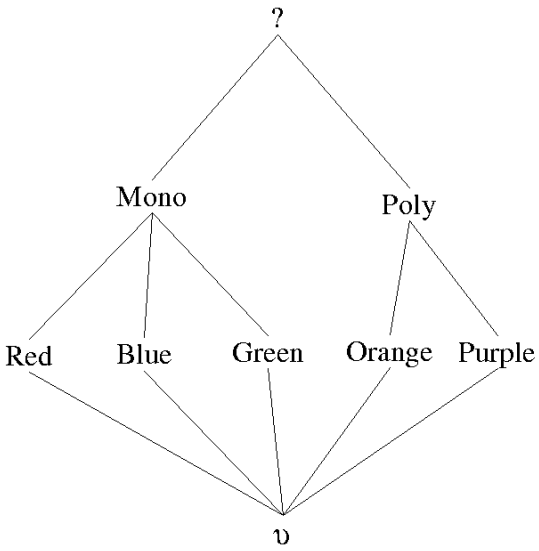
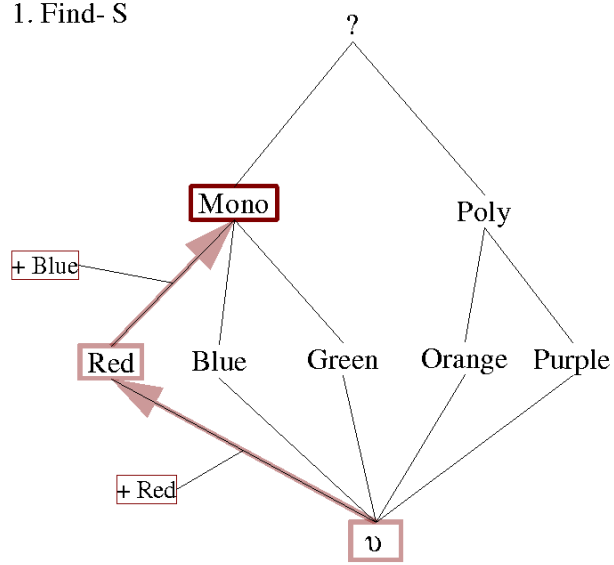


