

Educazione civica

# LA MATEMATICA DELLE EPIDEMIE

quarta parte

Gennaio 2021

***l*(oo)**

**ß**

$$I(0) = 2$$

$$\beta = 4$$

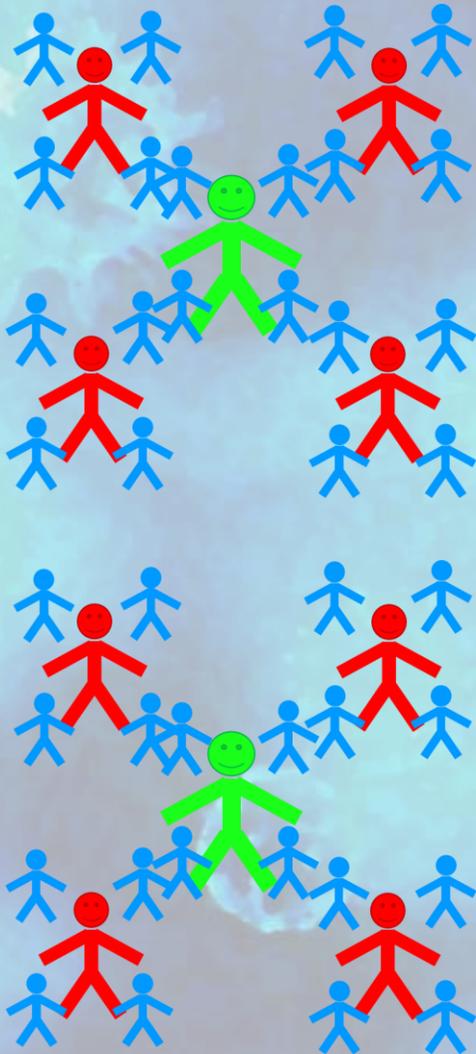


$I(0) * \beta$	<b>Totale</b>
8	<b>10</b>

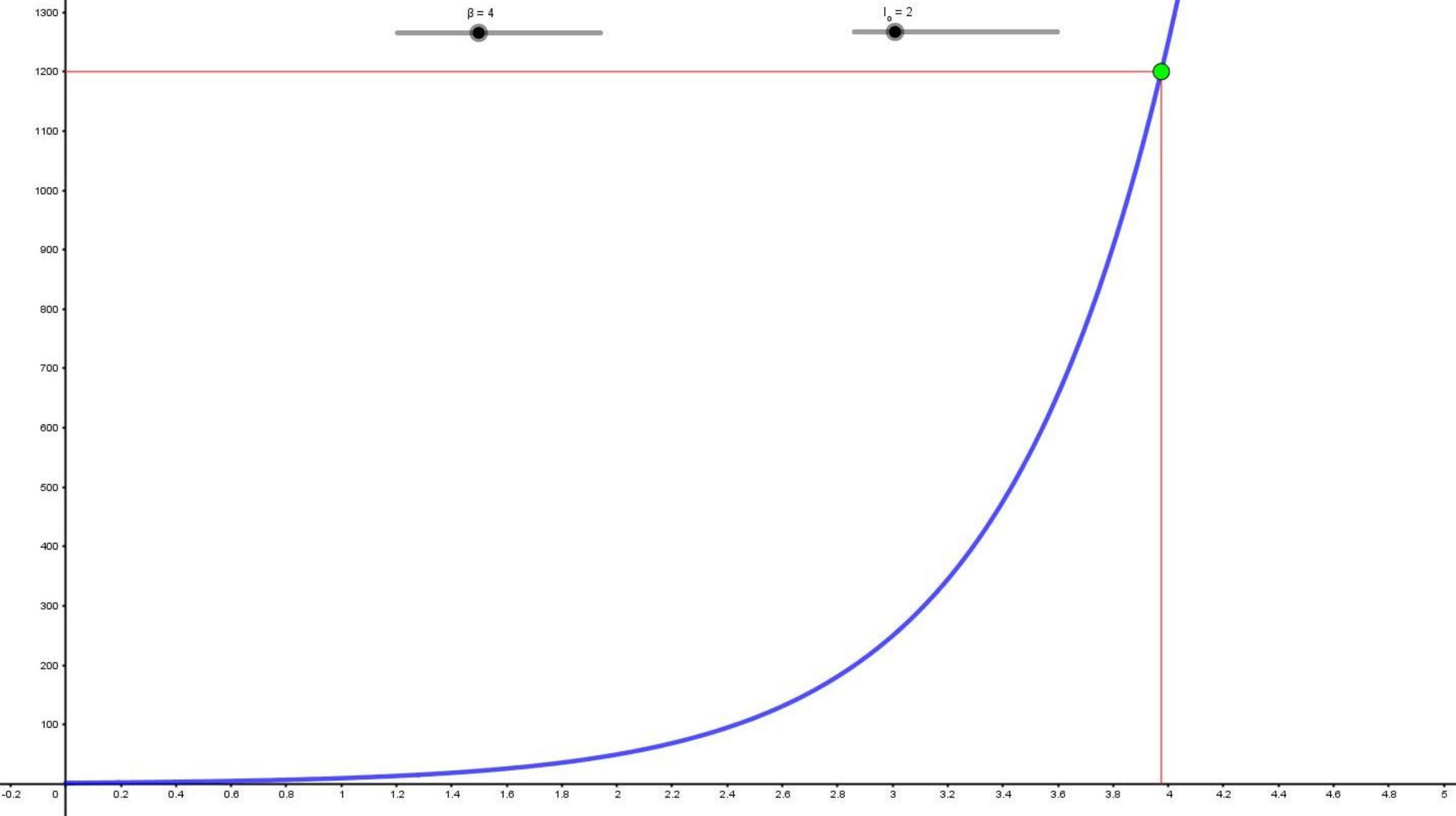


$$I(0) = 2$$

$$\beta = 4$$



		$I(0) * \beta$	<b>Totale</b>
$I(0) =$	2	8	<b>10</b>
$I(1) =$	10	40	<b>50</b>
$I(2) =$	50	200	<b>250</b>
$I(3) =$	250	1000	<b>1250</b>
$I(4) =$	1250	5000	<b>6250</b>
$I(5) =$	6250	25000	<b>31250</b>
$I(6) =$	31250	125000	<b>156250</b>
$I(7) =$	156250	625000	<b>781250</b>
$I(8) =$	781250	3125000	<b>3906250</b>





