

# **Rychlý úvod do AI**

Ada Böhm

[ada.bohm@vsb.cz](mailto:ada.bohm@vsb.cz)

# Rychlý úvod do strojového učení

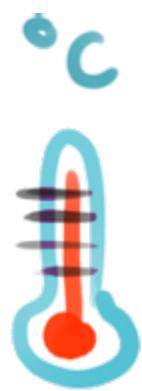
„Bežný“  
program

Lidský  
Mozek

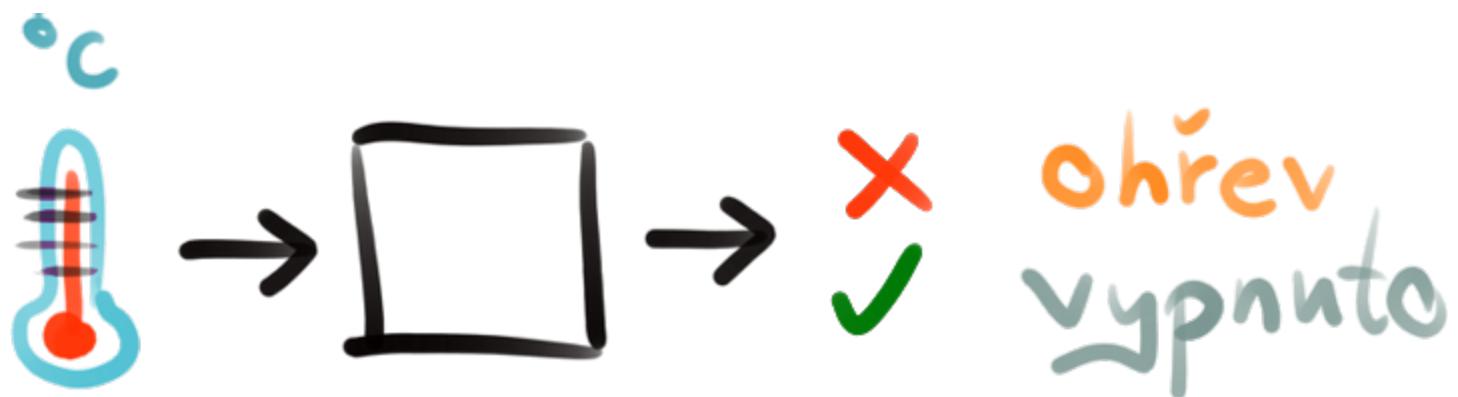








ohřev  
vypnuto



Pokud teplota  $\geq 100$  pak

výstup je ✓

jinak

výstup je ✗



⋮

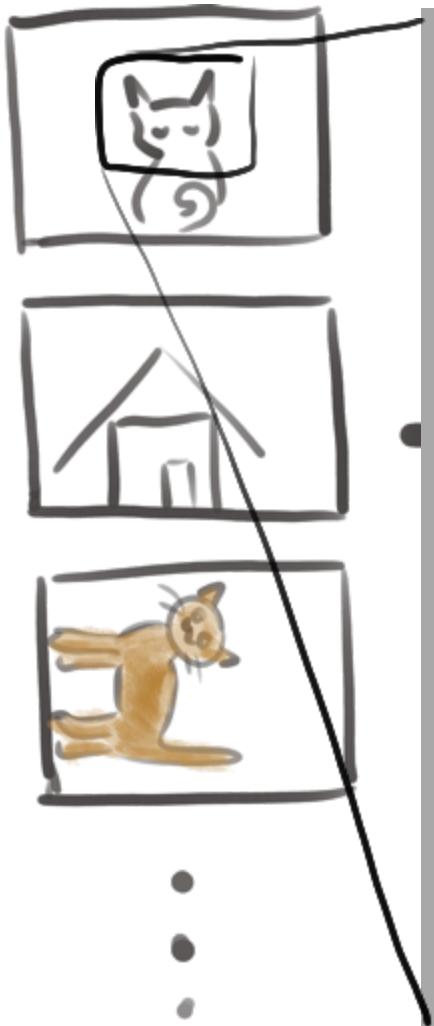


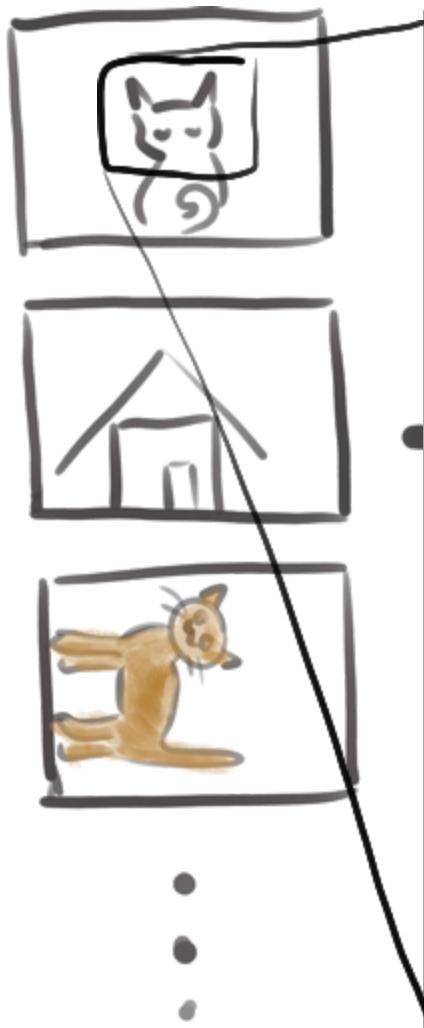
✓

✗

✓

⋮







✓

✗

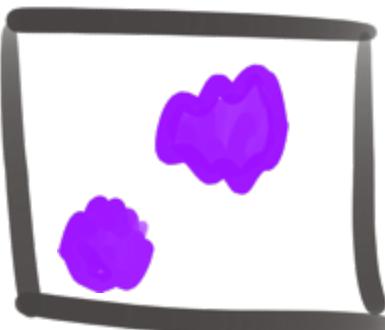
✓

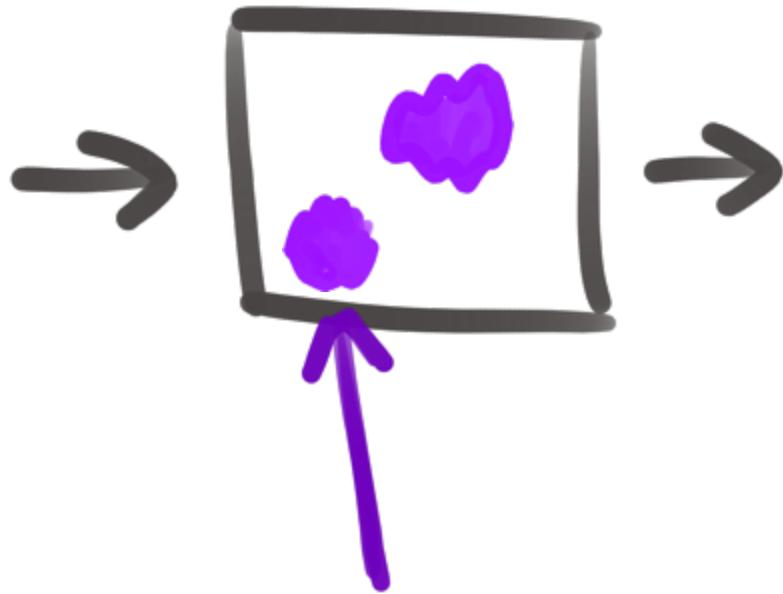
⋮

⋮



⋮



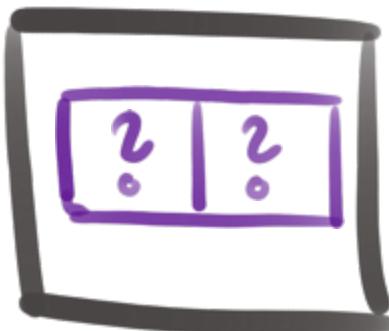


⋮

Parametry

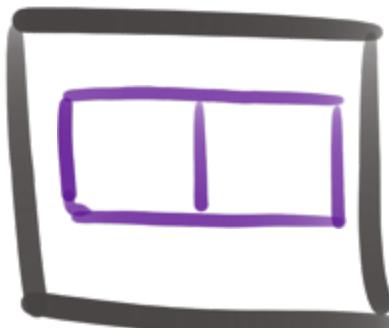


⋮





⋮





⋮

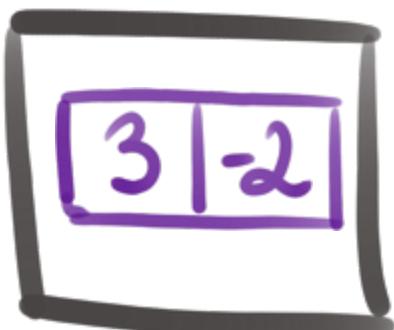


A hand-drawn style calculator screen showing the equation  $3 - 2$ . The numbers are in a purple box.





⋮



48%

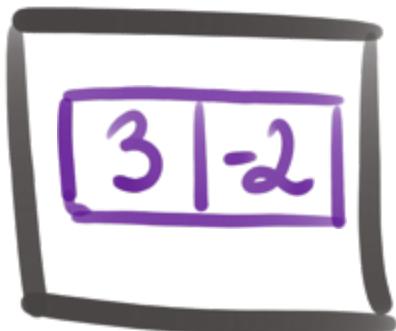
80%

95%

⋮



⋮

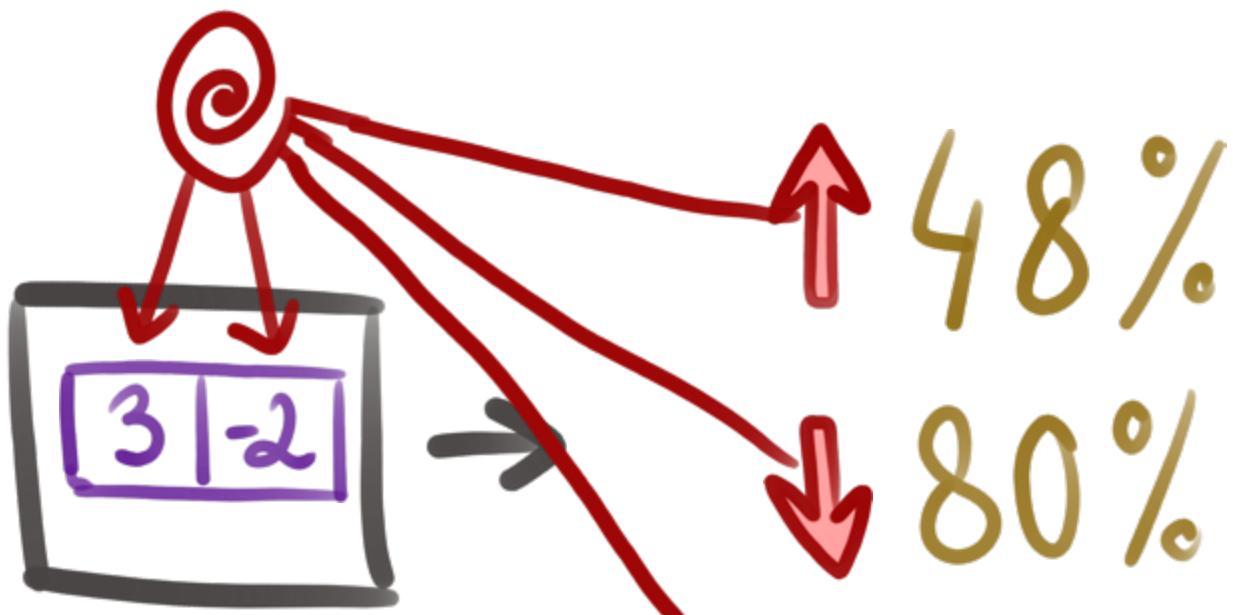


↑ 48%

↓ 80%

↗ 95%

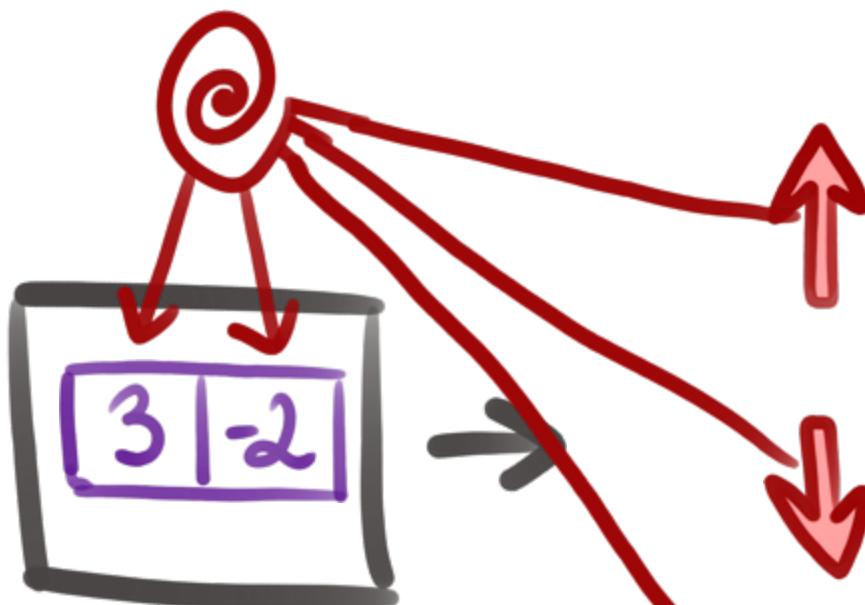
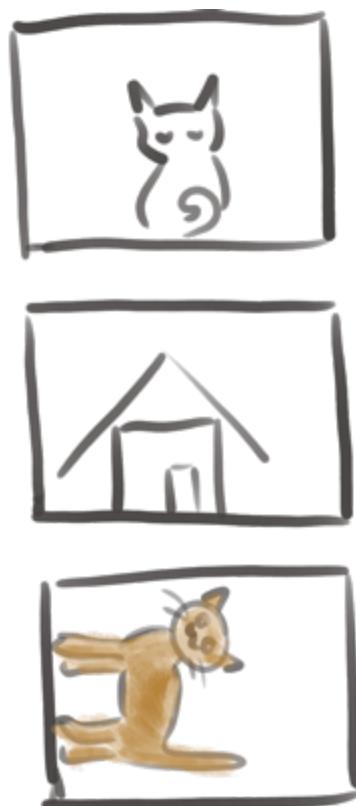
⋮



⋮

⋮

⋮



48%

80%

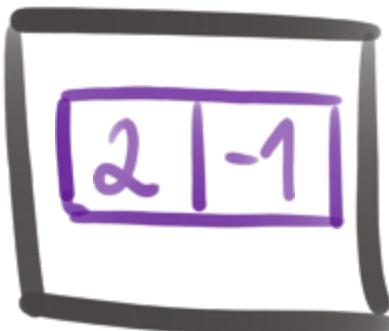
95%

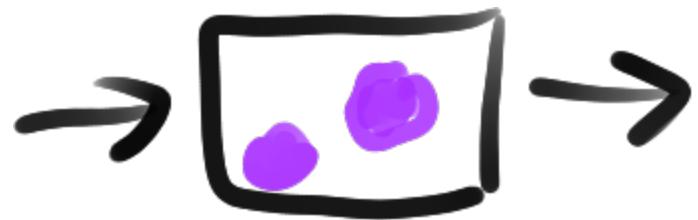
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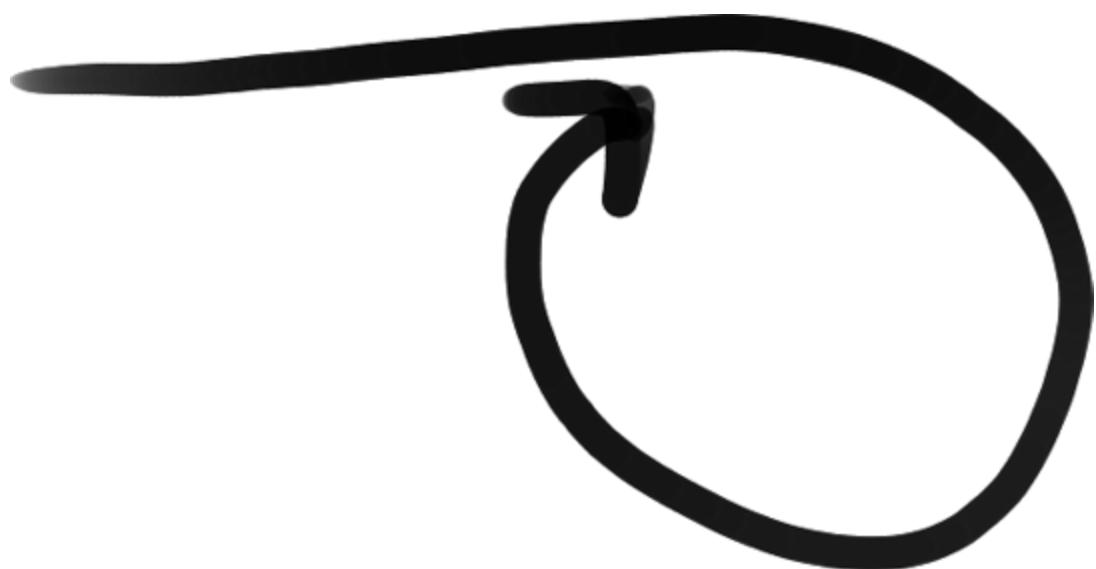
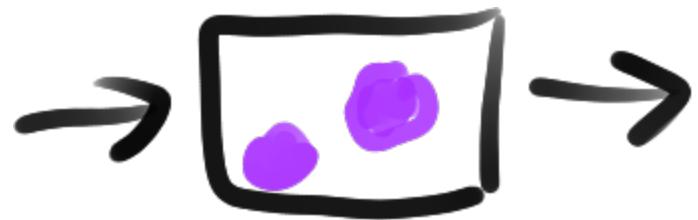
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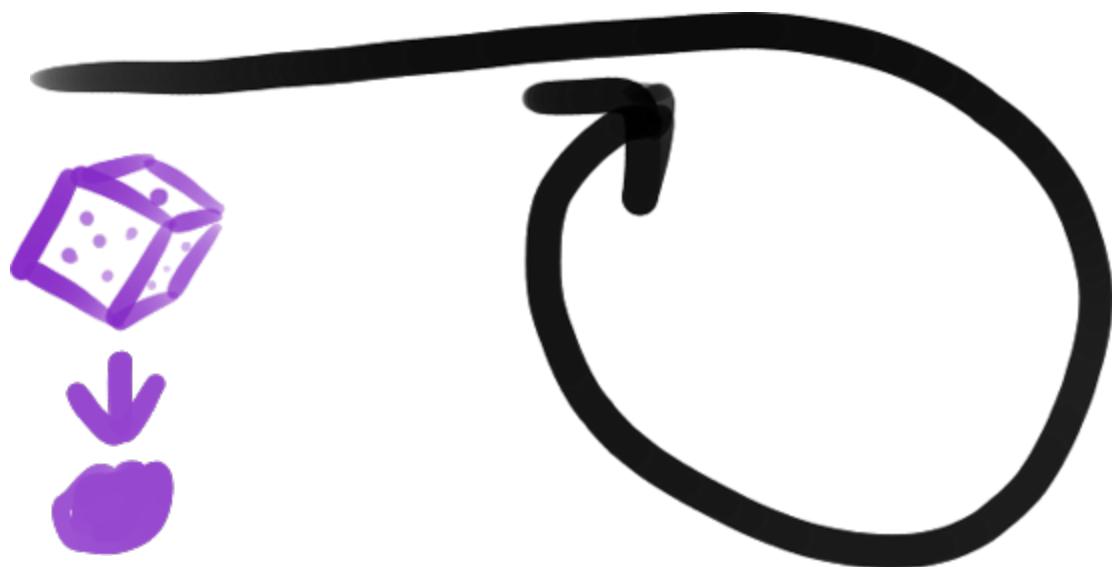
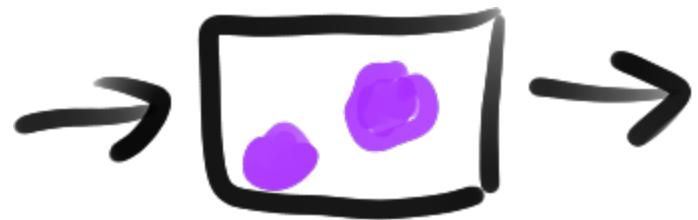


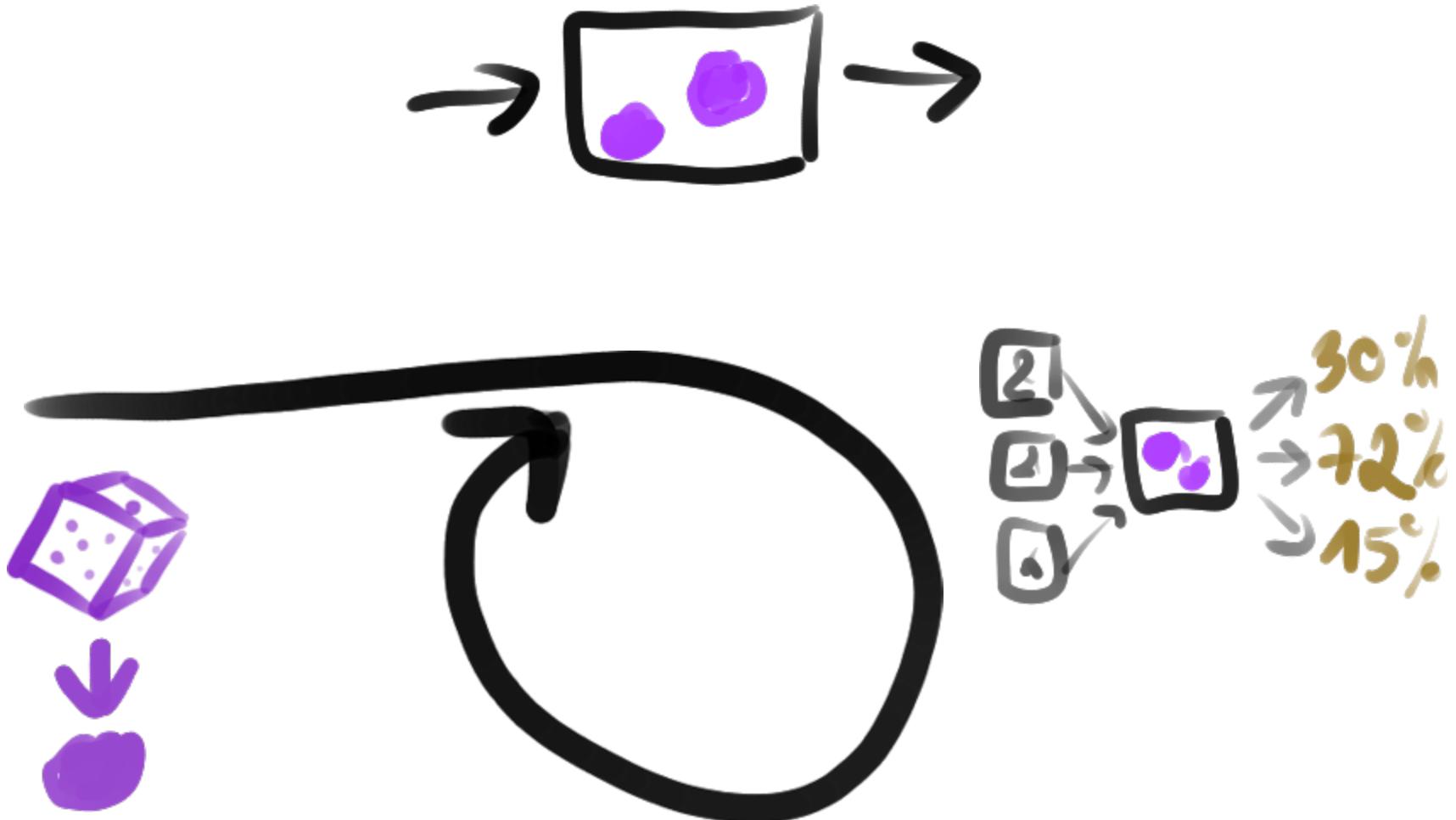
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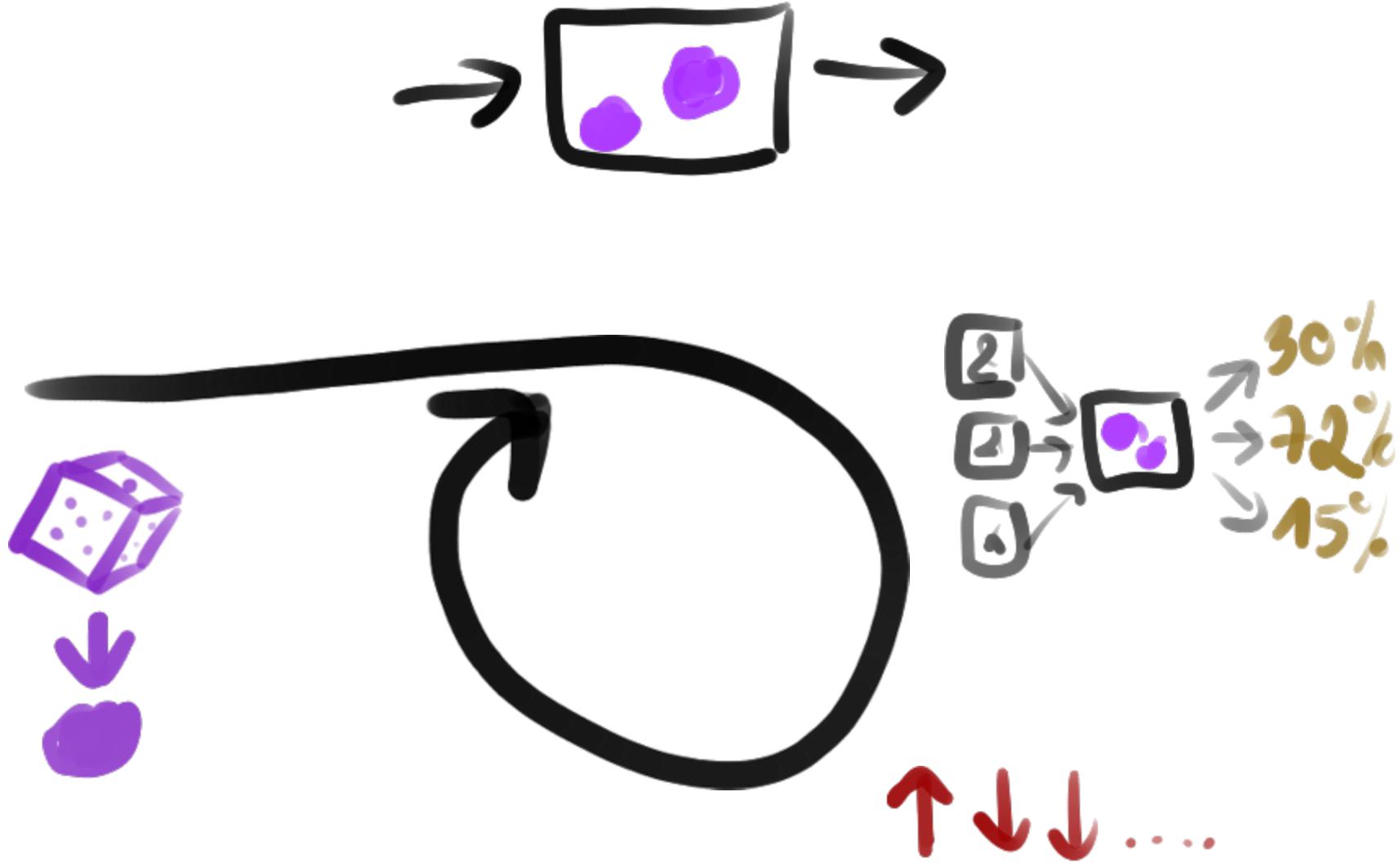


