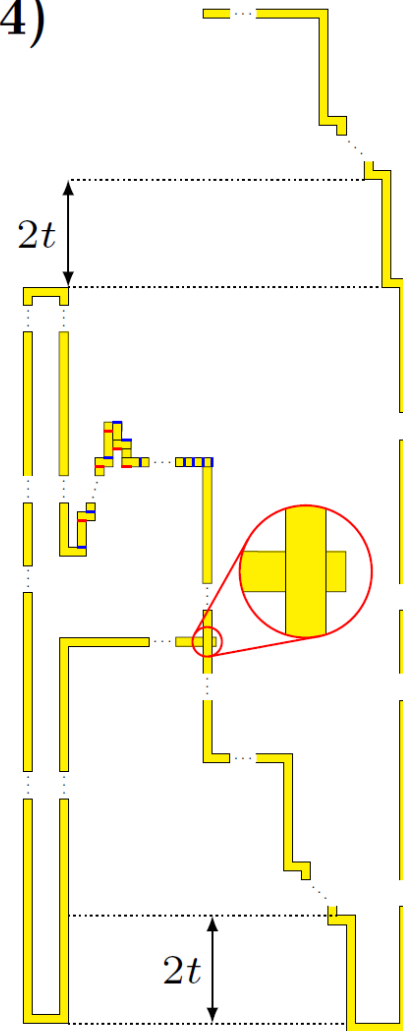
| Model	Assigned			Unassigned		
	⬚	⊠	⊞	⬚	⊠	⊞
One-layer	NP-hard	open	poly	open	open	poly
Some-layers	NP-hard	NP-hard	poly	open	NP-hard	poly
All-layers	NP-hard	NP-hard	poly	open	NP-hard	poly
Infinite One-layer	NP-hard	open	poly	NP-hard	open	poly
Infinite Some-layers	NP-hard	open	poly	NP-hard	open	poly
Infinite All-layers	open	open	poly	open	open	poly

[Akitaya, Demaine, Ku 2016]