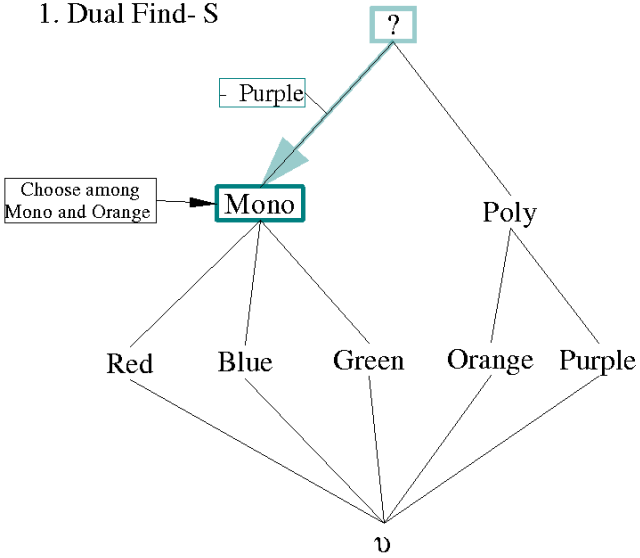
+ Red
- Purple
+ Blue

1. Find- S



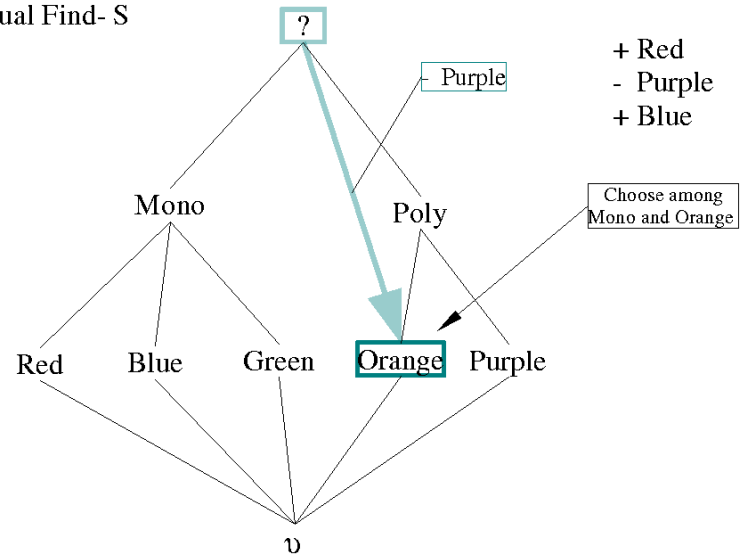
+ Red
- Purple
+ Blue

1. Dual Find- S



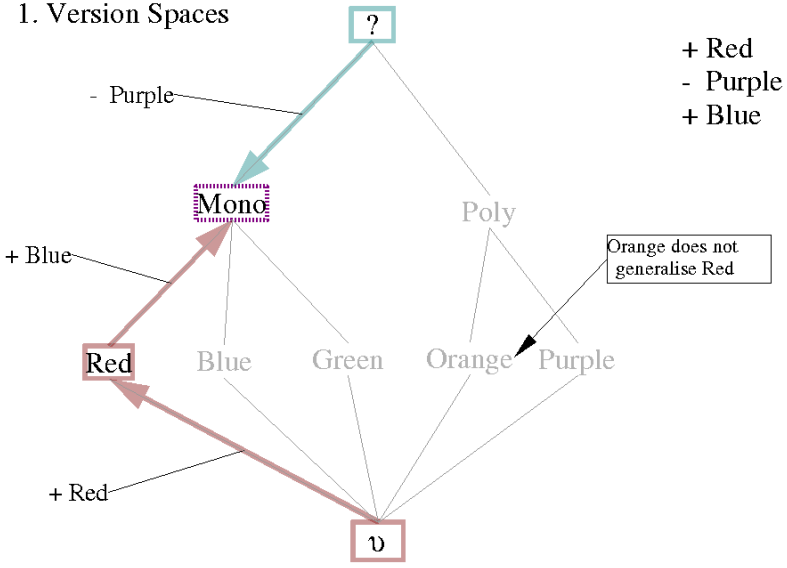
+ Red
- Purple
+ Blue

1. Dual Find- S



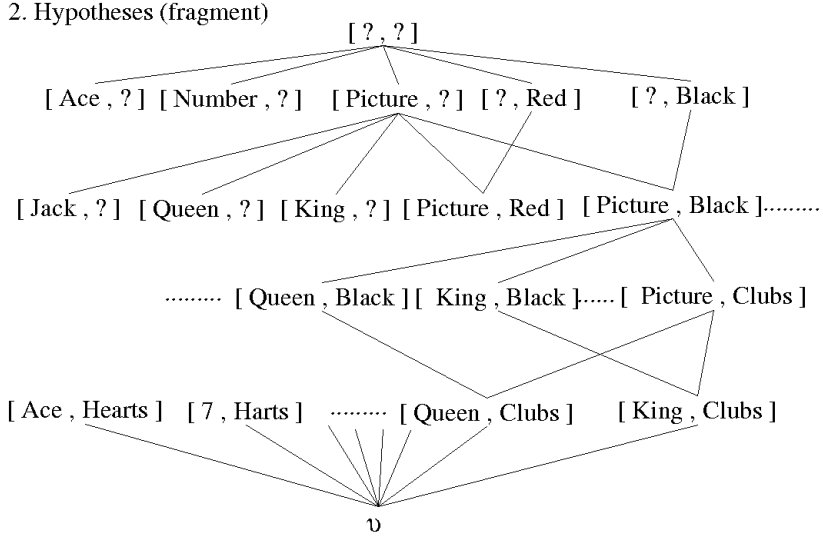
+ Red
- Purple
+ Blue

1. Version Spaces



+ Red
- Purple
+ Blue

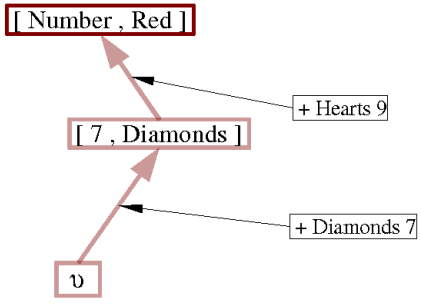
2. Hypotheses (fragment)



