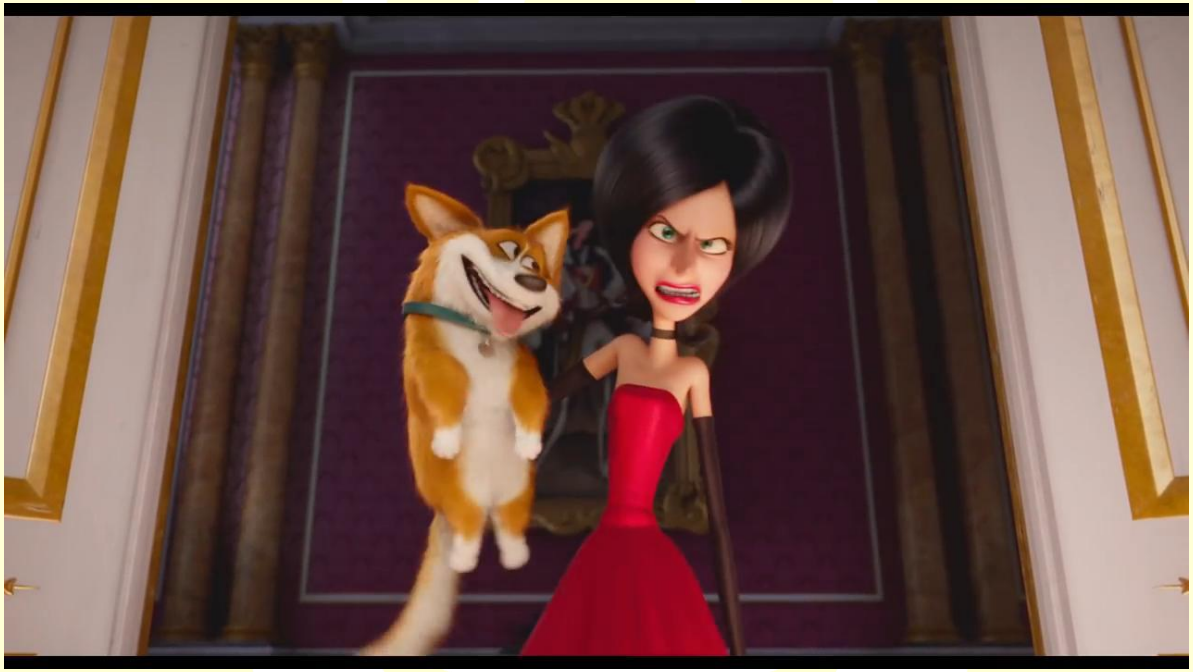
HW3 Supplement

ME

Reference Image

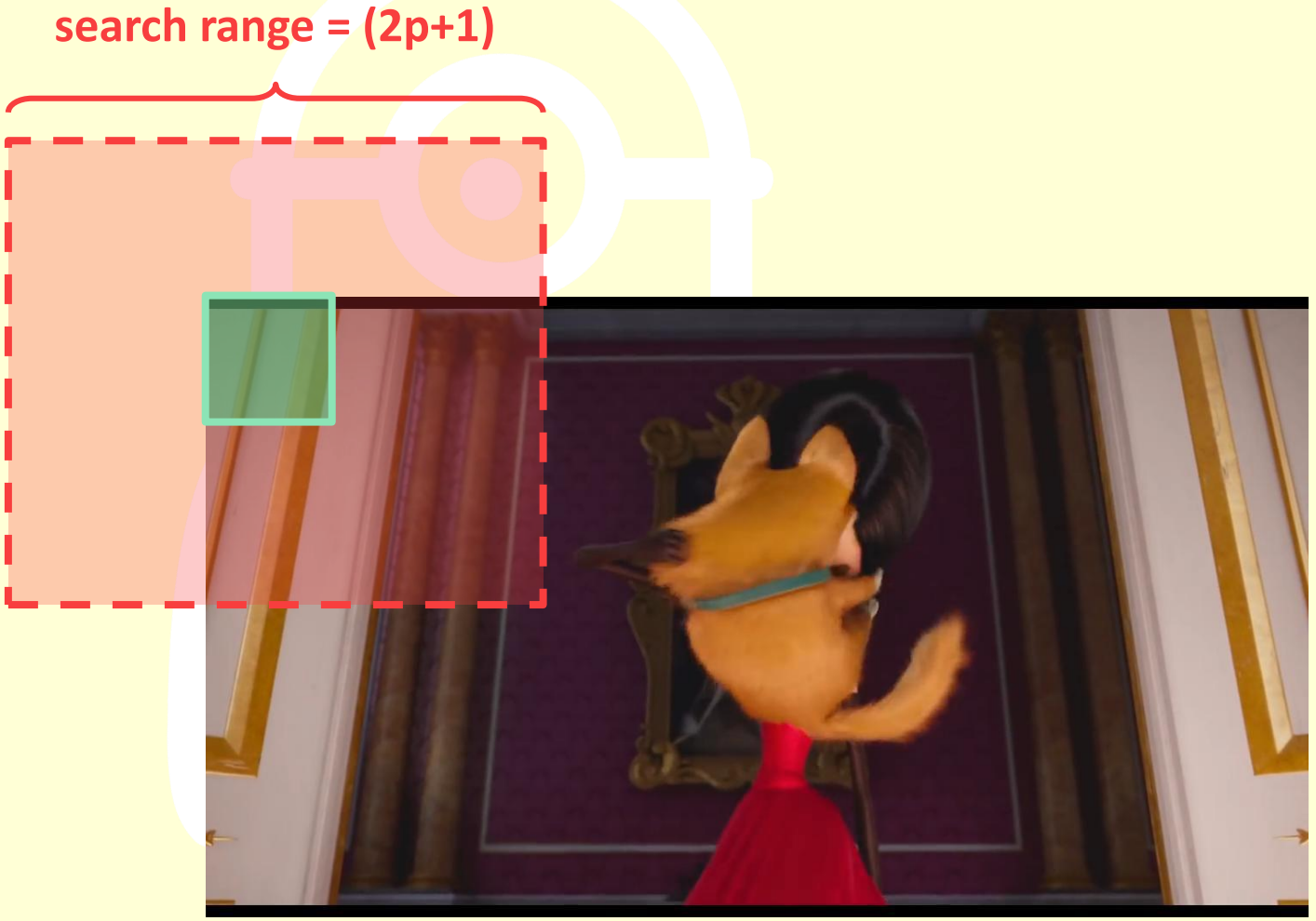


Target Image

macroblock sizes

Target Image

Reference Image


search range = (2p+1)

