Pattern Library

Depth- Number of regions (colors) used.
Difficulty- This is opinion based, A is the easiest.

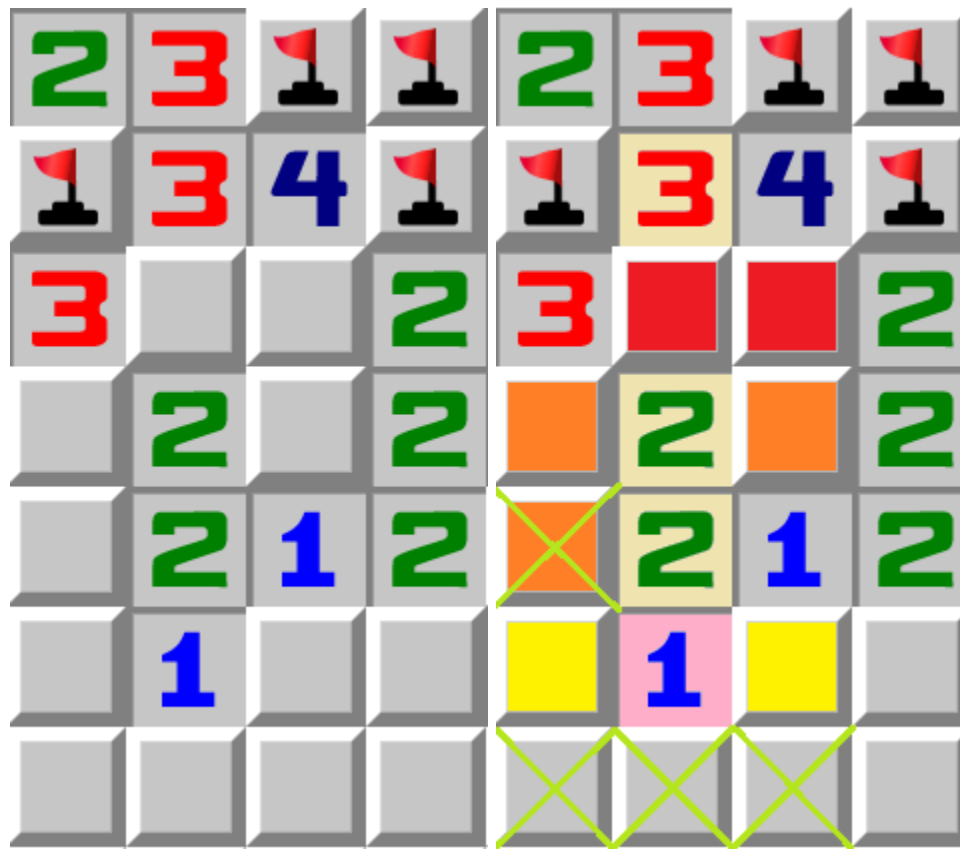Beige cells = Important
Pink cells = Very Important
Red crossed cells = Mines resulting from pattern
Lime crossed cells = Safe cells resulting from pattern

The "Document Outline" feature on the left of the page is pretty much required in order to browse properly.

Holes

1 D-Pattern / 221-Hole

1.1 D-Pattern Classic
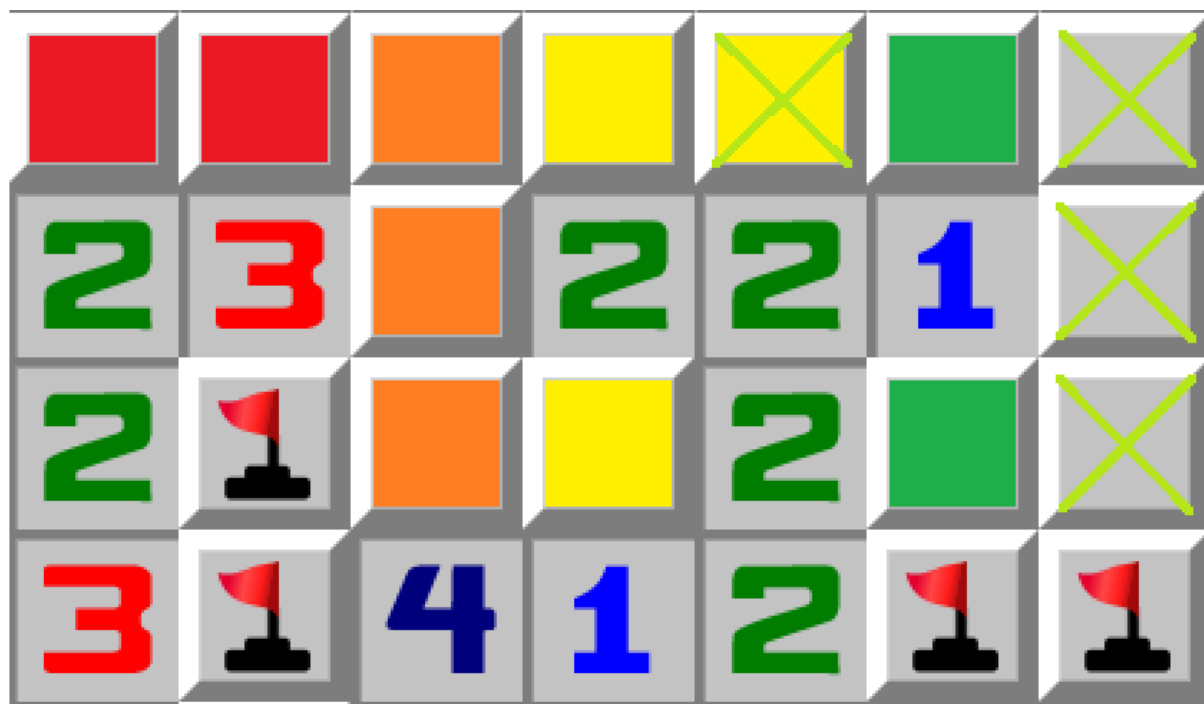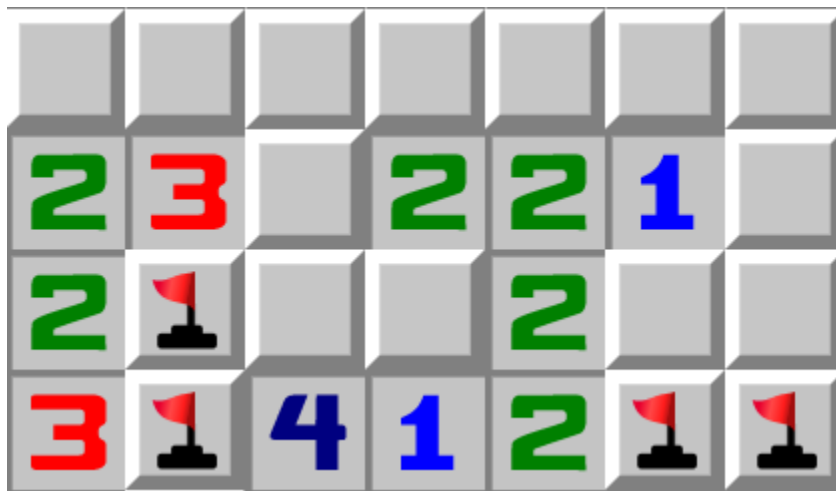

Depth: 3

Difficulty: A

The red cells contain one mine

The orange cells contain one mine

The yellow cells contain one mine

The 1 sees the yellow cells, so the lime crossed cells are safe

Depth: 4
Difficulty: A
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The green cells contain one mine
The 1 sees the green cells, so the lime crossed cells are safe.

-This pattern is very common in Evil NG, due to it being one of the more simple patterns to generate.

-This pattern also exists vertically

1.3 D-Pattern End-Extension / 24-322-2

Depth: 5
Difficulty: B
The red cells contain two mines
The orange cells contain two mines
The yellow cells contain one mine
The green cells contain one mine
The cyan cells contain one mine

The 2 sees both the green cells and cyan cells, so the lime crossed cells are safe

-In this example the green triangle cell is also safe, this is unrelated to the pattern though.

2 O-Pattern / 222-Hole

2.1 O-Pattern Classic

Depth: 4
Difficulty: A
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The green cells contain one mine
The 2 sees both the yellow and green cells, so the lime crossed cells are safe.

2.2 O-Pattern Pure

Depth: 4
Difficulty: A
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The green cells contain one mine
The **2** sees both the yellow and green cells, so the lime crossed cell is safe.

2.3 O-Pattern Reduction

Depth: 3
Difficulty: A
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The **2** sees both the orange and yellow cells, so the lime crossed cells are safe.

-not a D-Pattern, it shares more characteristics to the O-Pattern

2.4 O-Pattern Reduction Advanced

Depth: 4
Difficulty: B
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The green cells contain one mine
The **2** sees both the orange and green cells, so the lime crossed cells are safe.

-not a D-Pattern, it shares more characteristics to the O-Pattern

3 P-Pattern / 422-Hole

Depth: 4
Difficulty: A
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The 4 gets only two mines from the orange and yellow cells, so the red crossed cells contain mines
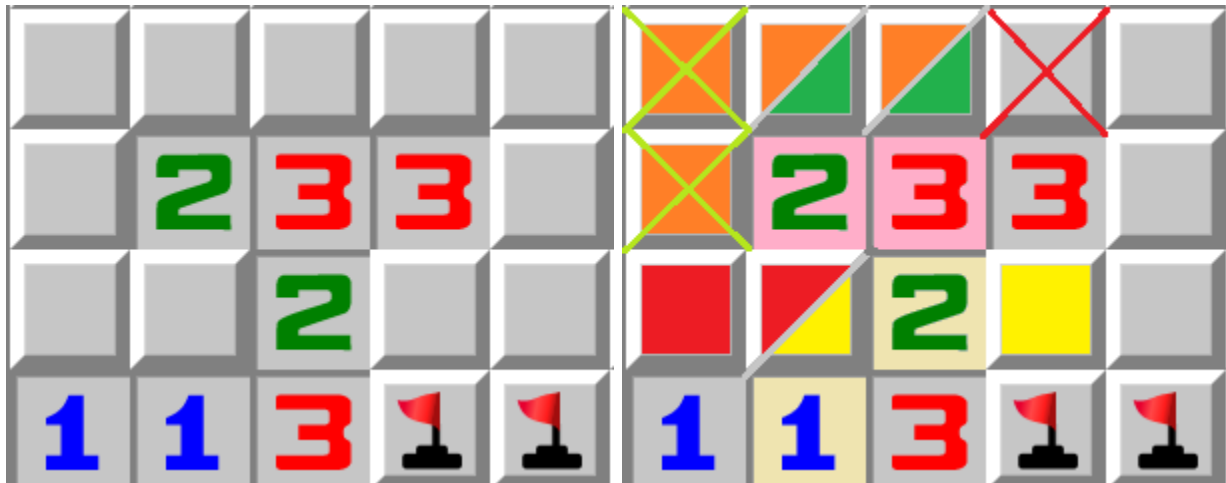