2. Find- S

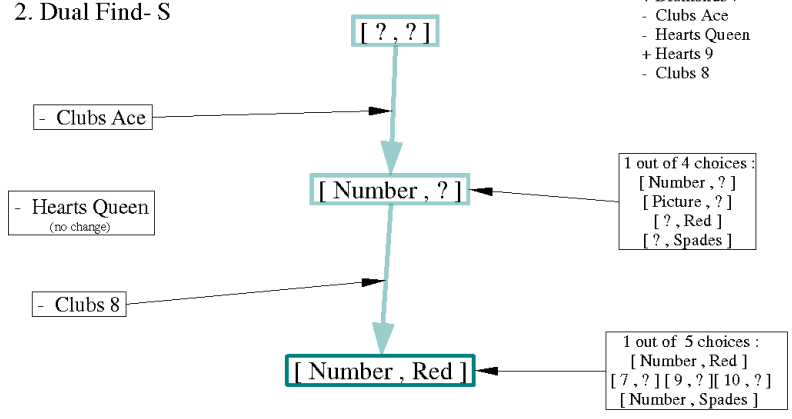
[? , ?]

+ Diamonds 7
- Clubs Ace
- Hearts Queen
+ Hearts 9
- Clubs 8



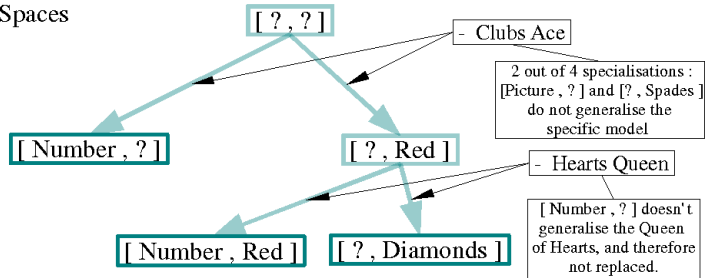
2. Dual Find- S

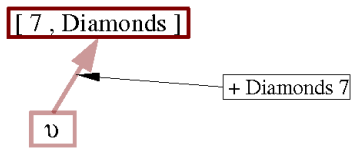
+ Diamonds 7
- Clubs Ace
- Hearts Queen
+ Hearts 9
- Clubs 8



2. Version Spaces

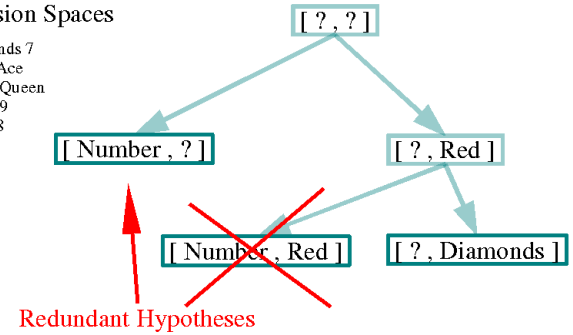
+ Diamonds 7
- Clubs Ace
- Hearts Queen
+ Hearts 9
- Clubs 8

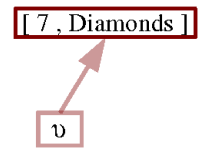




2. Version Spaces

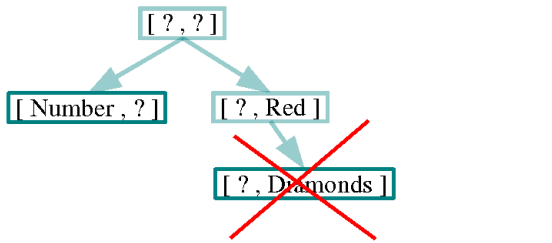
+ Diamonds 7
- Clubs Ace
- Hearts Queen
+ Hearts 9
- Clubs 8

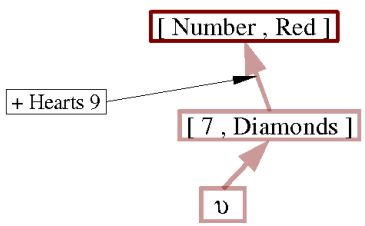




2. Version Spaces

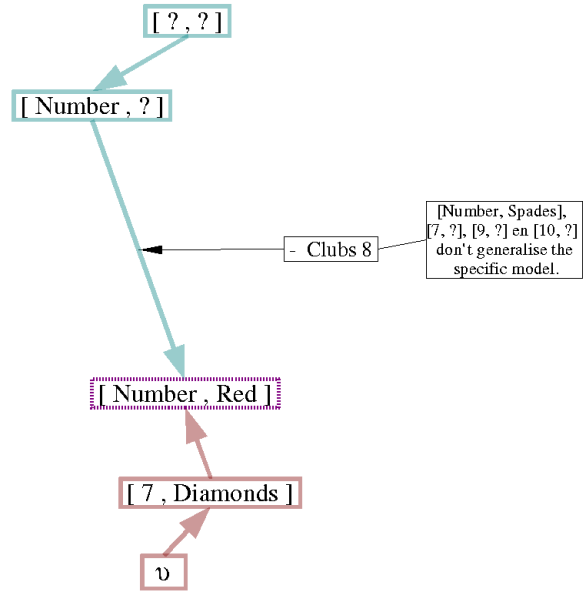
+ Diamonds 7
- Clubs Ace
- Hearts Queen
+ Hearts 9
- Clubs 8