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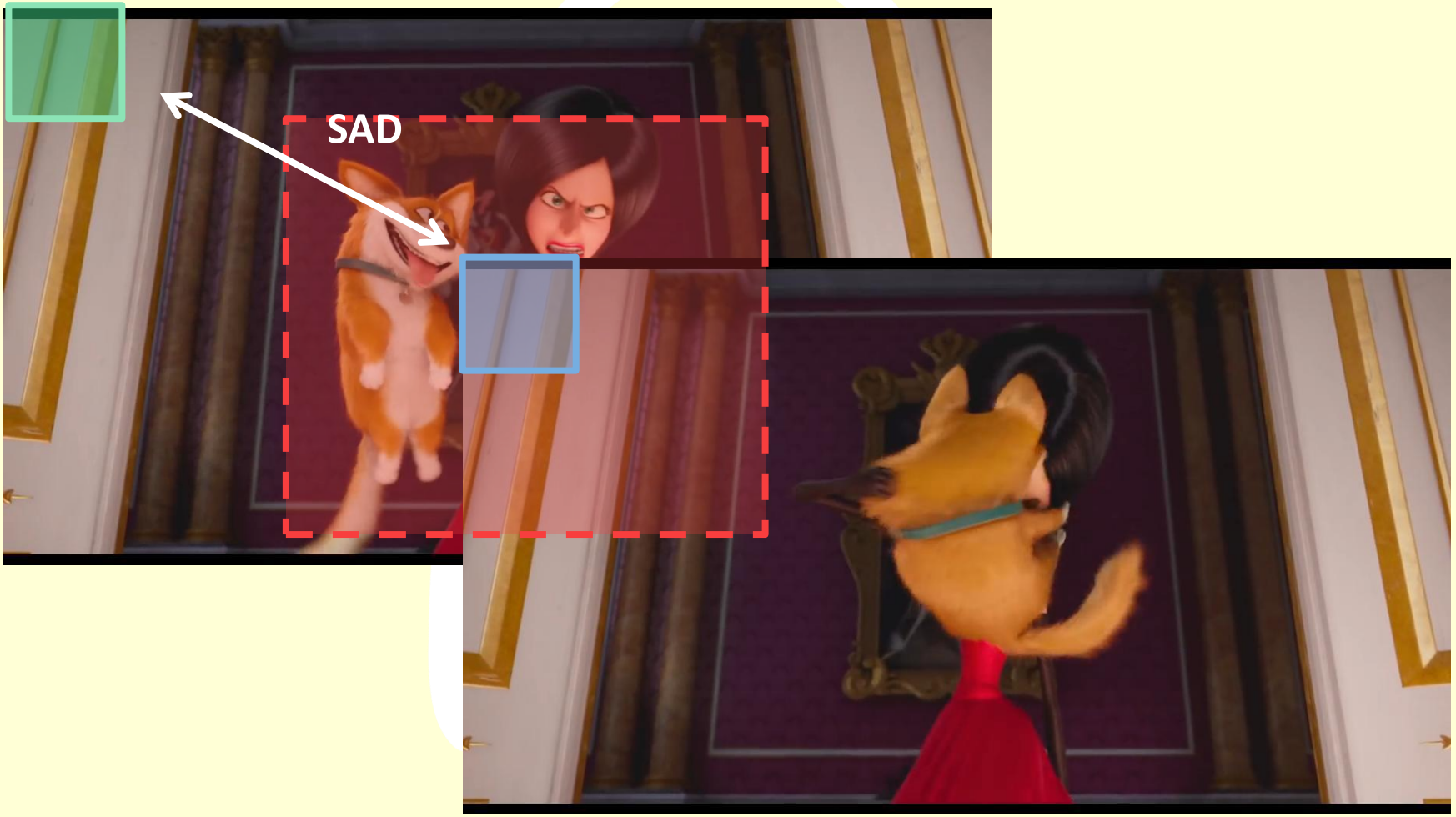
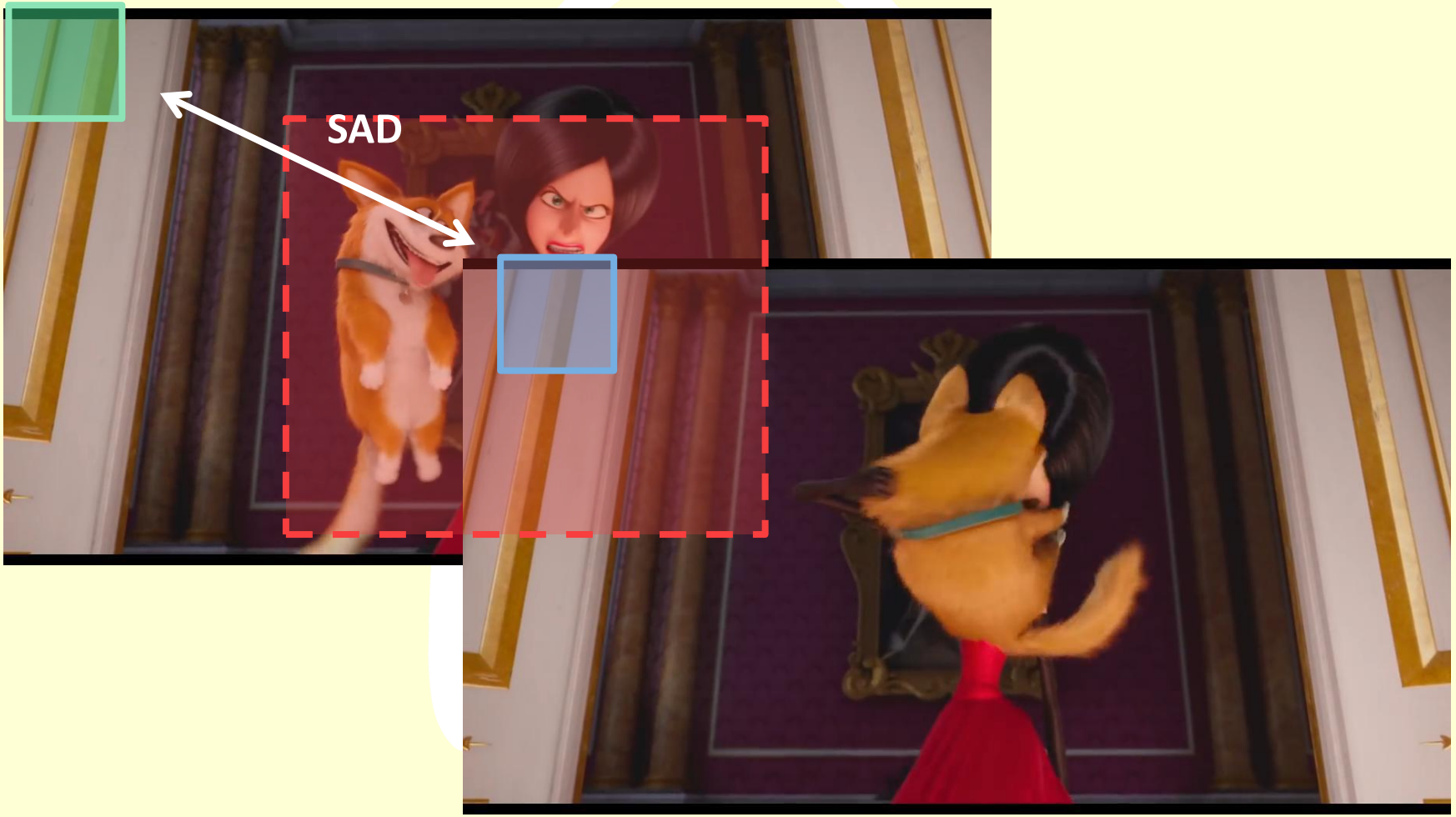
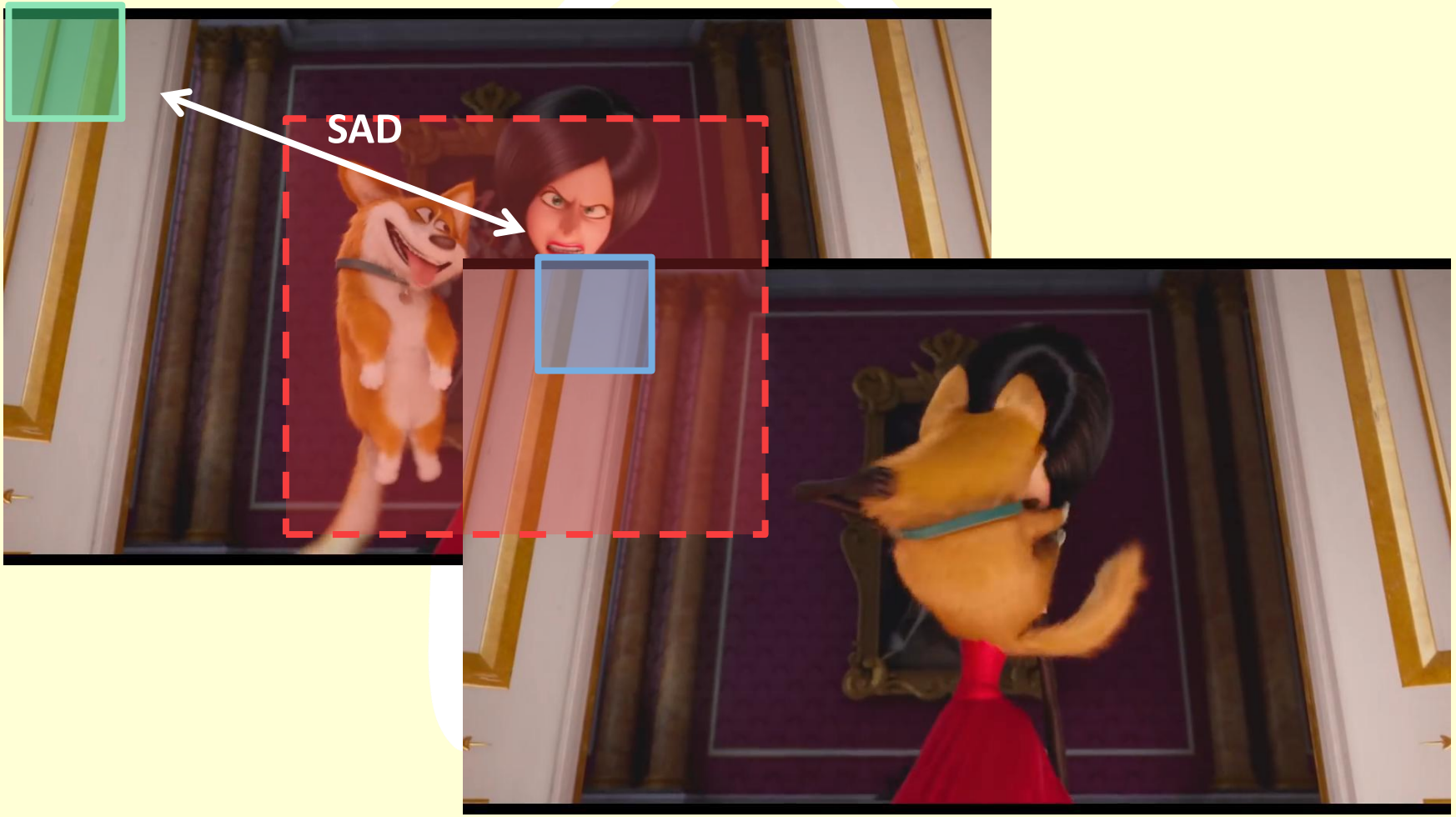
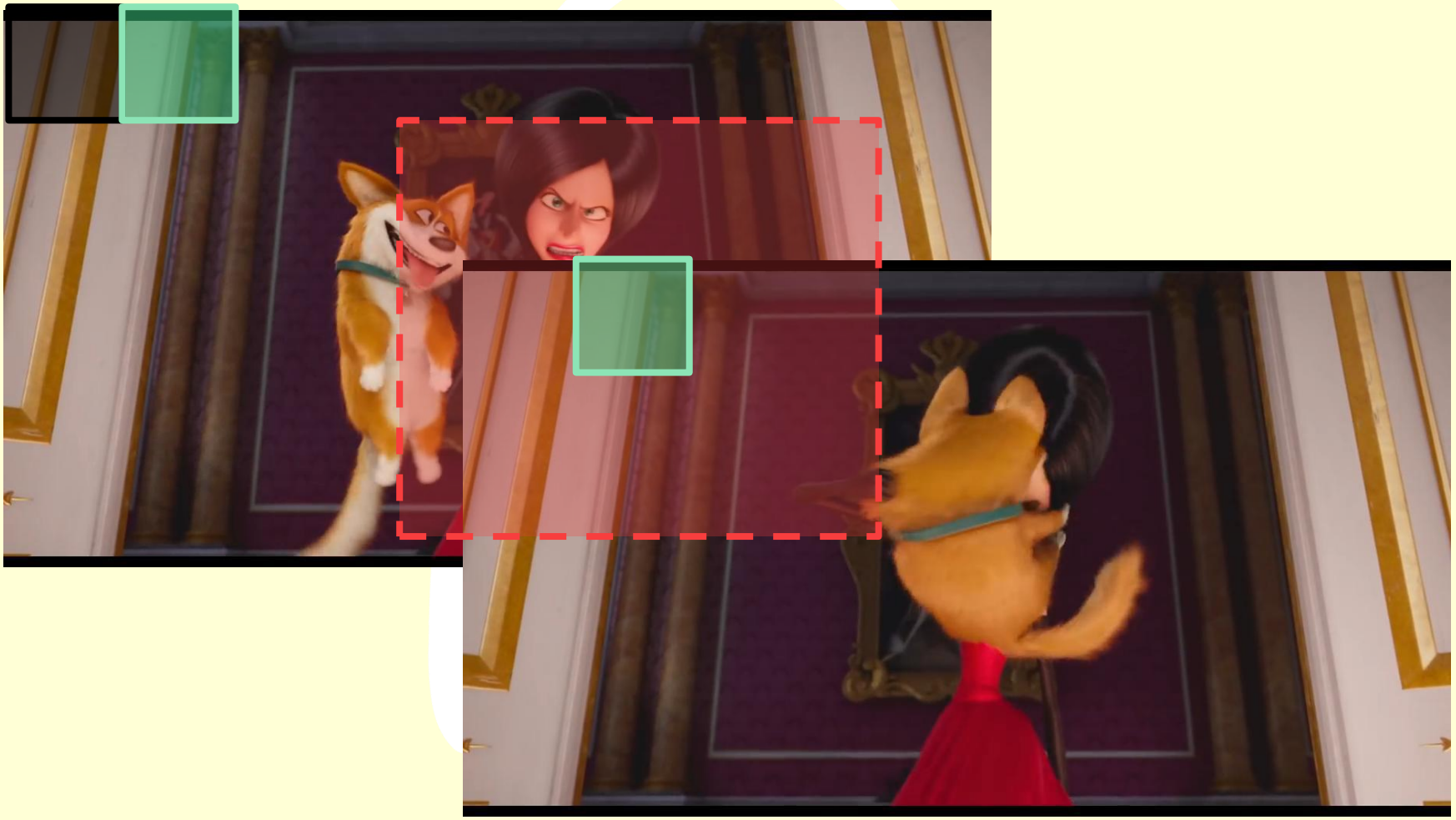