The red cells contain one mine
The yellow cells contain one mine
The green cells contain one mine
The 2 sees both the red and green cells, so the lime crossed cell is safe

4 T-Pattern / 23X-Hole

Depth: 4

Difficulty: B
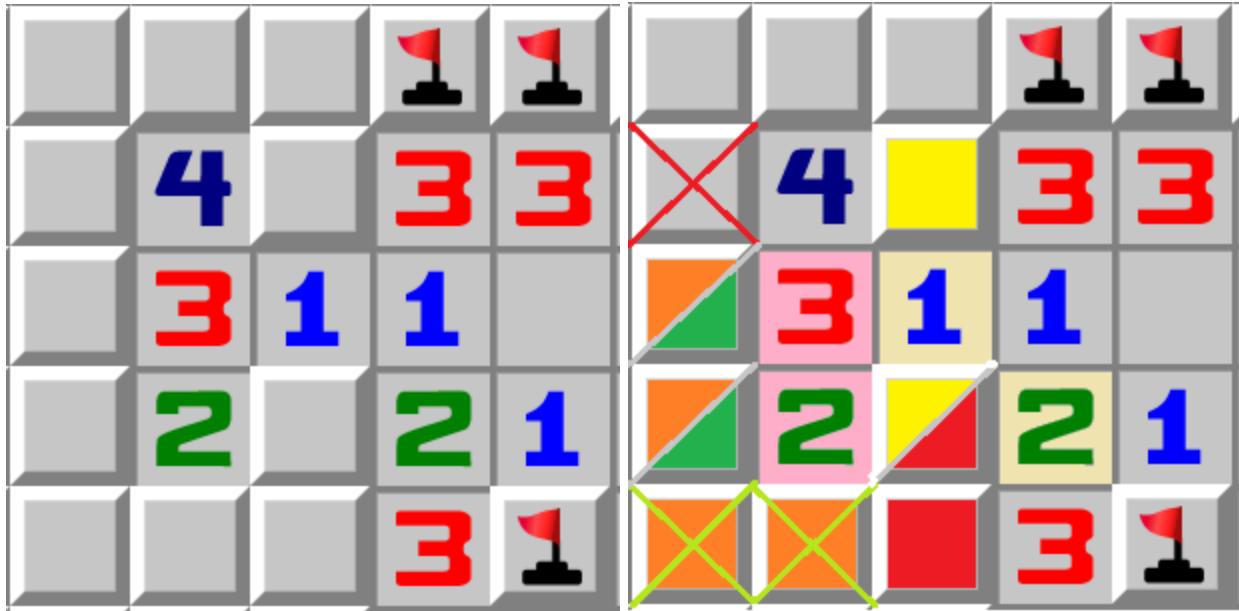
The red cells contain one mine

The orange cells contain one mine

The yellow cells contain one mine

The 3 has one mine in the yellow cells and one in the green cells, so the red crossed cell is a mine.

The green cells contain one mine

The 2 sees both the red and green cells, so the lime crossed cells are safe.

Depth: 4

Difficulty: B

The red cells contain one mine
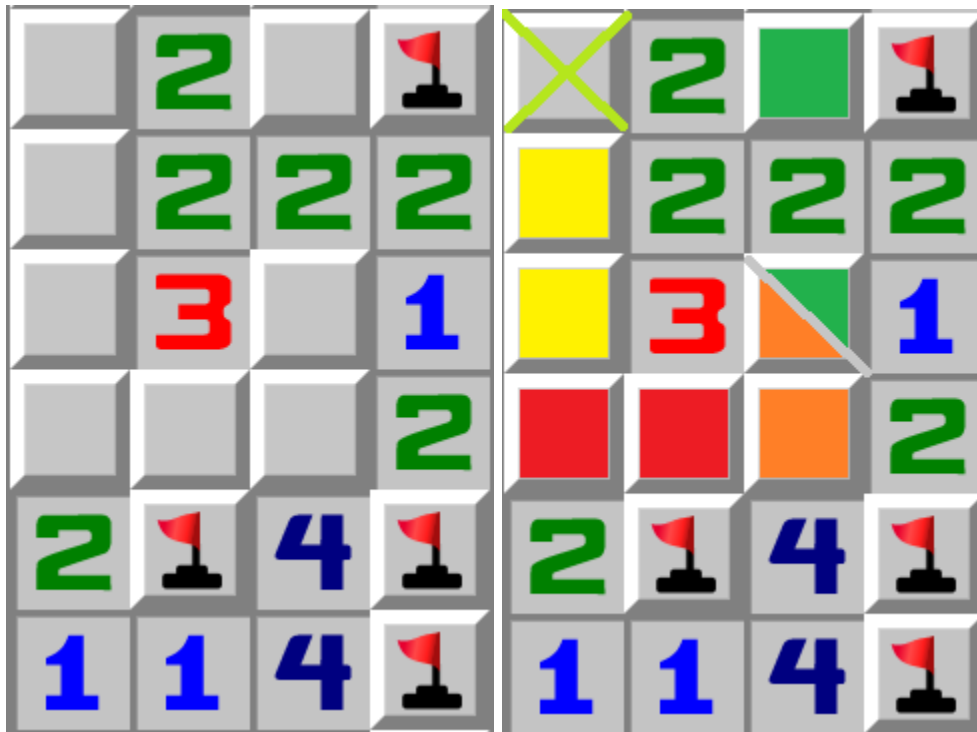
The orange cells contain one mine

The yellow cells contain one mine

The 3 has one mine in the yellow cells and one in the green cells, so the red crossed cell is a mine.

The green cells contain one mine

The 2 sees both the red and green cells, so the lime crossed cells are safe.

5 J-Pattern / 322-Hole

Depth: 4
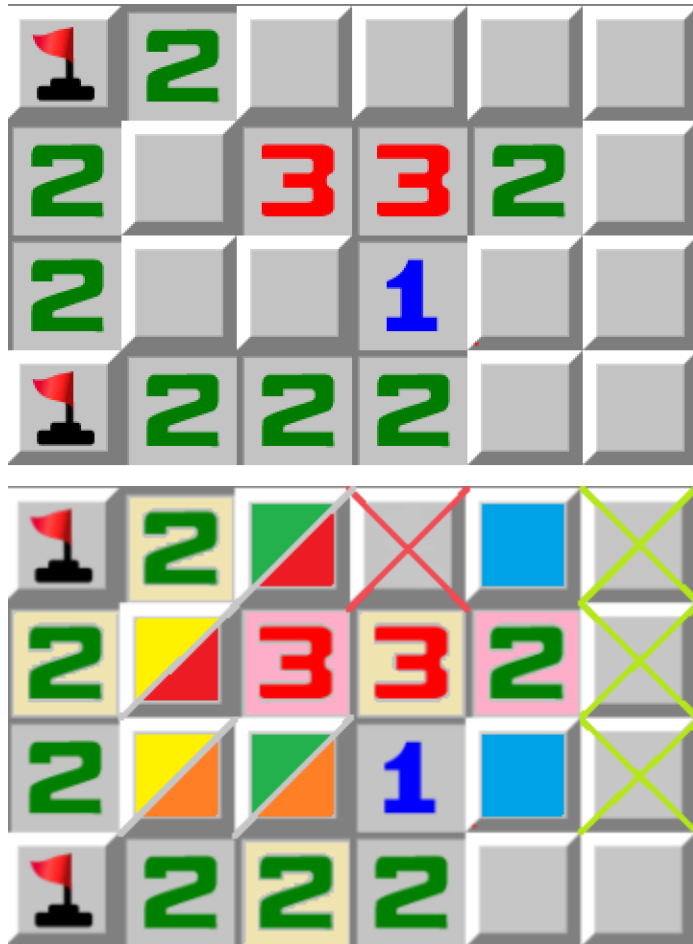**Difficulty: A**
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The green cells contain one mine

The 2 sees both the yellow cells and green cells, so the lime crossed cell is safe

6 B-Pattern / 332-Hole

Depth: 5
Difficulty: B

The red cells contain one mine
The orange cells contain one mine
The **3** sees the red and orange cells, so the third mine goes into the red crossed cell
The yellow cells contain one mine
The green cells contain one mine
The cyan cells contain one mine
The **2** sees both the red crossed cell and the cyan cells, therefore the lime crossed cells are safe.

7 U-Pattern / 32X-Hole

Depth: 3

Difficulty: A

The red cells contain one mine

The orange cells contain two mines

The 2 sees the orange cells, so the lime crossed cells are safe.

The yellow cells contain one mine

The 2 sees the yellow cells, so the lime crossed cell is safe.

8 C-Pattern / 1>2-2-2-Corner Pattern

Depth: 3
Difficulty: A
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The red crossed cell contains a mine
Then, the 2 sees both the 2 yellow cells and the orange cells, so the lime crossed cell is safe.