Same

Flip

In

Out

In

Out

assigned
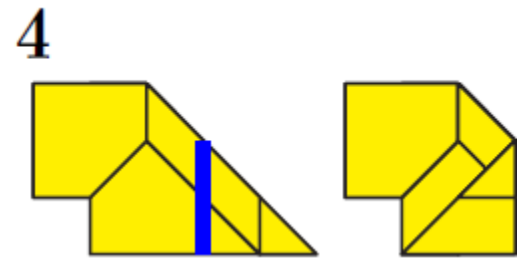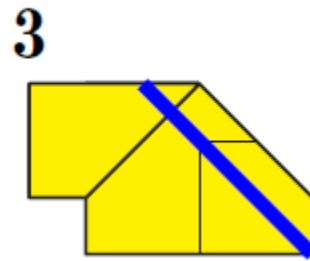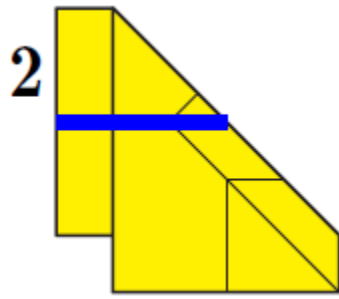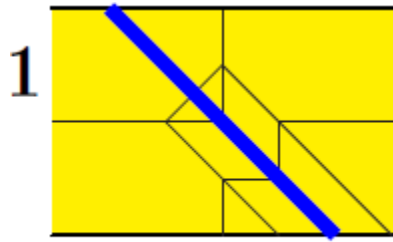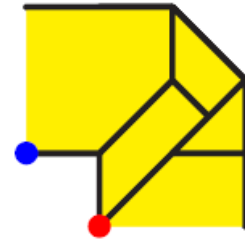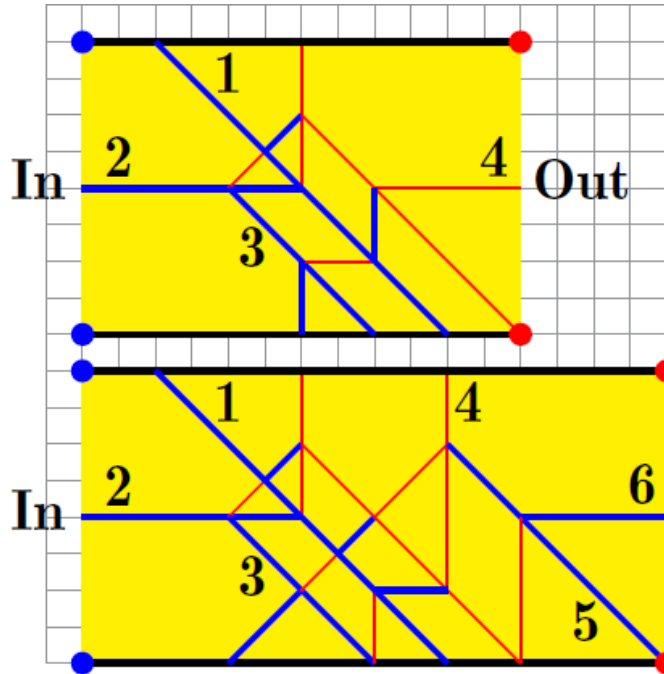
[Akitaya, Demaine, Ku 2016]
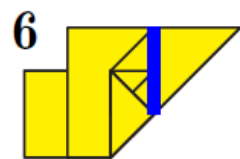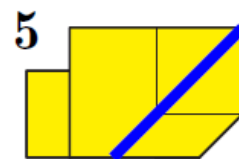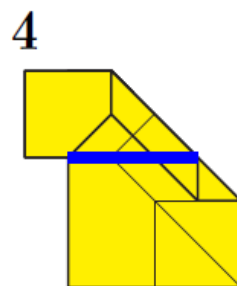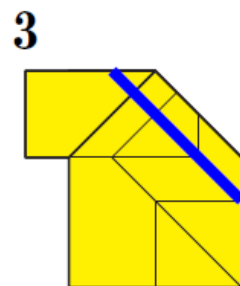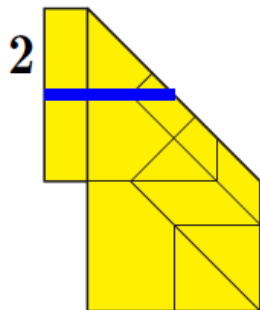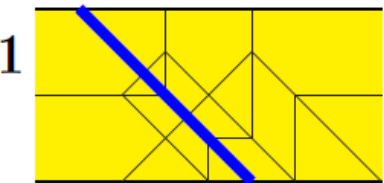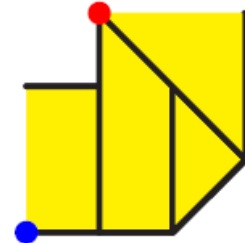