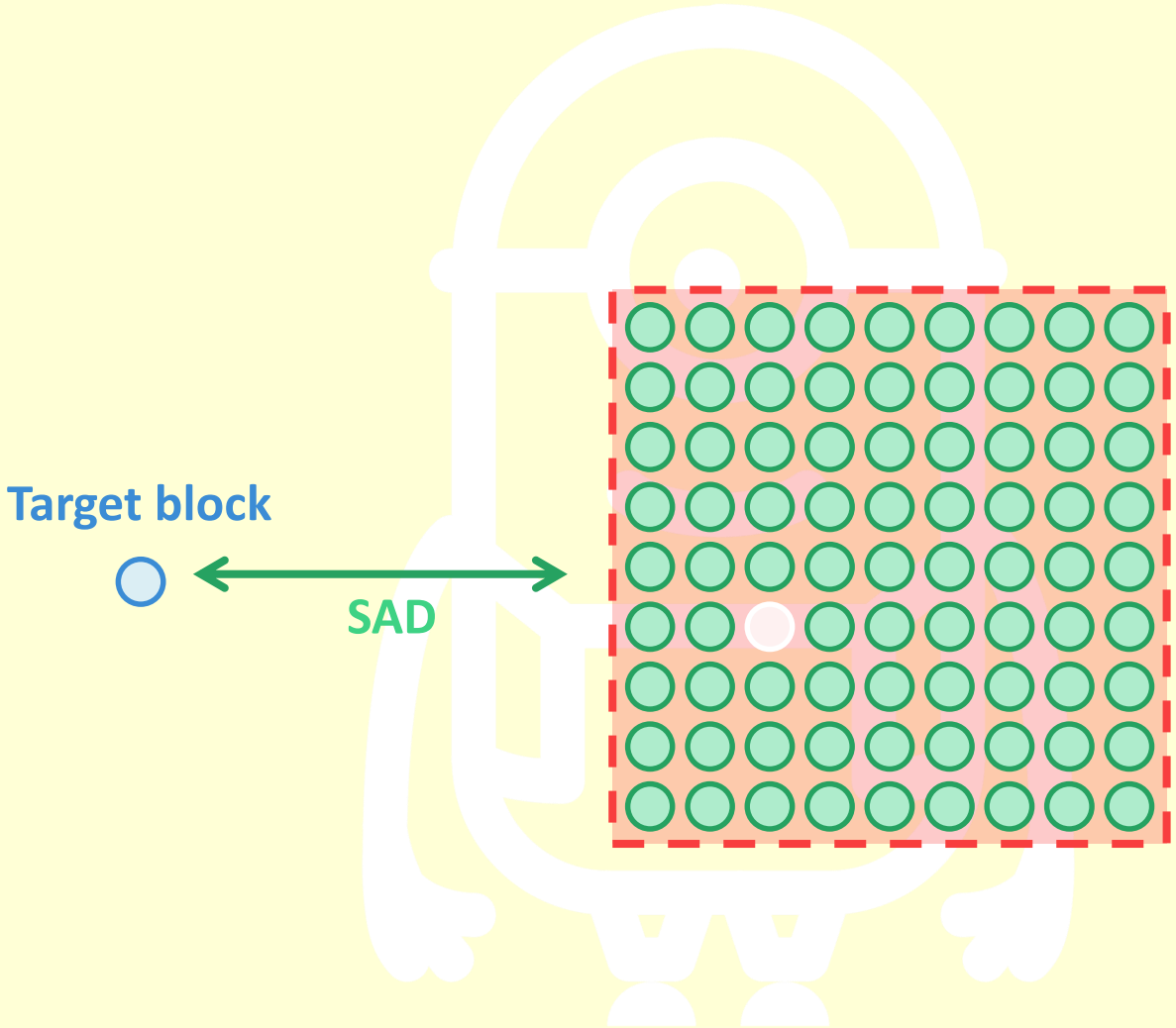

SAD


SAD

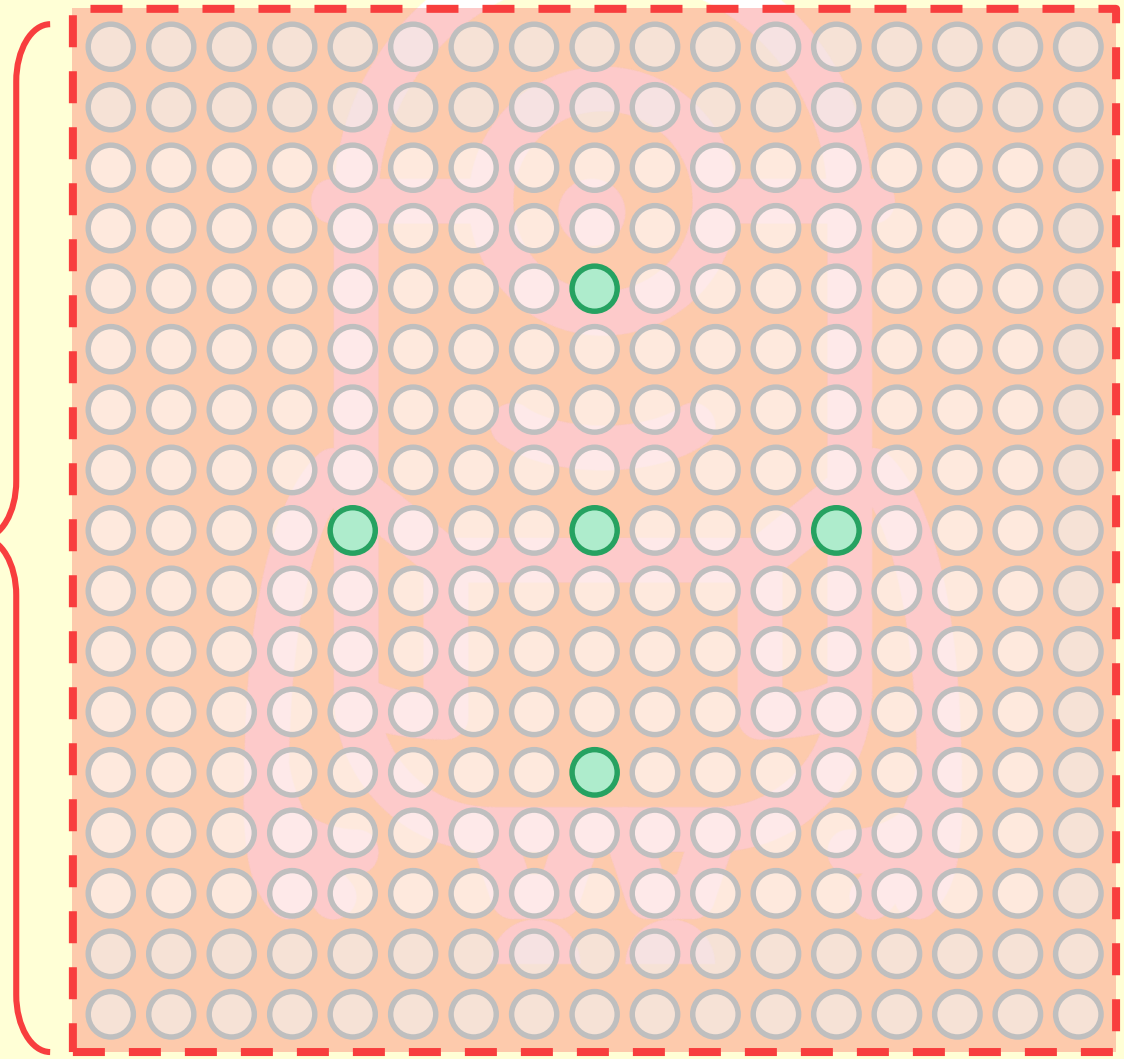
macroblock sizes



Full search



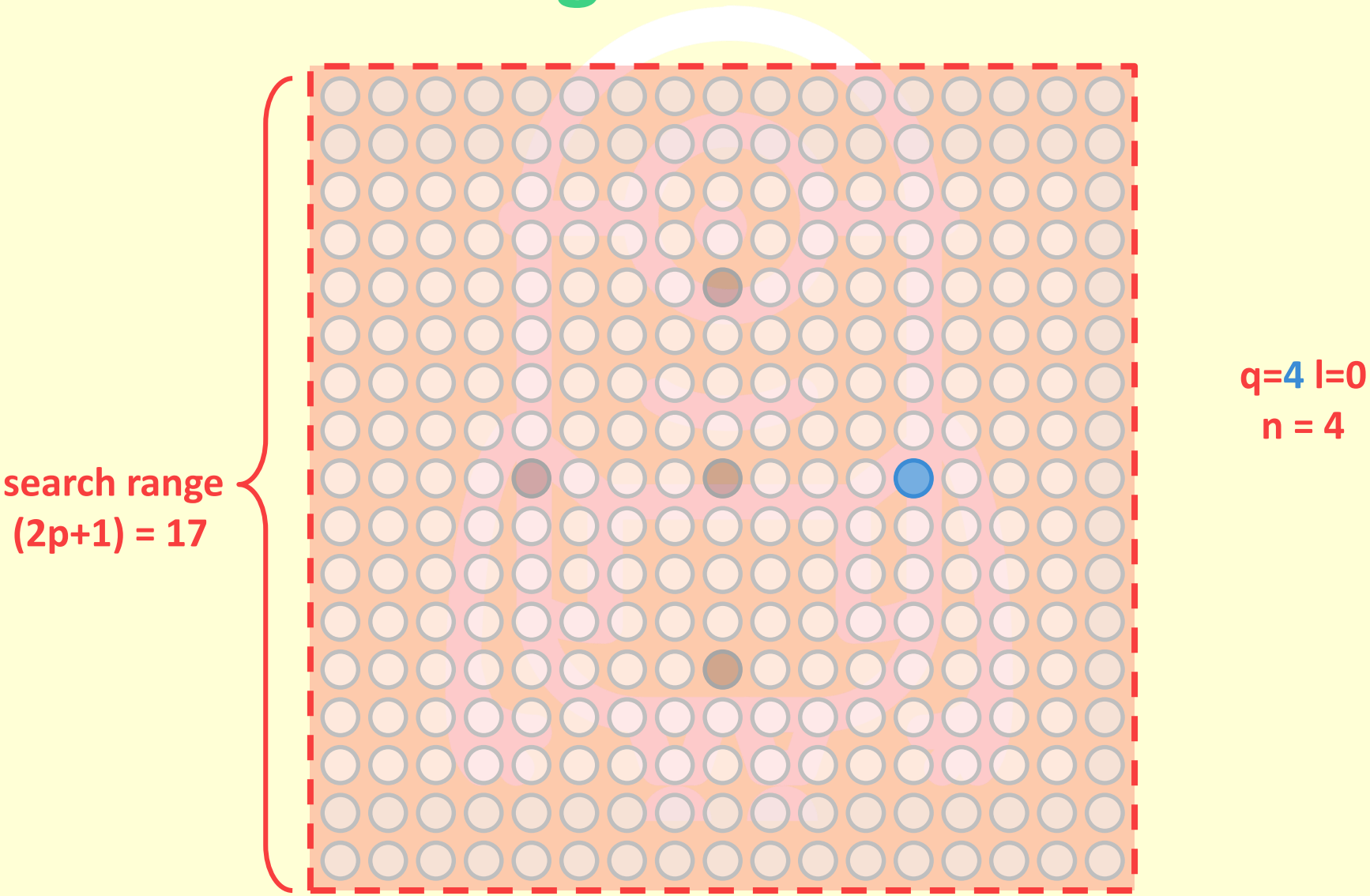
2-D logarithm search



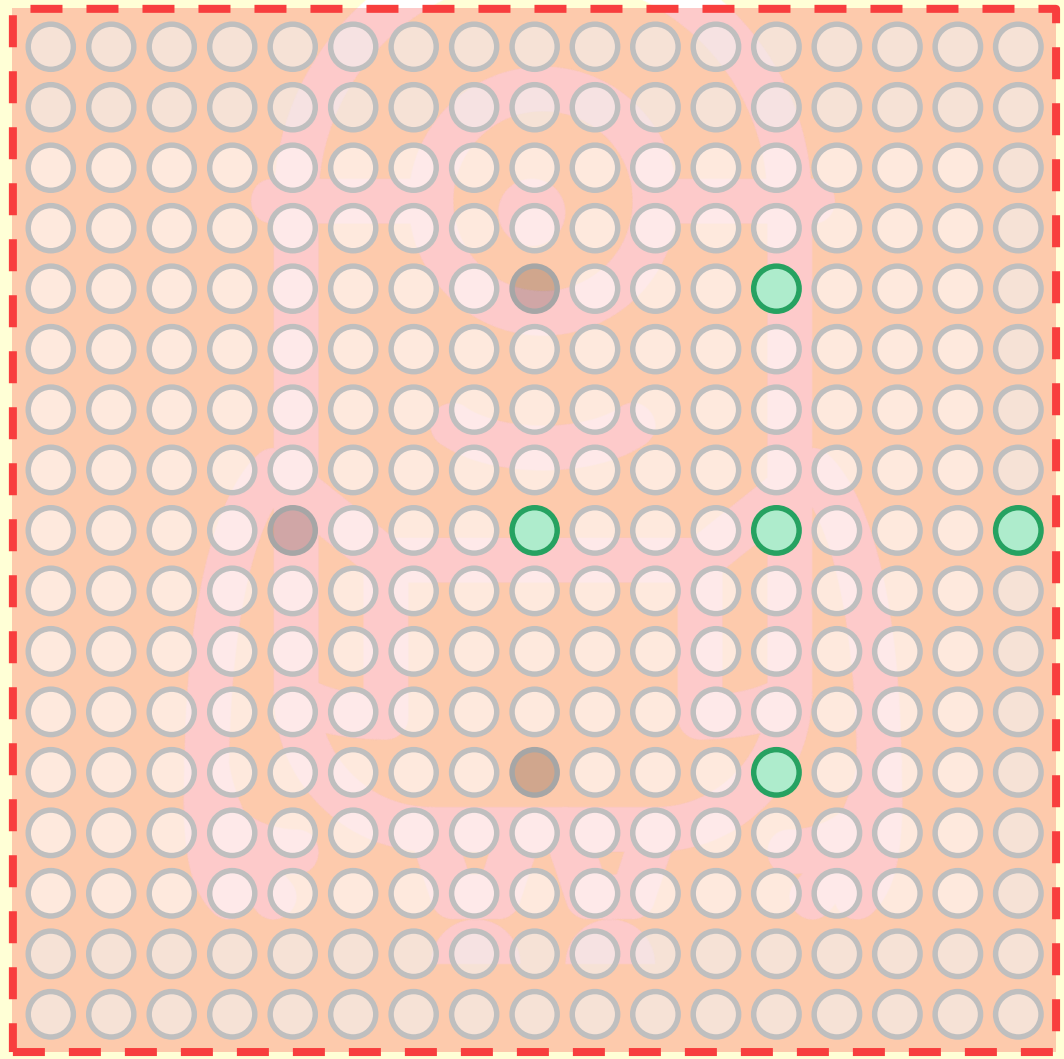