9 Dependency Chain

9.1 Dependency Chain A Variation

Depth: 5
Difficulty: B
The red cells contain one mine
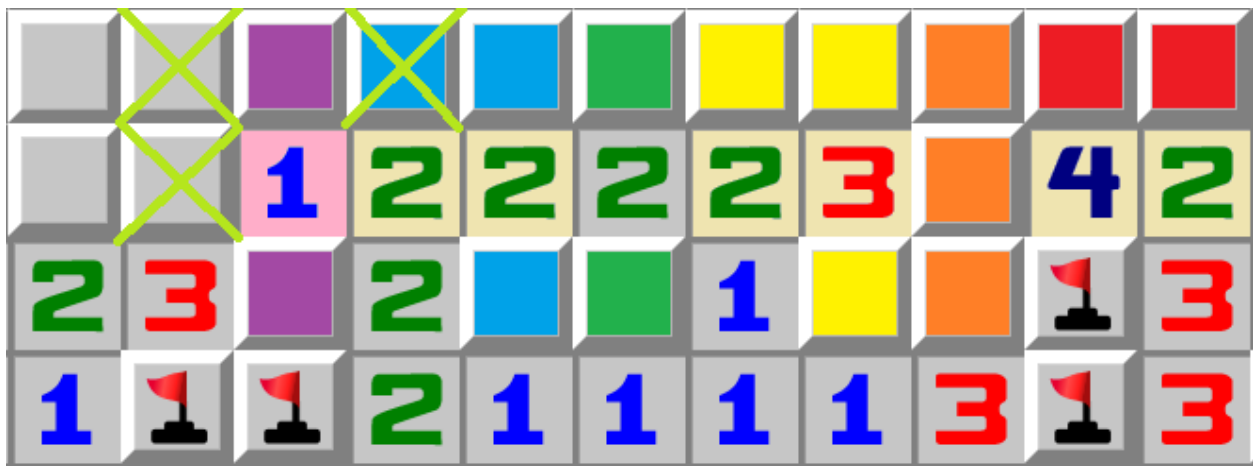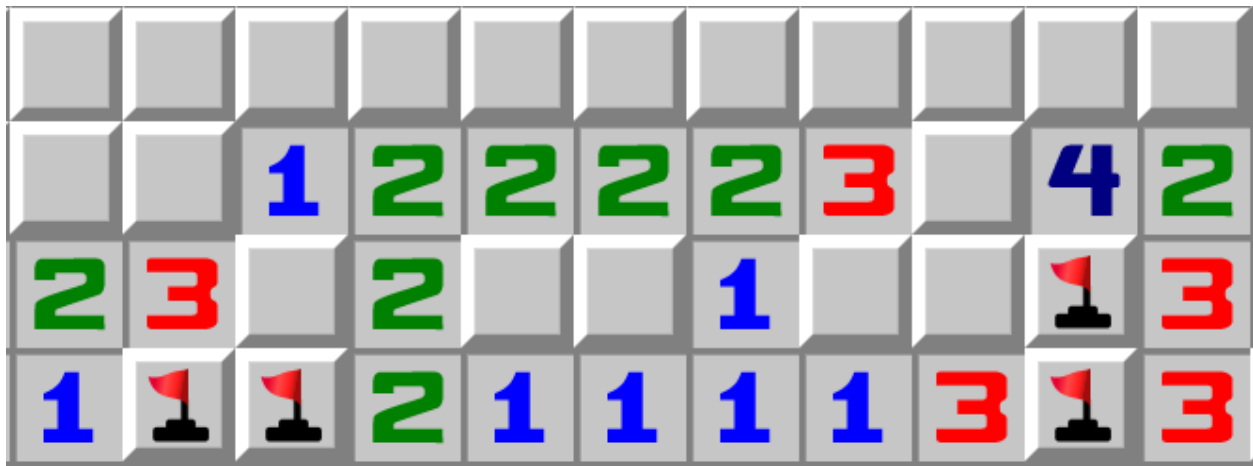The orange cells contain one mine
The yellow cells contain one mine
The green cells contain one mine
The cyan cells contain one mine
The 1 sees the cyan cells, so the lime crossed cells are safe.

-Dependency chain patterns usually make for
the patterns with the highest depth.

Depth: 6
Difficulty: B
The red cells contain one mine
The orange cells contain two mines
The yellow cells contain one mine
The green cells contain one mine
The cyan cells contain one mine
The purple cells contain one mine
The 1 sees the purple cells, so the lime crossed cells are safe.

-Dependency chain patterns usually make for
the patterns with the highest depth.

10 Z-Pattern

Depth: 4
Difficulty: B

The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The green cells contain one mine
The 2 sees both the yellow and green cells, hence the lime crossed cells are safe.

11 G-Pattern

Depth: 4

Difficulty: B

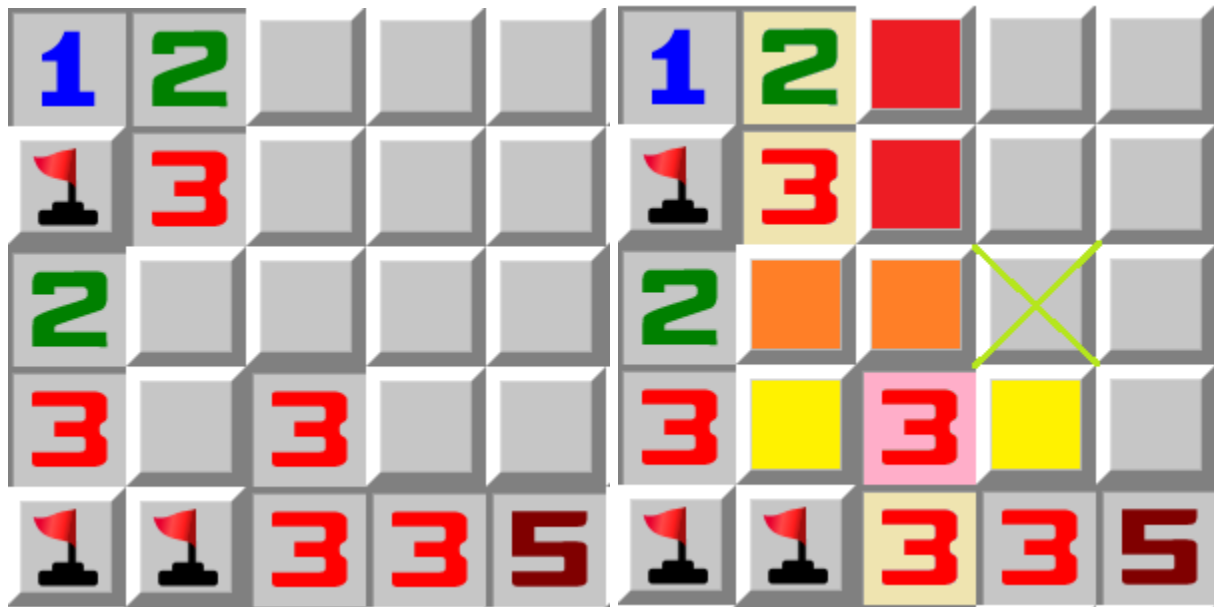The red cells contain one mine

The orange cells contain one mine

The yellow cells contain one mine

The green cells contain one mine

The 2 sees both the yellow cells and green cells, therefore the lime crosses cell is safe

-Similiar to the Z-Pattern, this pattern is more common though

12 Y-Pattern

Depth: 3

Difficulty: A

The red cells contain one mine

The orange cells contain one mine

The yellow cells contain one mine

The 3 sees both the orange and yellow cells, so the lime crossed cell is safe.

13 L-Pattern

Depth: 3
Difficulty: A
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The 2 sees both the orange and yellow cells, so the lime crossed cell is safe.

14 Basic Box Pattern

Pattern found by: Unknown
Pattern provided by: Not Anon
Depth: 4
Difficulty: B

The blue cells contain one mine
The green cells contain one mine

The "box" contains a total of two mines

One of these mines is in the yellow cells
The other mine goes into the red cells
The 3 sees the red cells, so the lime crossed cells are safe.

Depth: 4
Difficulty: B
The blue cells contain one mine
The green cells contain one mine

The "box" contains a total of two mines

One of these mines is in the yellow cells
The other mine goes into the red cells
The 3 sees the red cells, so the lime crossed cells are safe.

14b Basic Box Pattern Upper Bound

The blue cells contain one mine
The green cells contain one mine
The 2x2 box contains 2 mines in total

One of these mines is in the yellow cells
The remaining mine is therefore in the
red cells

The 5 needs four mines, one is in the red
cells. The three other mines must go into
the three red-crossed cells

The 3 sees a red crossed cell, and the green
cells, so the lime crossed cells are safe
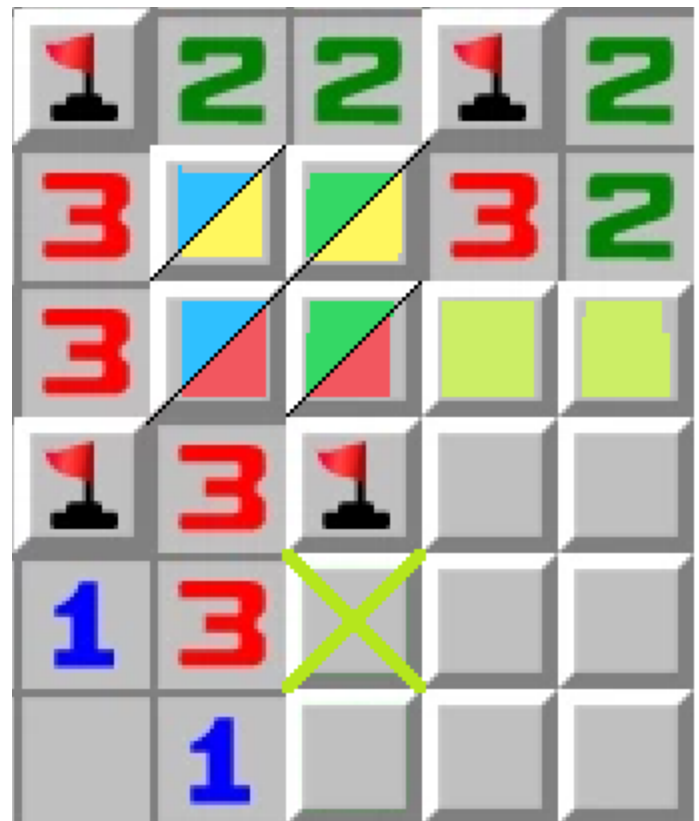
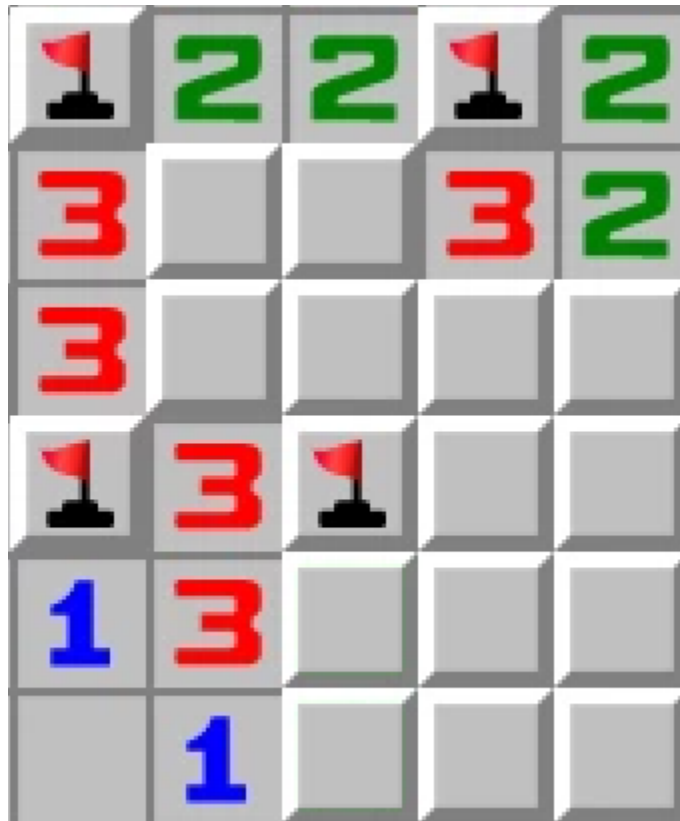The 3 sees a red crossed cell, so the green
crossed cells are safe

The first and currently only upper bound (proves
mines rather than cells) that i've found

Broader Image: 1nAK52c

Full game: See "Game Records of Rare Patterns"

Another interesting thing about this example is the
amount of resulting safe cells, 4 is quite high

15 Input Box Pattern

Pattern found by: Unknown
Pattern provided by: [Not Anon](#)
Depth: 5
Difficulty: C
The blue cells contain one mine
The lime cells contain one mine
The green cells contain one mine

The "box" contains a total of two mines

One of these mines is in the yellow cells
The other mine goes into the red cells
The 3 sees the red cells, so the lime crossed cells are safe.