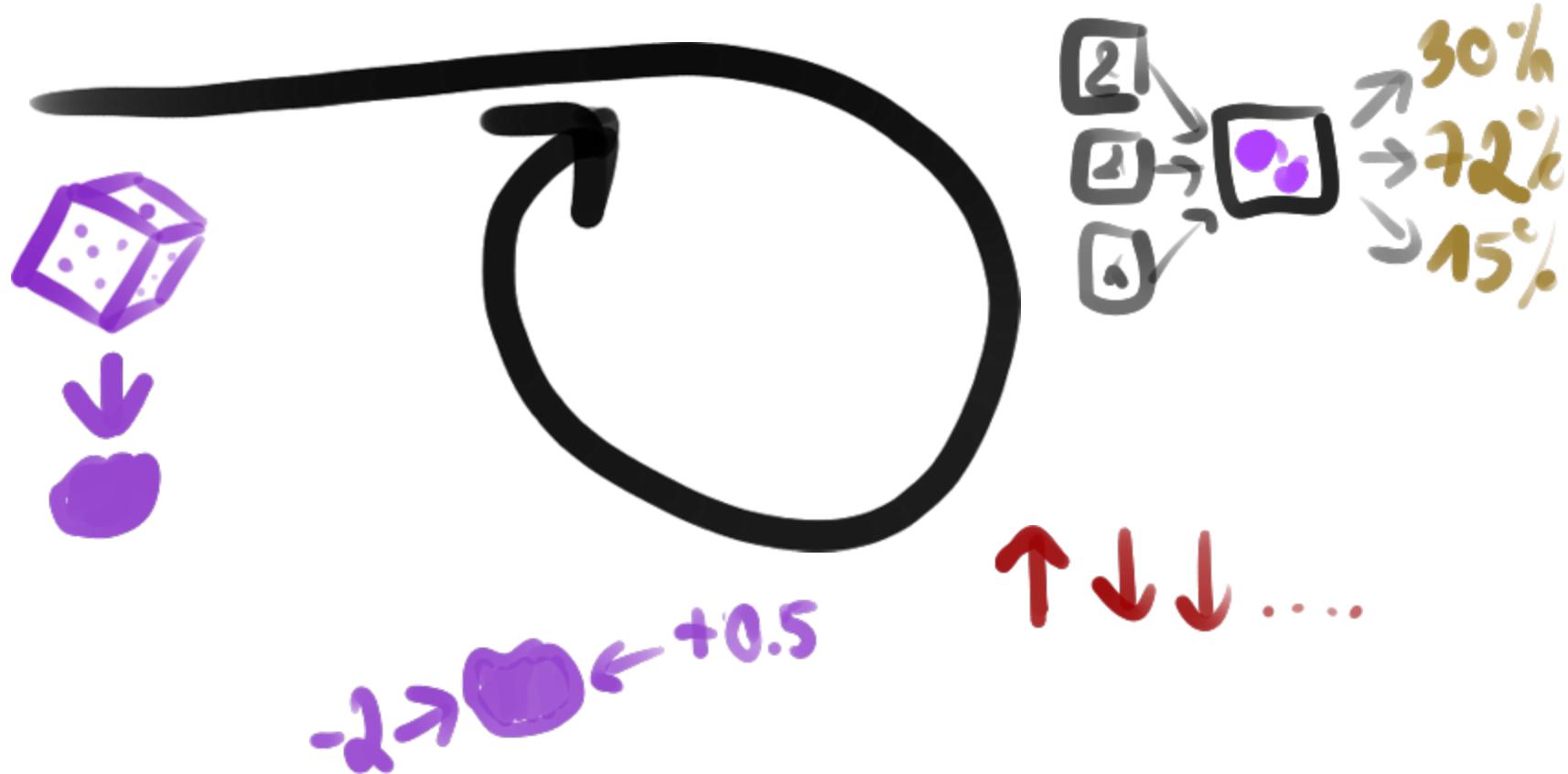
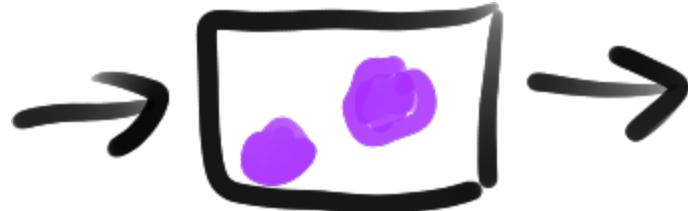


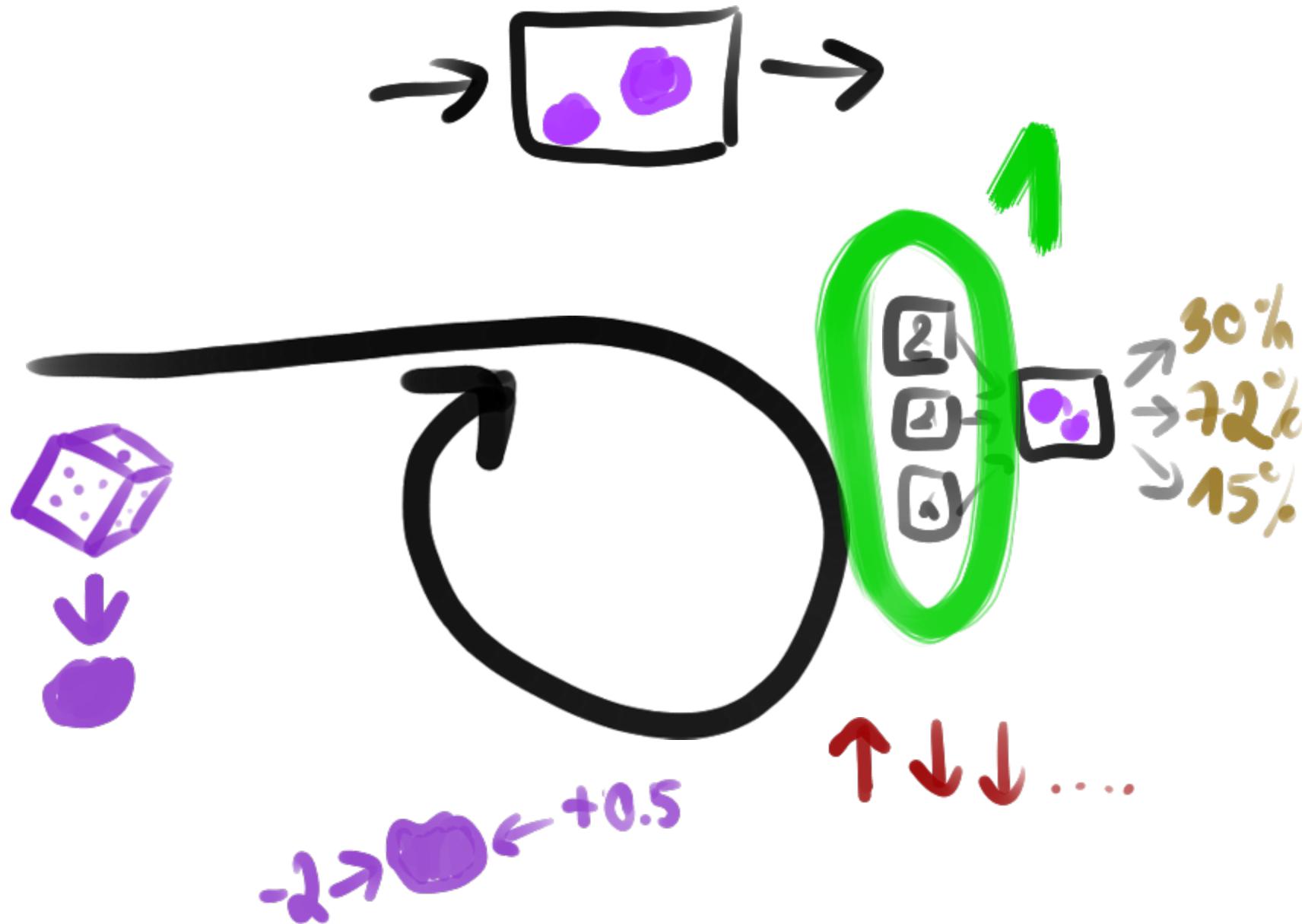


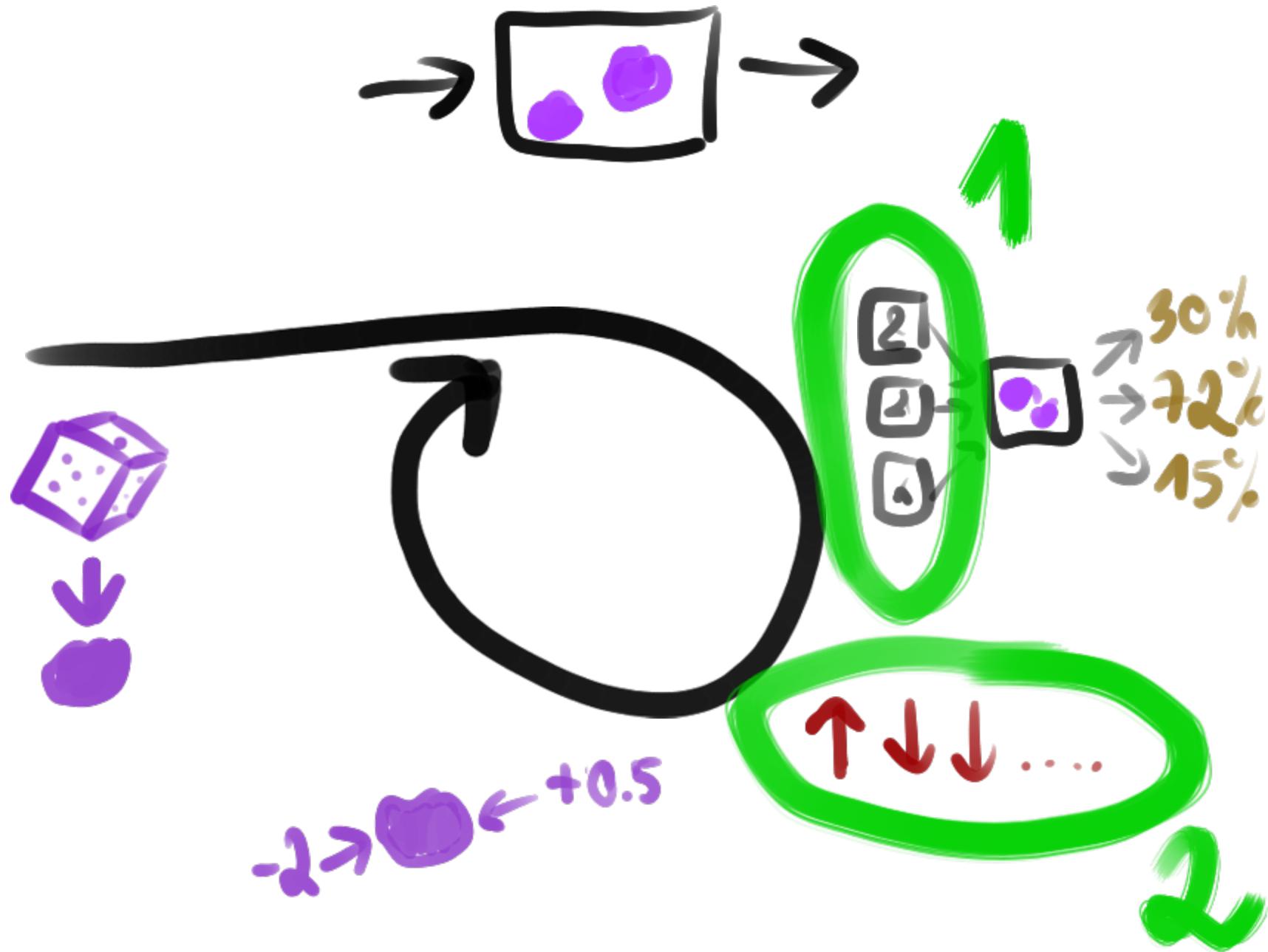


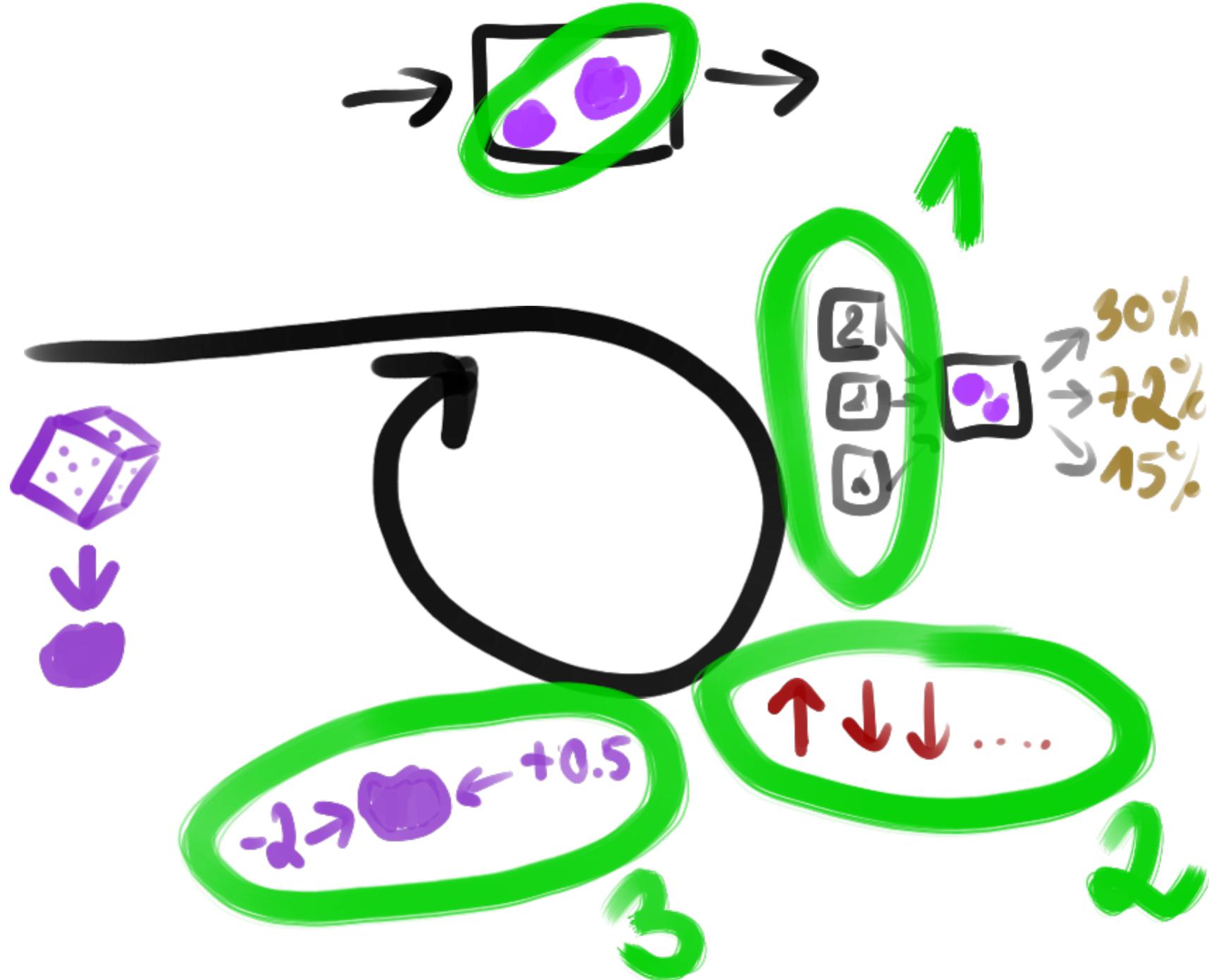


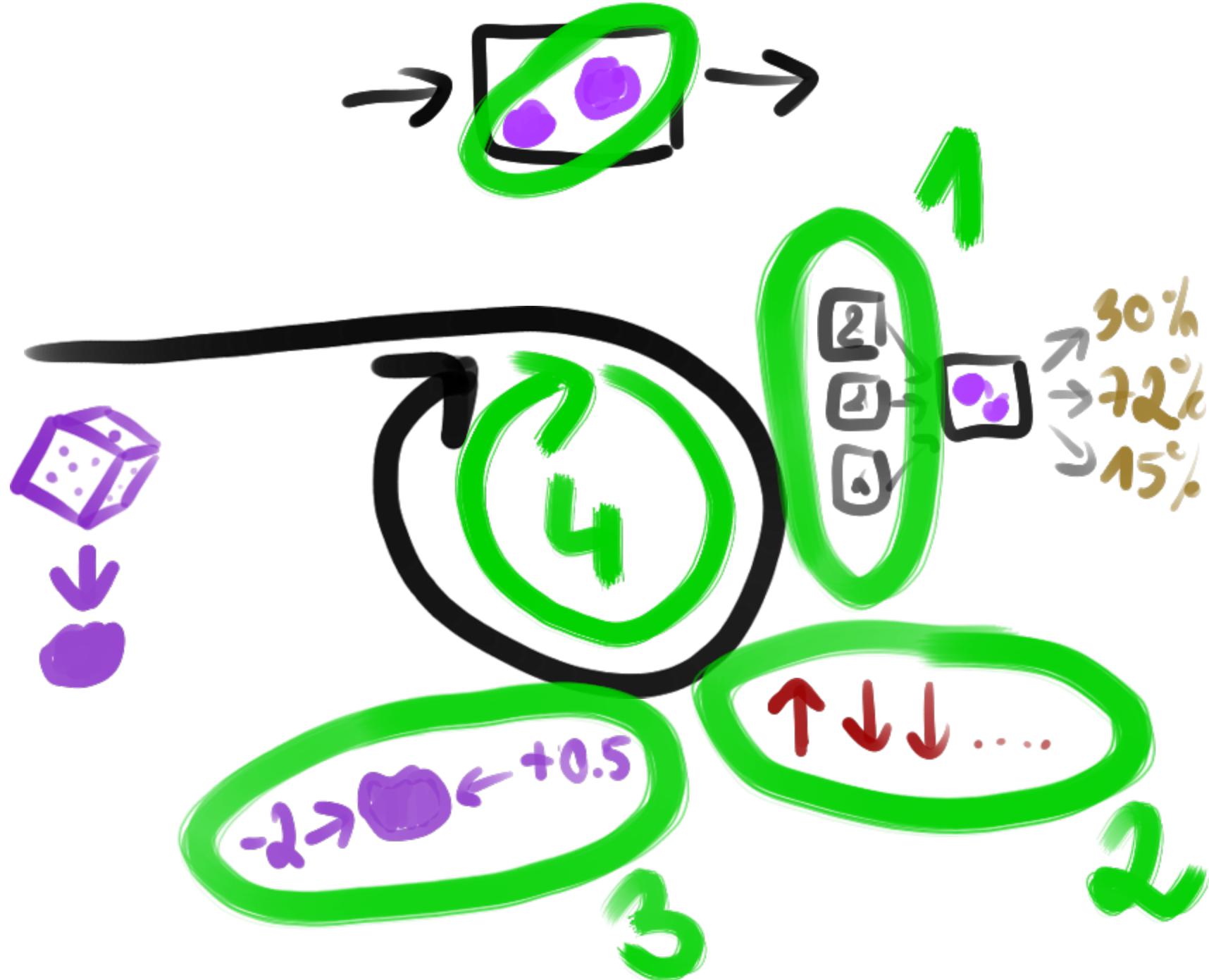








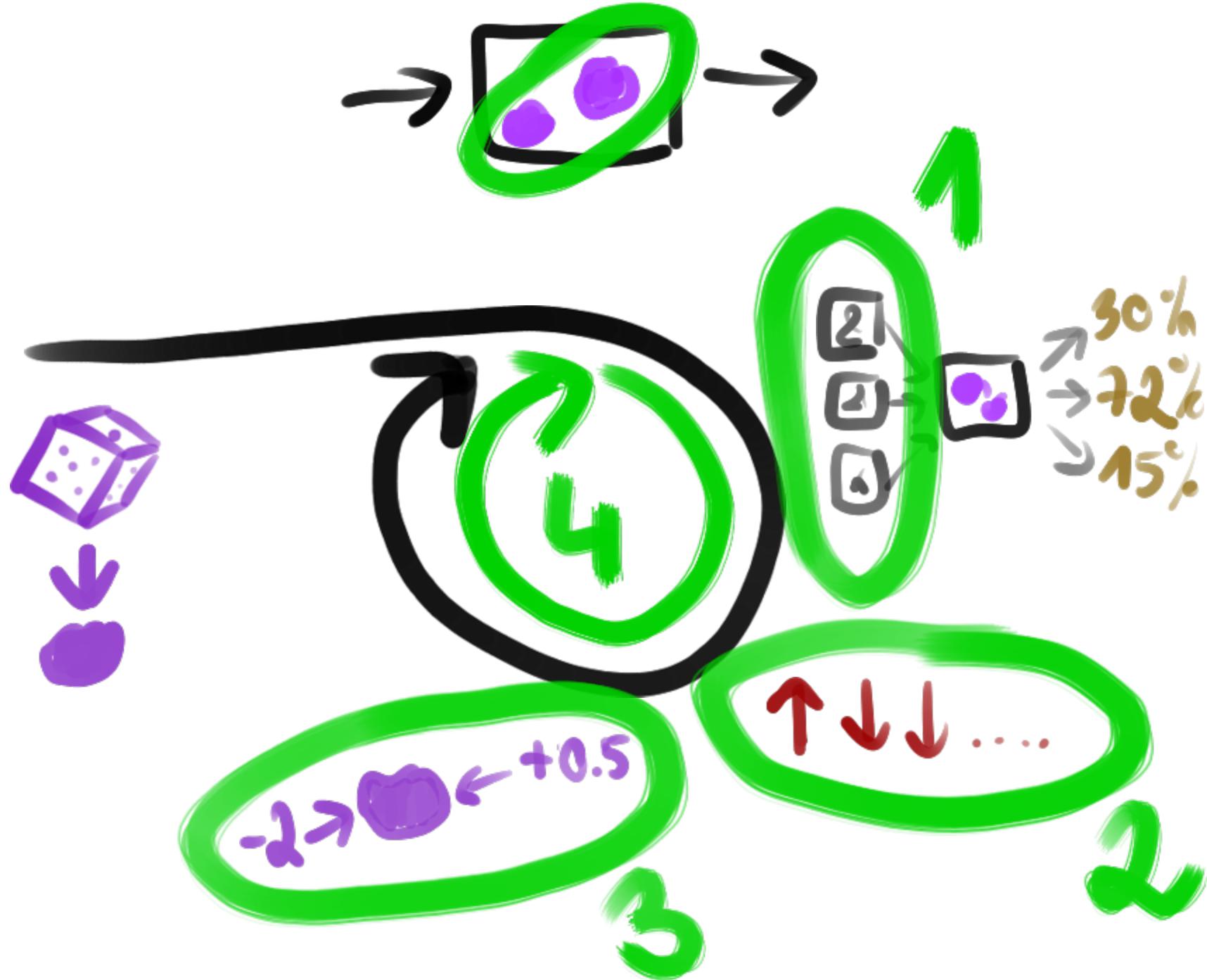


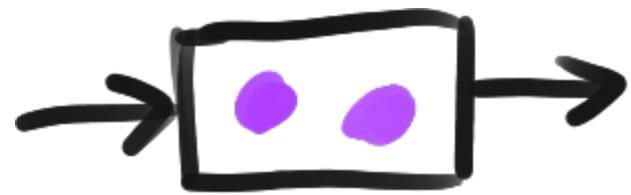


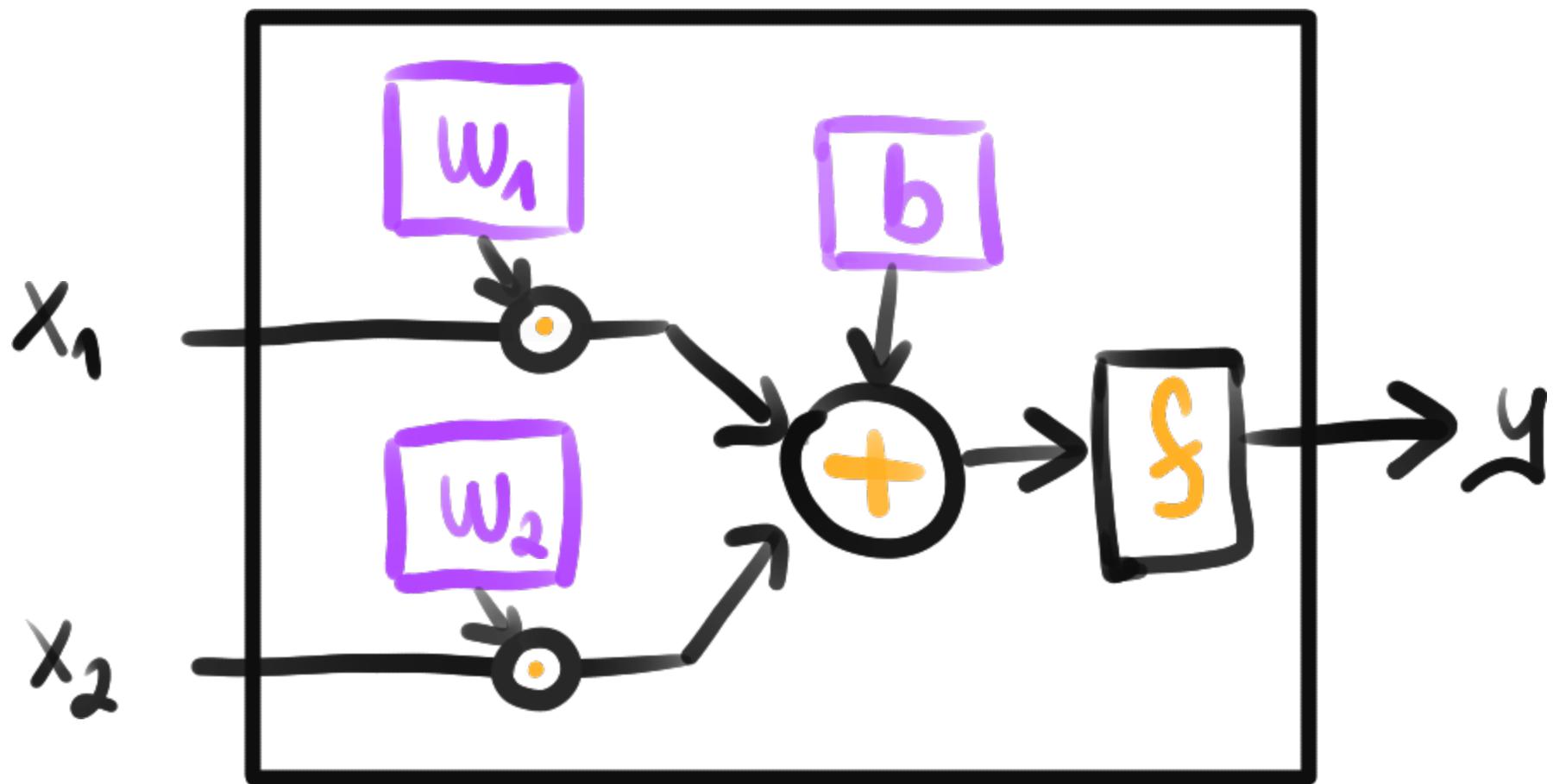
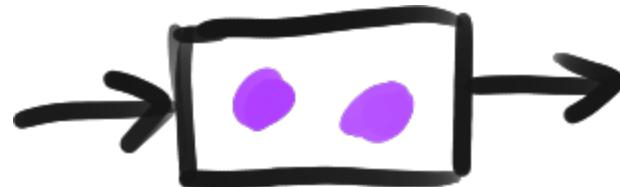
učení / používání