2. Version Spaces

+ Diamonds 7
- Clubs Ace
- Hearts Queen
+ Hearts 9
- Clubs 8



Example 1
G = [[?,?]]
S = [u] = [[7,D]]
E = [7,D]+

Example 2
G = [[?,?]] = [[N,?],~~[P,?]~~,[?,R],~~[?,S]~~]
S = [[7,D]]
E = [A,C]-

Example 3
G = [[N,?],[?,R]] = [[N,?],~~[A,R]~~,[N,R],~~[J,R]~~,~~[K,R]~~,[?,D]]
S = [[7,D]]
E = [Q,H]-

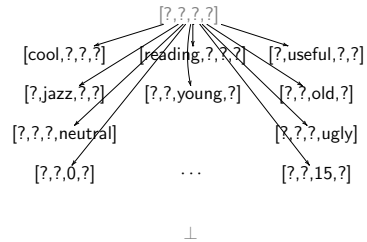
Example 4
G = [[N,?],[?,D]] = [[N,?],~~[?,D]~~]
S = [[7,D]] = [[N,R]]
E = [9,H]+

Example 5
G = [[N,?]] = [[N,R],~~[N,S]~~,~~[7,C]~~,~~[9,C]~~,~~[10,C]~~]
S = [[N,R]]
E = [8,C]-

Final Result Converge
G = [[N,R]]
S = [[N,R]]

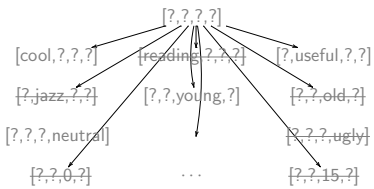
- Strike through are eliminated because the do not include Specific hypothesis.
- Underlined are eliminated because a more general hypothesis exists.

−(fishing,hiphop,16,handsome)



G = {[cool,?,?,?], [reading,?,?,?], [?,useful,?,?],
[?,jazz,?,?], [?,?,young,?], [?,?,old,?],
[?,?,?,neutral], [?,?,?,ugly],
[?,?,0,?],. . . , [?,?,15,?]}
S = {⊥}

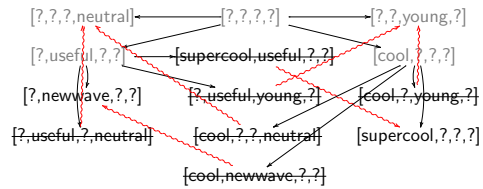
+ (stage-diving, newwave,18, neutral)



[stagediving,newwave,18,neutral]
⊥

G = {[cool,?,?,?], [?,?,young,?],
[?,useful,?,?], [?,?,?,neutral]}
S = {[stagediving,newwave,18,neutral]}

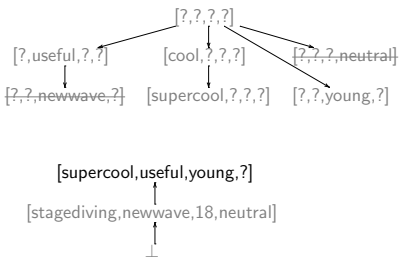
−(dancing, hardrock, 32, ugly)



[stagediving,newwave,18,neutral]
⊥

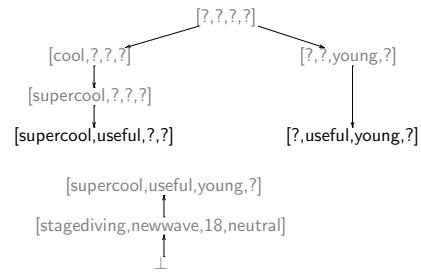
G = {[?,?,?,neutral], [?,?,young,?],
[supercool,?,?,?], [?,newwave,?,?]}
S = {[stagediving,newwave,18,neutral]}

+(music-only, hardrock, 25,handsome)