16 Output Box Pattern

Depth: 6
Difficulty: C
The blue cells contain one mine
The green cells contain one mine

The "box" contains a total of two mines
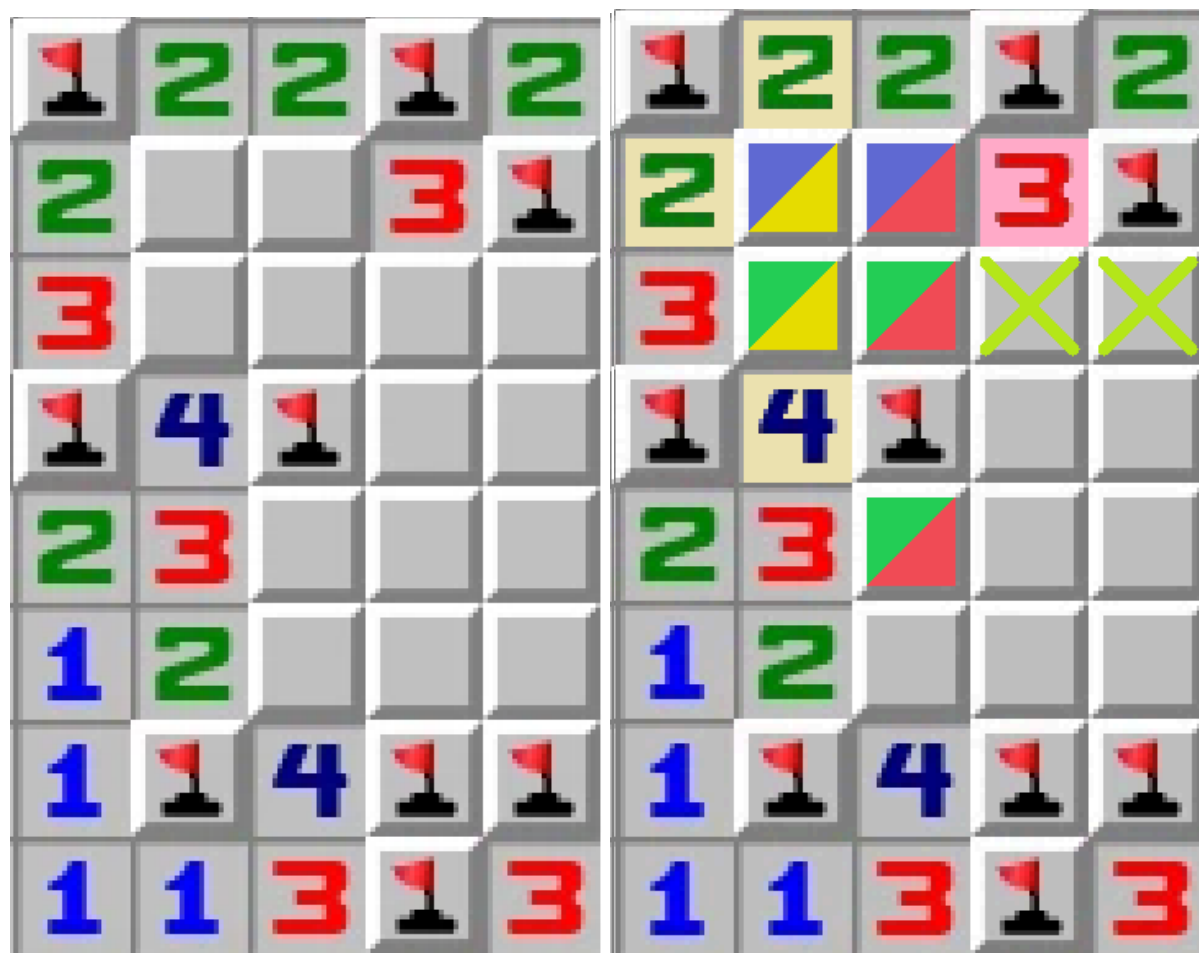
One of these mines is in the yellow cells
The other mine goes into the red cells

The orange cells contain one mine
The purple cells contain one mine
The 3 sees both the orange and purple cells, so the lime crossed cell is safe

17 Bounded Box Pattern

Pattern found by: Not Anon
Depth: 4
Difficulty: D
The blue cells contain one mine
The green cells contain 2 mines
The "box" contains between 3 mines

One of these mines goes into the yellow cells
The red cells contain two mines
The 3 sees some of the red cells, that contain 1-2 mines, so the lime crossed cells are safe.

You can also apply this backwards and prove that the cell bottom-right of the 4 is a mine, which simplifies it to a basic box

18 Finned Box Pattern

Pattern found by Scar

Depth: 4

Difficulty: C

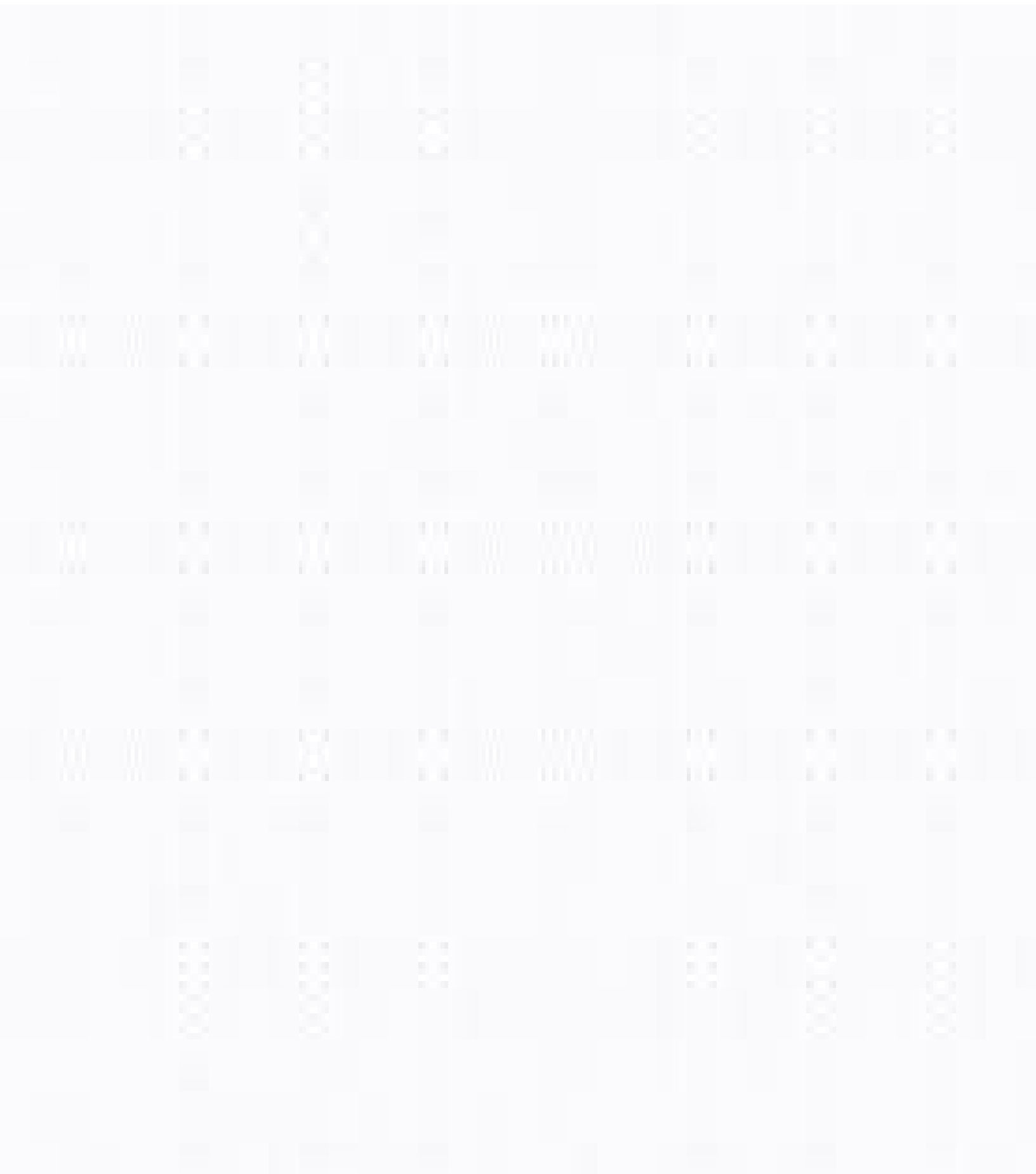The blue cells contain one mine
The green cells contain one mine

The finned box contains two total mines

One of these is in the yellow cells
The red cells contain one mine
The 2 sees the red cells, therefore the lime crossed cell is safe.

19 Finned Box Pattern II

Pattern found by [Scar](#)
Depth: 4
Difficulty: C
The blue cells contain two mines
The green cells contain one mine

The finned box contains a total of three mines

One of these mines is in the yellow cells
The other two mines are in the red cells
The 4 sees the red cells, so the lime crossed cells are safe.