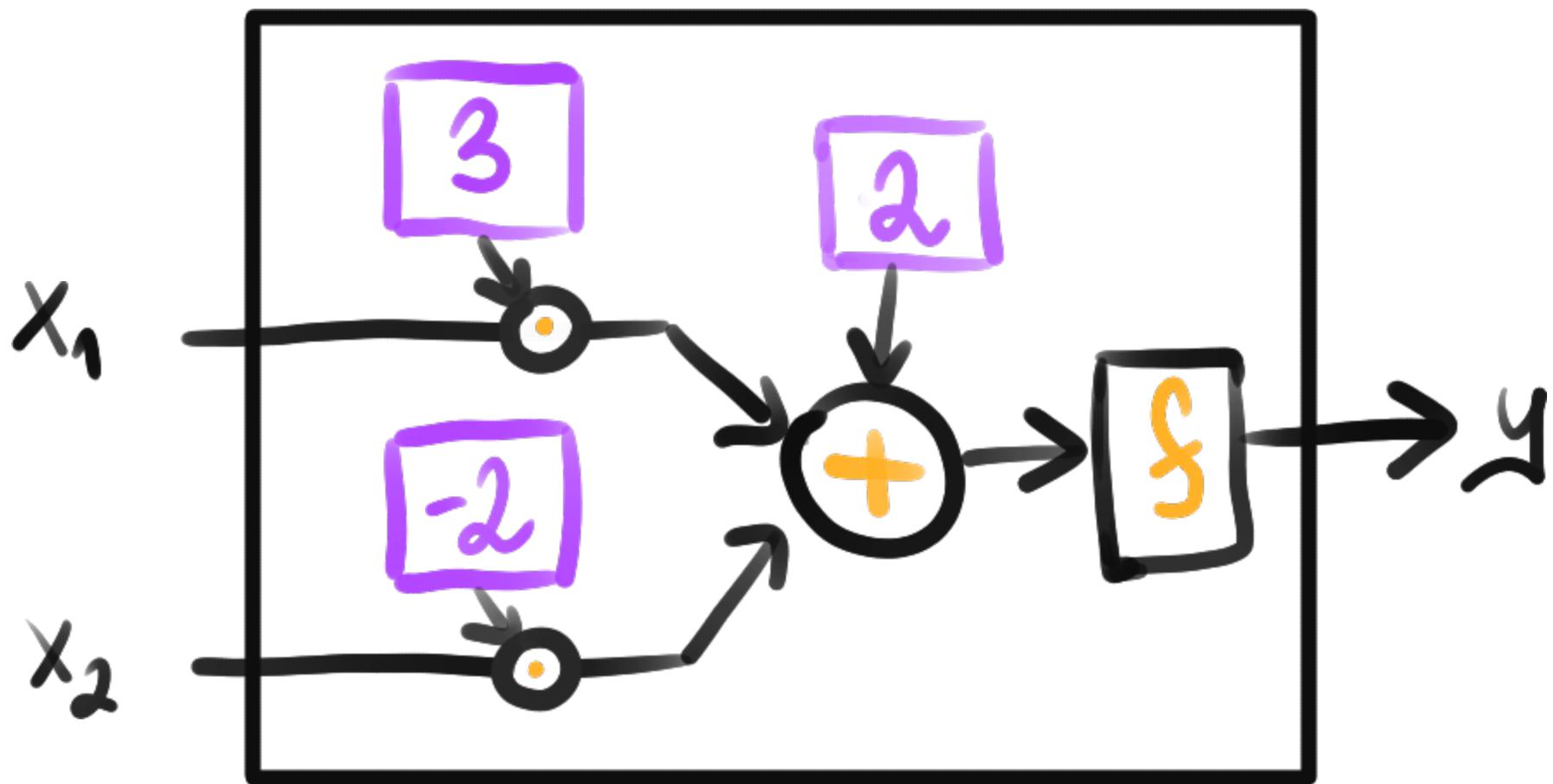
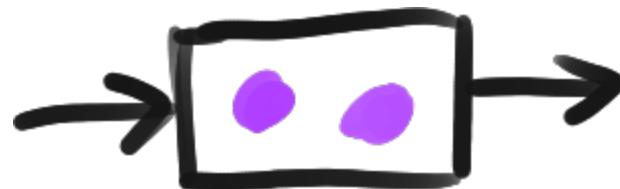
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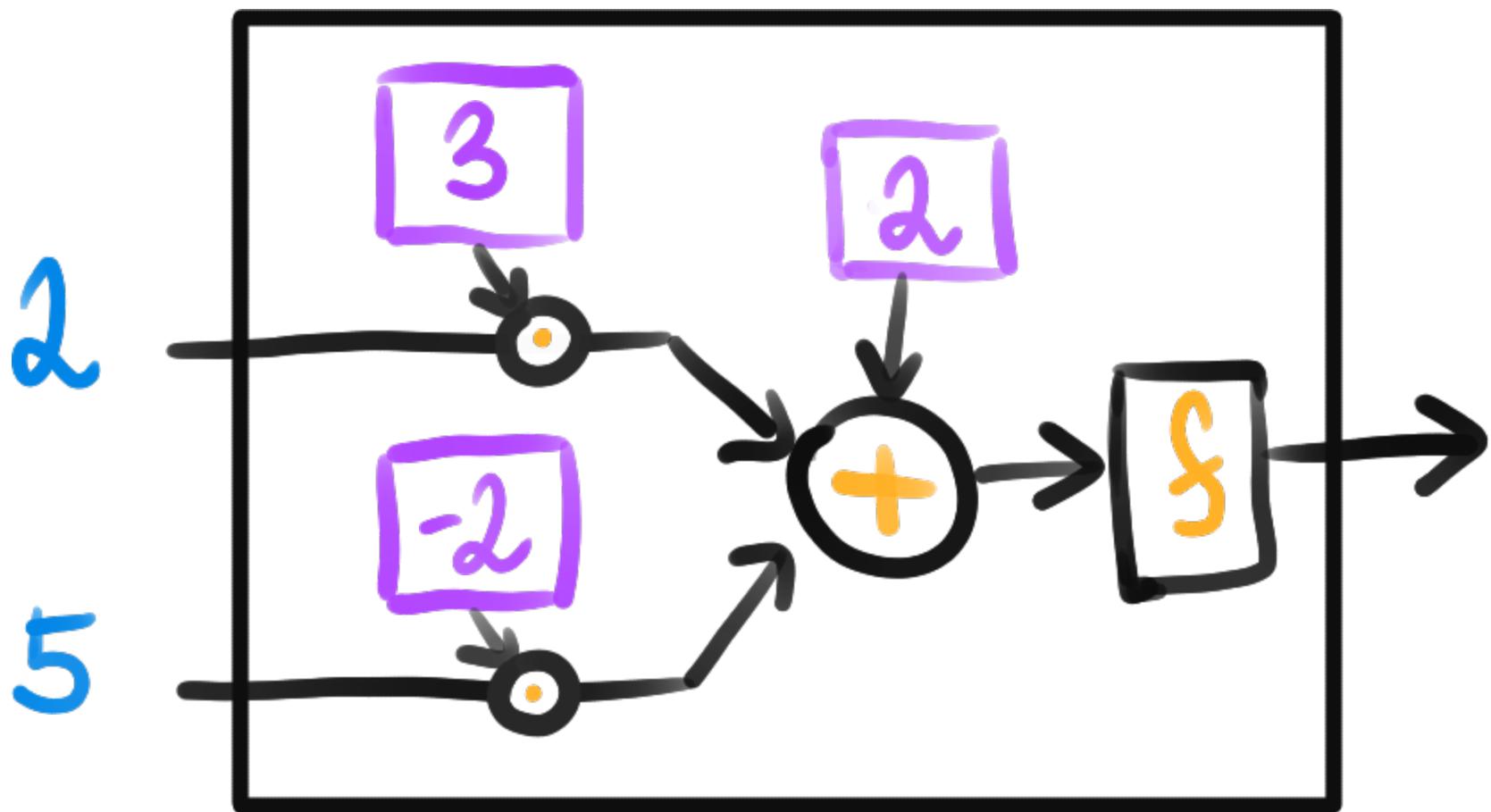
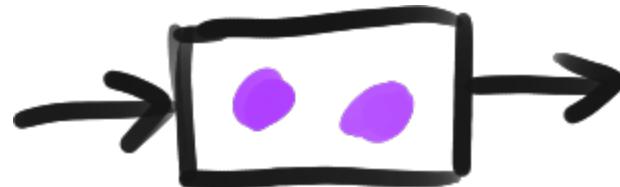


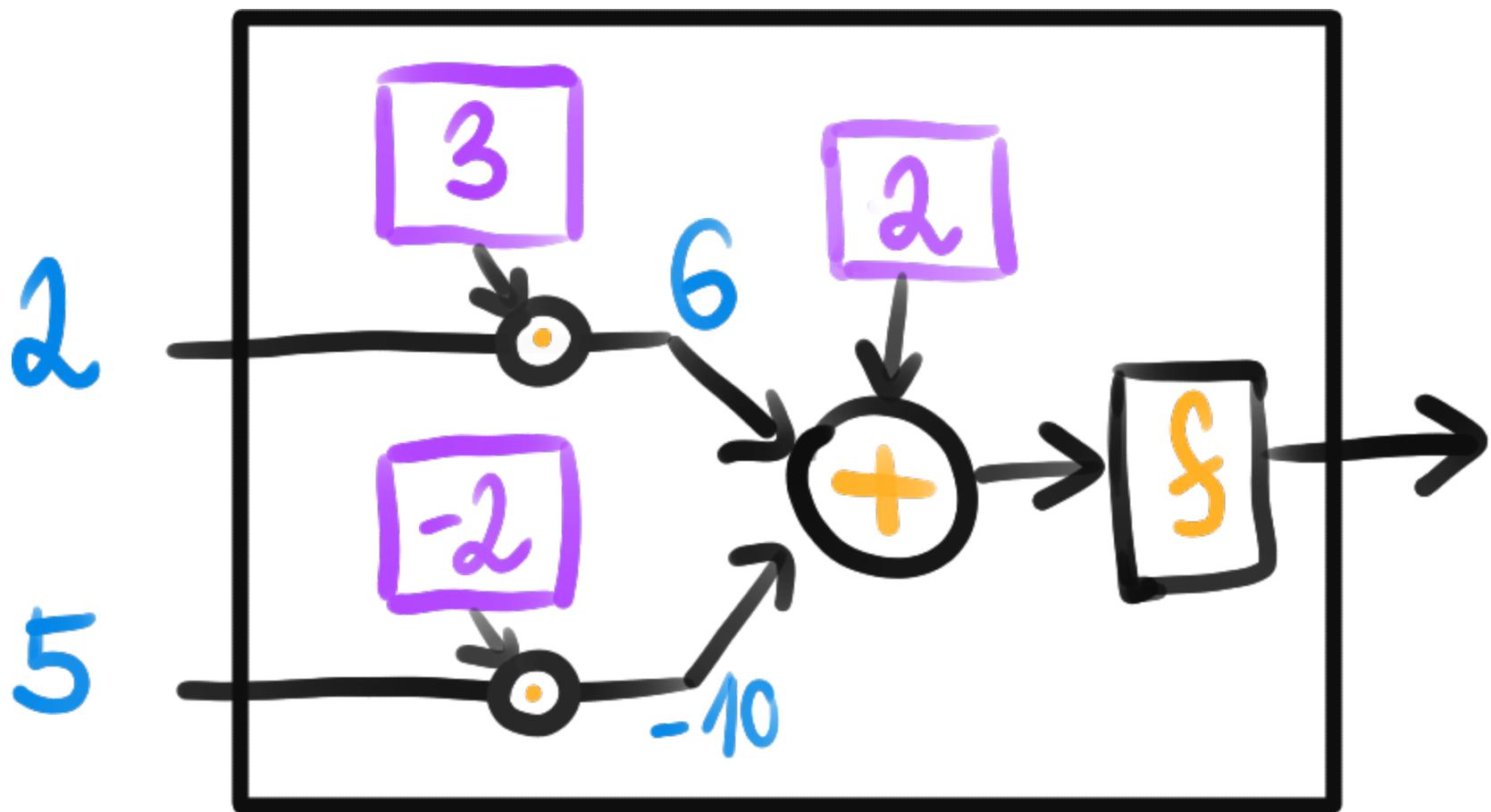
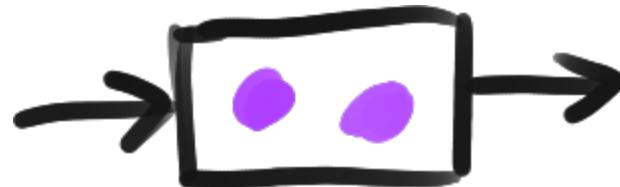


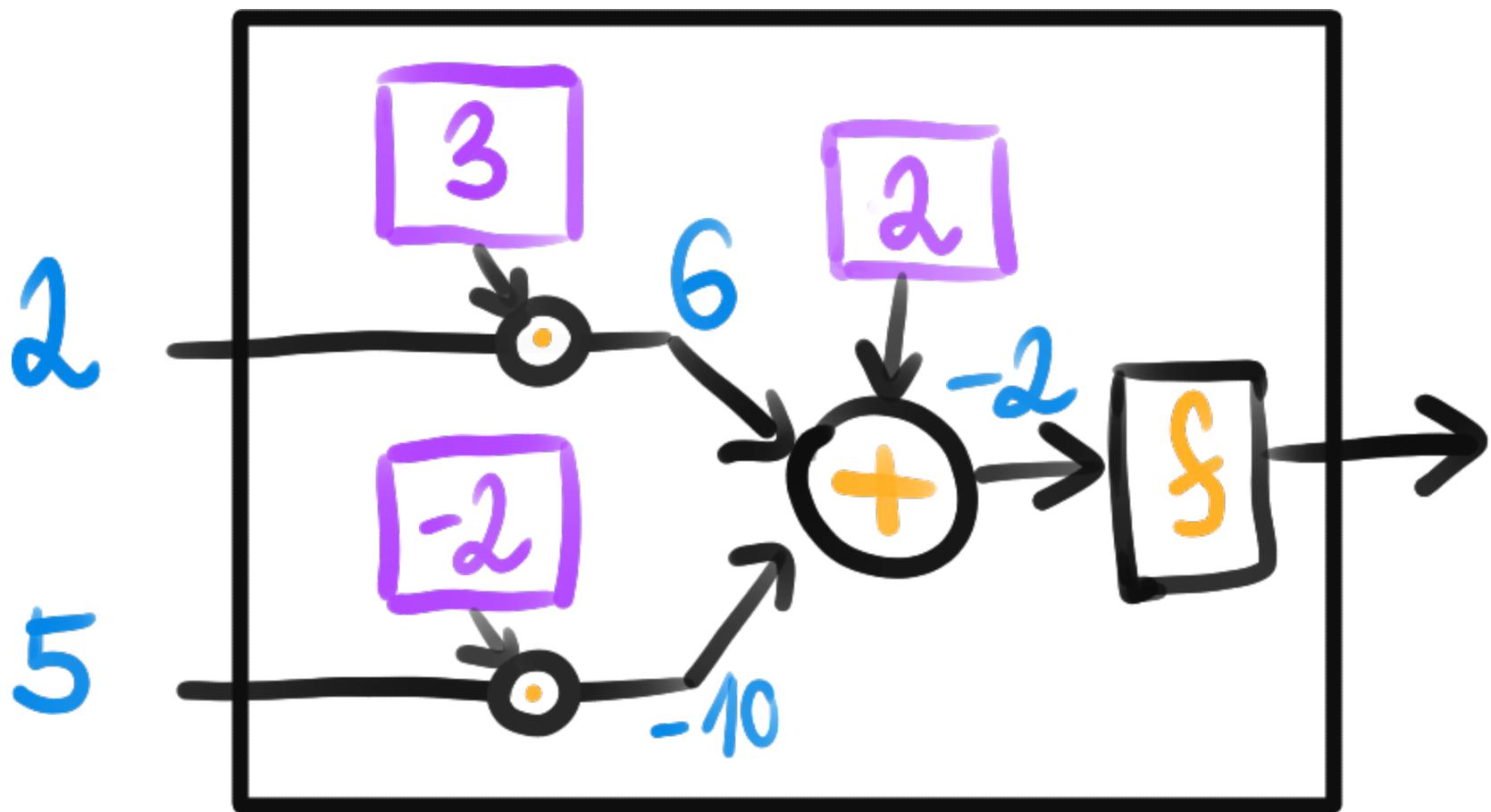
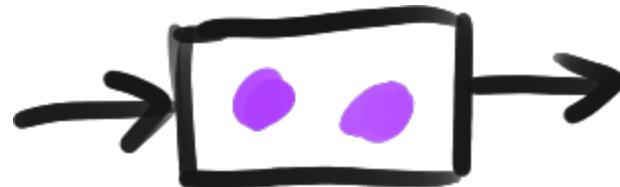




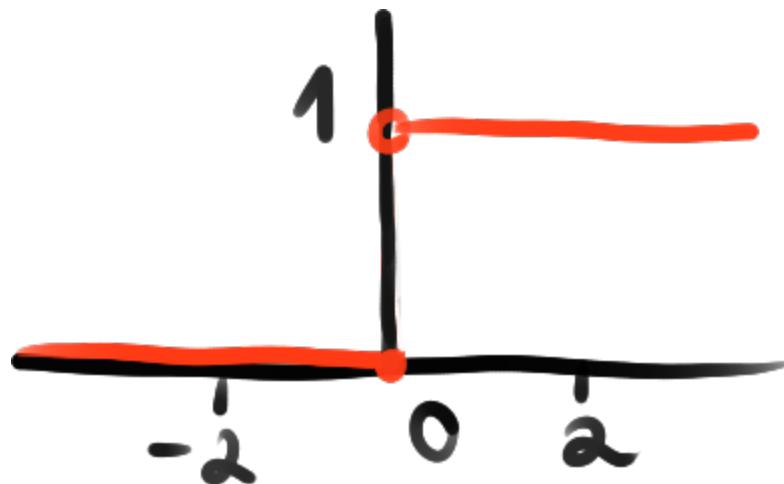




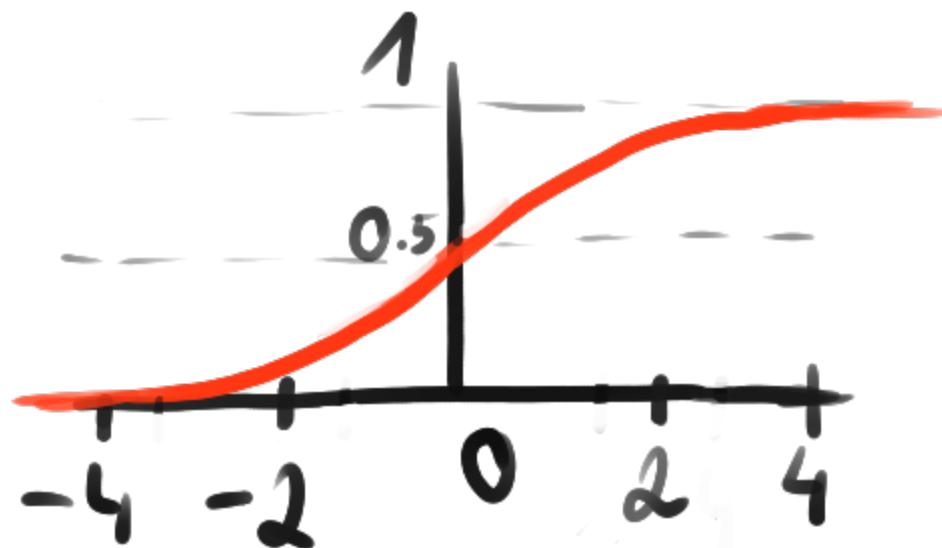
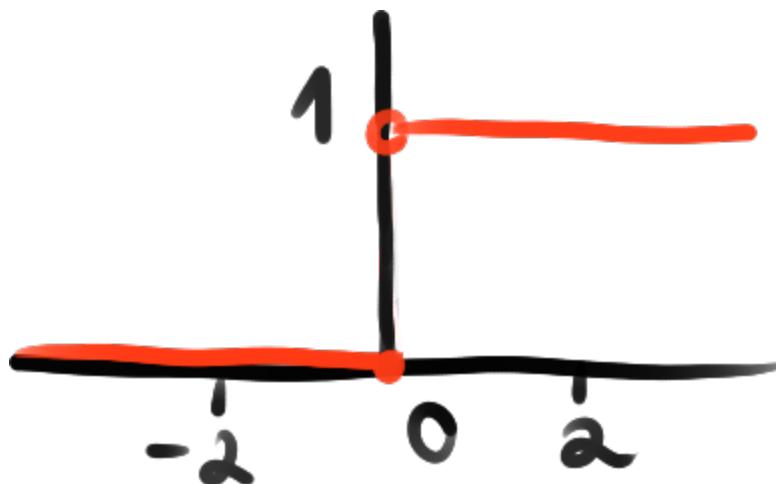




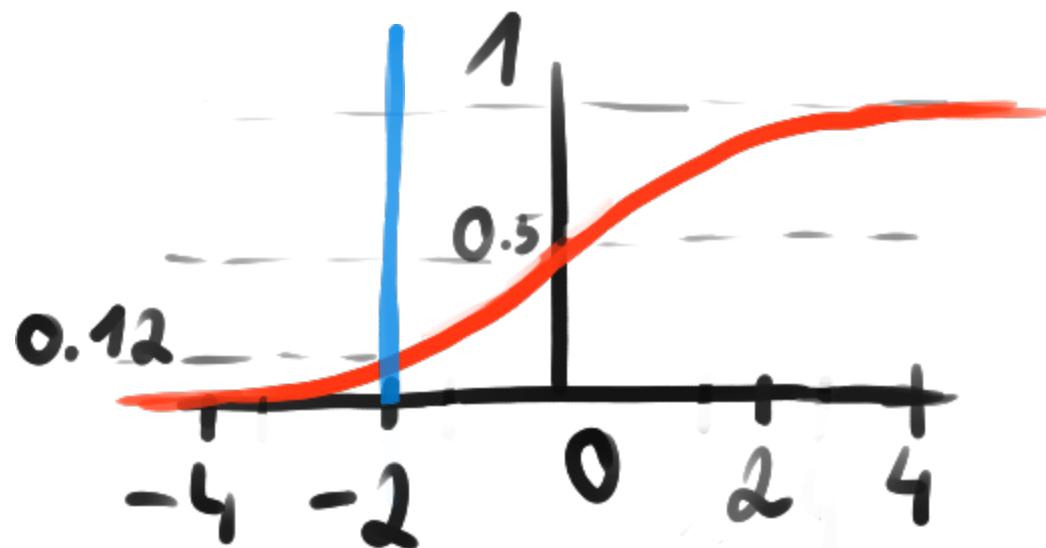
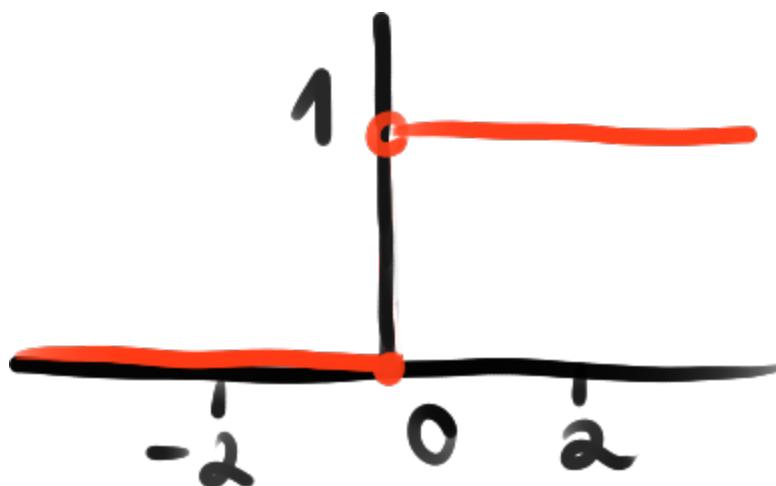
# Aktivační funkce