AN

ESSAY

ON THE

*PRINCIPLE OF POPULATION,*

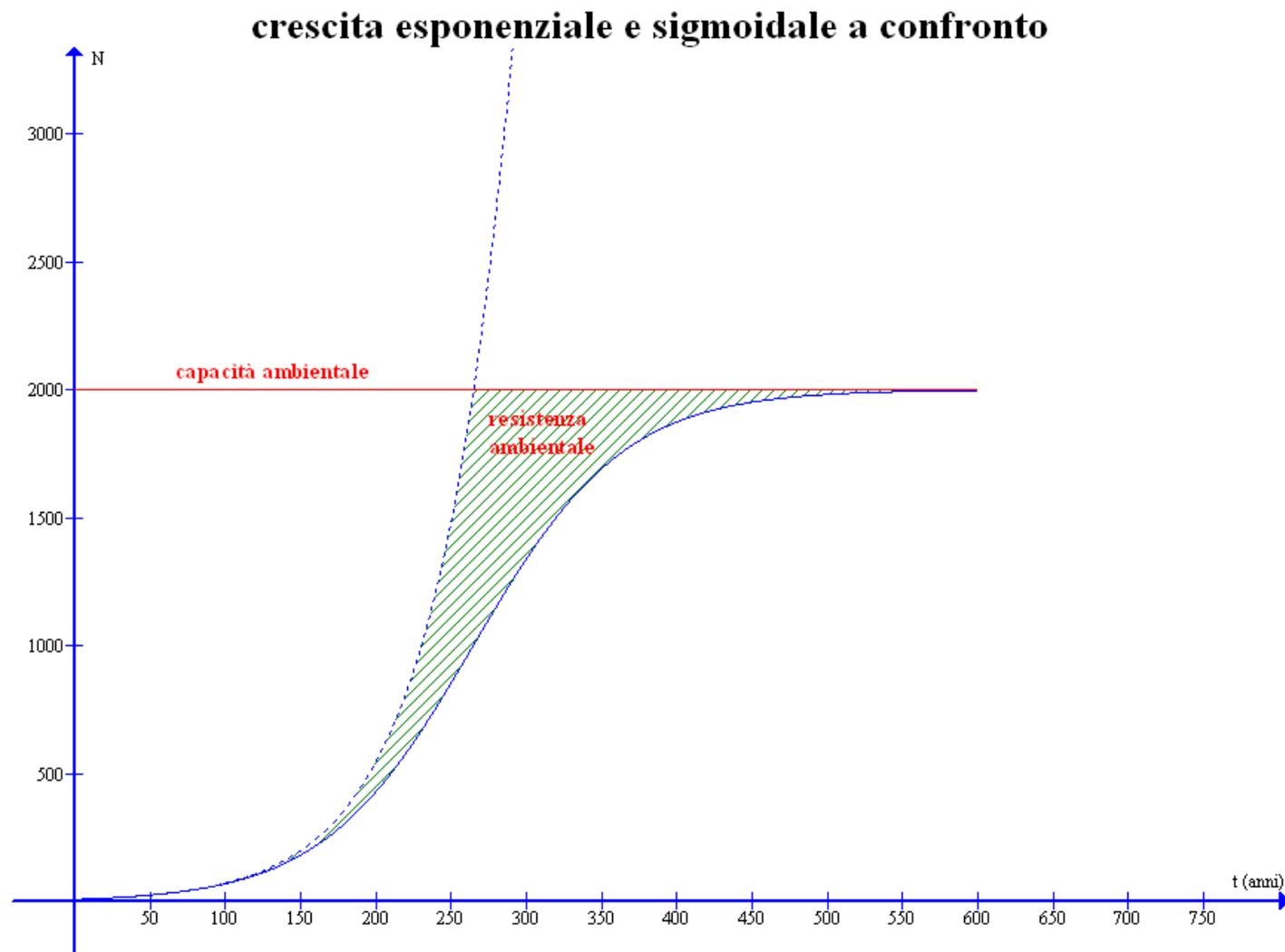
AS IT AFFECTS