20 Swapped Box Pattern

21 Mutated Box Pattern
(Finned Bounded Box)

Improved Description by [Not Anon](#)
Pattern found by [Scar](#)
Depth: 4
Difficulty: E

The blue cells contain 2-3 mines
The green cells contain one mine.

The finned box will therefore contain 3 or 4 mines

One of these mines goes into the yellow cells
The red cells contain two mines, as three mines is not possible.
The 2 sees the red cells, so the lime crossed cell is safe.

Since we have concluded that the red cells contain two mines, and the yellow cells one mine, we know that the blue and green cells collectively contain three mines as well, and we know that one mine goes into the green cells, so there will be two mines in the blue cells. The 5 sees the blue cells, so the fifth mine goes into the red crossed cell

22 Double Box Pattern

Depth: 8
Difficulty: D
The blue cells contain one mine
The green cells contain one mine
The "box" contains a total of two mines
The yellow cells contain one mine
The red cells contain the other mine

The purple cells contain one mine
The pink cells contain one mine
The "box" contains a total of two mines
The maroon cells contain one mine
The grey cells contain the other mine

The 1 sees the grey cells, so the lime crossed cells are safe.

23 Finned Double Box Pattern

*reconstruction, was found on a twitch stream which made the quality very low

23A Explanation 1

Encountered by:
Unknown Twitch Streamer

Difficulty: D

Depth: 8 (See 23B)

Let's assume the maroon cell is a mine.
We now know two other mines

The 2 only sees one mine now, which is impossible
The maroon cell is therefore safe.

23B Explanation 2 (WARNING, UNNECESSARILY COMPLICATED)

Encountered by: Unknown Twitch Streamer
Difficulty: D
Depth: 8 (See 23B)

The blue cells contain one mine
The green cells contain one mine

The finned box contains two mines

One of these mines is in the yellow cells
The red cells contain one mine
The purple cells contain one mine
The pink cells contain one mine

The box contains two mines

One of these mines is in the gray cells
The brown cells contain one mine
The 2 sees the brown cells, so the lime crossed cell is safe

24 Single Joined Box Pattern

Found By: Rory

Difficulty: D
Depth: 8

The blue cells contain one mine
The green cells contain one mine
The box contains 2 mines
The yellow cells contain one mine
So the last mine goes into the red cells.

The red cells contain one mine
The pink cells contain one mine
The box contains 2 mines
The purple cells contain one mine,
So the brown cells contain one mine

The 3 sees the brown cells, so the
lime crossed cell is safe
^The pattern can be applied both ways

The blue cells contain a mine
The green cells contain two mines
The box contains 3 mines
The yellow cells contain one of the 3 mines
The red cells therefore contain two mines

The pink cells contain one mine
The box contains 3 mines
The purple cells contain one of the 3 mines
The brown cells therefore contain two mines
The lime cells contain one mine
The gray cells contain one mine
The 3 sees the gray cells, so the red crossed cell
is a mine, resulting in safe cells.
^The pattern can be applied both ways

25 Caterpillar

25A Caterpillar Explanation 1

Found by: 84436
Difficulty: D
Depth: 10 (See 25B)
Either the Blue or Yellow cells will contain mines
This means that one of the orange cells contains a mine
Because of this the the red crossed cell contains a mine
The 3 sees the red crossed cell, so the lime crossed cell is safe.

Explanation 2 (WARNING,
UNNECESSARILY COMPLICATED)

Found by: 84436

Difficulty: D

Depth: 10

* Breathes in*

The red cells contain one mine

The orange cells contain one mine

The black box contains 2 total mines

One of these goes into the yellow cells

The other goes into the lime cells

The green cells contain one mine

The blue cells contain one mine

The grey box contains 2 total mines

One of these is in the lime cells

The other goes into the cyan cells.

The purple cells contain one mine

The pink cells contain one mine

The white box contains 2 total mines

One of these is in the cyan cells

The other goes into the brown cells

The red crossed cell is a mine since the brown cells contain one mine

The 3 sees the red crossed cell, so the lime crossed cell is safe.

26 Butterfly (Finned Caterpillar)

26A Butterfly Explanation 1

Found by: 84436

Difficulty: D

Depth: 10 (See 26B)

Either the Blue or Yellow cells will contain mines

This means that the orange cells contain a mine

Because of this the the red crossed cell contains a mine

26B Butterfly Explanation 2 (WARNING, UNNECESSARILY COMPLICATED)

Found by: 84436

The red cells contain one mine

The orange cells contain one mine

The black box contains 2 total mines

One of these goes into the yellow cells

The other goes into the lime cells

The green cells contain one mine

The cyan cells contain two mines.

The grey box contains 3 total mines

One of these is in the lime cells

The two other mines go into the blue cells.

The purple cells contain one mine

The pink cells contain one mine

The white box contains 2 total mines

One of these is in the blue cells

The other goes into the brown cells

The 5 sees the brown cells, so the red crossed cell is a mine.

One surprisingly easy way to look for box logic in complicated positions is just by looking for a 2x2, and checking the surrounding cells for a potential finned box. Great examples of these are the 20 Mutated Box and this:

Can you find three safe cells?

Notice the 2x2 in the center? Try to figure out if you can apply box logic to it, also do not forget to look for fins, this 2x2 has two potential fins.

I was gonna turn the "Higher Complexity" section into logic that utilizes special regions or splitting regions. Currently all of them are just special/output regions (aka box logic), some more interesting like the mutated and joined boxes, but still the same thing. You could call this entire section the box logic section, but hopefully this is wrong, and there is other curious logic like it, that is not considered to be a box.

Boxes use 4 regions, 3 known, and 1 "unknown" that can be figured out using the other 3 regions. The unknown region is sometimes referred to as the output region

Joined Box

A joined box is basically a pattern where one box's output region is used as an input for another box, which gives another output region. Currently only two samples have been listed, and both of them are just two boxes creating this chain. The main type of box I am hunting for is a multi- joined box (three+ boxes), or some wacky single joined box, I think that these are by far the most interesting types of box logic.
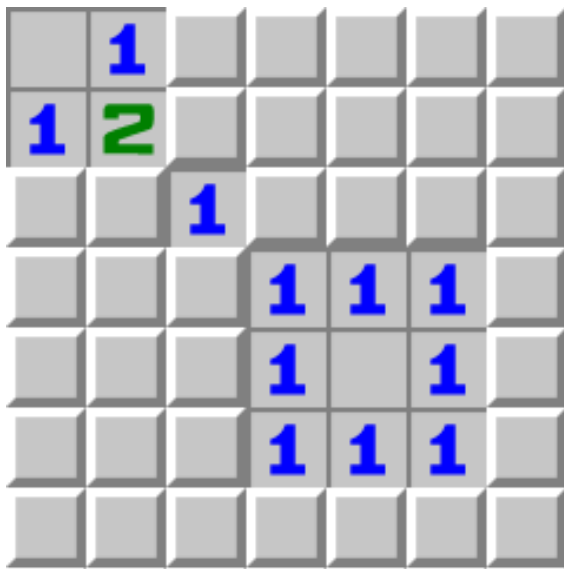
SIC 3x3{1}

Found by: 84436
Difficulty: D

The black box will contain 4-7 mines
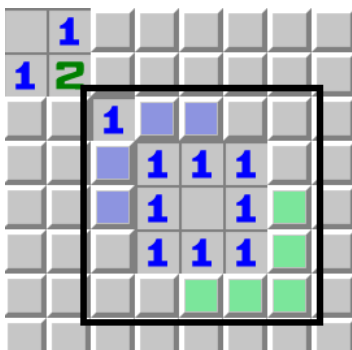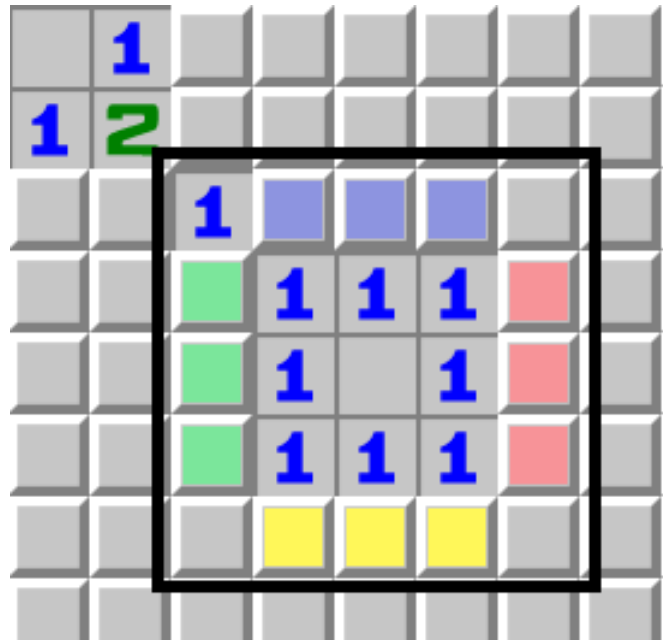
On the image on the left, the black box contains 2-4 mines