G = {[?,?,young,?], [supercool,?,?,?]}
S = {[supercool,useful,young,?]}

−(stage-diving, jazz, 29, ugly)

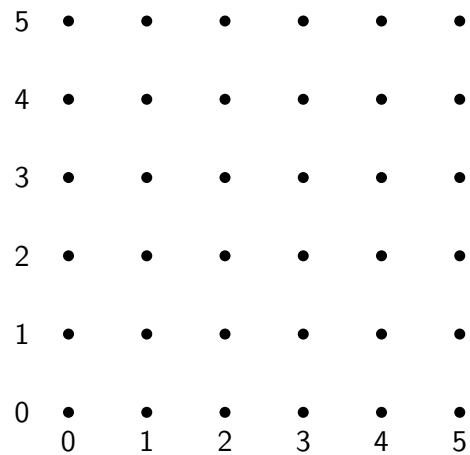


G = {[supercool,?,useful,?], [?,useful,young,?]}
S = {[supercool,useful,young,?]}

Using the result:

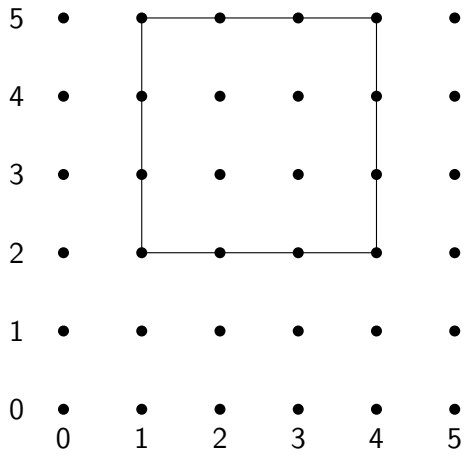
- [music-only, hardrock, 32, handsome]:
  - More specific than [supercool,useful,?,?],
  - Not more specific than [supercool,useful,young,?],
  - ⇒ Maybe.
- [stage-diving, hiphop, 18, neutral]:
  - Not more specific than [supercool,useful,?,?],
  - Not more specific than [?,useful,young,?],
  - ⇒ Definitely not.
- [dancing, new-wave, 22, ugly]:
  - More specific than [?,useful,young,?],
  - Not more specific than [supercool,useful,young,?],
  - ⇒ Maybe.

6 by 6 grid of pixels



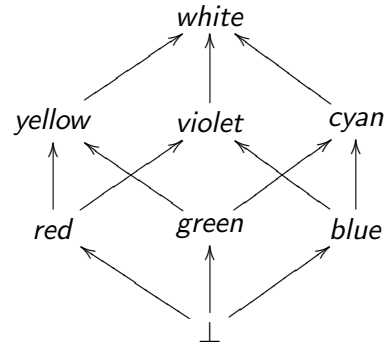
Squares: ((x,y), length)

E.g. $((1,2),3)$:



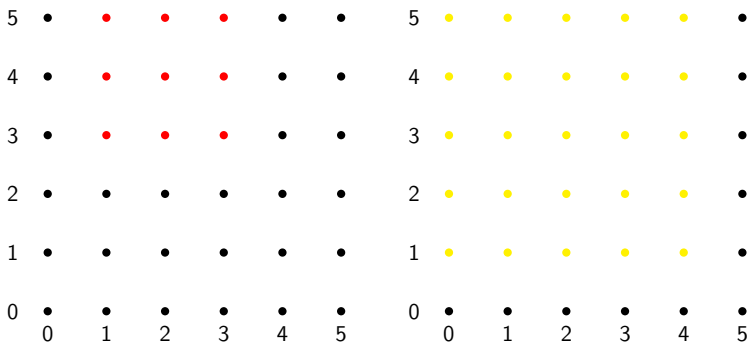
Remark: *length* > 0!

Colour hierarchy



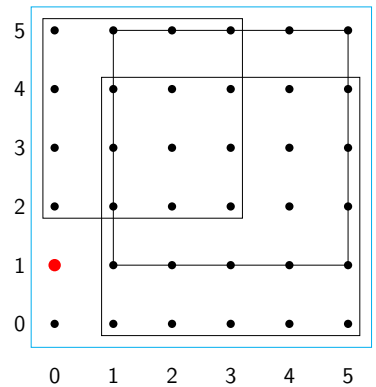
Hypothesis: [square, colour]

E.g. [((1,3), 2), Red] specializes [((0,1), 4), Yellow]