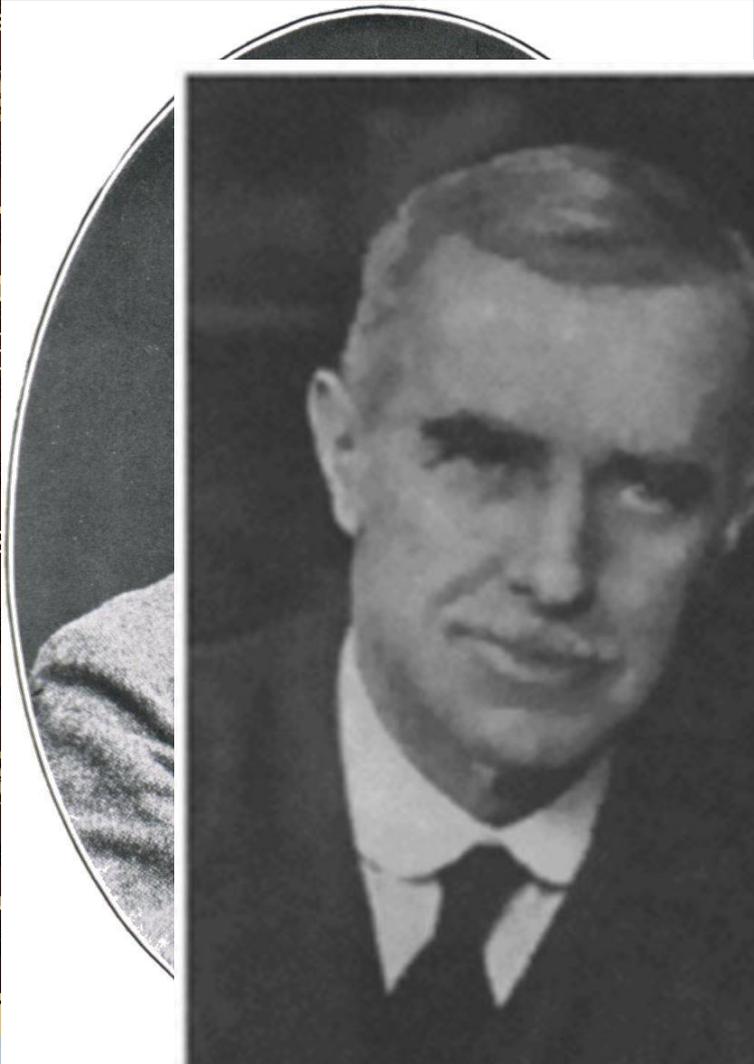
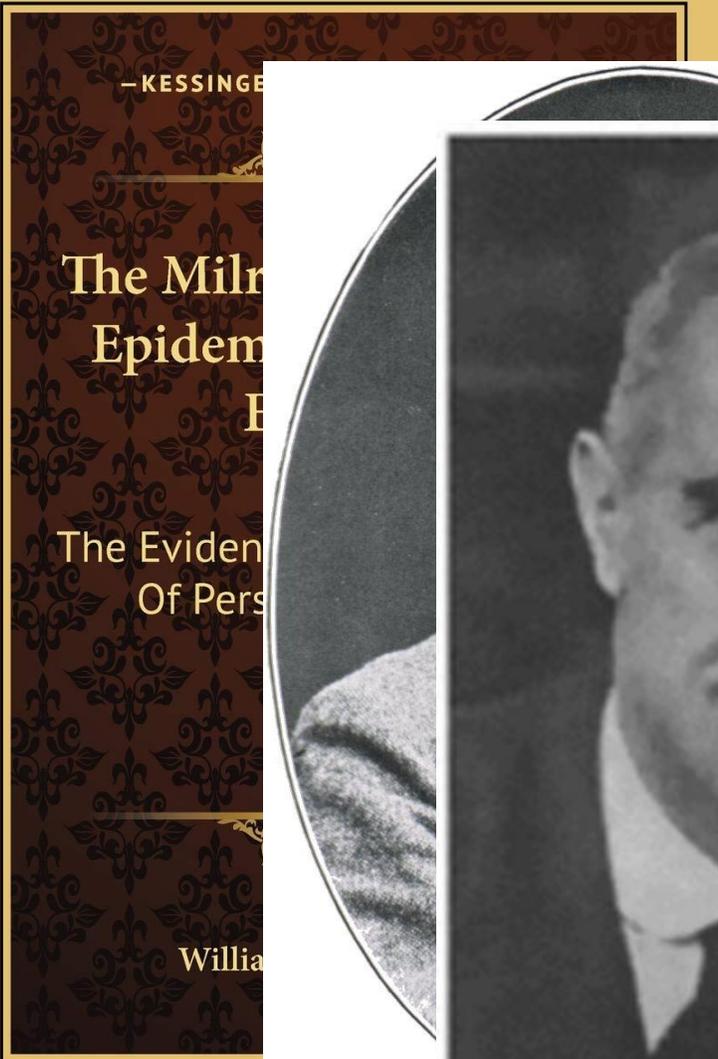