4 Mines is the only valid option then.
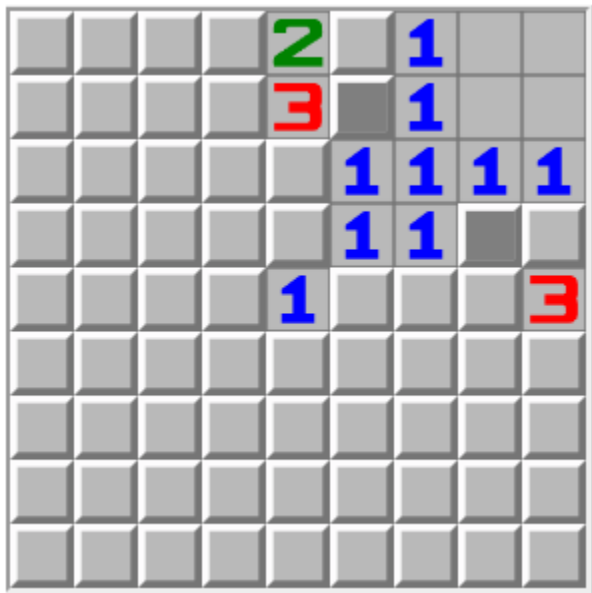We can now use a kind of "local minecount" to make eliminations
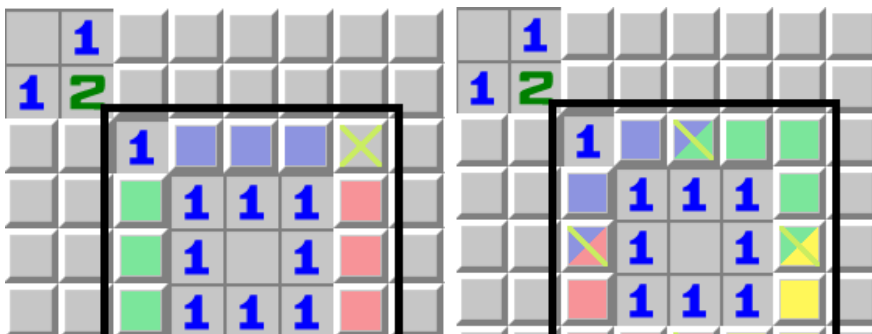
If any of the multicolored cells are mines, they will satisfy 2 colors, although each color will only have
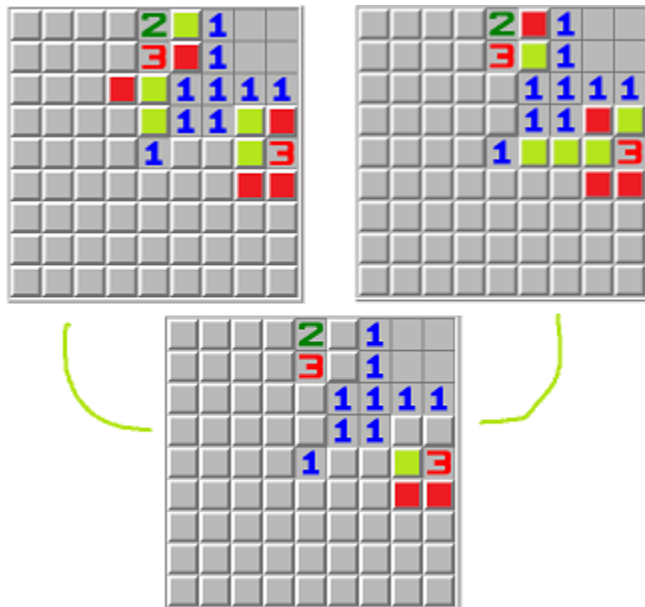
one mine, therefore the mulitcolored cells are safe.

Of course, you can also use contradiction by assuming one of the 7 safe cells are mines and seeing that they are invalid.

SIC #2

Lets assume one of the grey cells is a mine, then we'll assume the other grey cell is a mine. Then we will look for cells with the same state in both situations.

This board situation can be achieved in beginner with decent (but sub-optimal) guessing.

SIC #3

Found By: FracturedAnvil
Difficulty: D
The red cells contain one mine
The orange cells contain at least one mine

**Left: Cell A is a mine.
Right: Cell B is a mine. This results in cell A being a mine.**

Cell A is always a mine, as the orange cells need one mine at least.

The yellow cells contain one mine

The **2** sees the red crossed cell and the yellow cells, so the green crossed cell is safe.

Inward Chain #1

Either the red cells or the blue cells are mines, lets see if there are any cells with the same state in both situations.

As seen, there are a whopping six cells found to be safe.
Pattern found and shared by (1) LooneyMar (u/LooneyMar) - Reddit
Post: (1) Minesweeper GO campaign 950+ level, supposed to not have a single point where u have to guess it, are there any guaranteed safe/unsafe points i'm missing? : Minesweeper (reddit.com)

Outward Chain #1
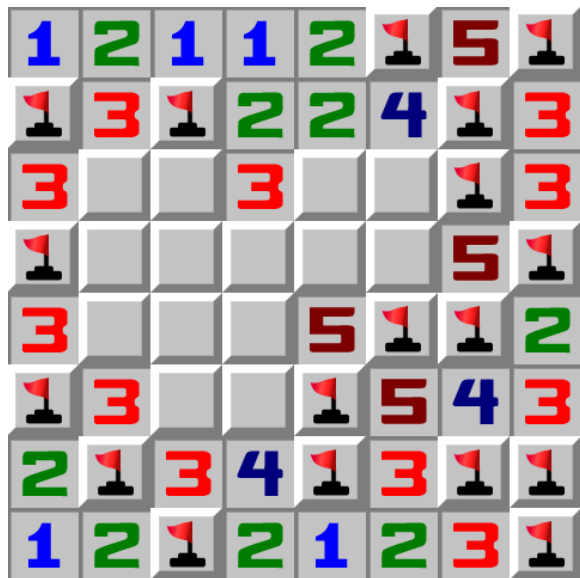
Red cells contain one mine
Orange cells contain two mines
Yellow cells contain one mine
Blue cells contain one mine
The purple cells contain 0,1,2 mines.

Difficulty: D

This small area might be able to have its amount of mines determined, let's try it out.
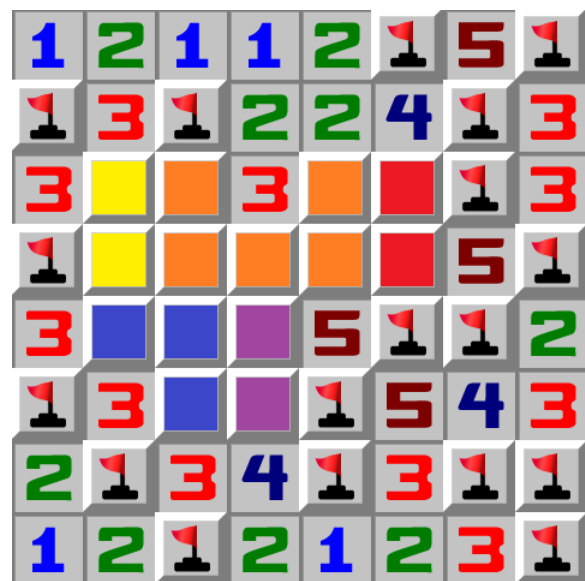
Purple cannot have 0 mines, as that would end up in the 3 having 4 mines.

Thus purple must have 1 or 2 mines, giving the total area 6 or 7 mines, let's try minecount in both cases.

After some logic...
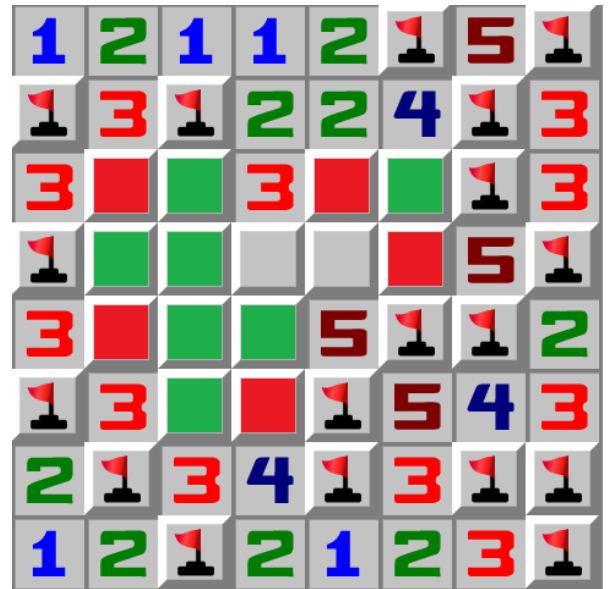
(6), Red cells contain three mines
Orange cells contain one mine
Yellow cells contain one mine
Green cells contain one mine
There are 6 mines, so the lime crossed cells are safe

^V, the bottom two cells of the area are safe and a mine respectively in both outcomes.

(7), Red cells contain one mine
Orange cells contain two mines
Yellow cells contain one mine
Green cells contain one mine
There are 7 mines, so the red crossed cells are the only place where the last mines go

Seems to be the only outward chain documented, box logic not included

Combinations #1 >α
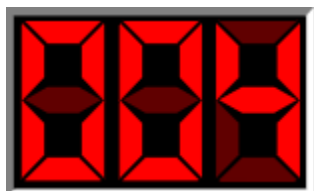
Found / Provided by: Viper17 / Not Anon
Difficulty: D

Let's assume the maroon cell is a mine.
We now know the positions of 4 out of the 4 mines
This is scenario is impossible, since one of the cyan cells must contain another mine, which would require at least 5 mines
Therefore the maroon cell is safe.
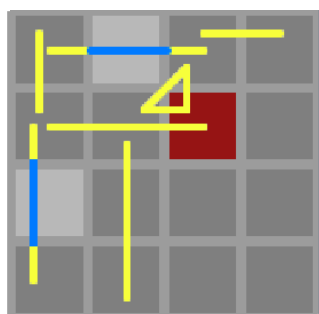
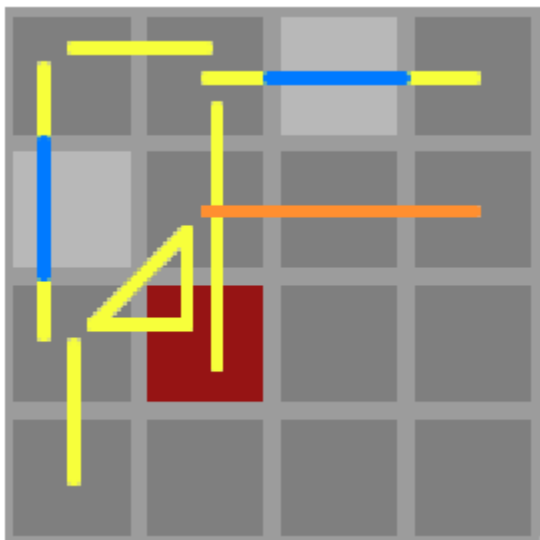**Type: Alpha**

Combinations #2 >α
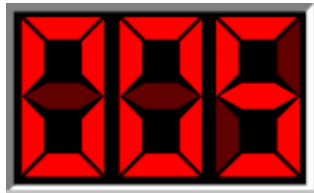
Found by: **braintrain**
Difficulty: **D**

Let's assume the maroon cell is a mine.
We now know the positions of 6 mines
This is scenario is impossible, since there are only 5 mines
Therefore the maroon cell is safe.

Type: **Alpha**

Combinations #3 >Γ

Difficulty: C

Let's assume the maroon cell is a mine.

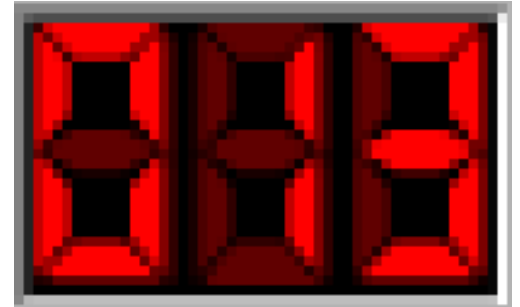We now know the positions of 5 mines, which is impossible since there are only 4 mines in this particular area.