unassigned
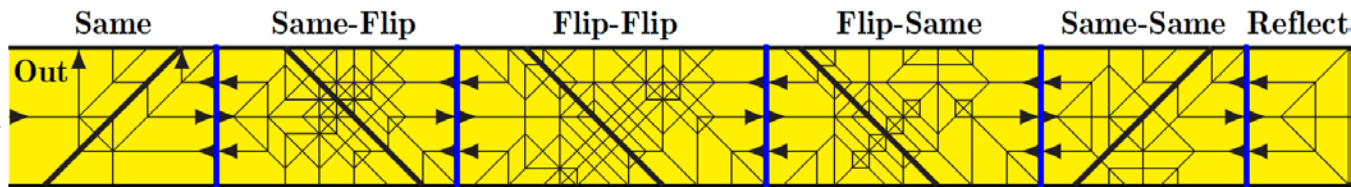
[Akitaya,
Demaine,
Ku 2016]
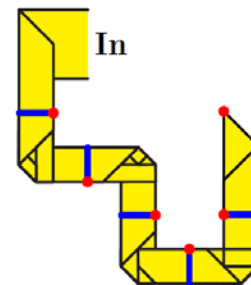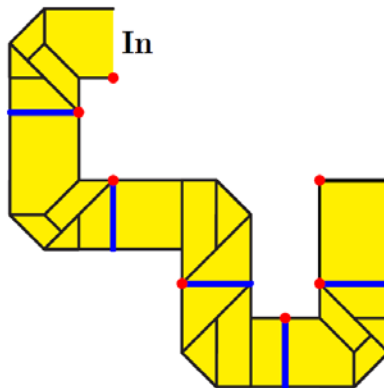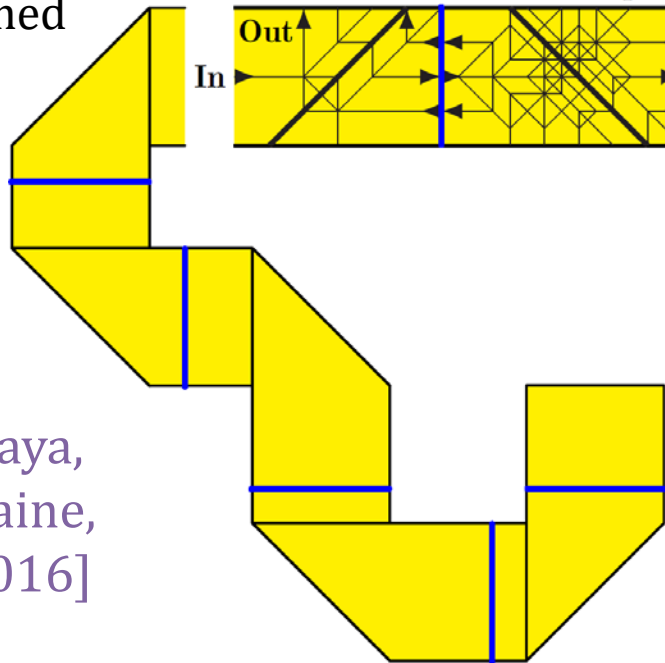
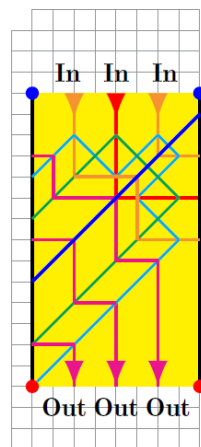| 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 |
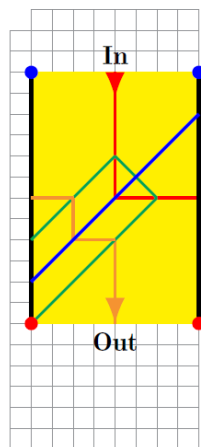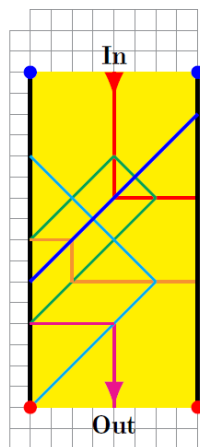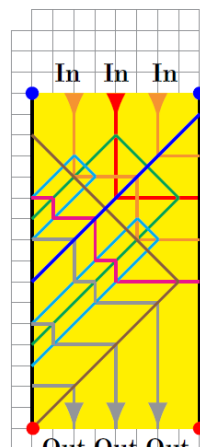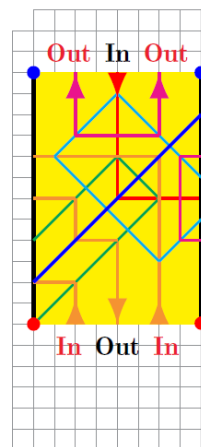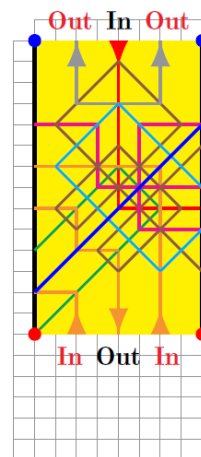
Same **Flip** **2-Same** **2-Flip** **Same-Same** **Same-Flip** **Flip-Same** **Flip-Flip**