search range
(2p+1) = 17

q=0 l=0
n = p/2 = 4
(0, 0)
(-4,0)
(0,-4)
(4, 0)
(0, 4)

2-D logarithm search



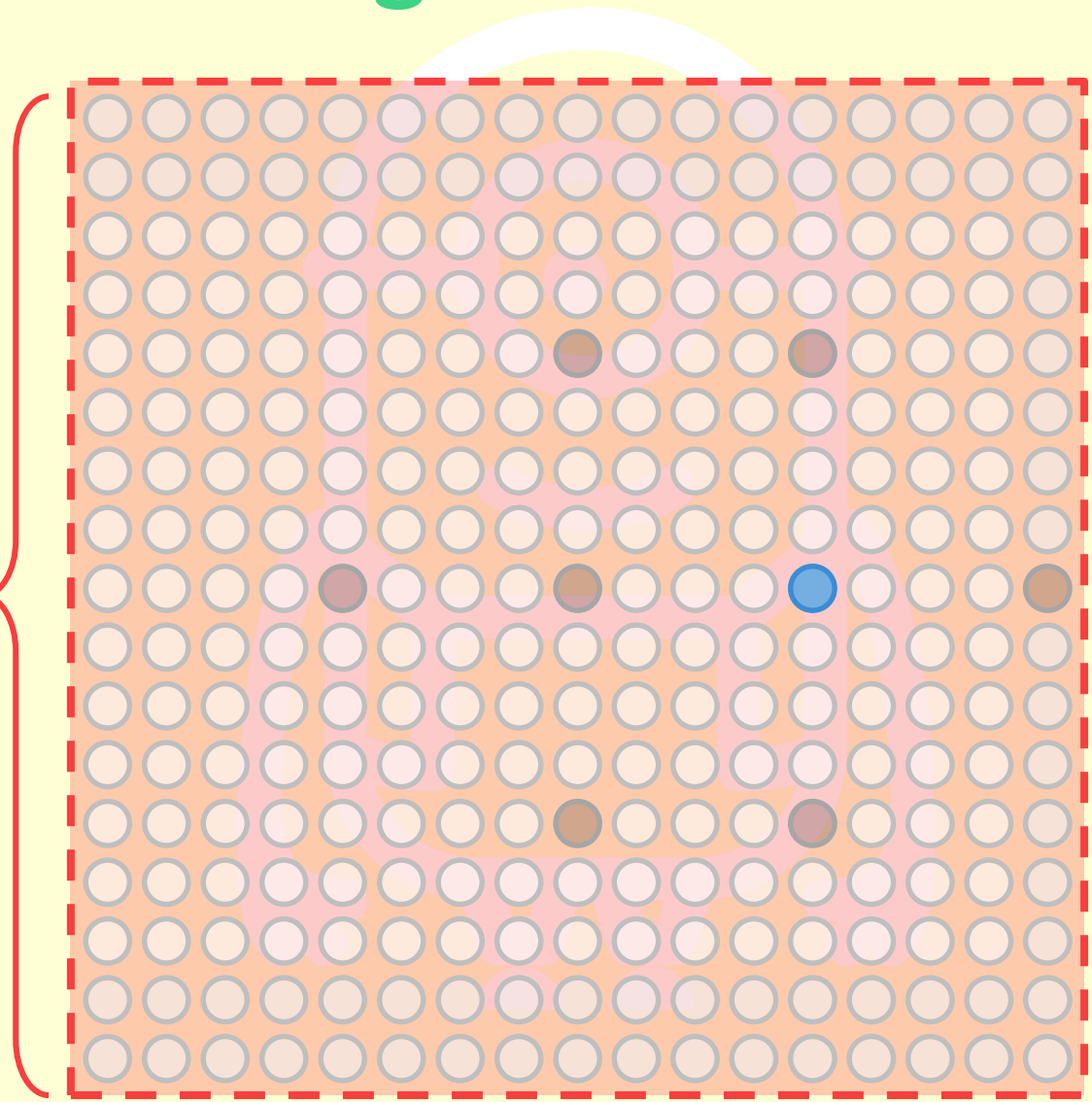
2-D logarithm search



search range
(2p+1) = 17

q=4 l=0
n = 4
(0, 0)
(-4,0)
(0,-4)
(4, 0)
(0, 4)