Therefore the maroon cell is safe.

HD Image Reconstruction by Not Anon
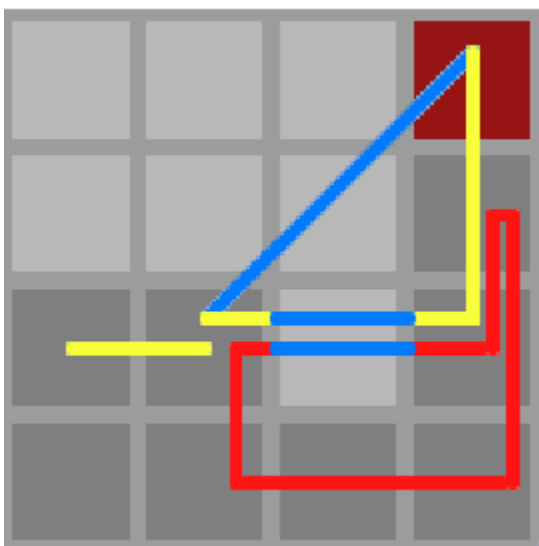
Type: Gamma

Combinations #4 <α

Pattern found by [Scar](#)
Difficulty: E

Let's assume the maroon cell is a mine.
We now know the positions of 6 mines
Each pair contains one mine
We now know about 6 mines and 5 pairs, so the area contains 11 mines
This is impossible, as there need to be 13 mines
Therefore the maroon cell is safe.
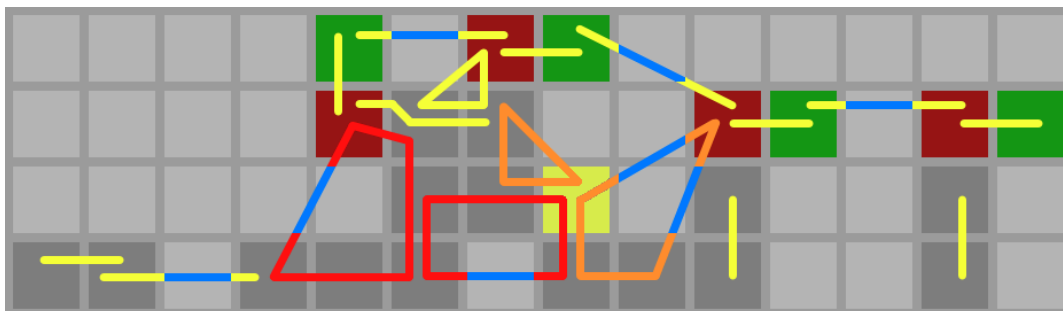
< Reconstruction
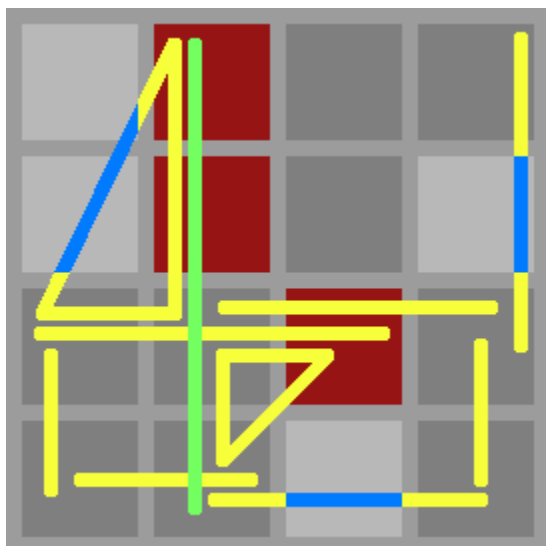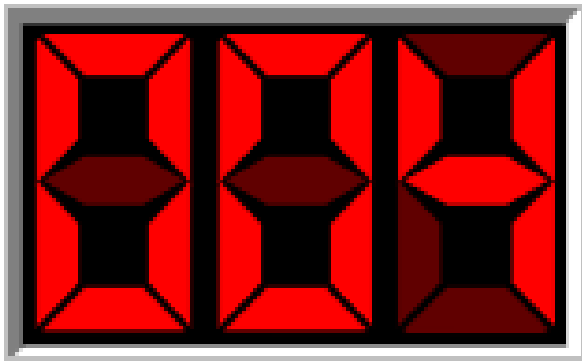by Not Anon
Type: Delta

Combinations #5 >α

Difficulty: D

Let's assume the maroon cell is a mine.
We now know the positions of 4 mines
The teal cells also contain one mine
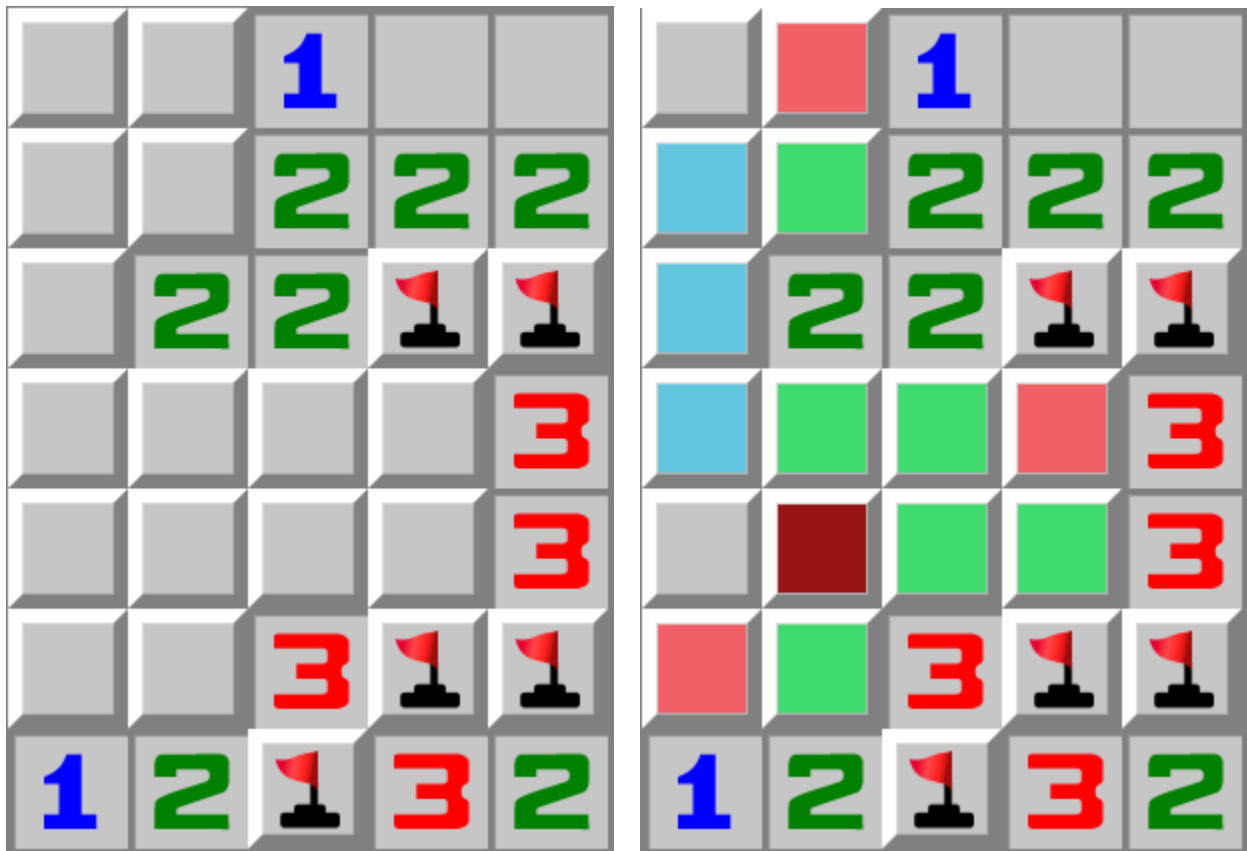This is impossible, as we only have 4 mines.
Therefore the maroon cell is safe.

< **Reconstruction by** Not Anon
Type: Beta
Pretend the green region is a yellow region; there are so many regions that I made it green to avoid confusion.
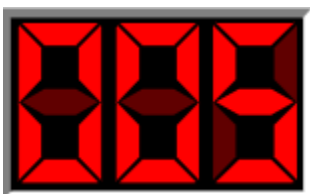
You can get 2 more safe cells trough box logic now
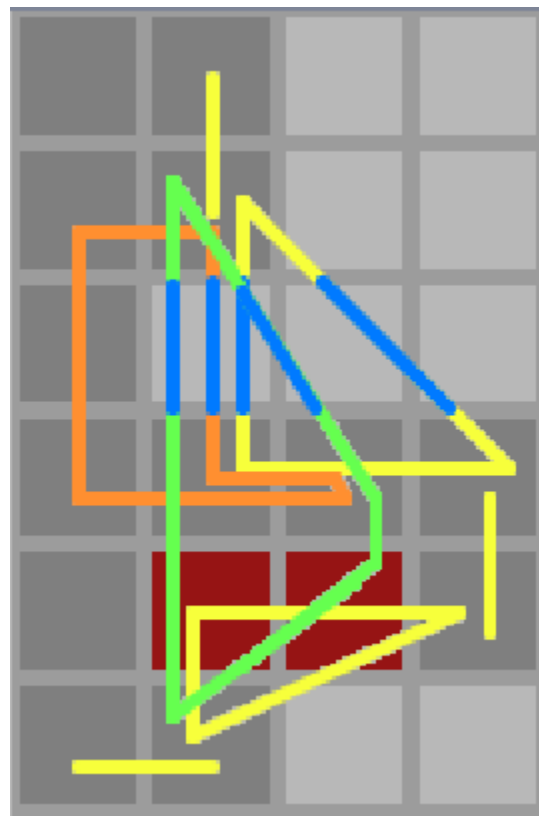
Combinations #6 >Γ

Pattern Found / Provided by: nbsp28 / gramana

Let's assume the maroon cell is a mine.
We now know the positions of 4 mines
The teal cells also contain one mine
This is impossible, as we only have 4 mines.
Therefore the maroon cell is safe.
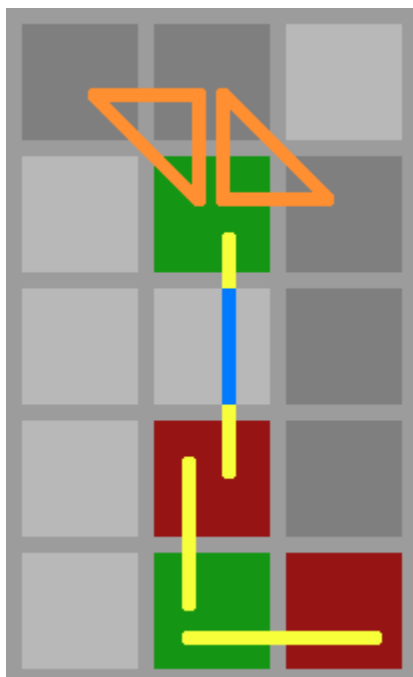
Type: Gamma
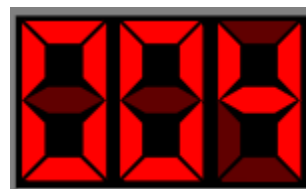
Combinations #7 >φ

Difficulty: C

Let's assume the dark green cell is safe.
We now know the positions of 5 mines
This is impossible, as we only have 4 mines.
Therefore the dark green cell is a mine.