(0,1), red, no

- $G = \{[((0,0),5), white]\}$;
- $S = \{\bot\}$



$G = \{$
- $[((0,2),3), white]$,
- $[((1,0),4), white]$,
- $[((1,1),4), white]$,
- $[((0,0),5), cyan]\}$

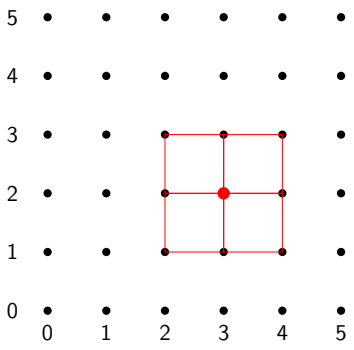
Redundant:
- $[((0,0),5), green]$
- $[((0,0),5), blue]$

$S = \{\bot\}$

(3,2), red, yes

$G = \{[((0,2),3), white], [((1,0),4), white], [((1,1),4), white], [((0,0),5), cyan]\}$

$S = \{\bot\}$



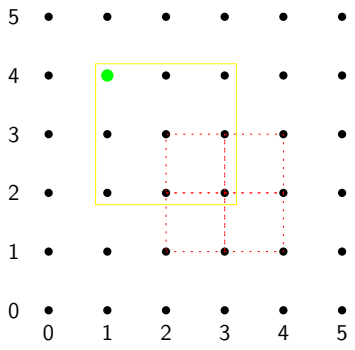
$G = \{$
- $[((0,2),3), white]$,
- $[((1,0),4), white]$,
- $[((1,1),4), white]\}$

$S = \{$
- $[((2,1),1), red]$,
- $[((2,2),1), red]$,
- $[((3,1),1), red]$,
- $[((3,2),1), red]\}$

(1,4), green, yes

$G = \{[((0,2),3), white], [((1,0),4), white], [((1,1),4), white]\}$

$S = \{[((2,1),1), red], [((2,2),1), red], [((3,1),1), red], [((3,2),1), red]\}$



$G = \ldots$

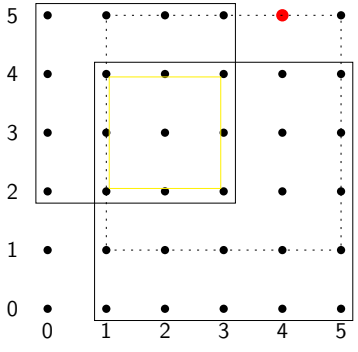
$S = \{[((1,2),2), yellow]\}$

Redundant:
- $[((1,2),3), yellow]\}$
- $[((1,1),3), yellow]\}$
- $[((0,1),3), yellow]\}$

(4,5), red, no

$G = \{[((0,2),3), white], [((1,0),4), white], [((1,1),4), white]\}$

$S = \{[((1,2),2), yellow]\}$



$G = \{$
- $[((0,2),3), white]$,
- $[((1,0),4), white]\}$

Redundant:
- $[((1,1),3), white]$

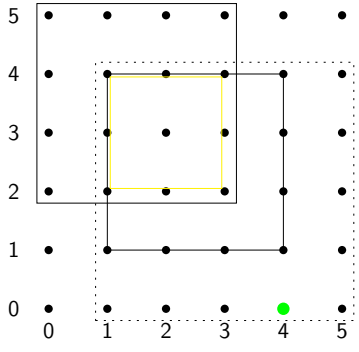
Others don't generalize S

$S = \{[((1,2),2), yellow]\}$

(4,0), green, no

$G = \{[((0,2),3), white], [((1,0),4), white]\}$

$S = \{[((1,2),2), yellow]\}$



$G = \{$
- $[((0,2),3), white]$,
- $[((1,1),3), white]\}$

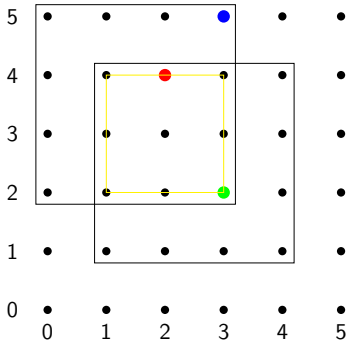
Others don't generalize S

$S = \{[((1,2),2), yellow]\}$

Result

$G = \{[((0,2),3), white], [((1,1),3), white]\}$

$S = \{[((1,2),2), yellow]\}$



- (3,2), green ? Yes
- (2,4), red ? Yes
- (3,5), blue ? Maybe