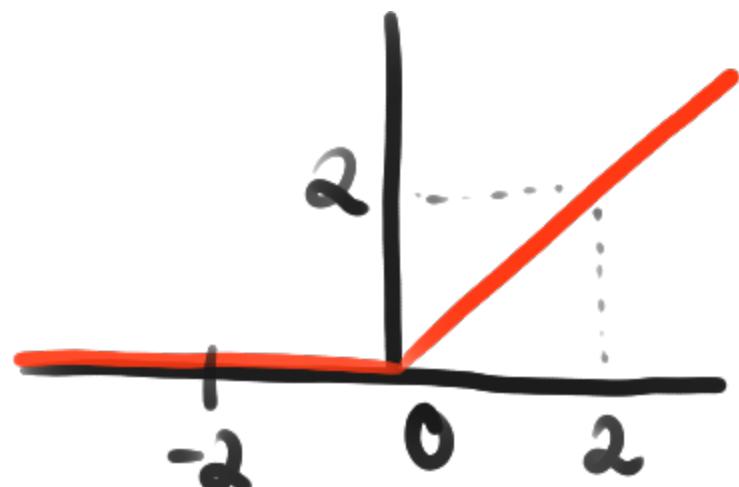
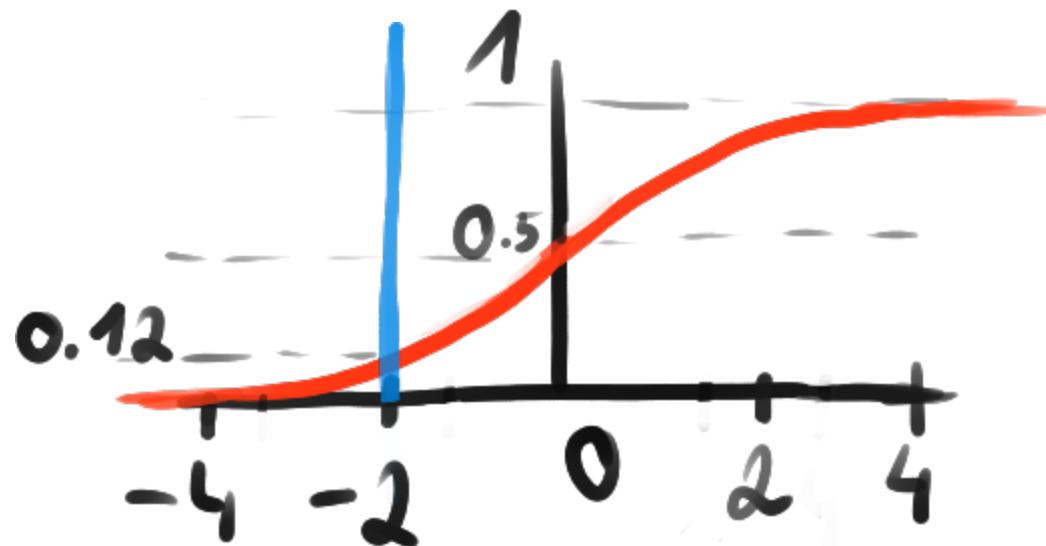
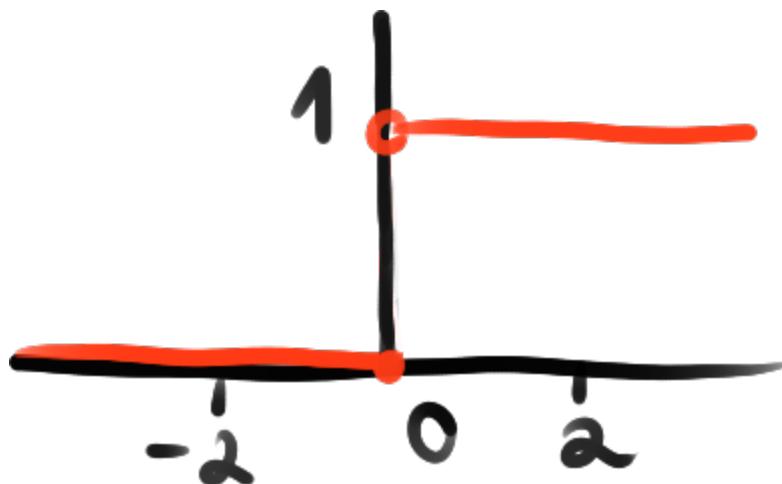
# Aktivační funkce



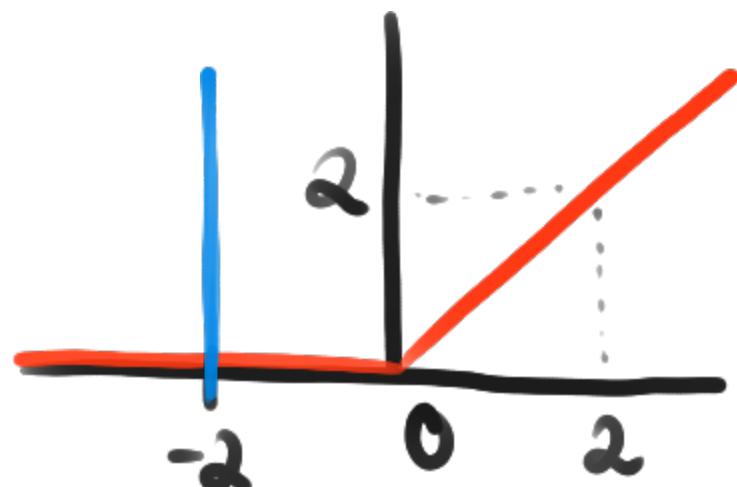
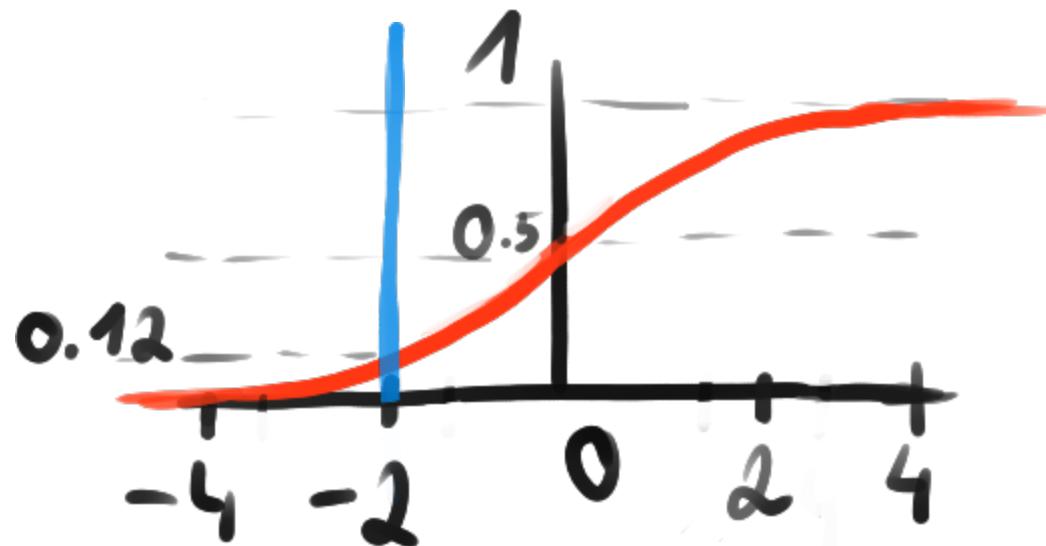
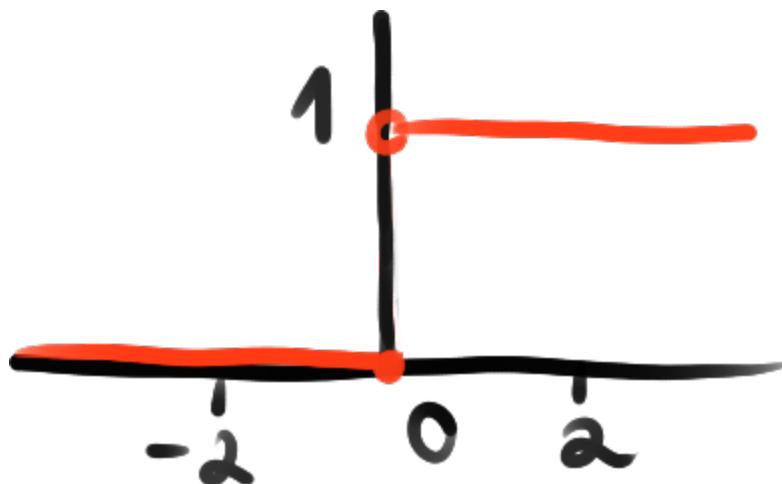
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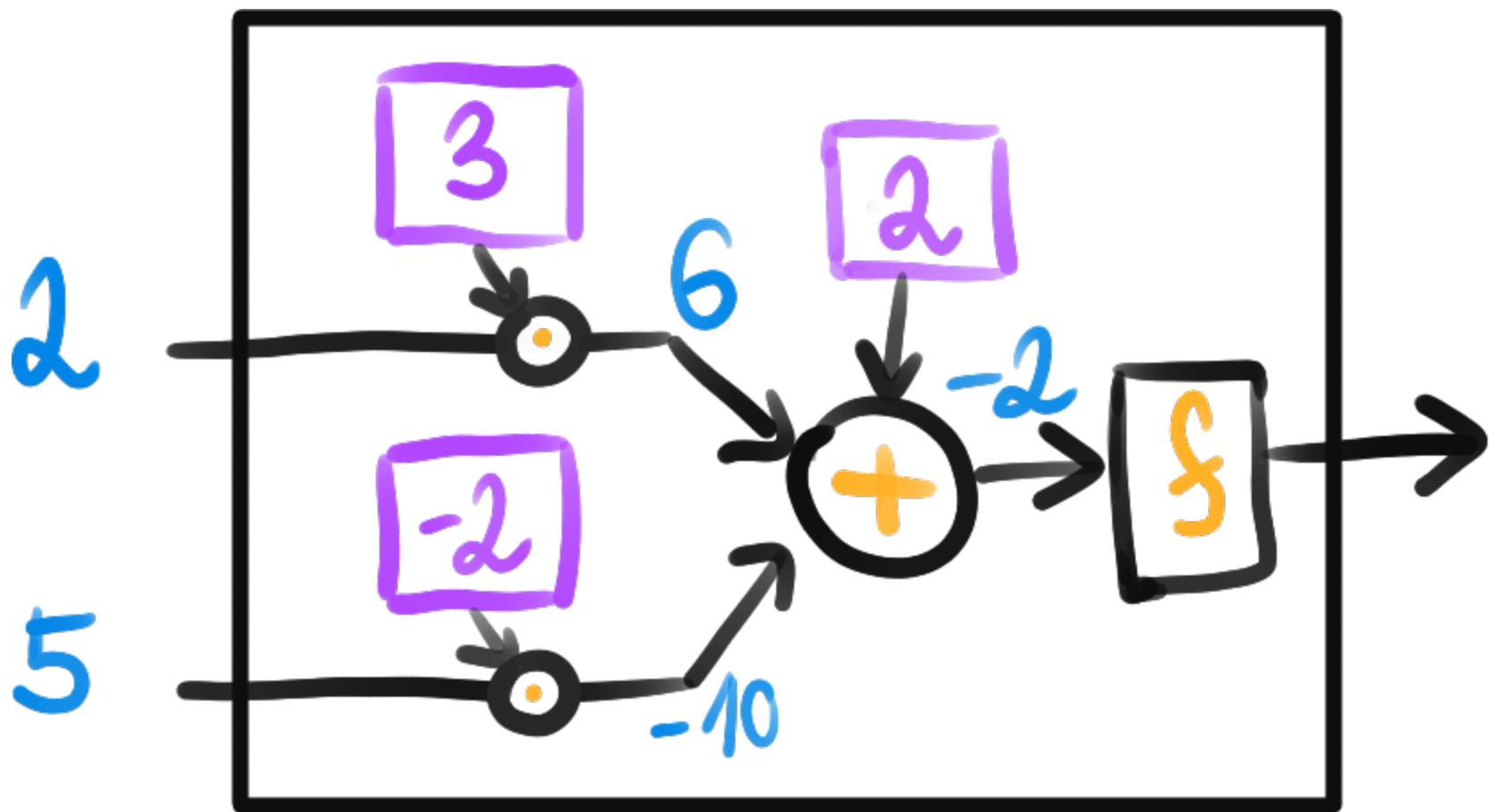
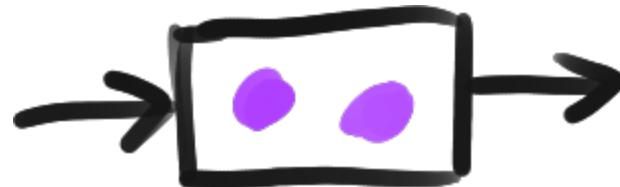


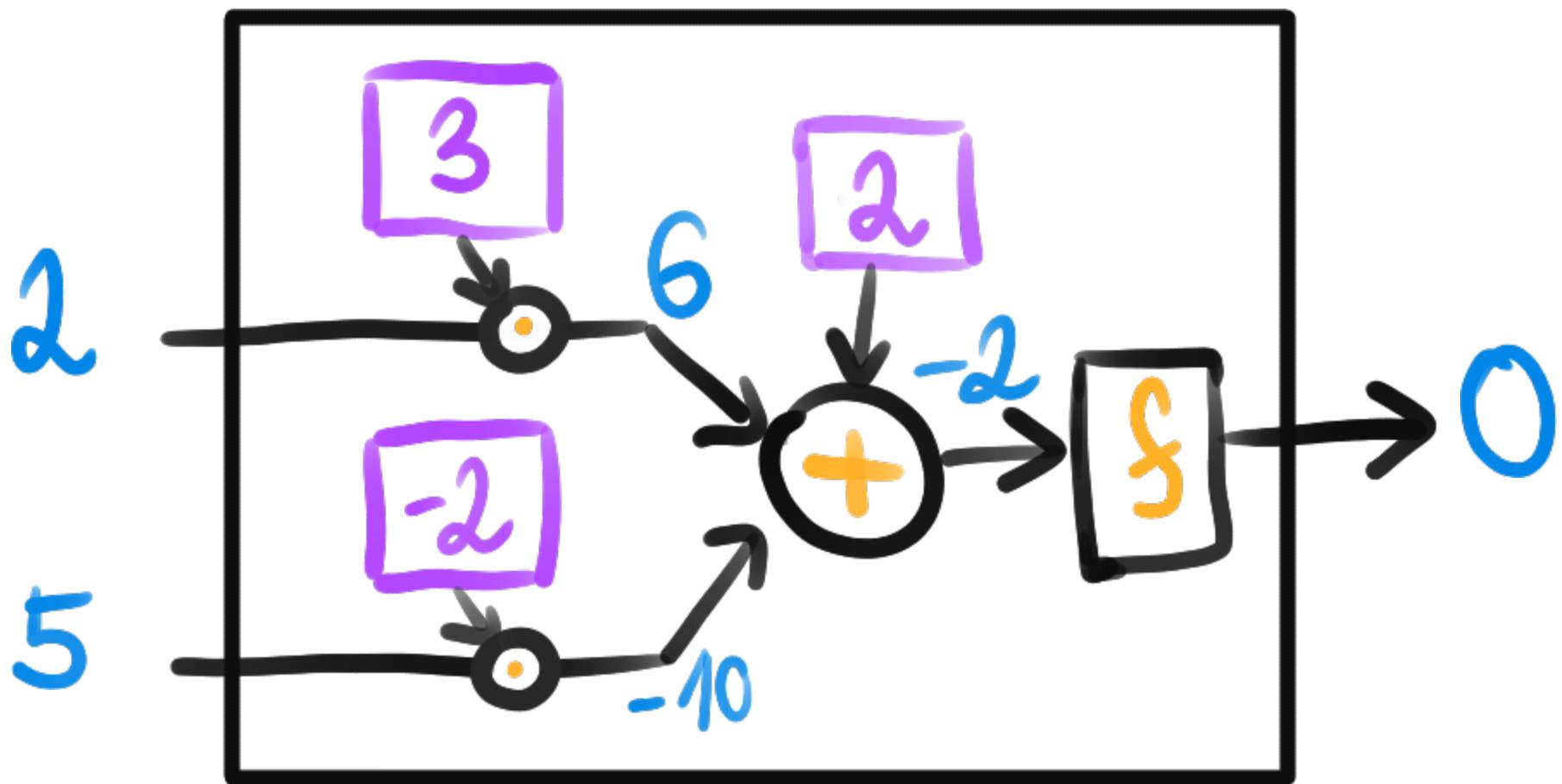
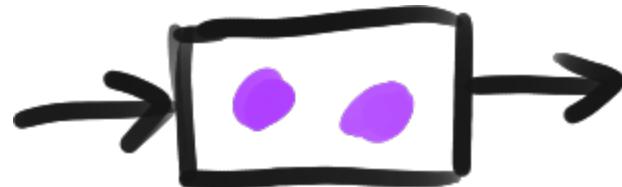
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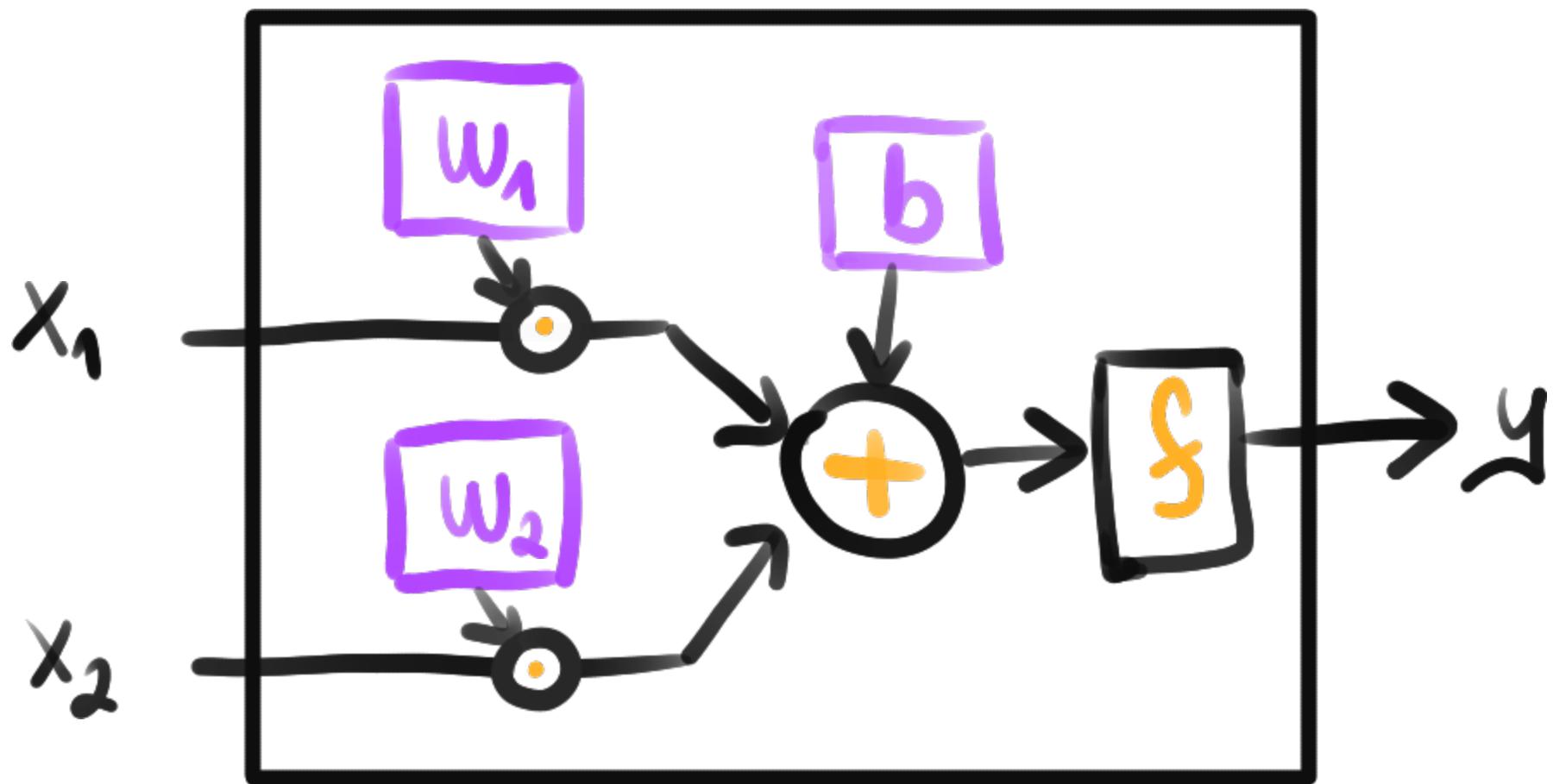
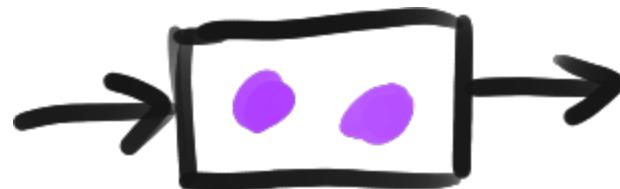


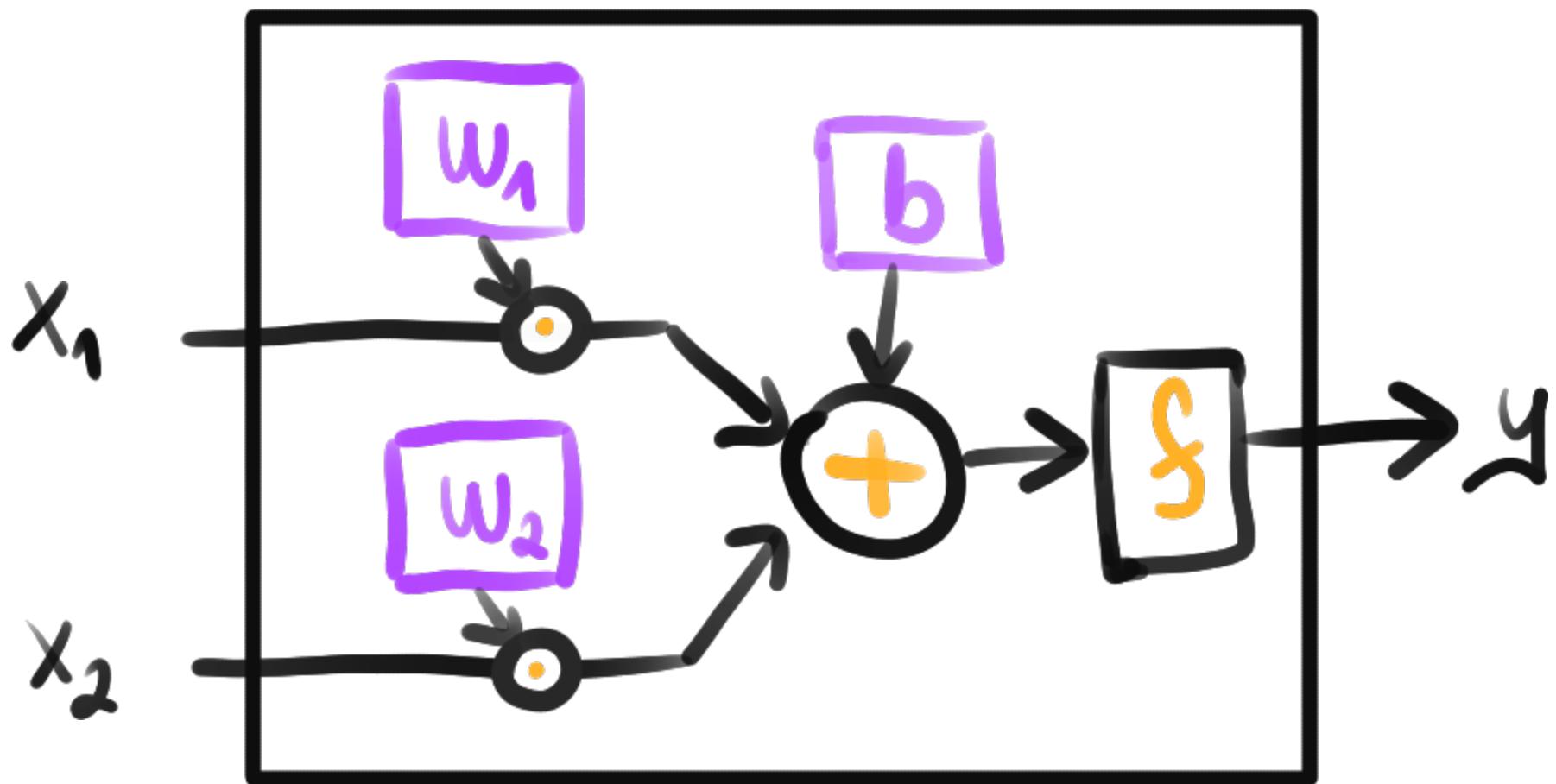
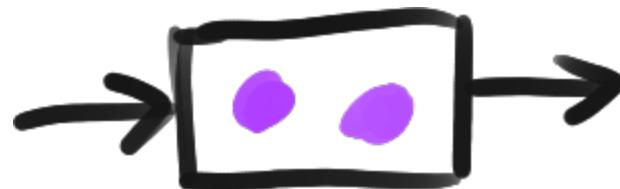
# Aktivační funkce



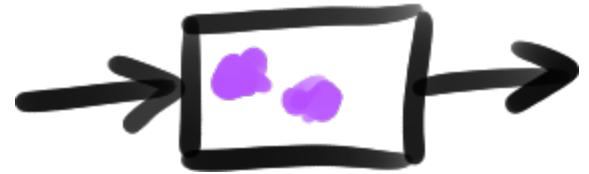


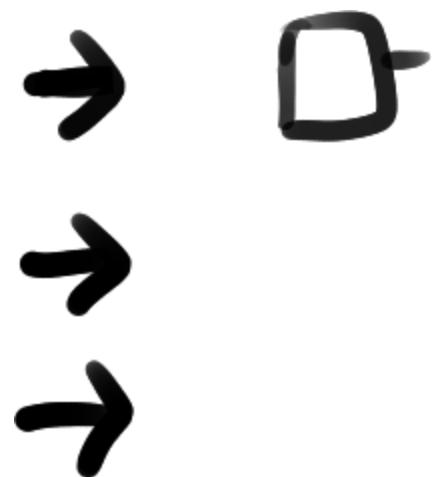
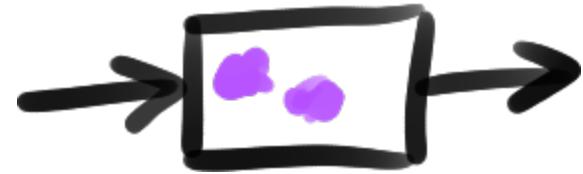


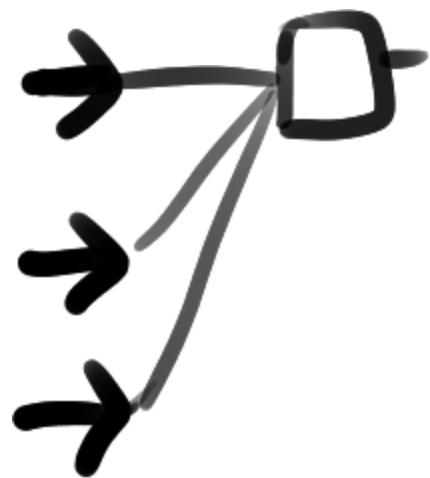
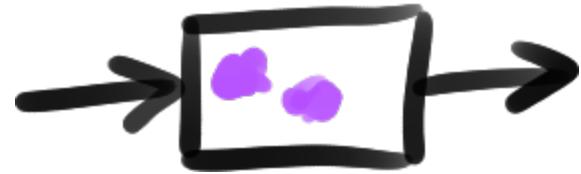