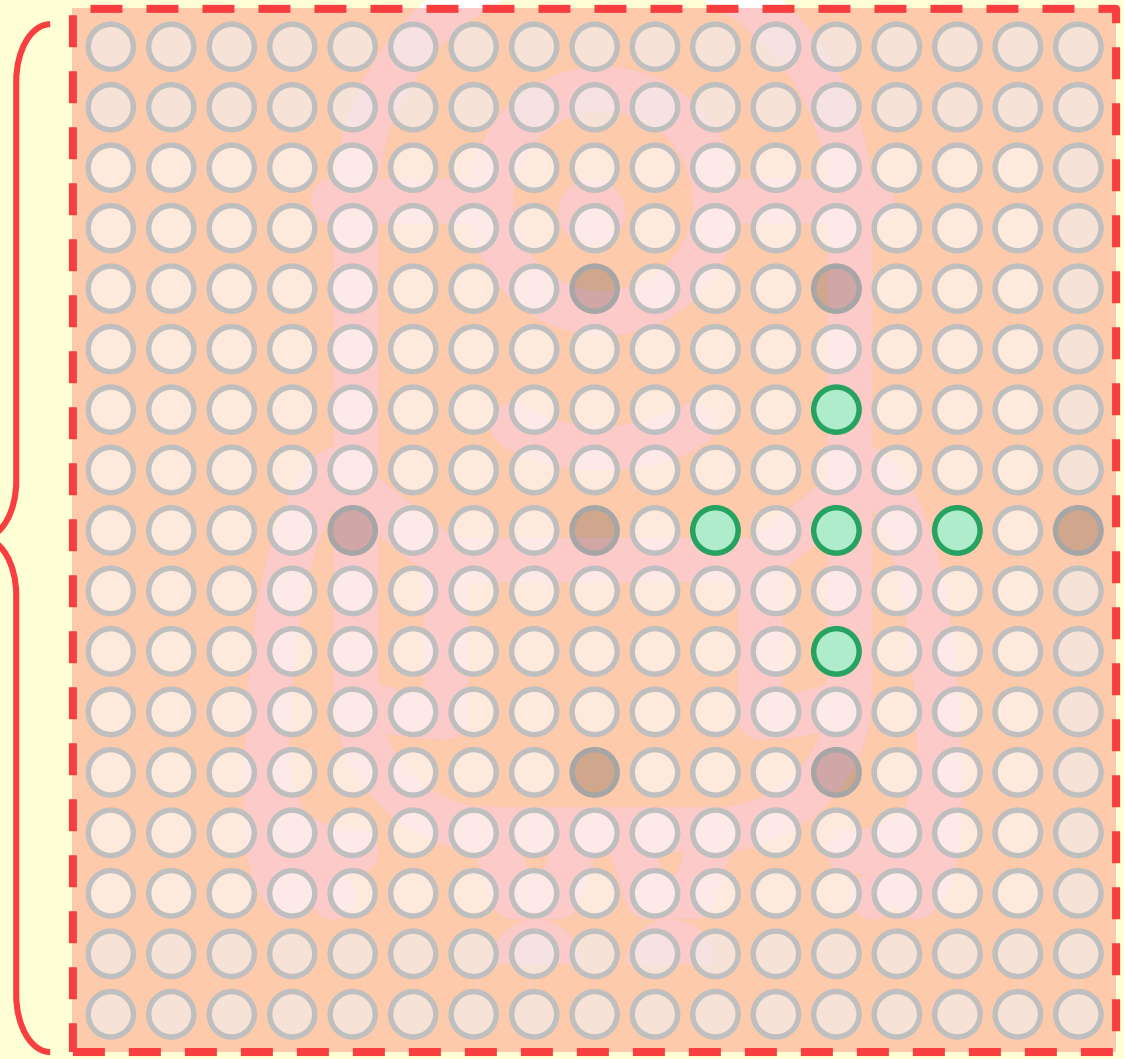
2-D logarithm search



search range
(2p+1) = 17

q=4 l=0
n = 4

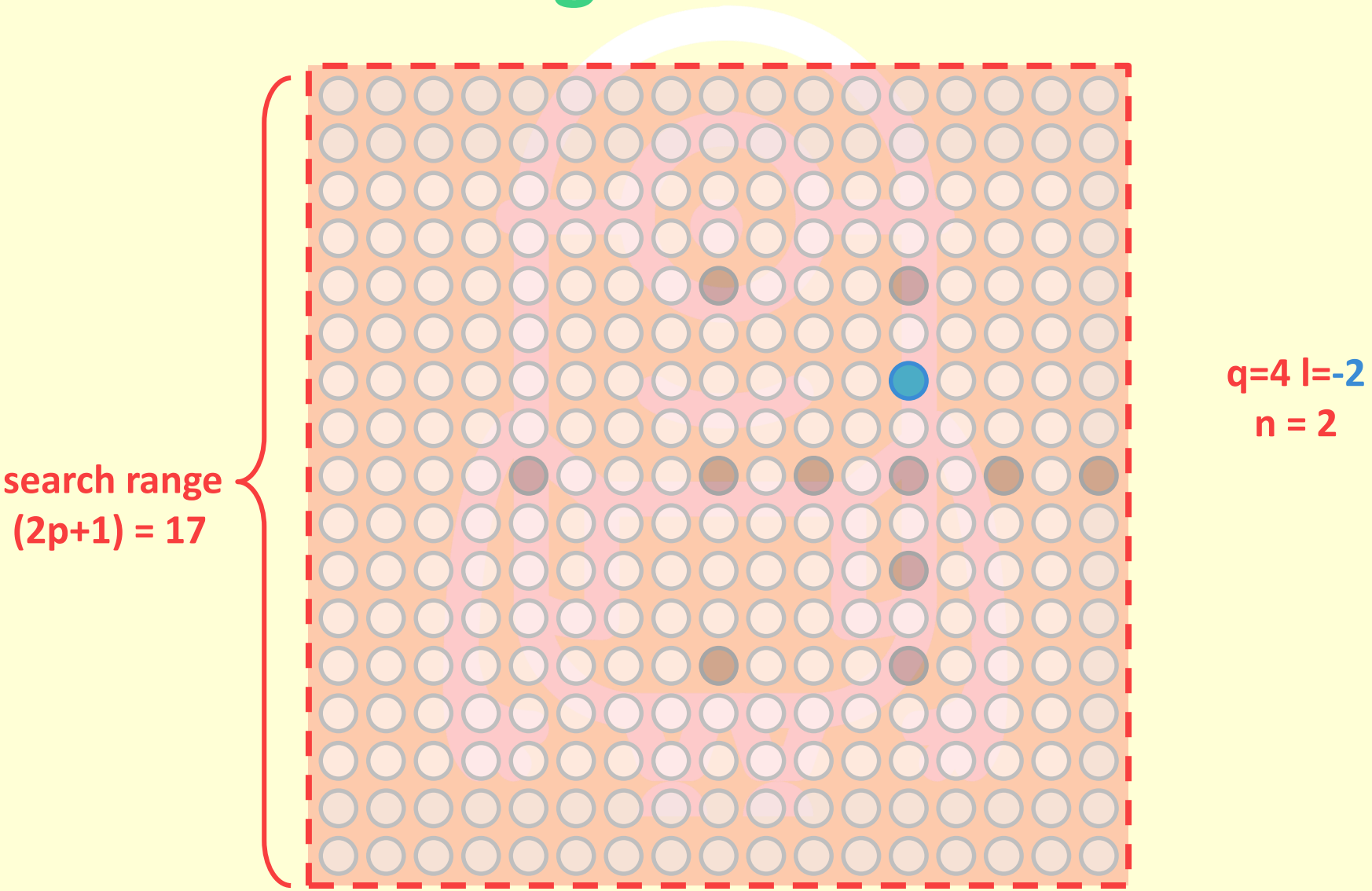
2-D logarithm search



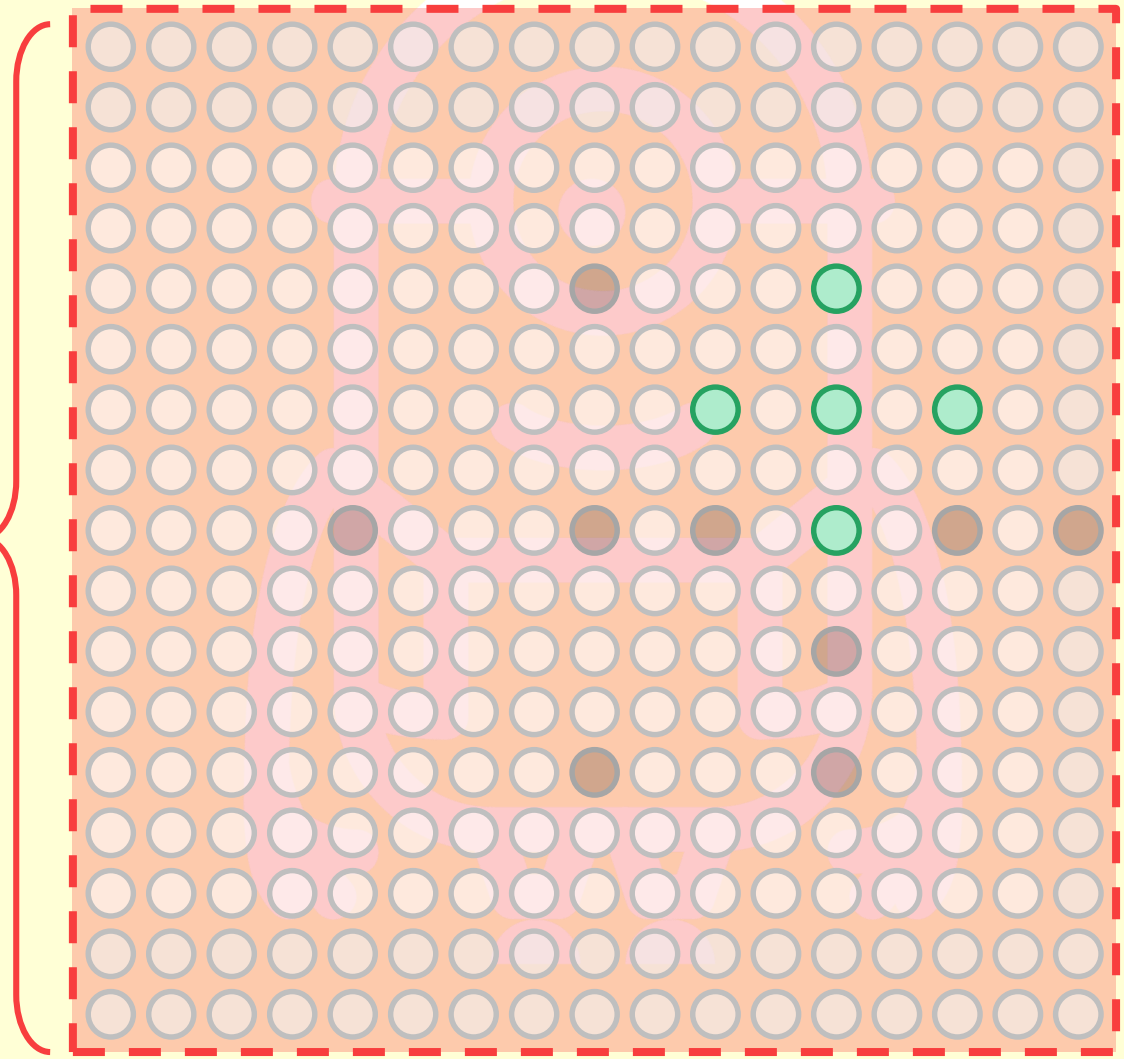
search range
(2p+1) = 17

q=4 l=0
n = n/2 = 2
(0, 0)
(-2,0)
(0,-2)
(2, 0)
(0, 2)