< by **Not Anon**
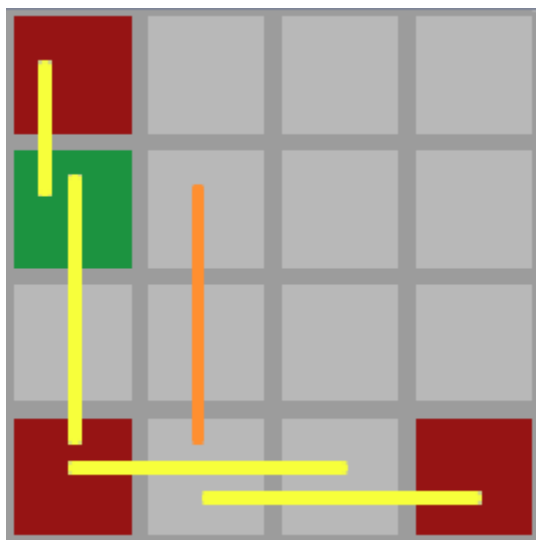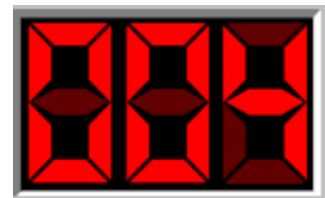Type: Phi

Combinations #8 >β

Found By: Rory
Difficulty: C

Let's assume the dark green cell is safe.
We now know the positions of 5 mines
This is impossible, as we only have 4 mines.
Therefore the dark green cell is a mine.

Type: Beta

Combinations Summary

Quick rundown of what the drawings below the explanations mean:
Light gray cells = "air" cells, or mines
Dark gray cells = covered a.k.a unknown cells
Yellow lines = cells connected form a region that contains one mine
Orange lines = cells connected form a region that contains two mines
Red lines = cells connected form a region that contains three mines
Blue lines = air lines. Is used to mark cells that are not part of the region, but where the initial line still goes trough
Maroon cells = Elimination Cell, reaches a contradiction if a mine
Green cells = Reverse Elimination Cell, reaches a contradiction if safe
Orange cells = Inverted Elimination Cell, reaches the opposite contradiction if a mine
Yellow cells = Inverted Reverse Elimination Cell, reaches the opposite contradiction if safe
Black cells = only when there are too many elimination cells, the non-elimination cells are marked instead.

Other terms:
Elimination cell = Cell that is considered a mine that creates a contradiction
Reverse Elimination cell = Cell that is considered safe, which creates a contradiction
Inverted Elimination cell = Cell that unlike the other elimination cells, is the opposite bound, lower bound vs upper bound or upper bound vs lower bound
">" = Too many mines are needed, creating the contradiction
"<" = Not enough room to put down all of the mines, creating the contradiction, rarer.

Combo Box αβ

 A structure found in a lot of combinations examples:
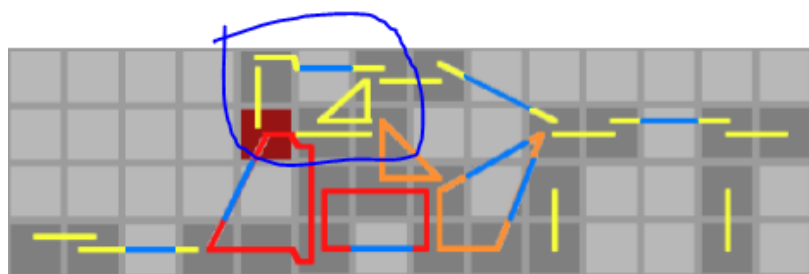
A few observations:
-The elimination cell seems to be in this box when the box is present, as seen in "Combinations #3", there is no combo box, so the elimination cell is somewhere else
-The elimination cell seems to touch the triangle that is part of the structure, any combinations example that has this will be named "alpha".
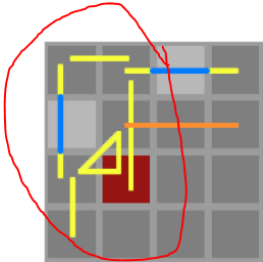

I feel like based on the fact that a good number of combinations patterns have these boxes, looking for these is a good idea. Keep in mind that these are not required for a combinations pattern, as seen in i.e. "Combinations #3"
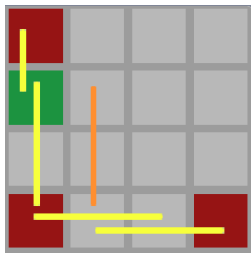
< Combinations #8, this is somewhat similar to the box, but not completely. I will call this a broken box, type beta.
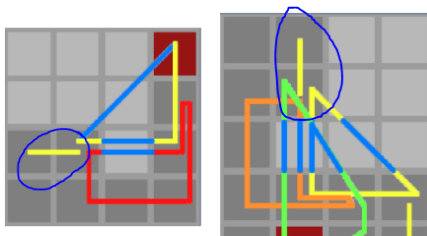
Factory Shape Γ

A shape found in quite a lot (mostly easier) combinations, examples (Comb. #3, Comb. #6):
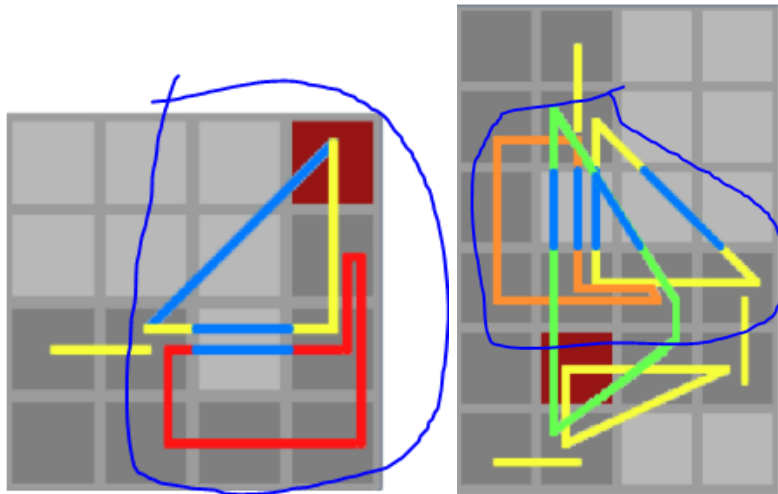
A few observations:
-If there is a factory shape, there is not always a combination cell inside of it, but it still seems relevant.
-The base can vary, 3 mines (ex1) and 2 mines (ex2)
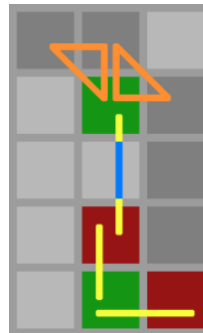-There seems to be a yellow region next to it. This should be part of the shape.

(   )

For now, I will name any combinations with the factory shape "gamma", due to lack of sample

φ = lacks sample, has some similarity to Γ

Some of these may be low res / not clear

Pattern #1

Depth: 5
Difficulty: B
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine

The 3 sees the orange and yellow cells, therefore the red crossed cell contains a mine
as the 4 other cells would contain 2 mines at most

The green cells contain one mine due to the 3
The 2 sees the red and green cells, therefore the lime crossed cell is safe
The cyan cells contain one mine due to the 3
The 2 sees the cyan cells, therefore the lime crossed cell is safe

Pattern #2

Depth: 4
Difficulty: B
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The green cells contain one mine
The **2** sees both the yellow cells and green cells, therefore the lime crossed cells are safe.

HD Image Reconstruction by Not Anon

P-Pattern Advanced+

Depth: 7
Difficulty: C
The red cells contain one mine
The orange cells contain one mine
The yellow cells contain one mine
The green cells contain one mine
The cyan cells contain one mine
The 4 sees both the blue and yellow cells, so the third and fourth mine go into the red crossed cells.
The purple cells contain one mine
The 2 sees both the purple and green cells, so the lime crossed cell is safe
The pink cells contain one mine
The 2 sees both the orange and pink cells, so the lime crossed cell is safe.

Game Records of Rare Patterns

Game #655748797 - Minesweeper Online Caterpillar1, 84436, 22-4-2021 13:33 UTC (3:49)
Game #694370528 - Minesweeper Online SIC 3x3{1}, 84436, 22-5-2021 4:08 UTC (0:01)
Game #733395485 - Minesweeper Online OutwardChain1, Archeaic, 19-6-2021 19:35 UTC (4:28)
Game #829205397 - Minesweeper Online SingleJoinedBox2, Archeaic, 25-8-2021 14:58 UTC (6:00)
Game #872174355 - Minesweeper Online BasicBoxUpper1, Archeaic, 21-9-2021 16:39 UTC (1:12)

Game #1012022824 - Minesweeper Online swappedbox

706104200-hd-24-87754.png (420×482) (minesweeper.online)

Imgur: The magic of the Internet

Artificially Created

Any pattern created manually is classified here.

Epilogue/Links

A few notes regarding the current state of the document
-"Holes","Holes+", and "High Complexity" are very unfinished, I have been
mostly working on the box logic and "Combinations" sections
-If you have better suggestions for pattern names tell me
-The "Game Records of Rare Patterns" can getsubmissions
-The "Artificially Created" section can get submissions

Chain Library
Terminology