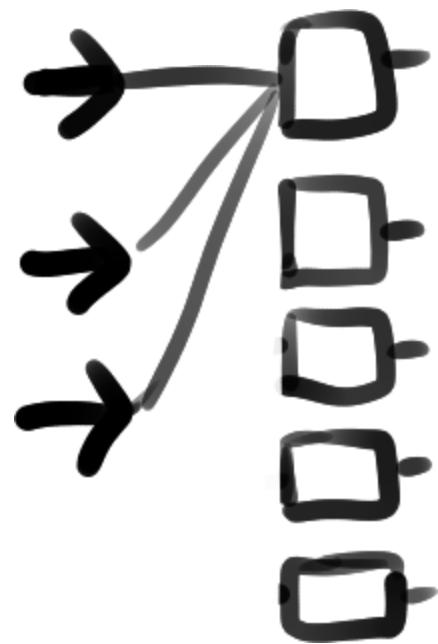
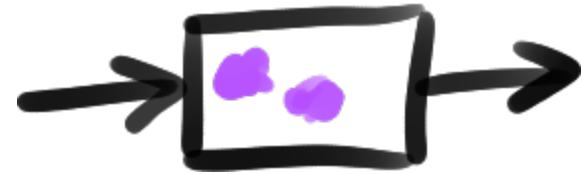


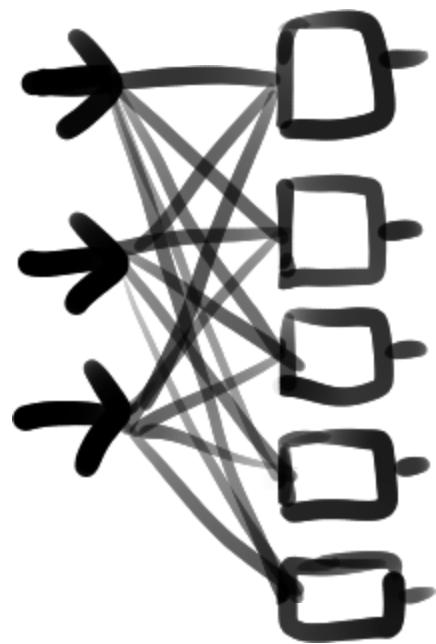
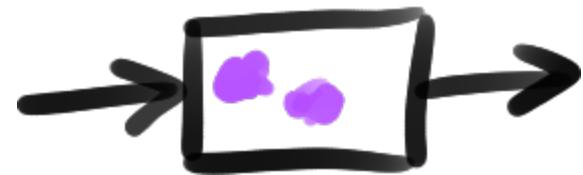
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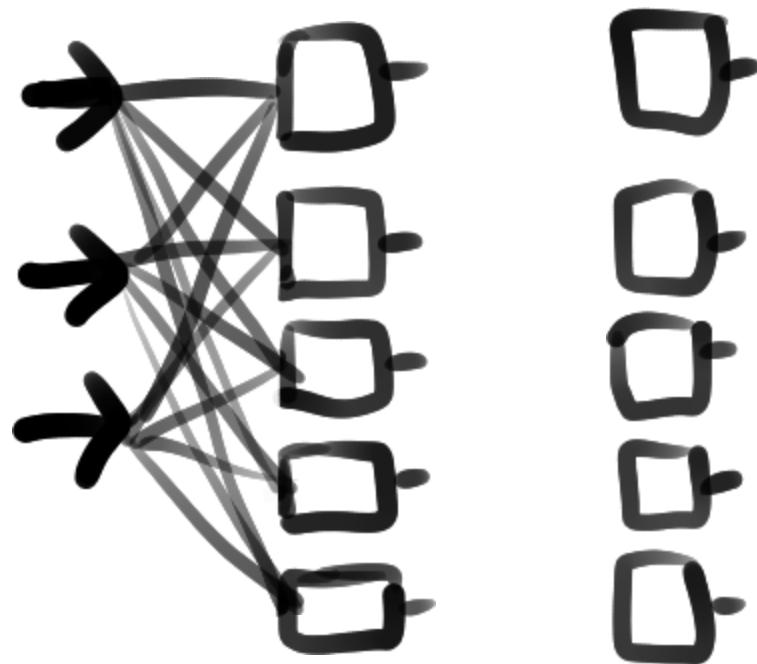
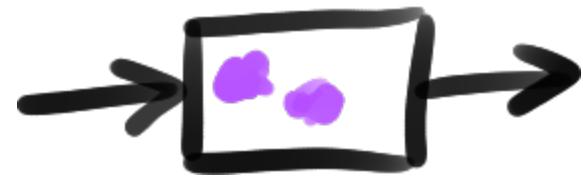


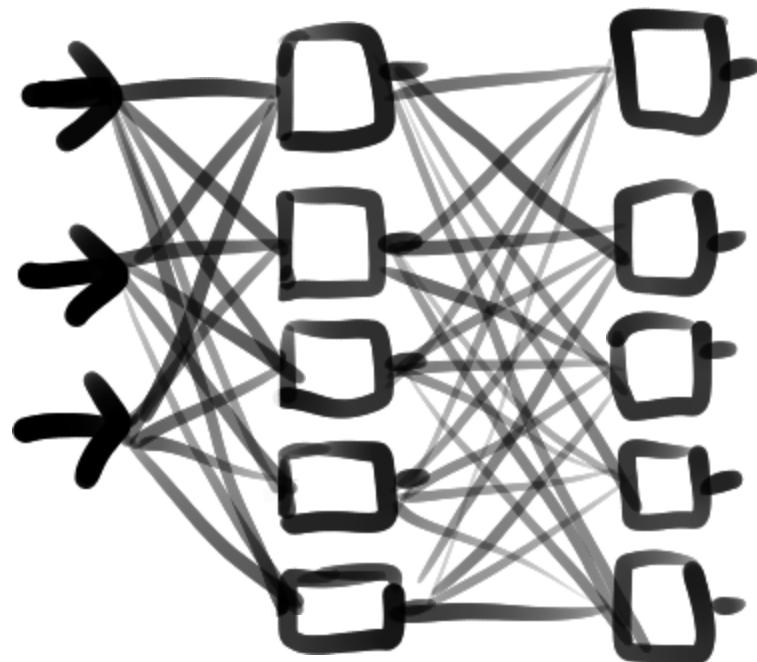
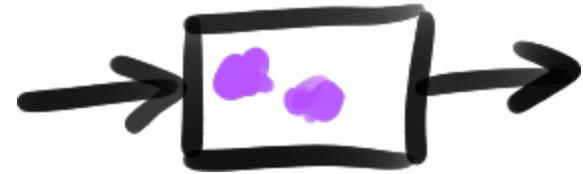


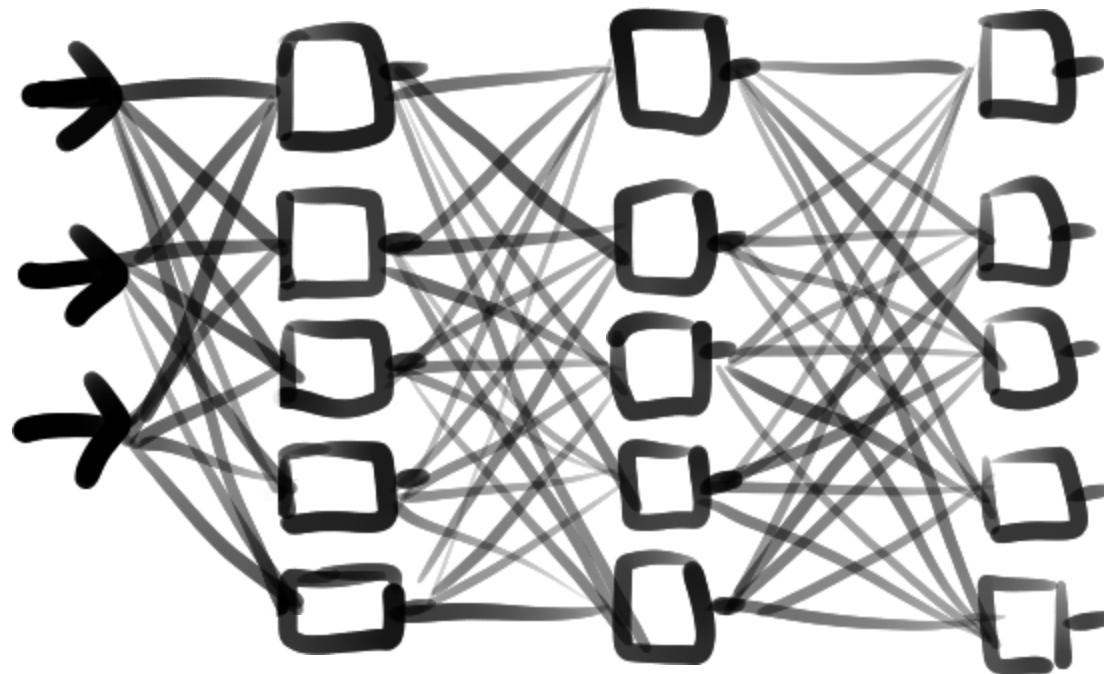
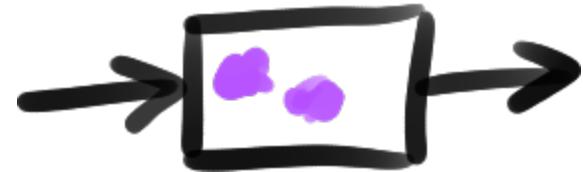


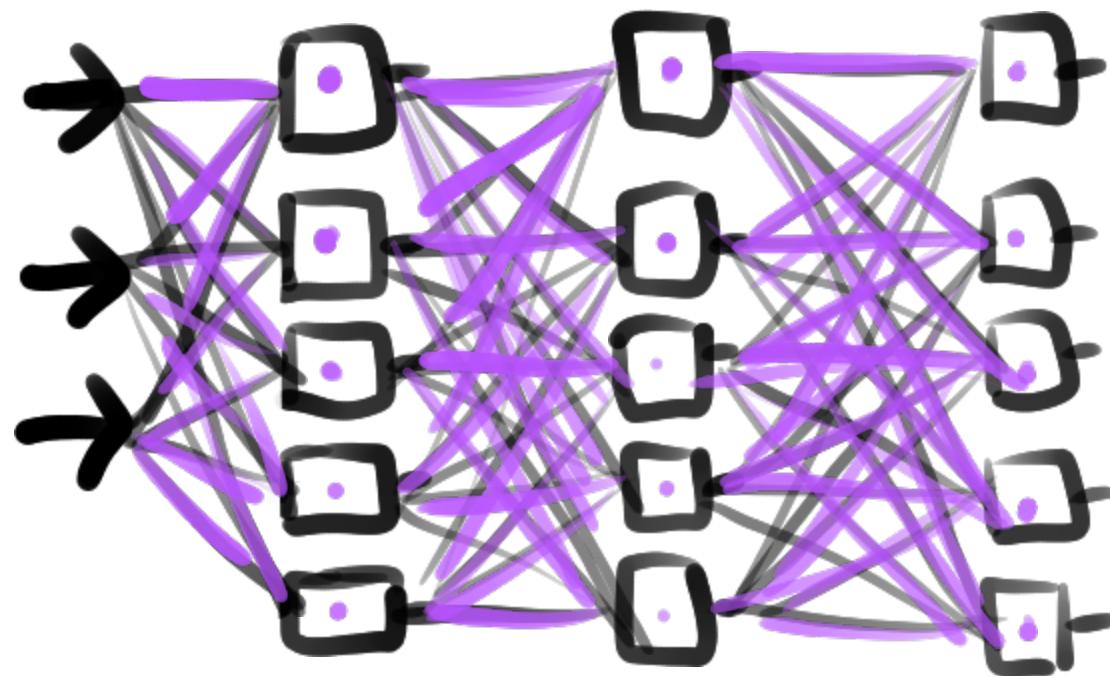
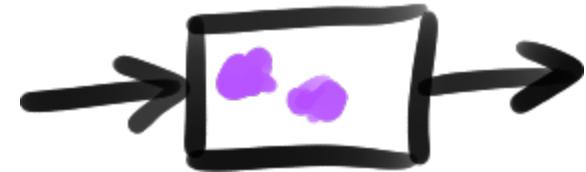