2-D logarithm search



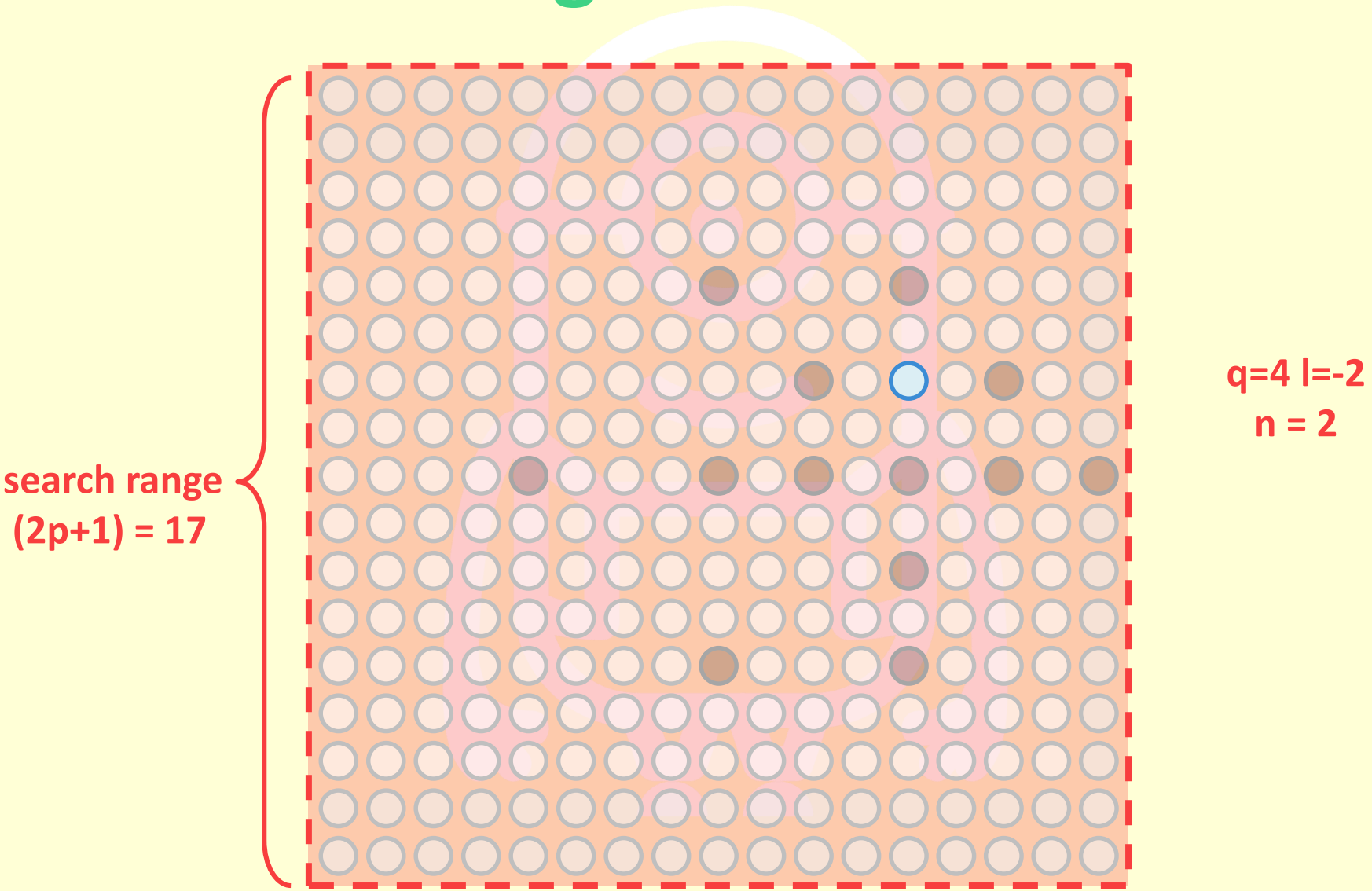
2-D logarithm search



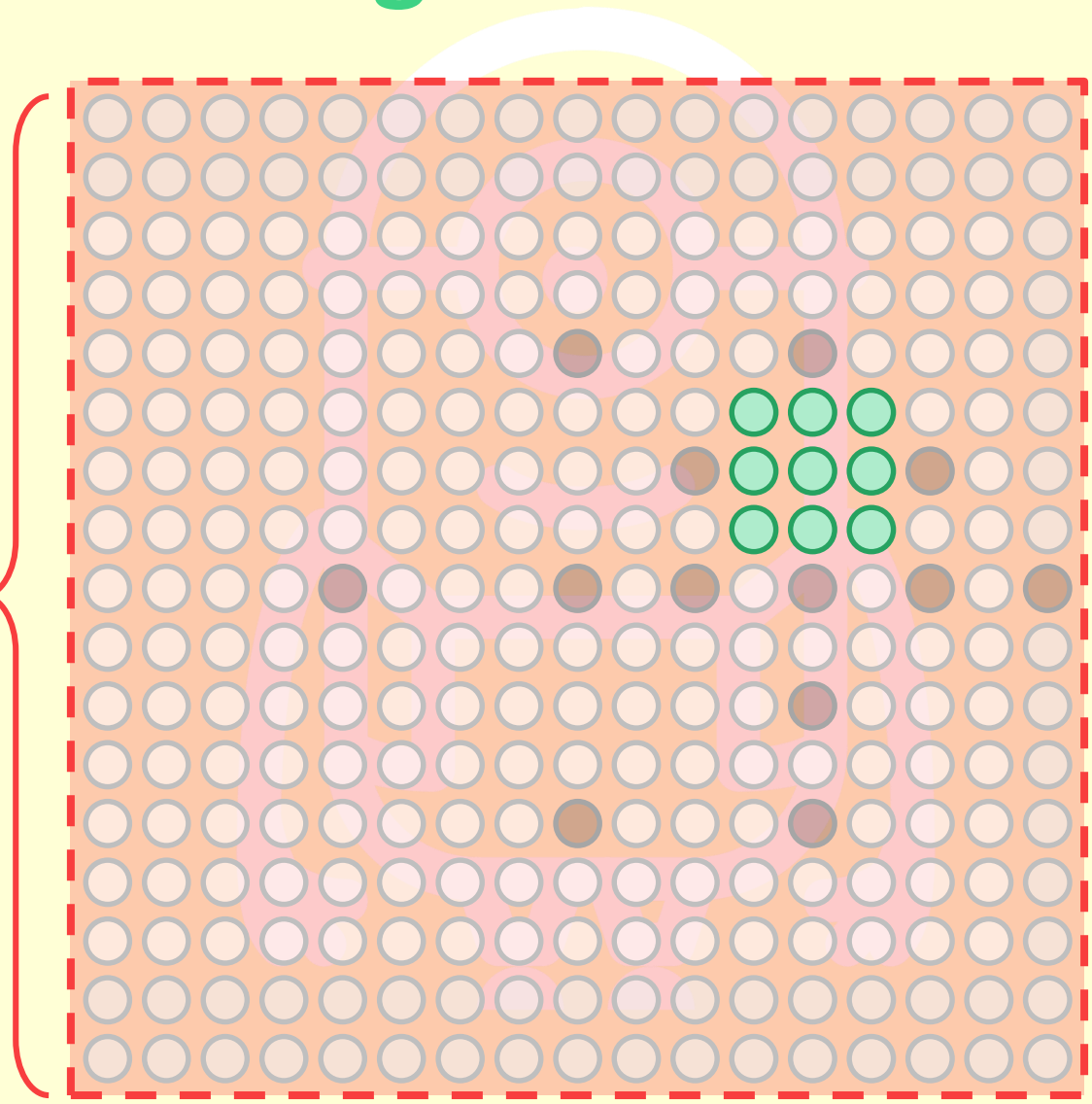
search range
(2p+1) = 17

q=4 l=-2
n = 2
(0, 0)
(-2,0)
(0,-2)
(2, 0)
(0, 2)

2-D logarithm search



2-D logarithm search



search range
(2p+1) = 17

q=4 l=-2
n = n/2 = 1
(0, 0)
(-1,0)
(0,-1)
(1, 0)
(0, 1)
(1, 1)
(1,-1)
(-1,1)
(-1,-1)

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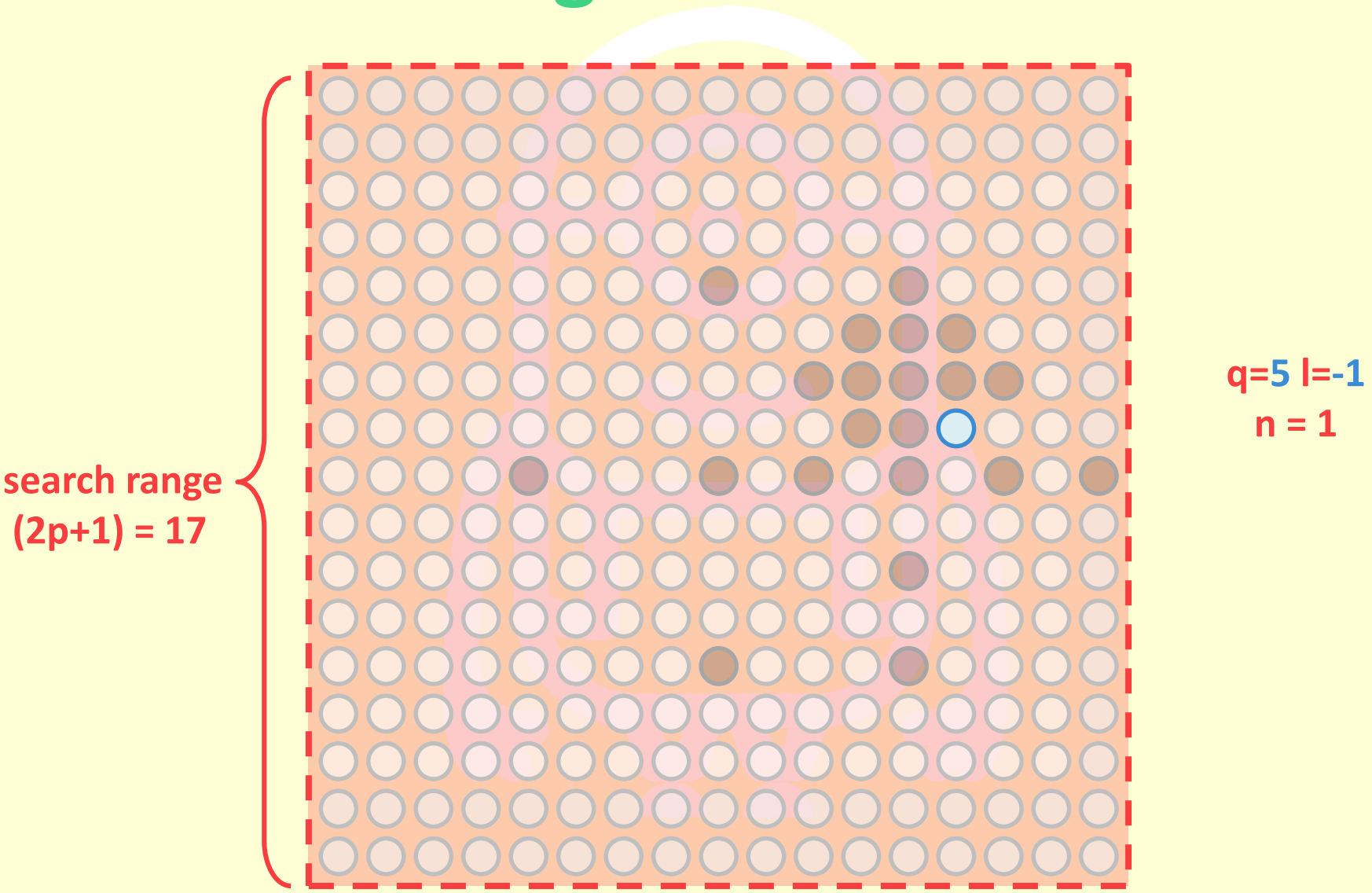
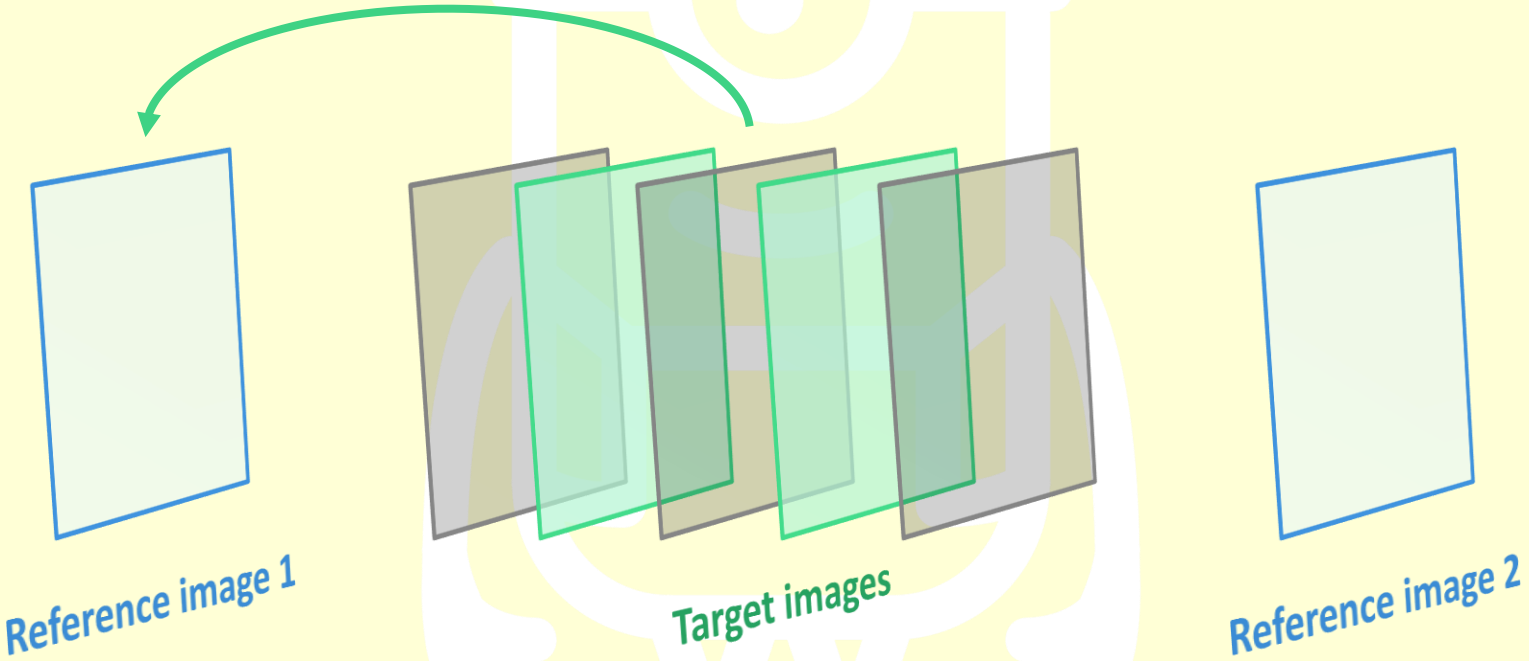
2-D logarithm search