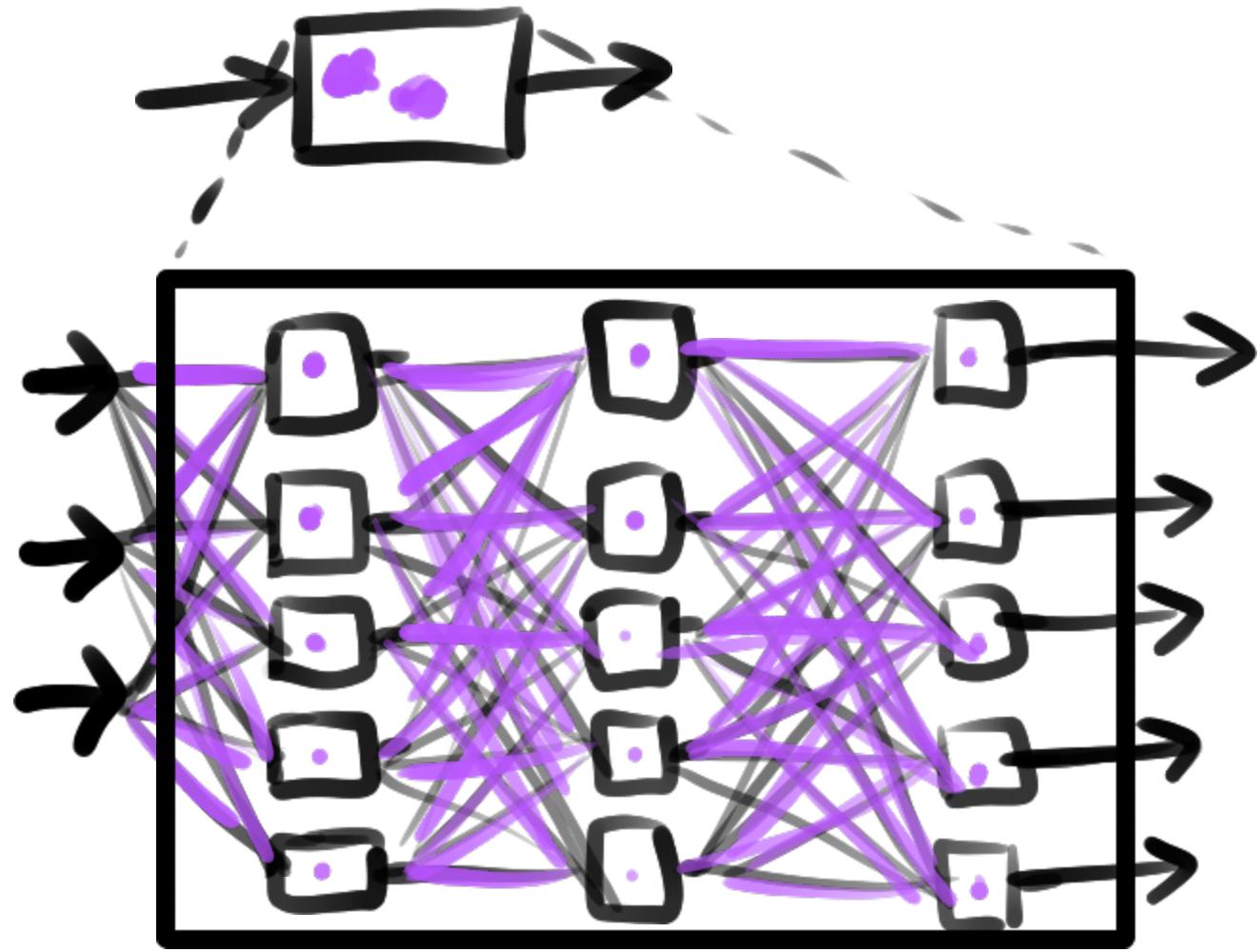






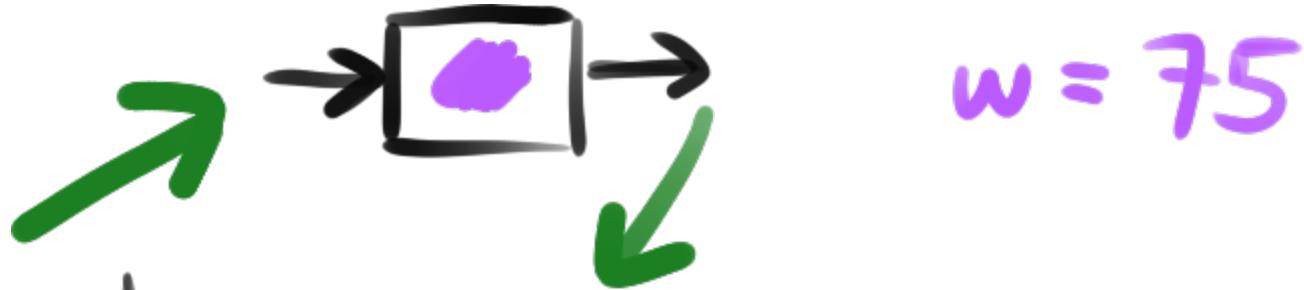




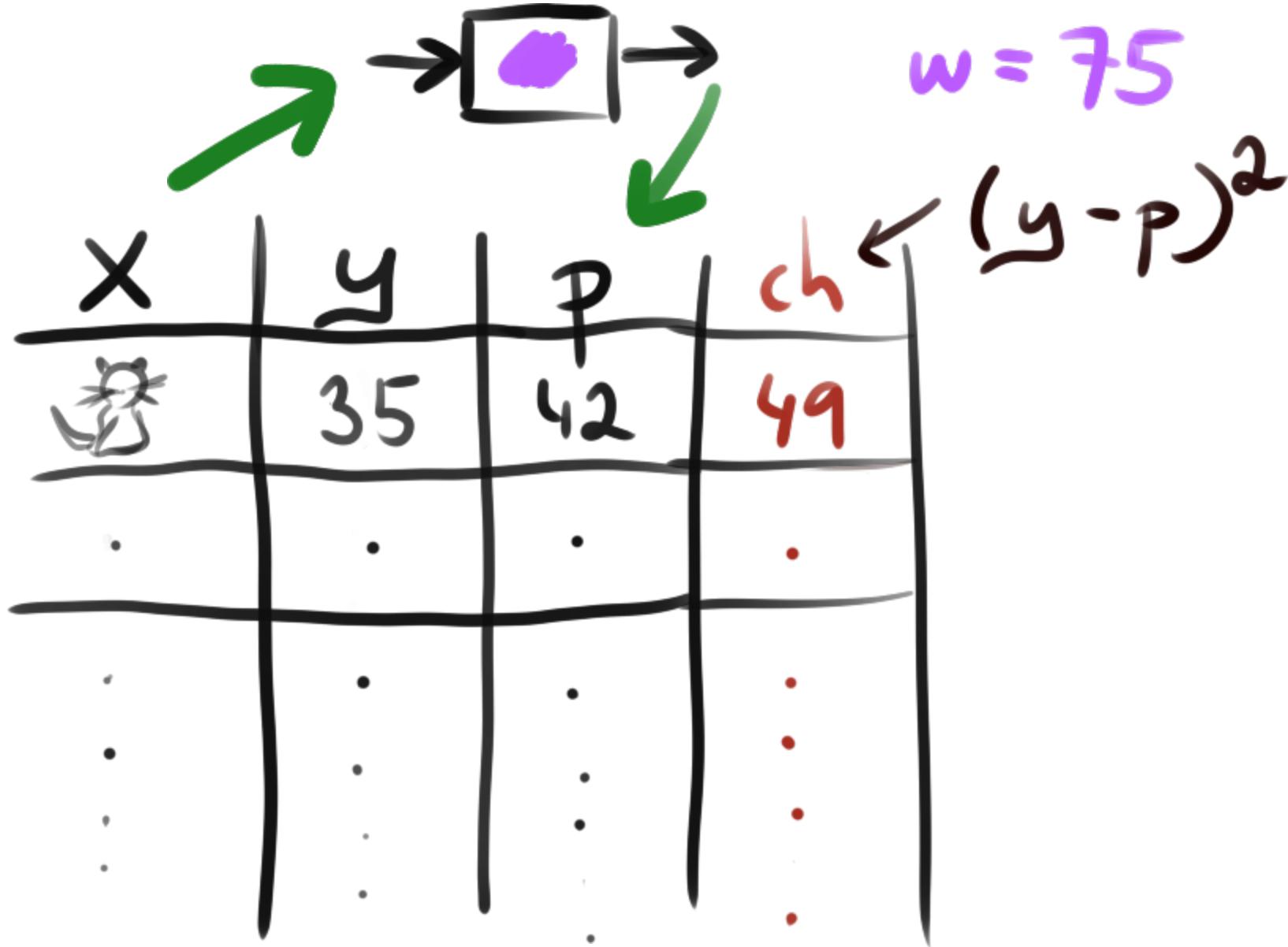


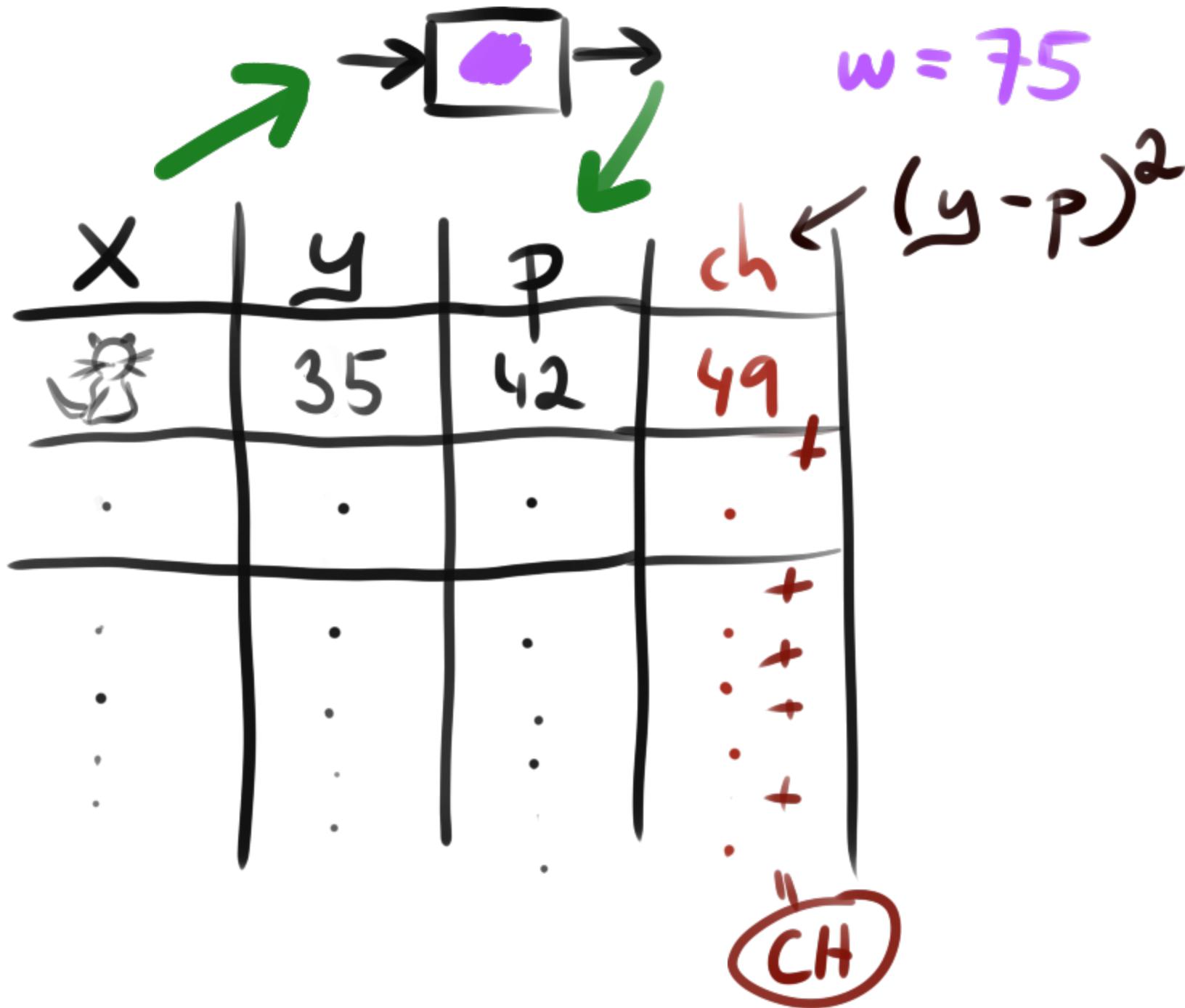


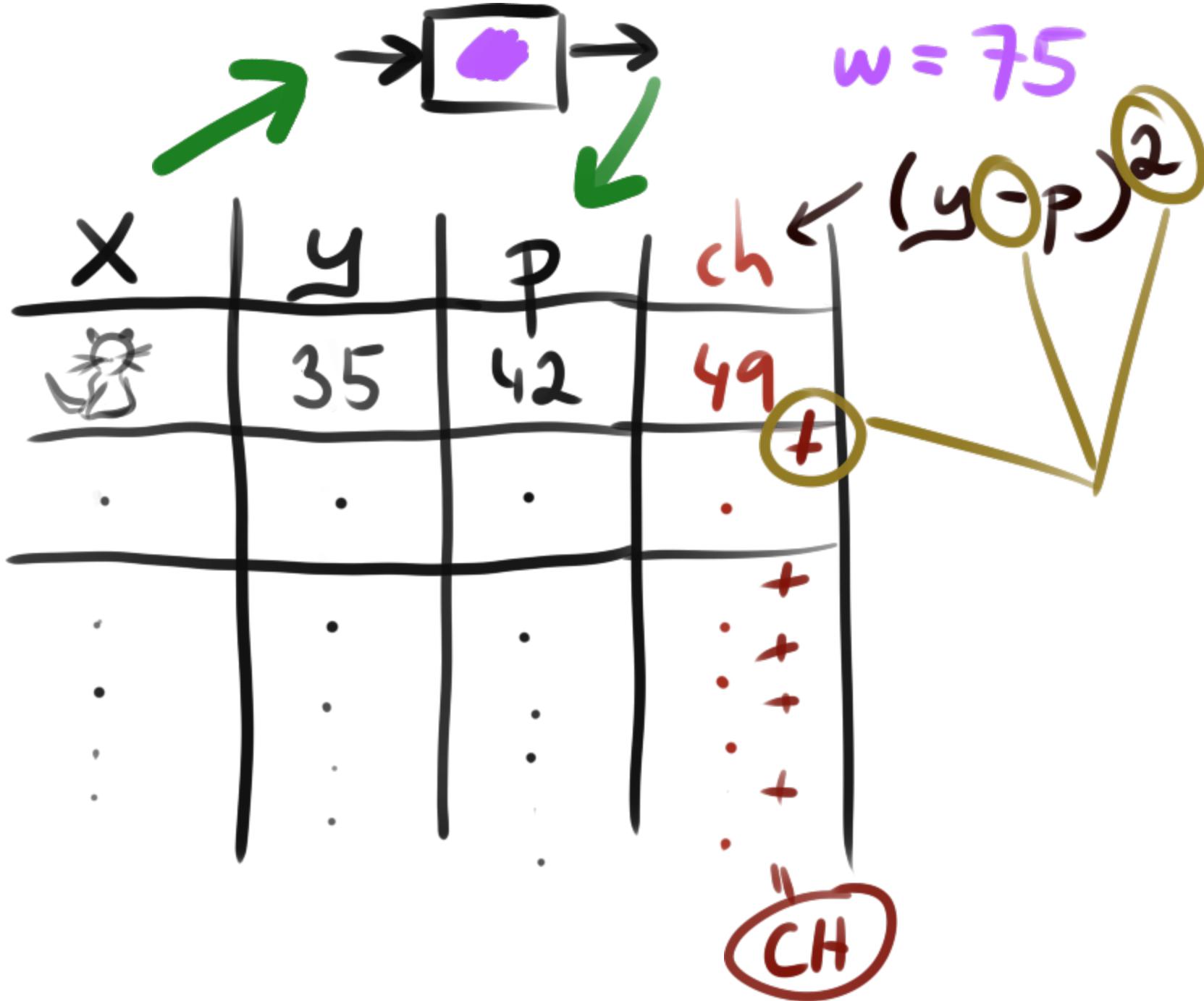
$$w = 75$$



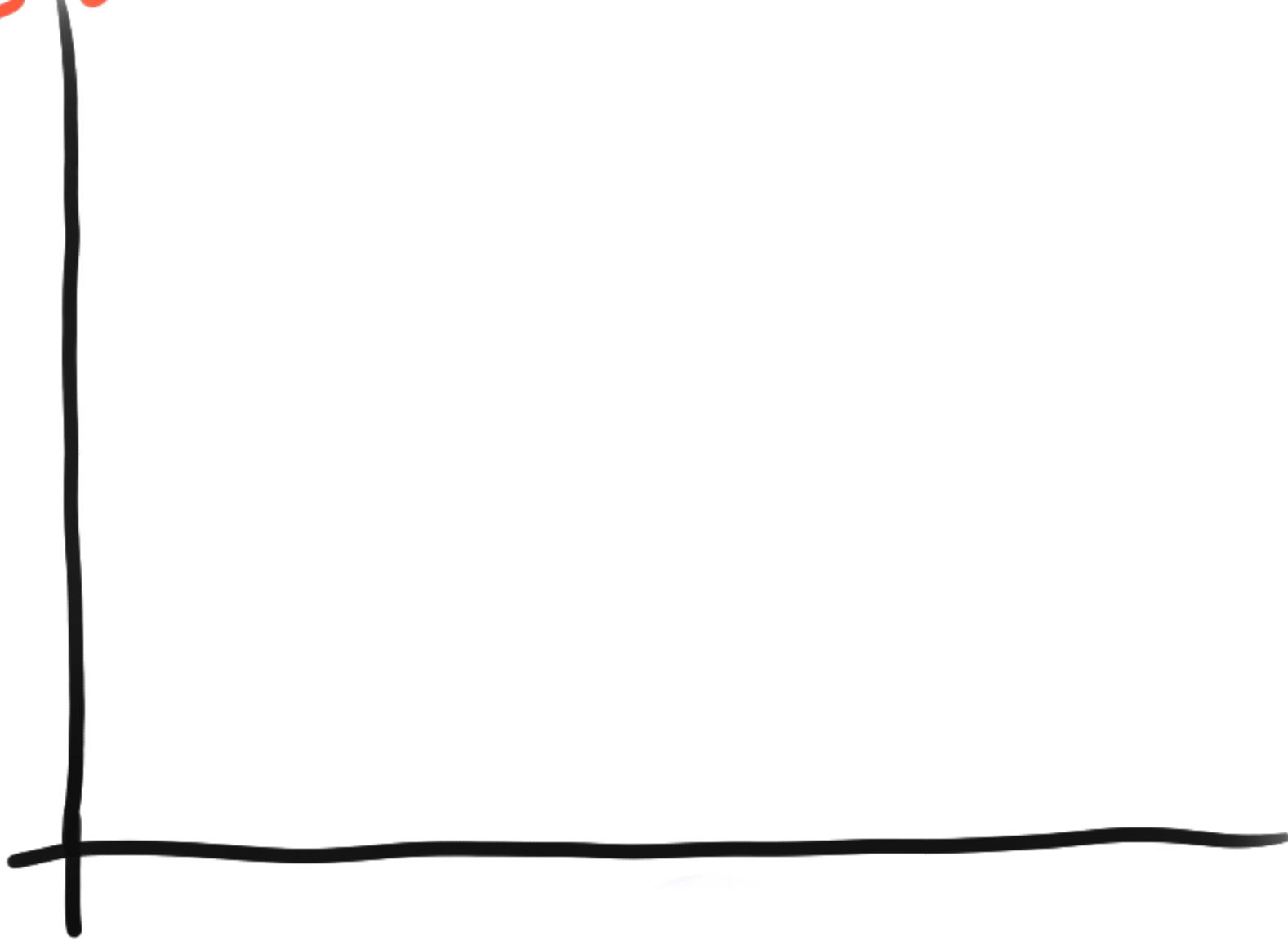
X	y	P	
	35	42	
.	.	.	
.	.	.	
.	.	.	
.	.	.	