Problem 1

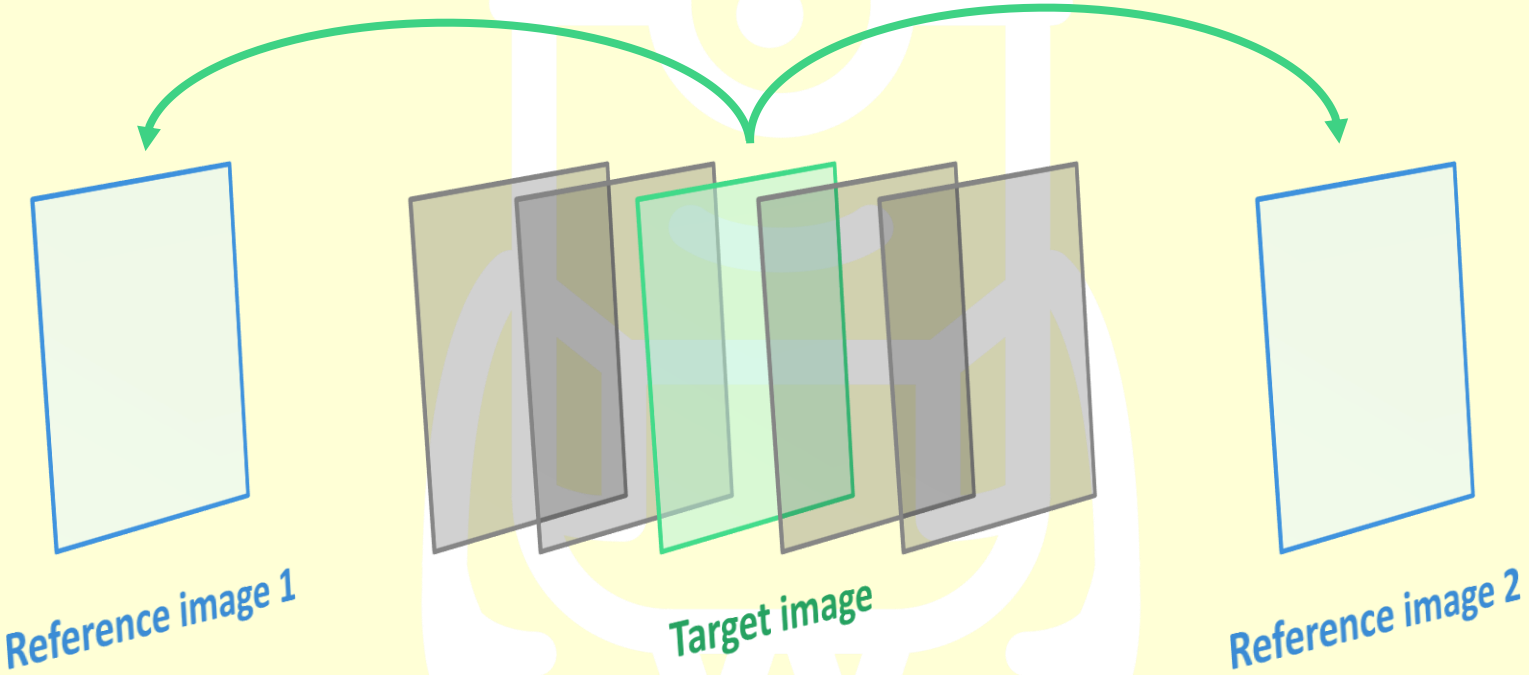
- Predicted pictures



search range n = 8 & 16
macroblock size = 8x8 & 16x16
Search method = full-search & 2d-logarithm search

Problem 2

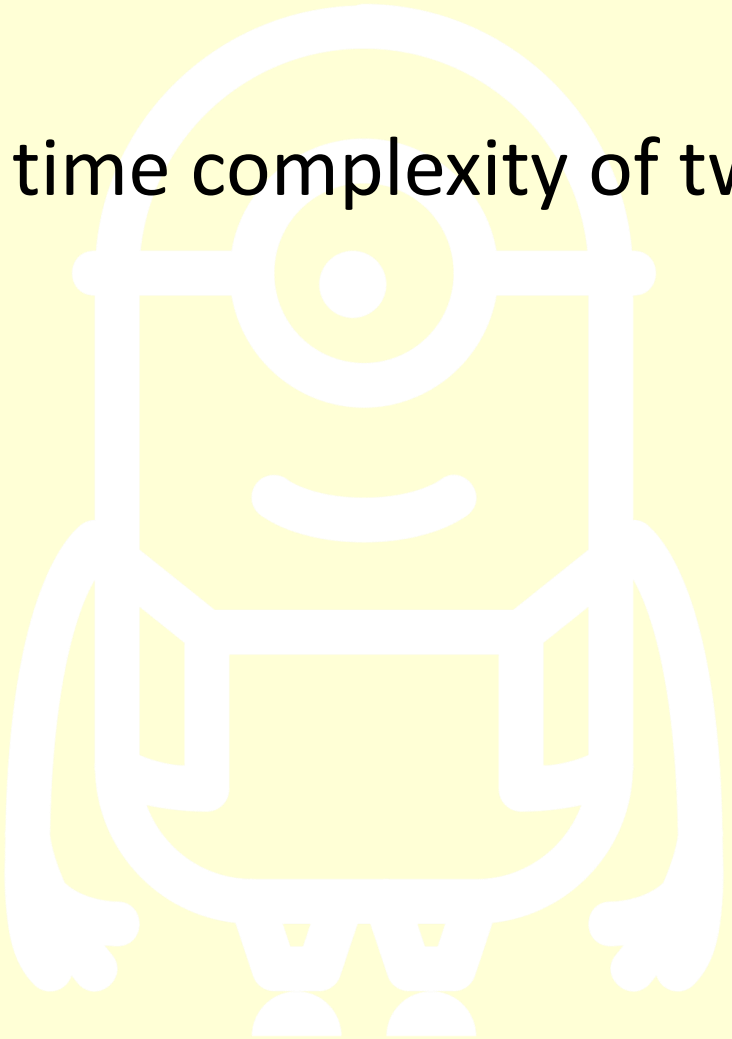
- Bi-predictive pictures



search range n = 8
macroblock size = 8x8
Search method = 2d-logarithm search

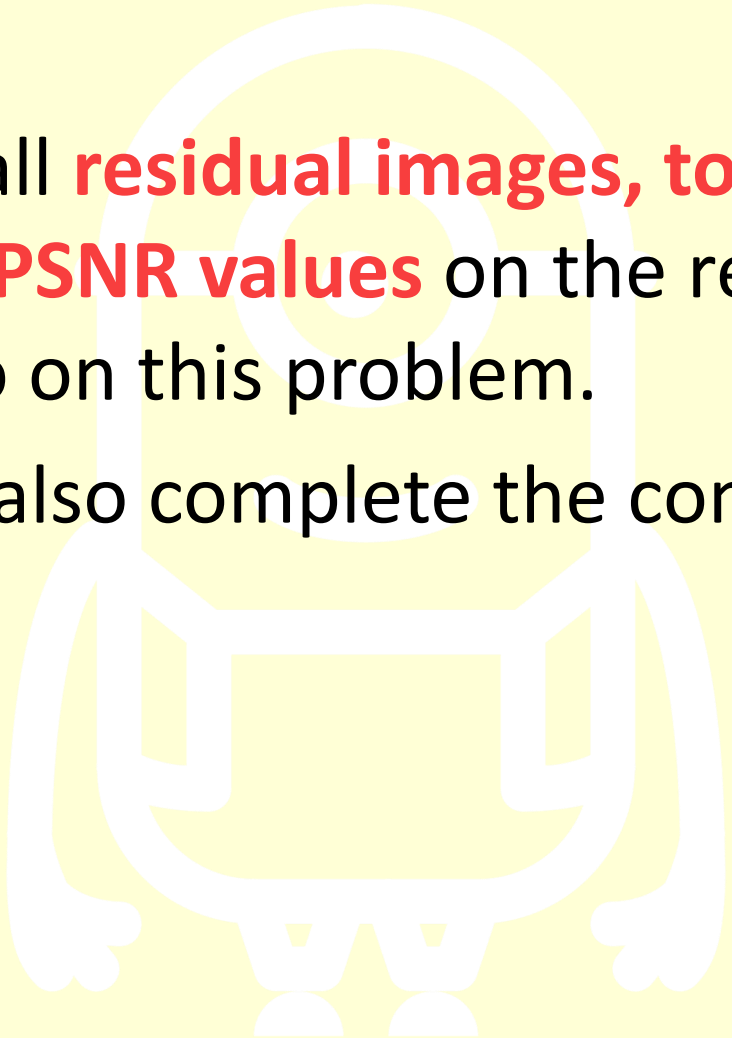
Problem 3

- Analyze the time complexity of two search methods.



Notes

- Please put all **residual images, total SAD values and PSNR values** on the report or you will get zero on this problem.
- You should also complete the comparison and discussion.