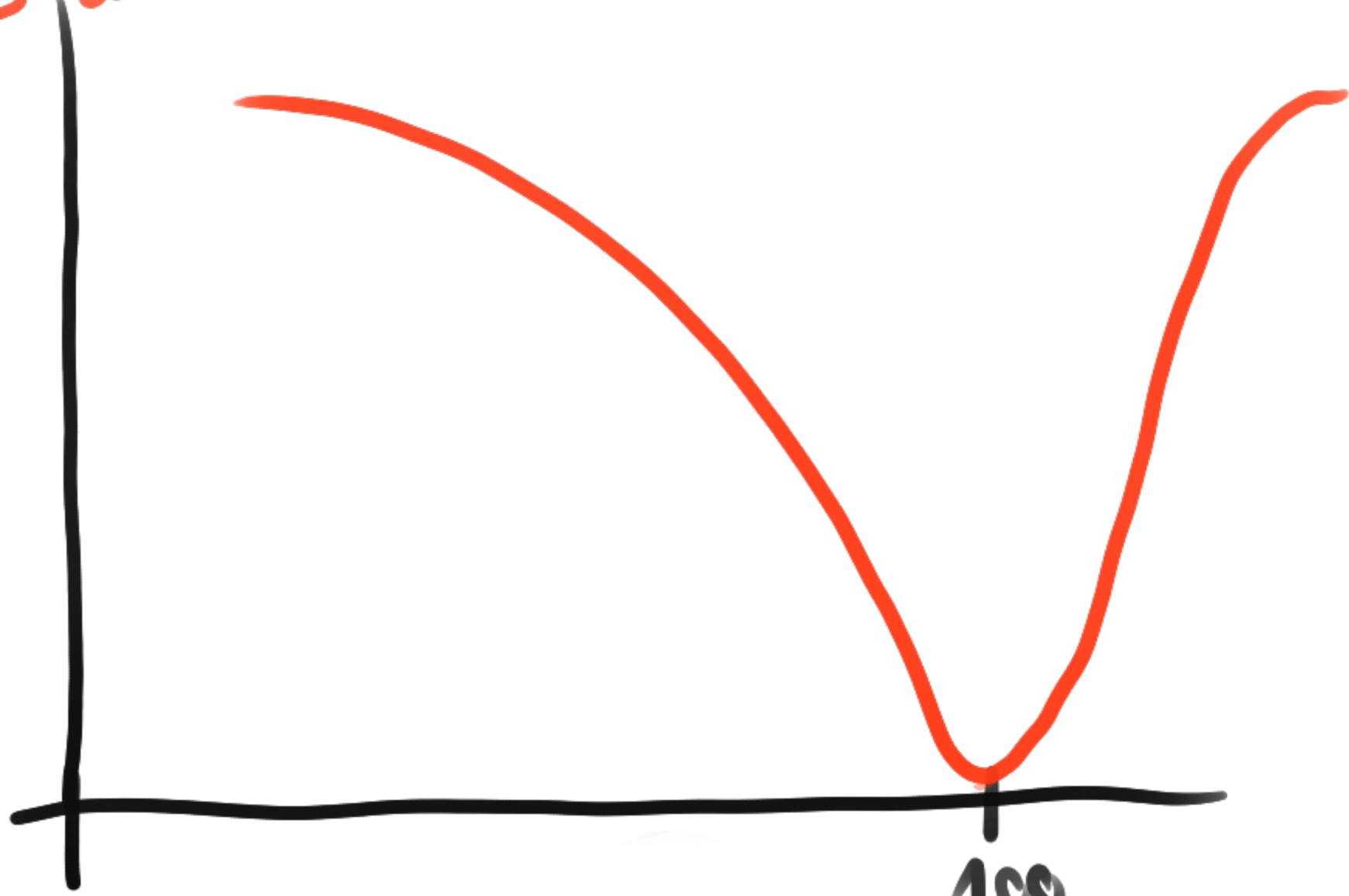


Chyba



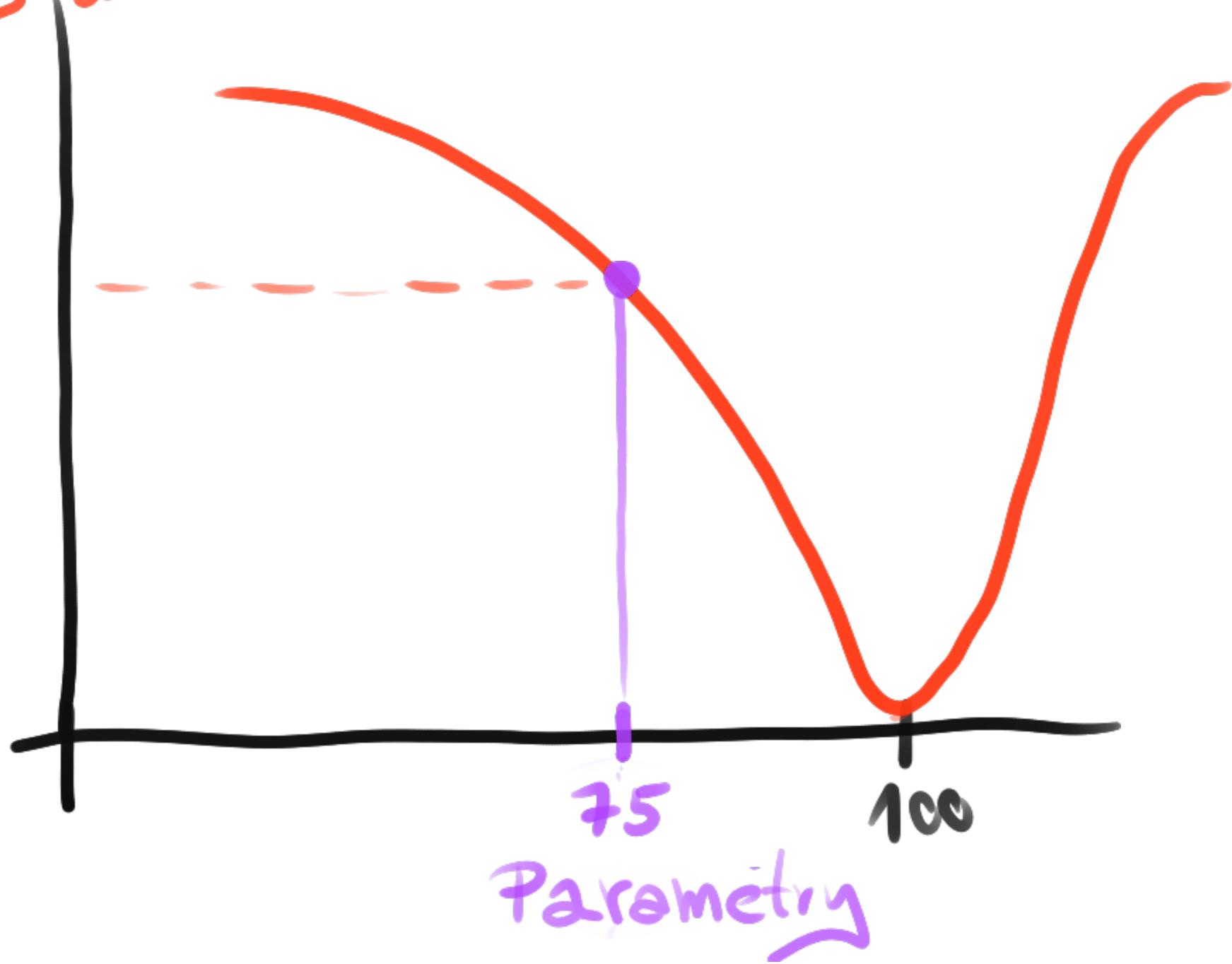
Parametry

Chyba

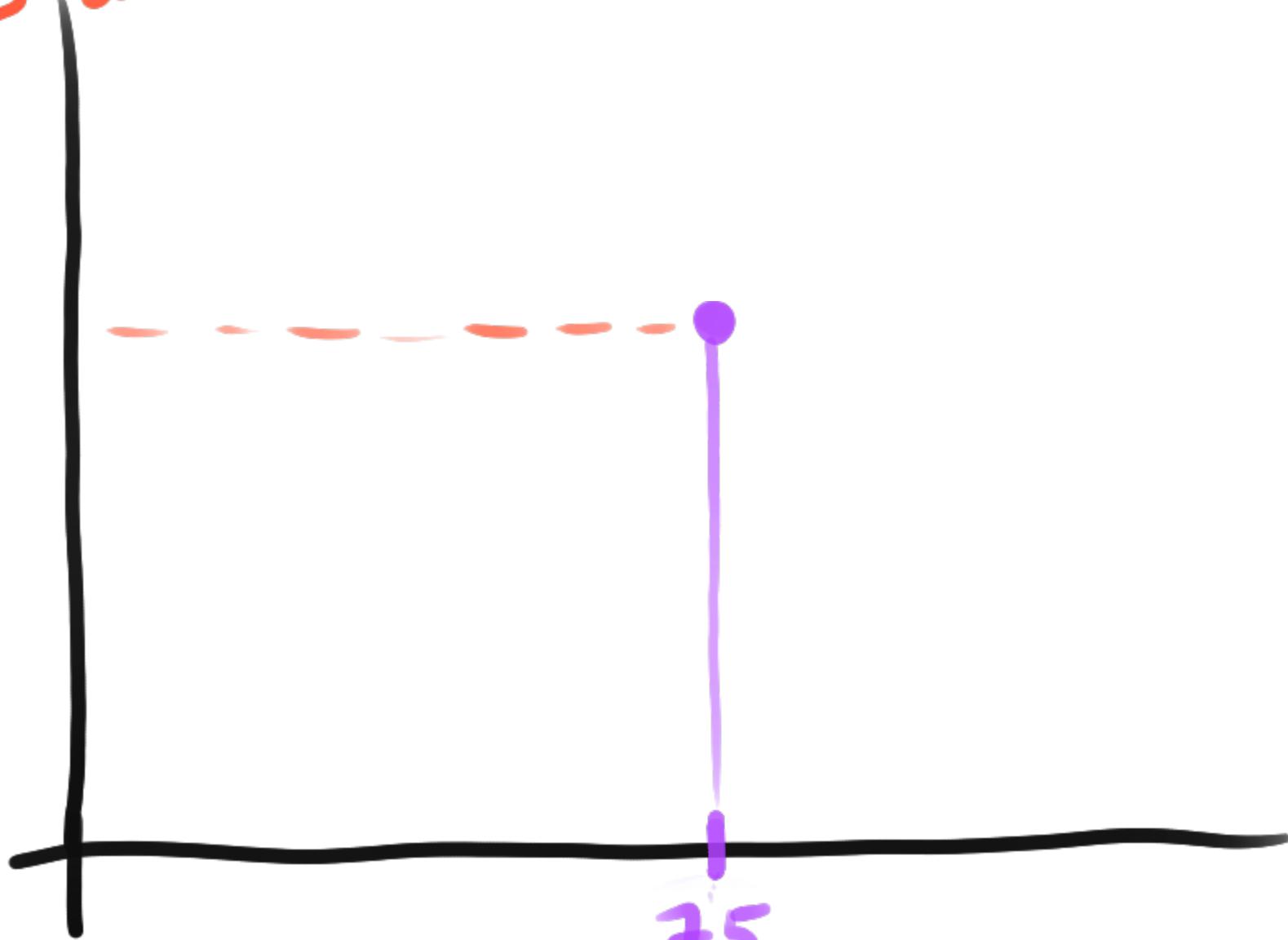


Parametry

Chyba

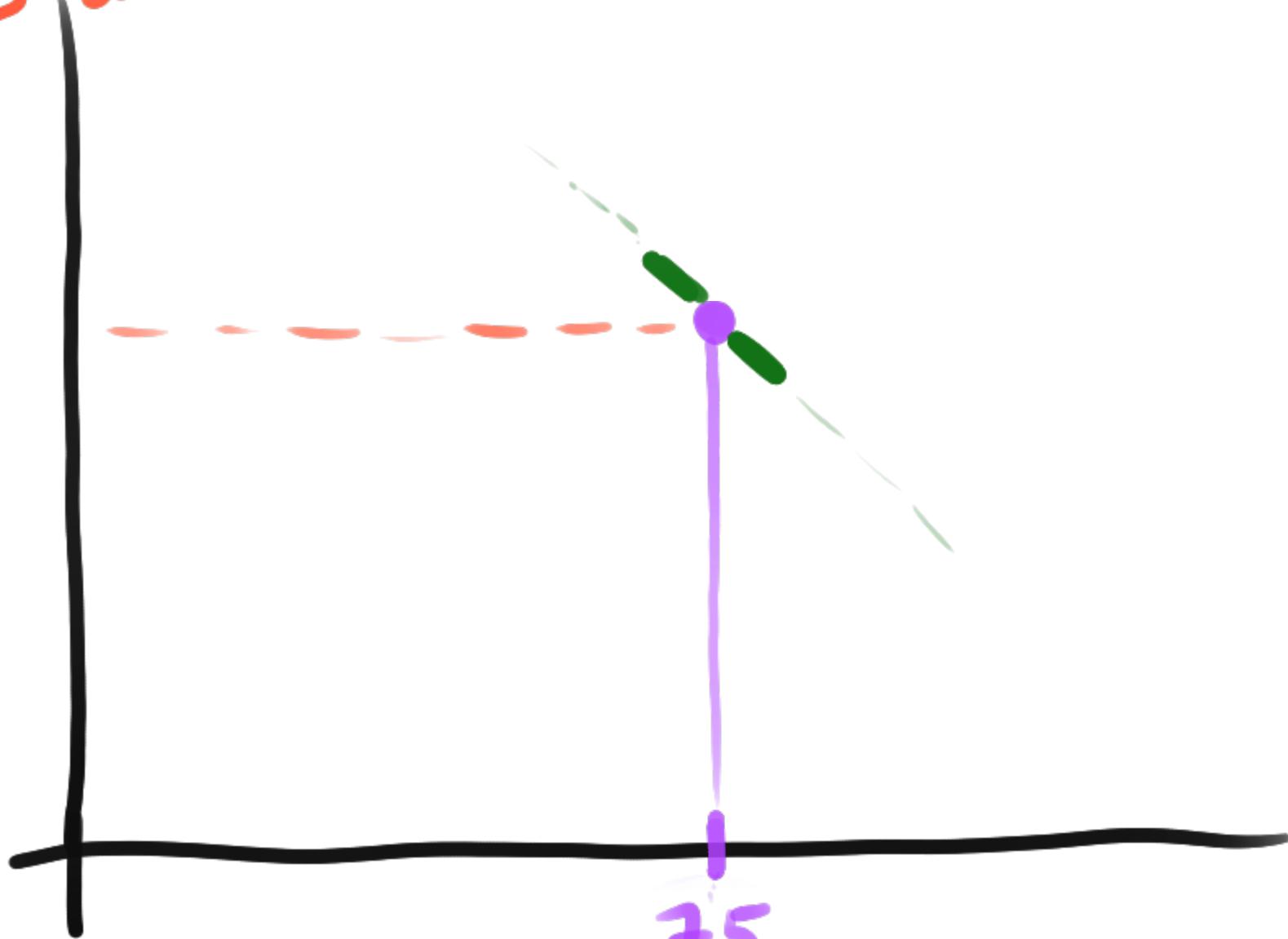


Chyba



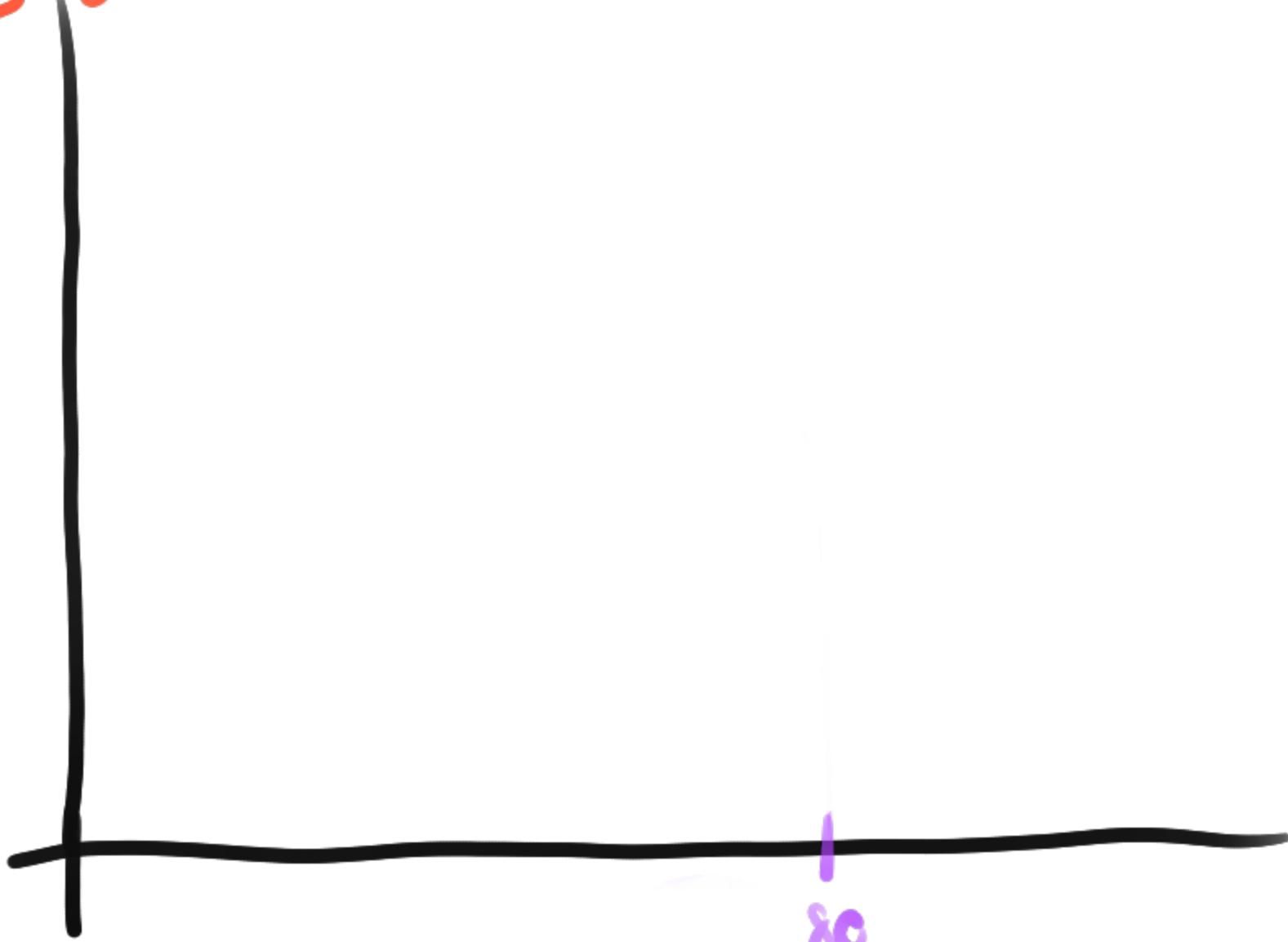
75  
Parametry

Chyba



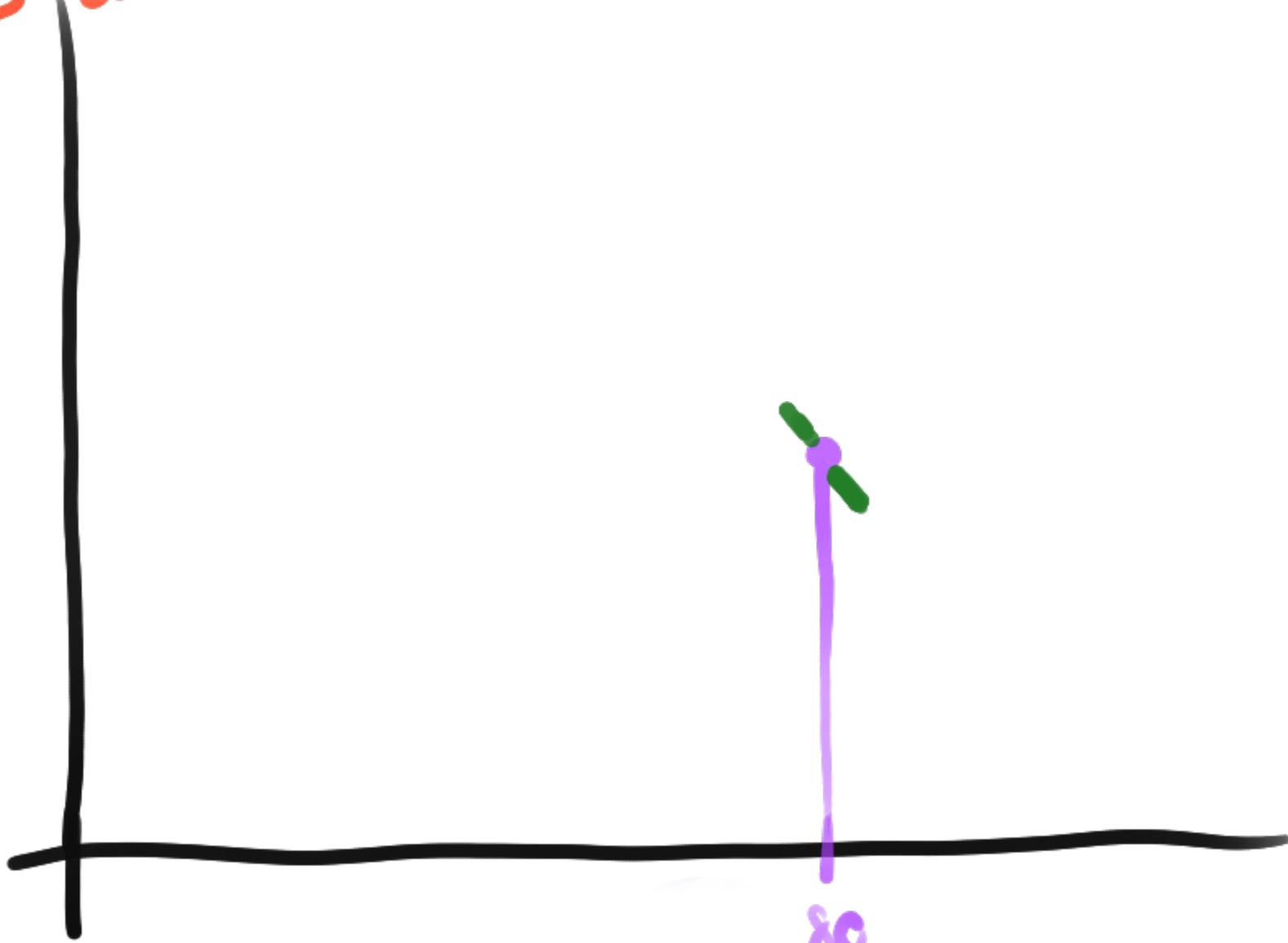
75  
Parametry

Chyba

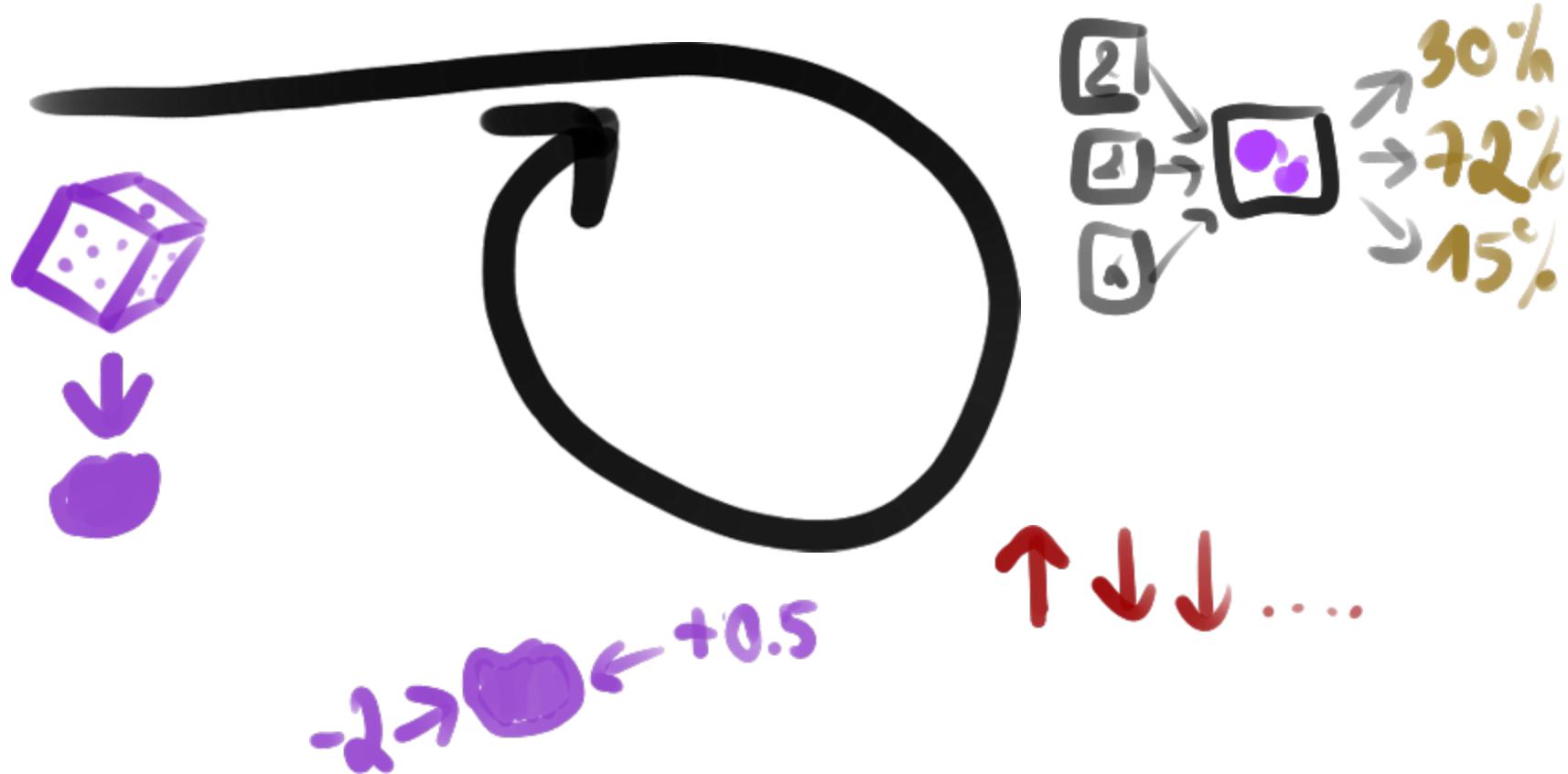
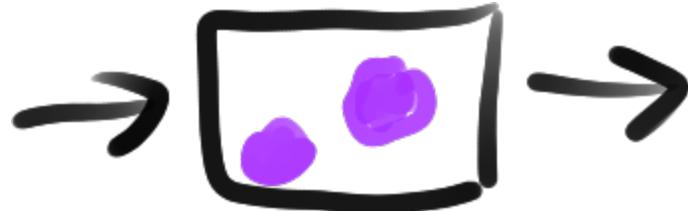


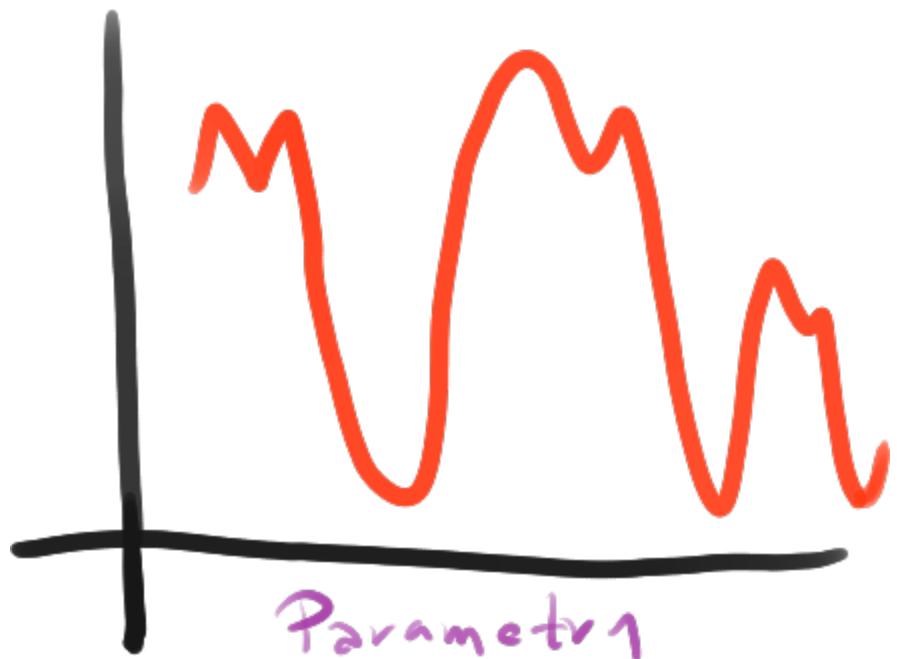
Parametry

Chyba

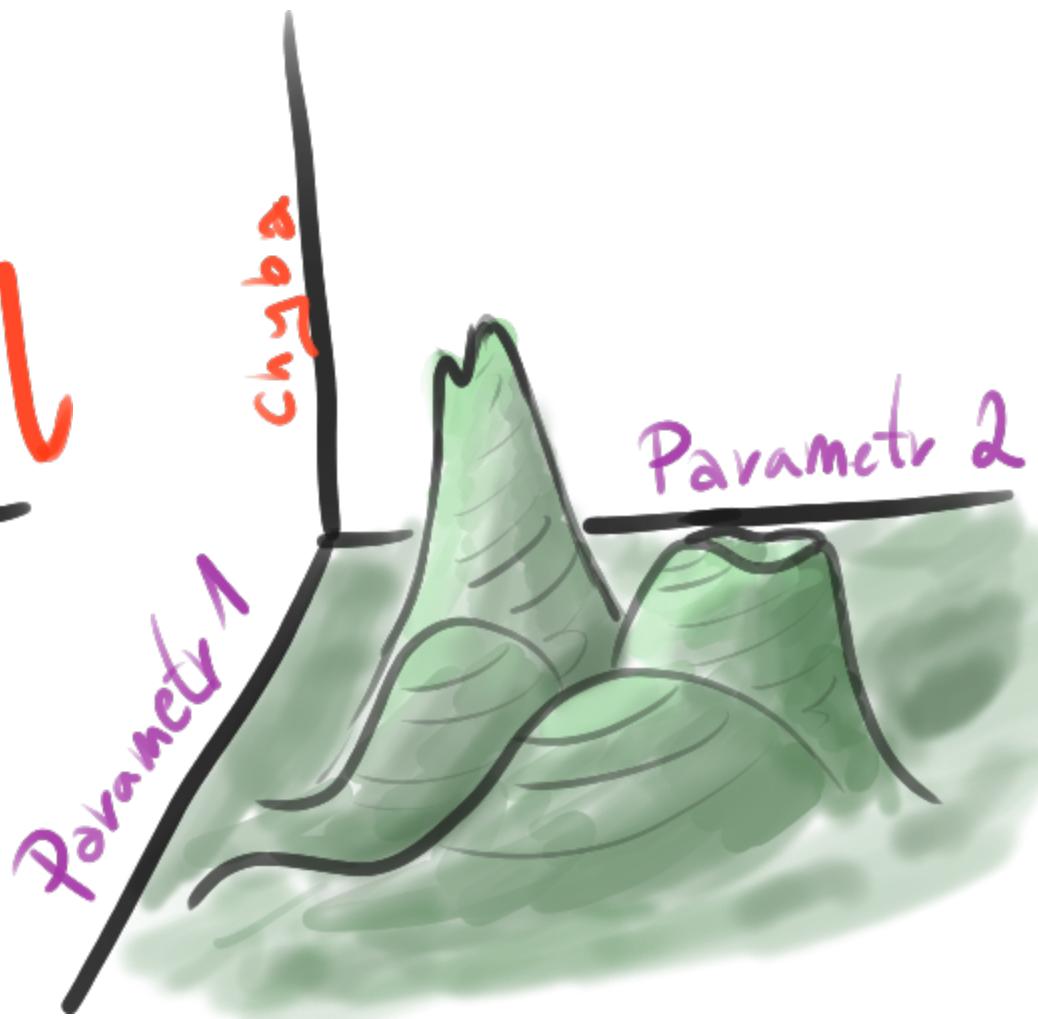
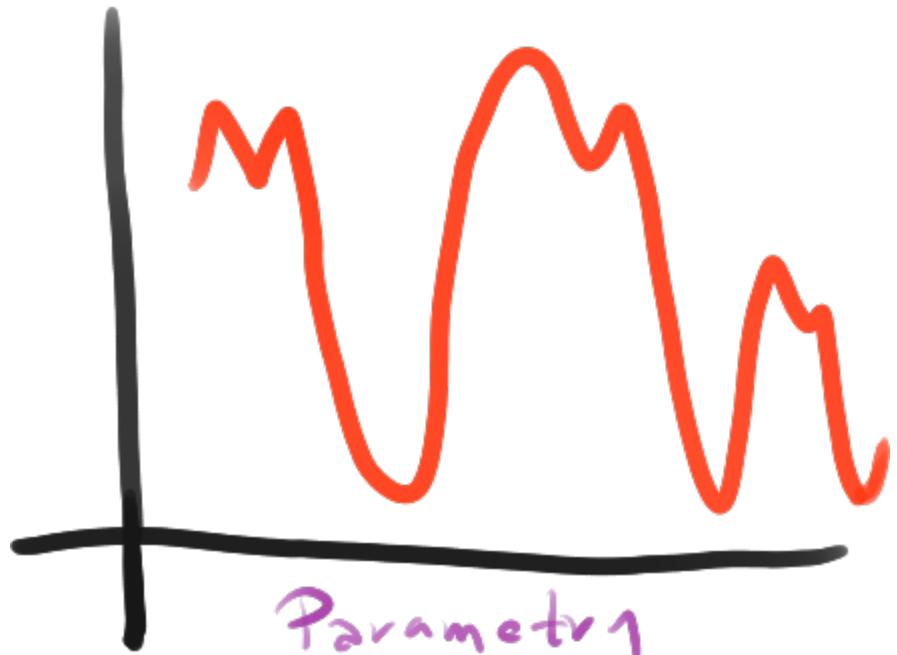


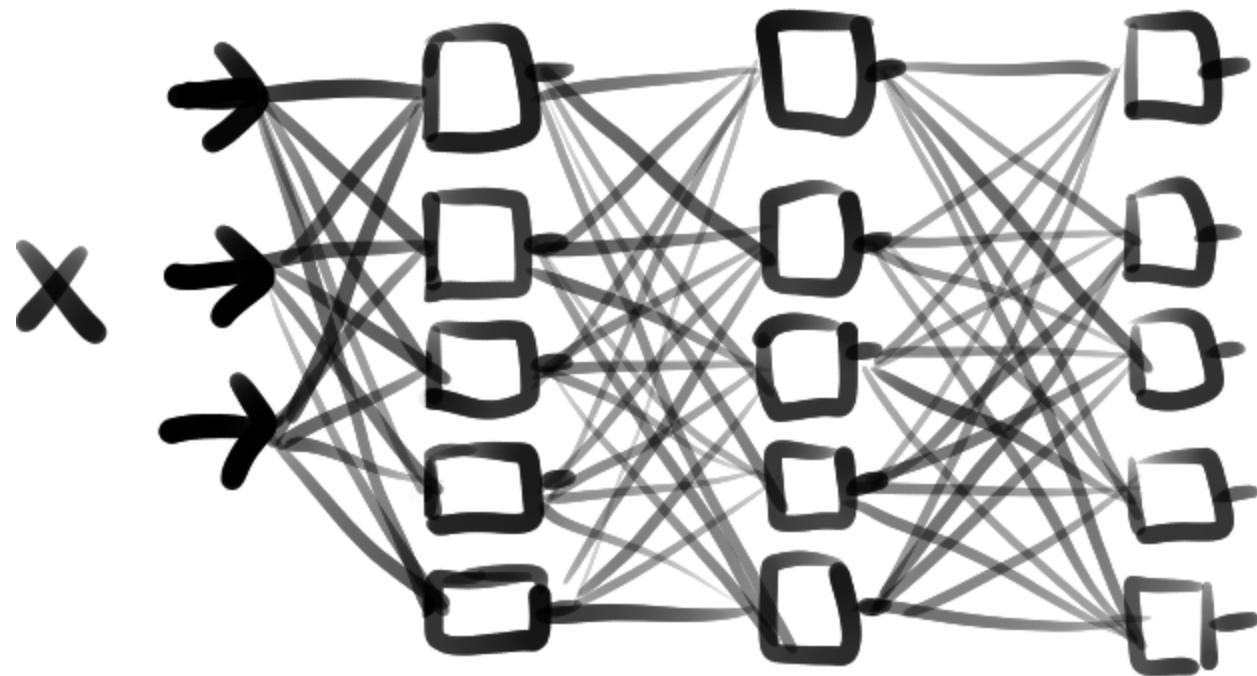
Parametry

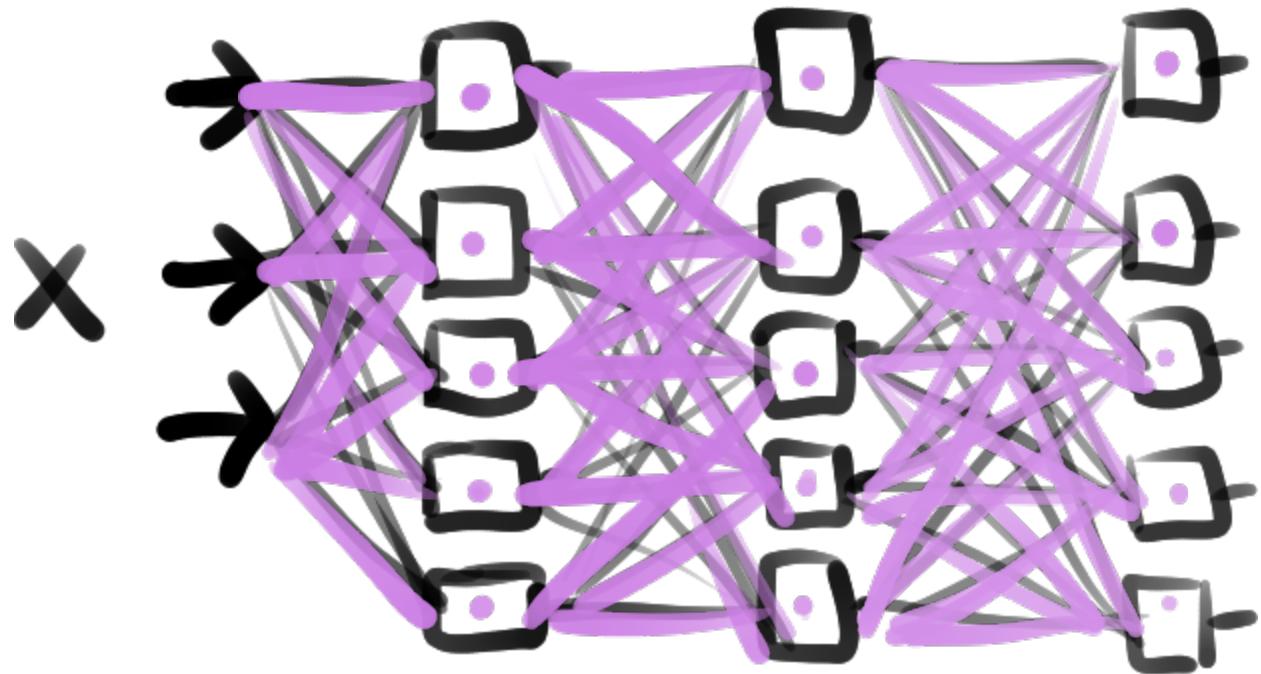


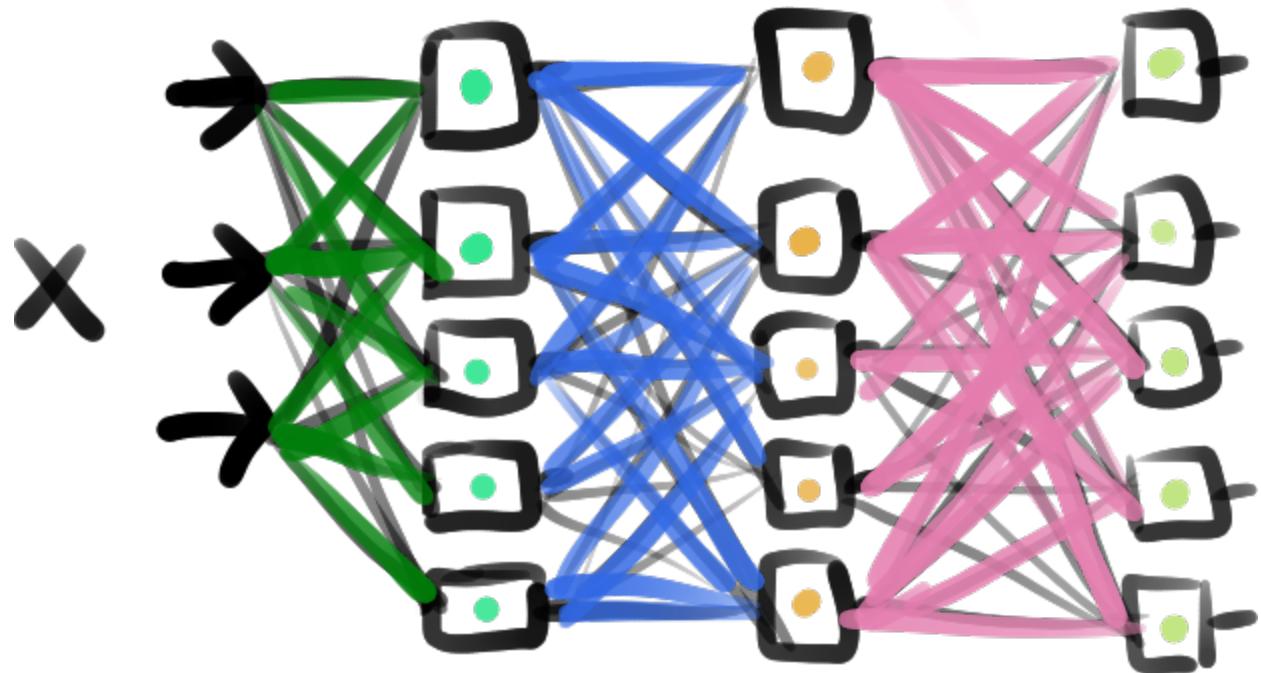


Parametry

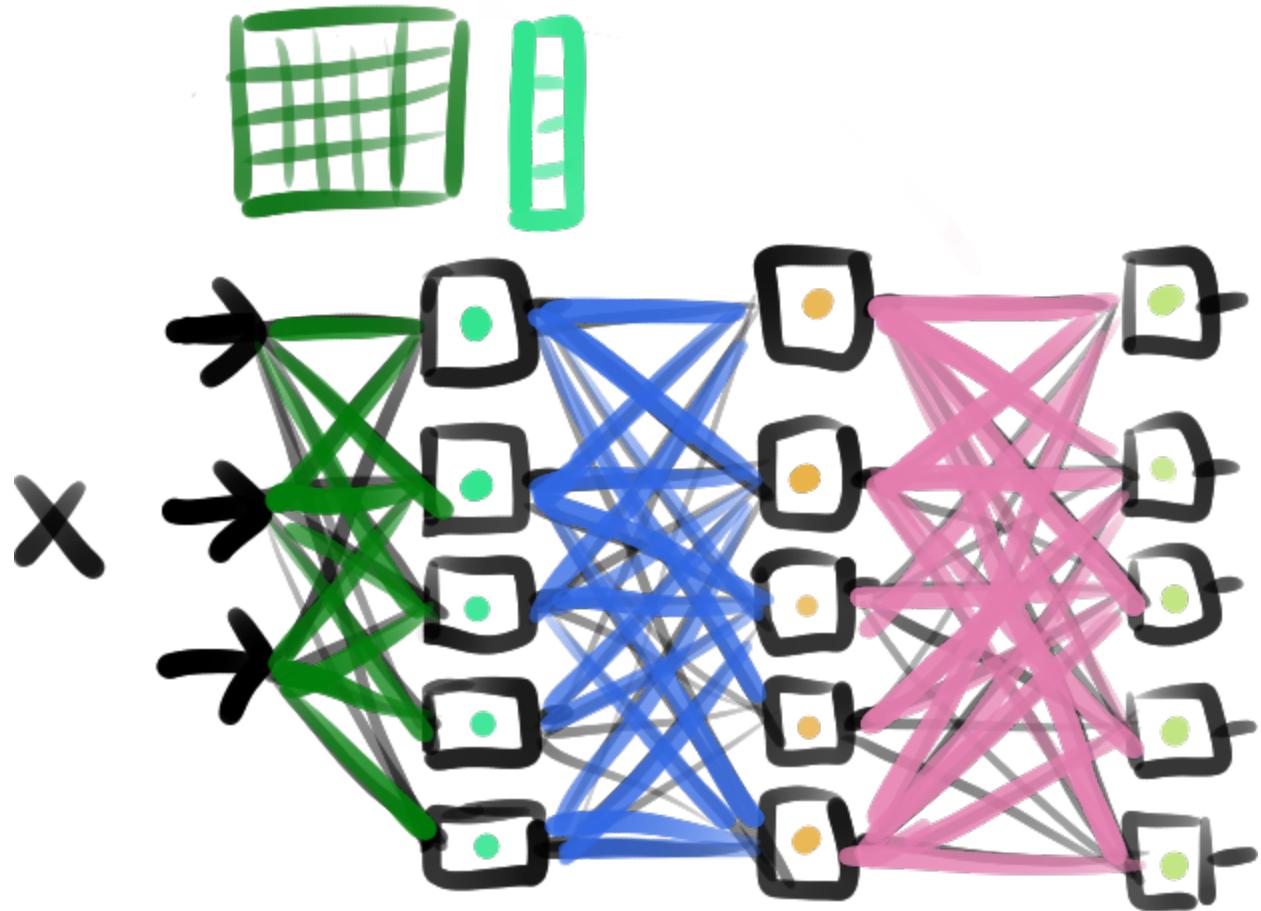


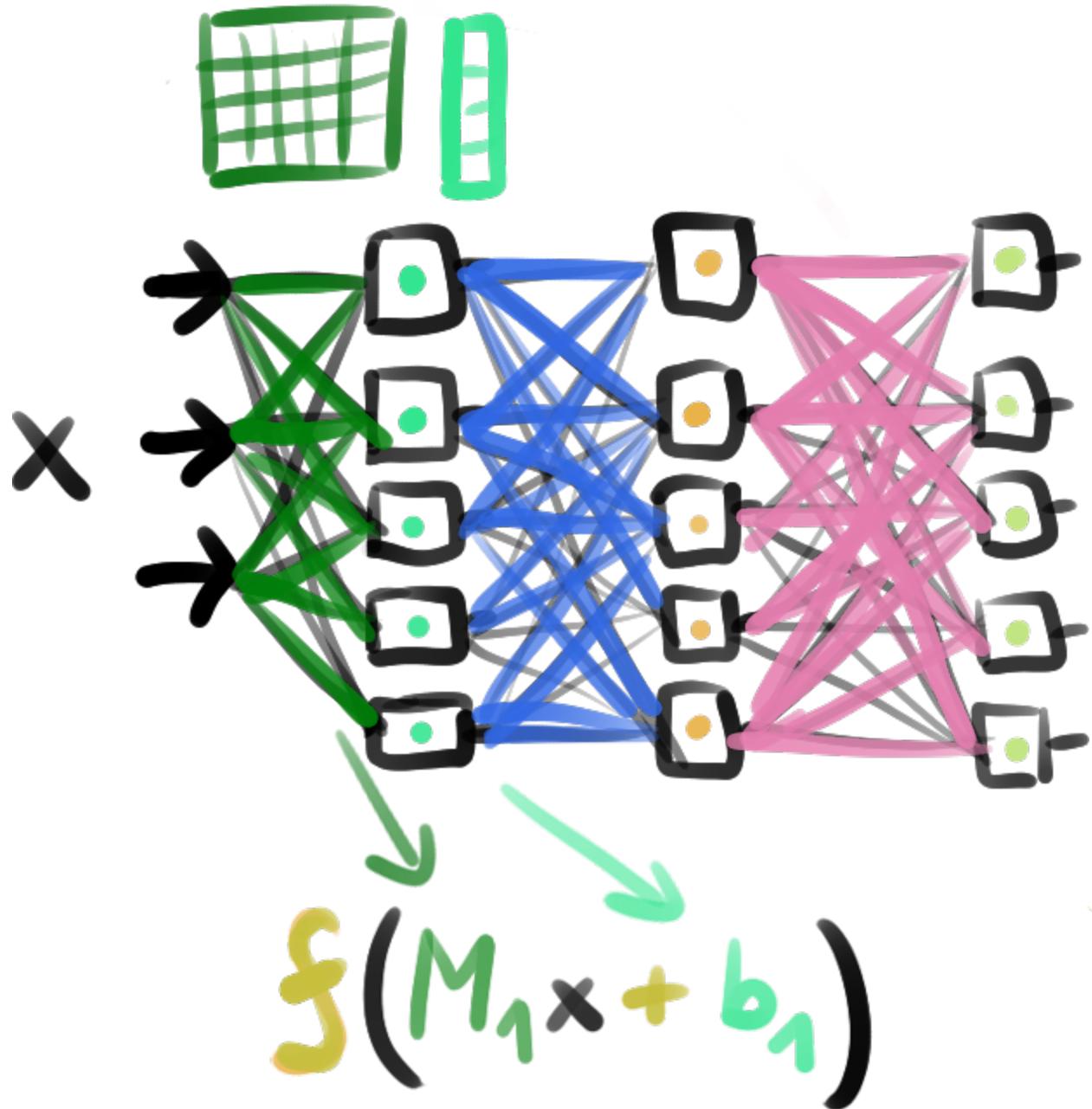


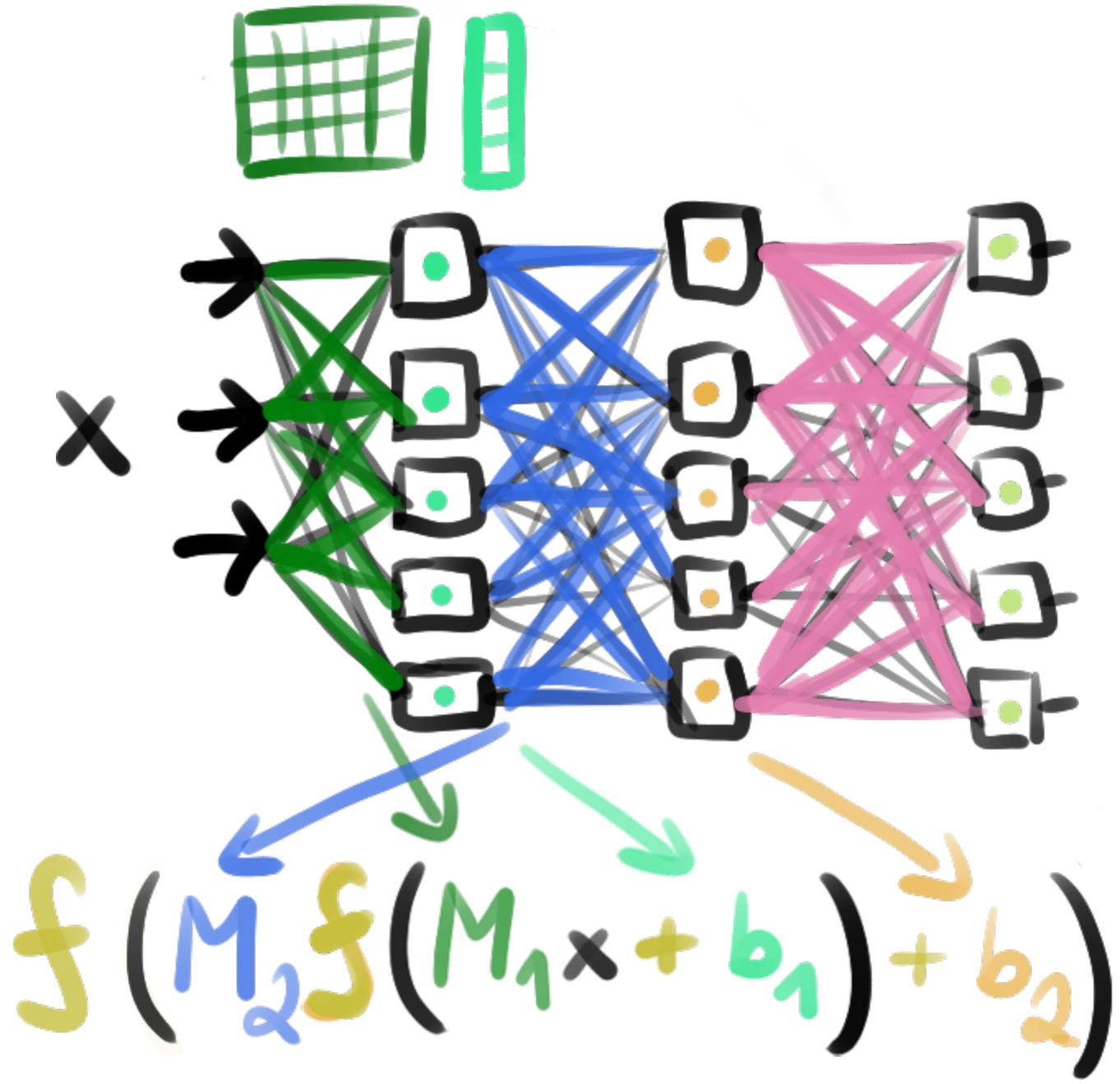


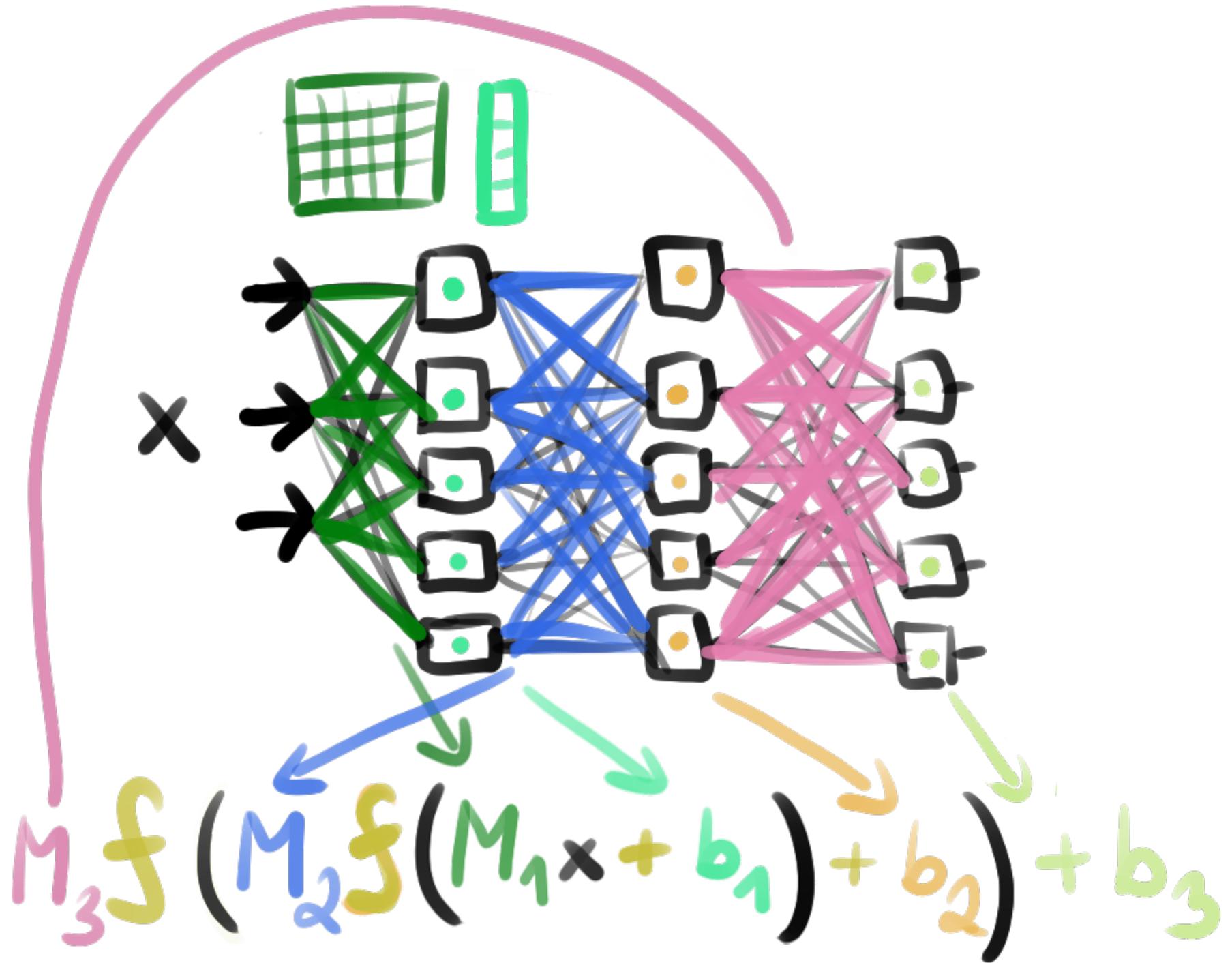


QUESTION









# Historie AI/ML

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- Perceptron: 1958

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- Backpropagation: 1986

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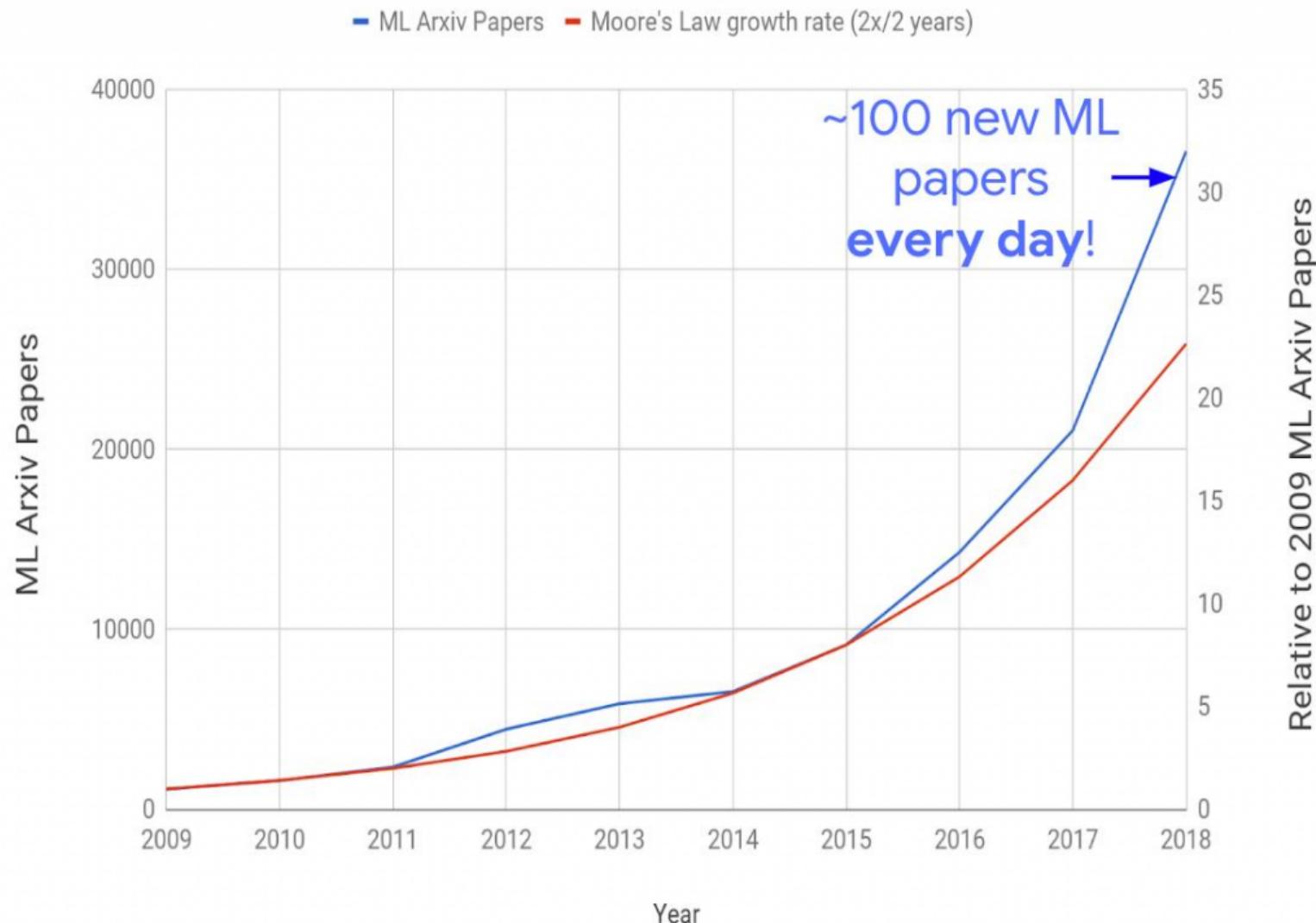
## Historie AI/ML

- Perceptron: 1958
- Backpropagation: 1986
- Rekurentní sítě (RNN): 1986
- Konvoluční sítě (CNN): 1989

## Historie AI/ML

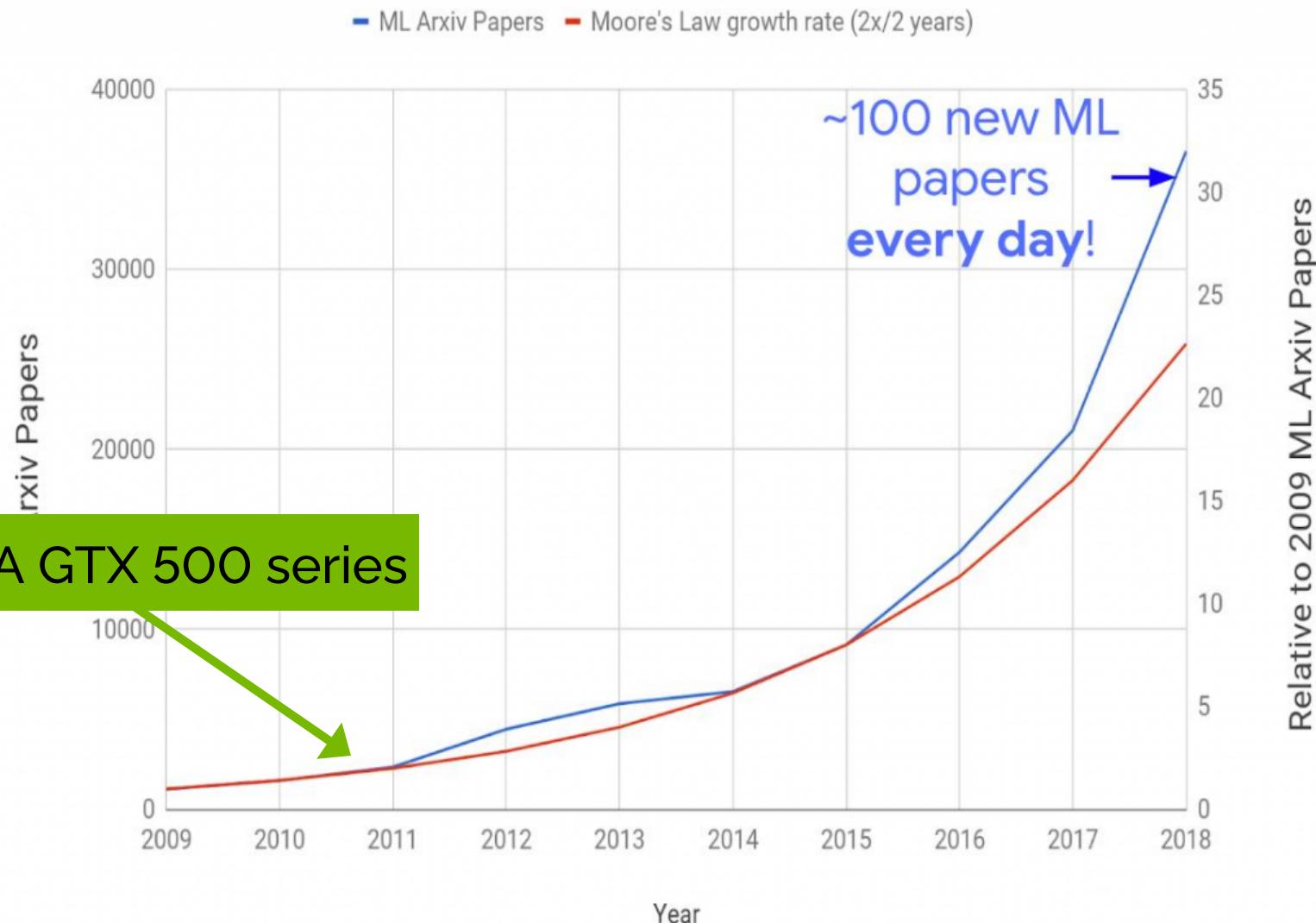
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- ...
- **'AI boom': 2010**

# Machine Learning Arxiv Papers per Year



Zdroj: A New Golden Age in Computer Architecture: Empowering the Machine-Learning Revolution, Amazon

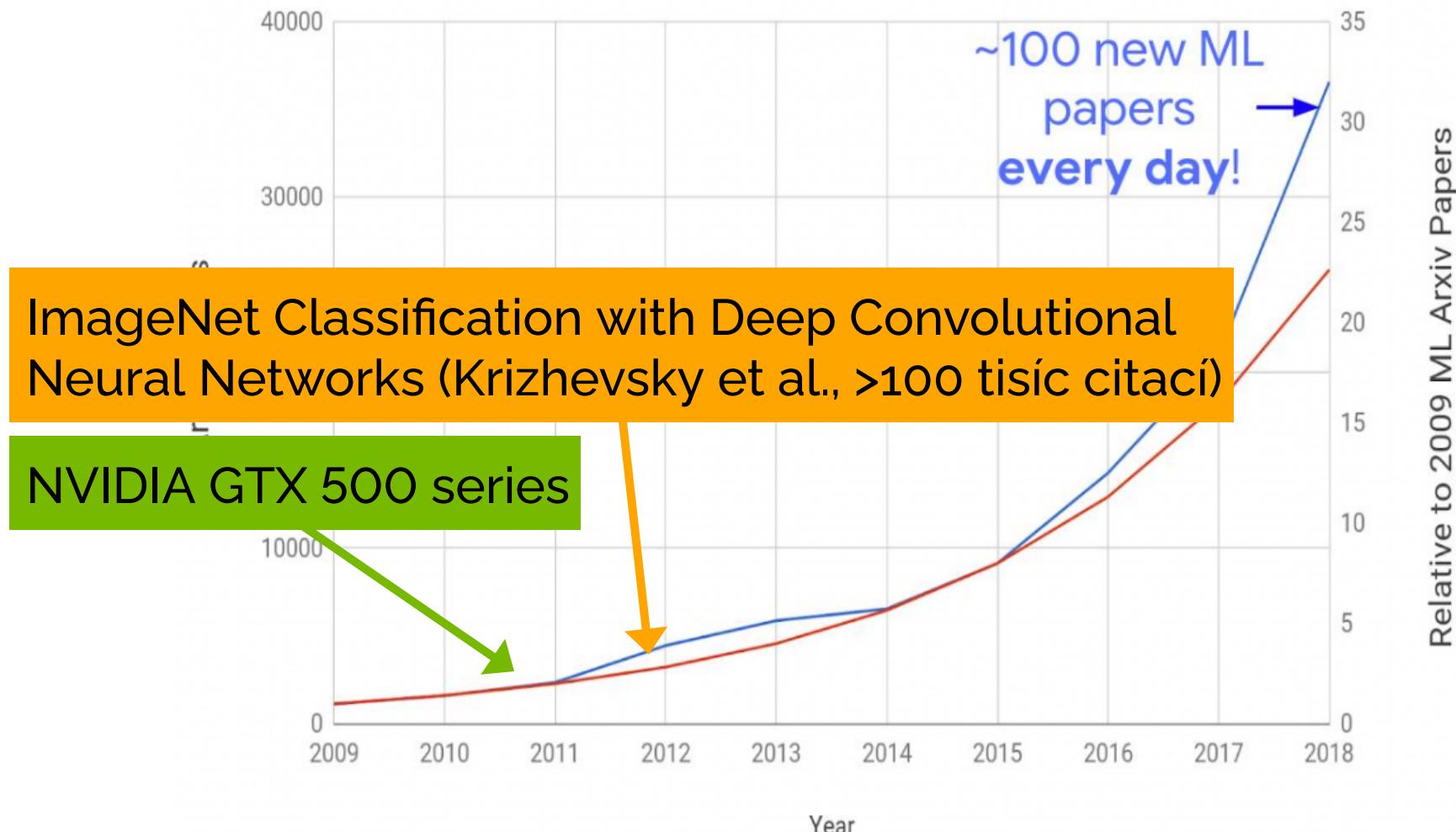
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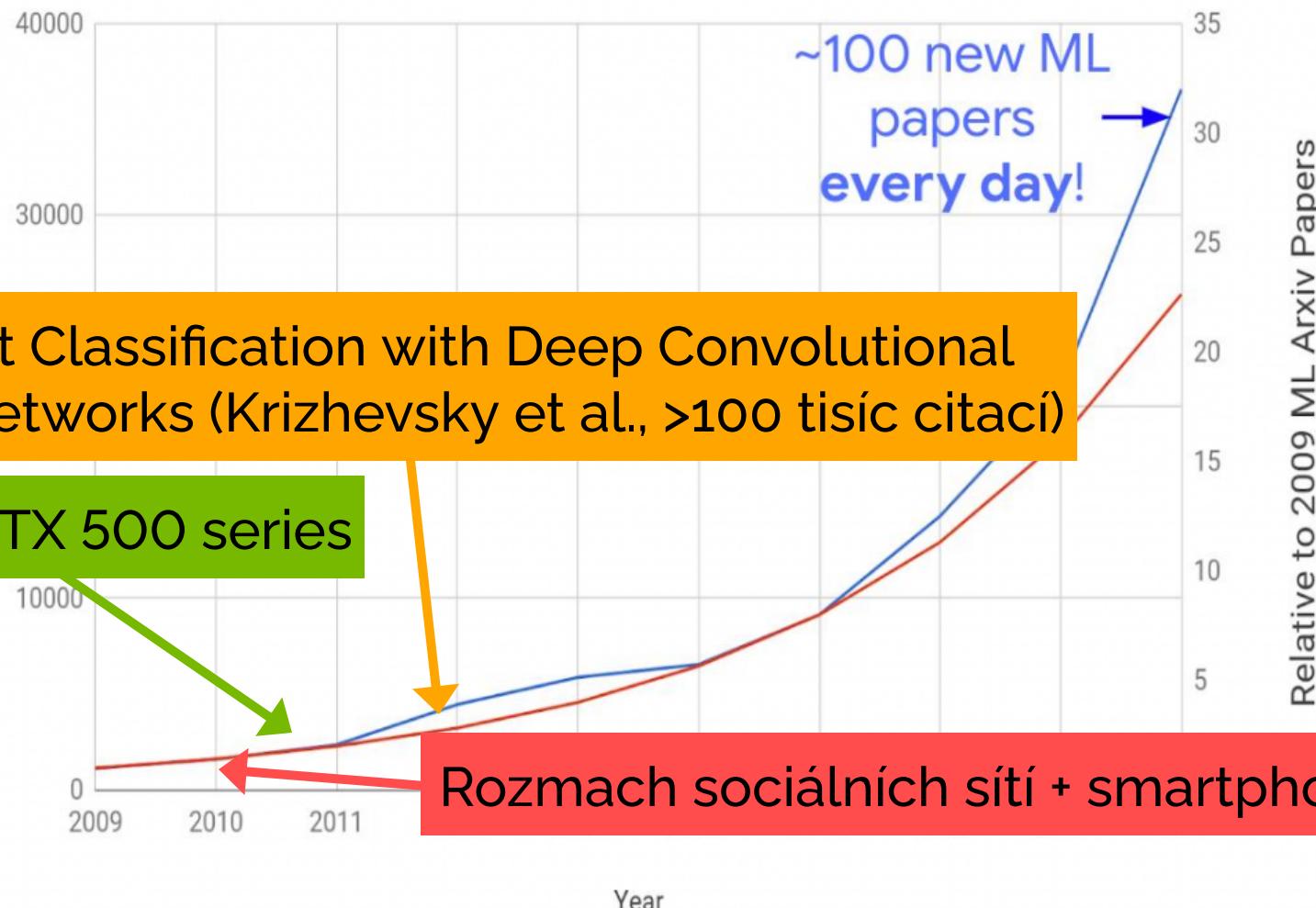
— ML Arxiv Papers — Moore's Law growth rate (2x/2 years)



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— ML Arxiv Papers — Moore's Law growth rate (2x/2 years)



Zdroj: A New Golden Age in Computer Architecture: Empowering the Machine-Learning Revolution, Amazon



Tesla V100 PCIe



Tesla V100 NVLink



**ChatGPT**



# ChatGPT

AD

Vysvětli co je ChatGPT v jednom odstavci. Vysvětli to jak pro dítě ve věku 7 let.



ChatGPT je jako chytrý kamarád, který umí mluvit a odpovídat na otázky. Je to jako počítačový program, který byl naučený hodně věcí a teď může pomoci lidem s jejich otázkami. Můžeš se na něj obrátit s cokoliv, co tě zajímá, a on ti odpoví co nejlepší možnou odpovědí.

Hvězdná noc je obraz od nizozemského postimpresionisty Vincenta van Gogha, na němž převládají barvy noci. Olejomalbu namaloval v červnu 1889. Kompozice zachycuje pohled z pokojového okna sanatoria v jihofrancouzském městě Saint-Rémy-de-Provence. Přestože obraz zobrazuje noční výjev, umělec jej vytvořil po paměti během dne.

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Skákal pes přes 

Skákal pes přes



oves	95%
překážku	4%
kočku	0.01%
...	
...	
zahradničíme	0%

Těšíme se na

Těšíme se na babičku

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Těšíme se na babičku, která přijede

Těšíme se na babičku, která přijede v

Těšíme se na babičku, která přijede v sobotu



Jan Kulveit: The Cave Allegory Revisited: Understanding GPT's Worldview

<https://www.lesswrong.com/posts/kFCu3batN8k8mwtmh/the-cave-allegory-revisited-understanding-gpt-s-worldview>

PK

PAVLA

...

Jak opravit vylezlou kostici na  
podprsence?



CHATGPT

Pokud se kostička vykloubila na podprsence, je nejlepší vyhledat odbornou pomoc od lékaře nebo ortopeda. Tyto odborníky by měli posoudit stav a rozhodnout o nevhodnějším postupu léčby. Do té doby je dobré minimalizovat pohyb a nenasazovat zbytečný tlak na postiženou oblast.

# Rychlý úvod do AI

Ada Böhm

[ada.bohm@vsb.cz](mailto:ada.bohm@vsb.cz)