Results

Reference Image

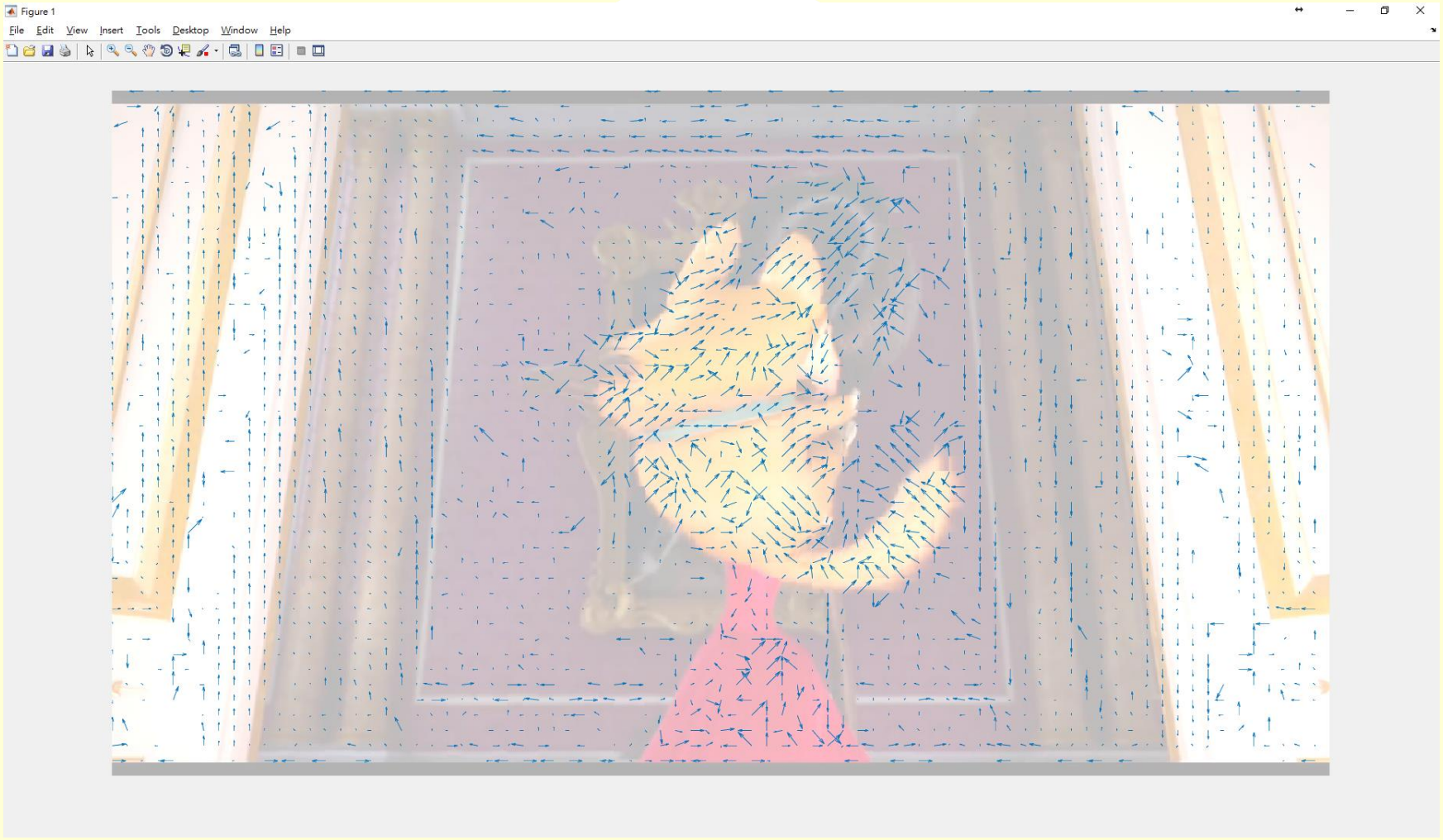
Results

Target Image

Results

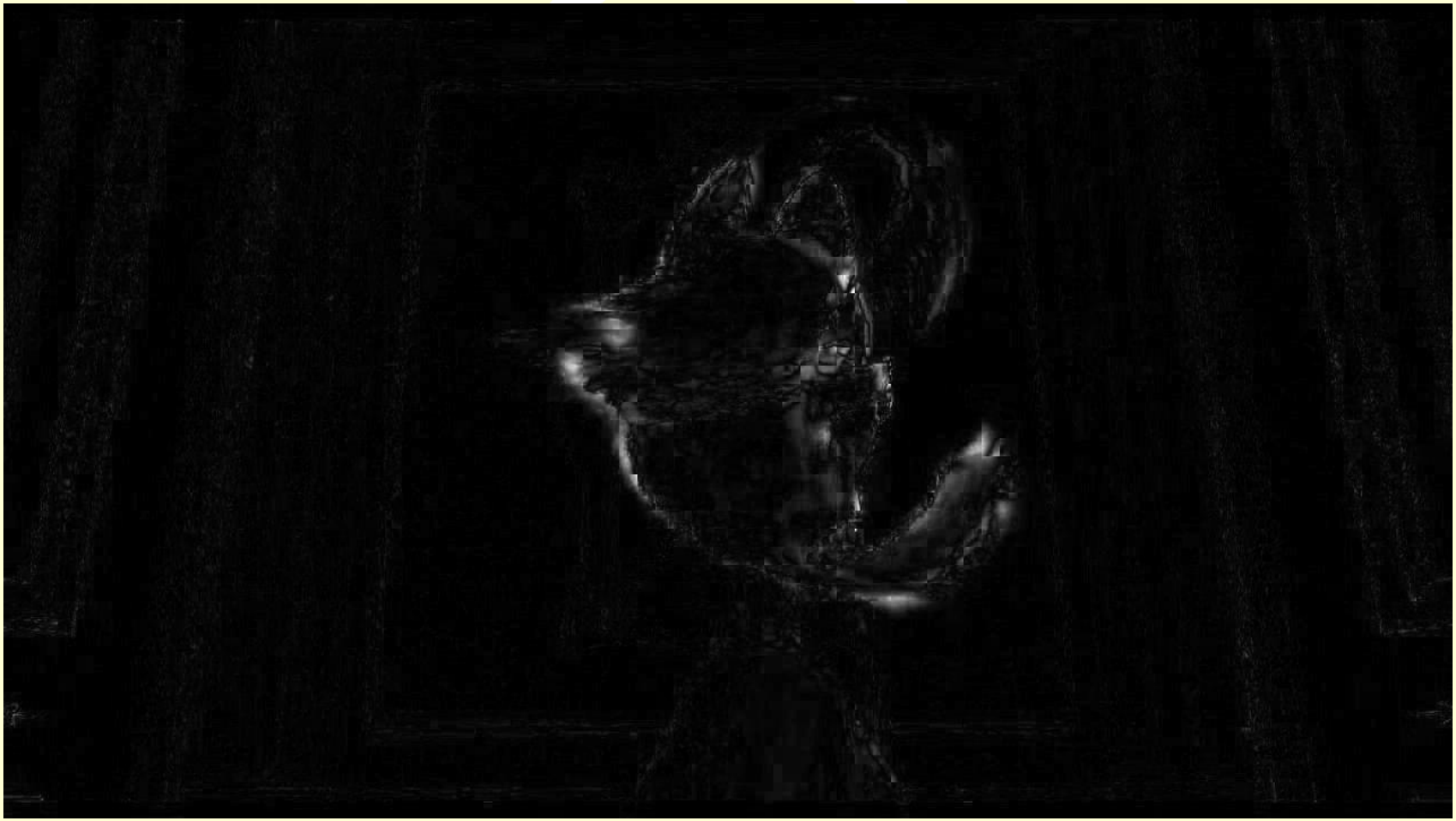
predicted target image with 2d-log block search
(search range=8, macroblock size=16x16)

Results



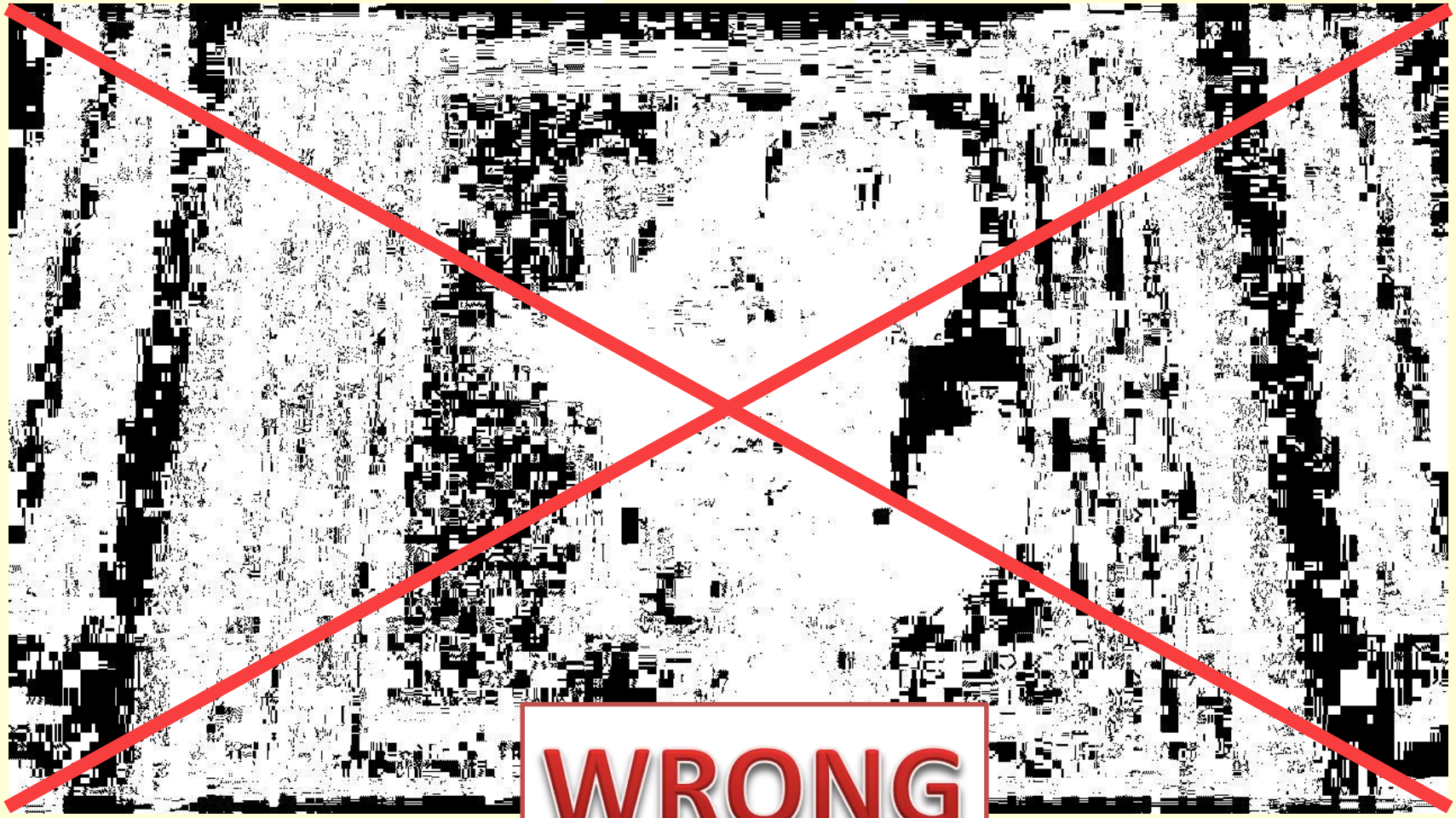
Motion Vector

Results



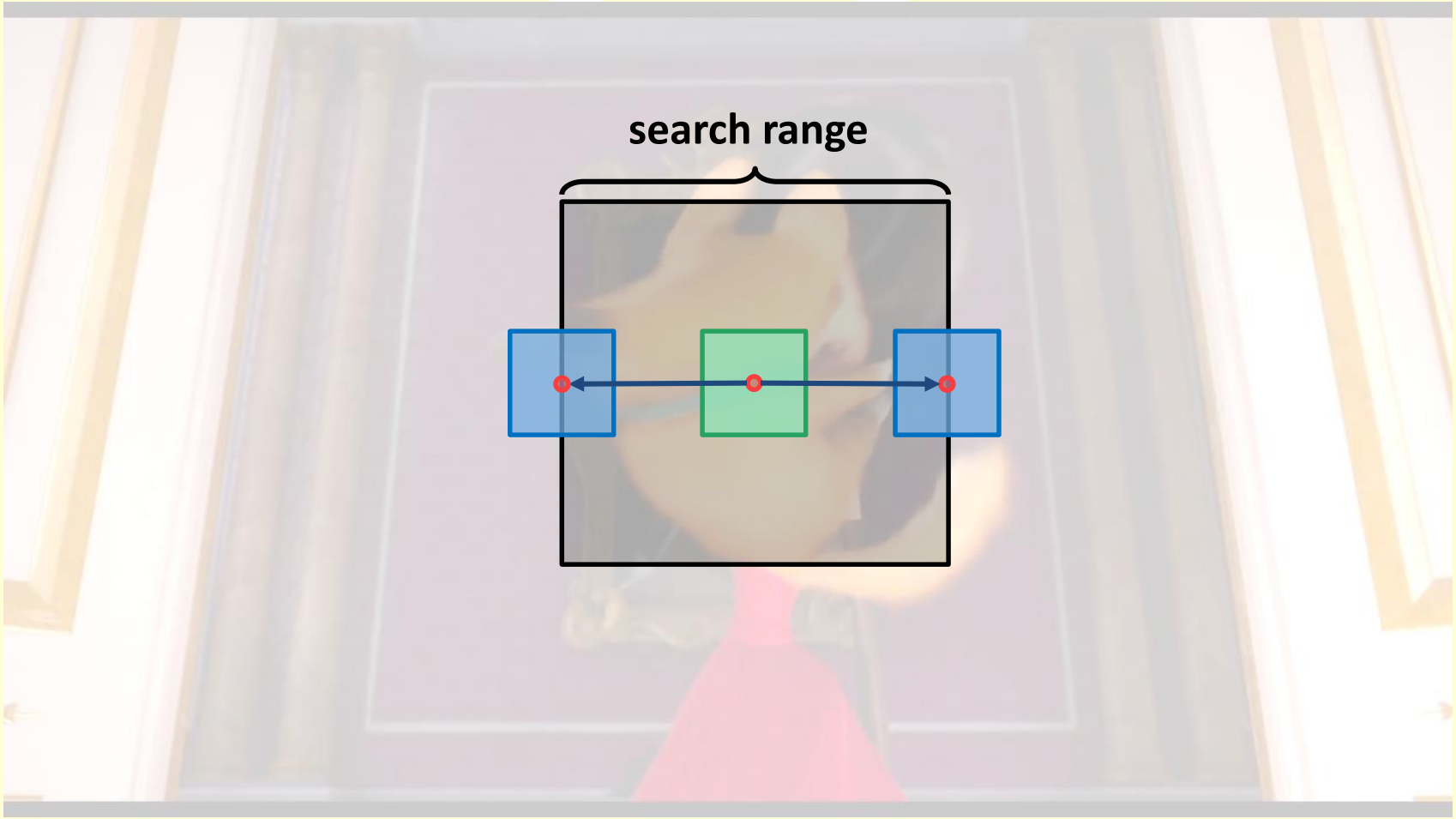
Residual Image

Results



Results

A. Search range



A. Search range