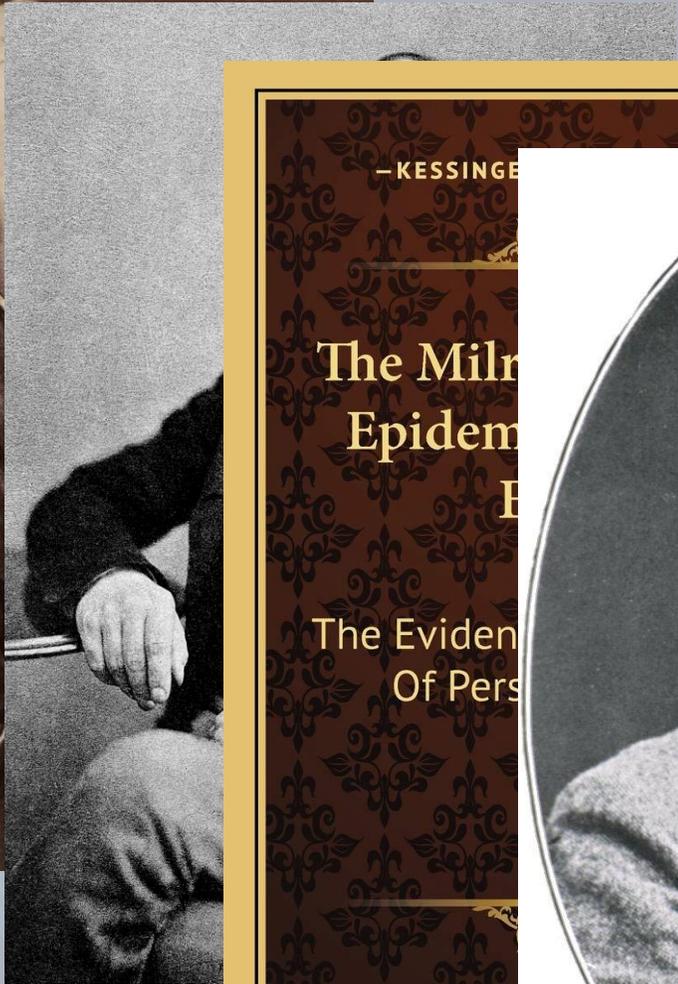
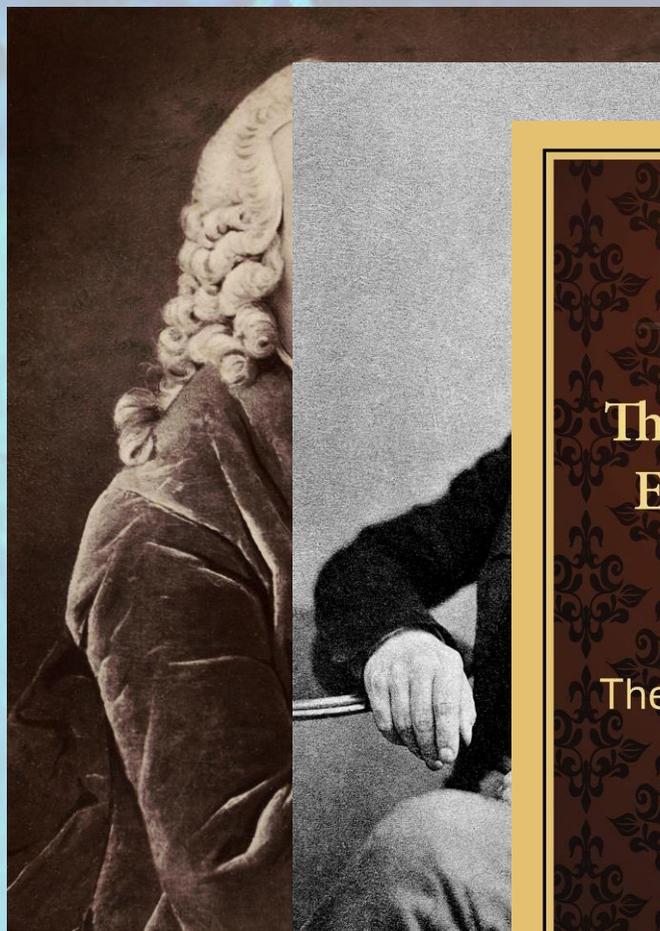
THE FUTURE IMPROVEMENT OF SOCIETY.

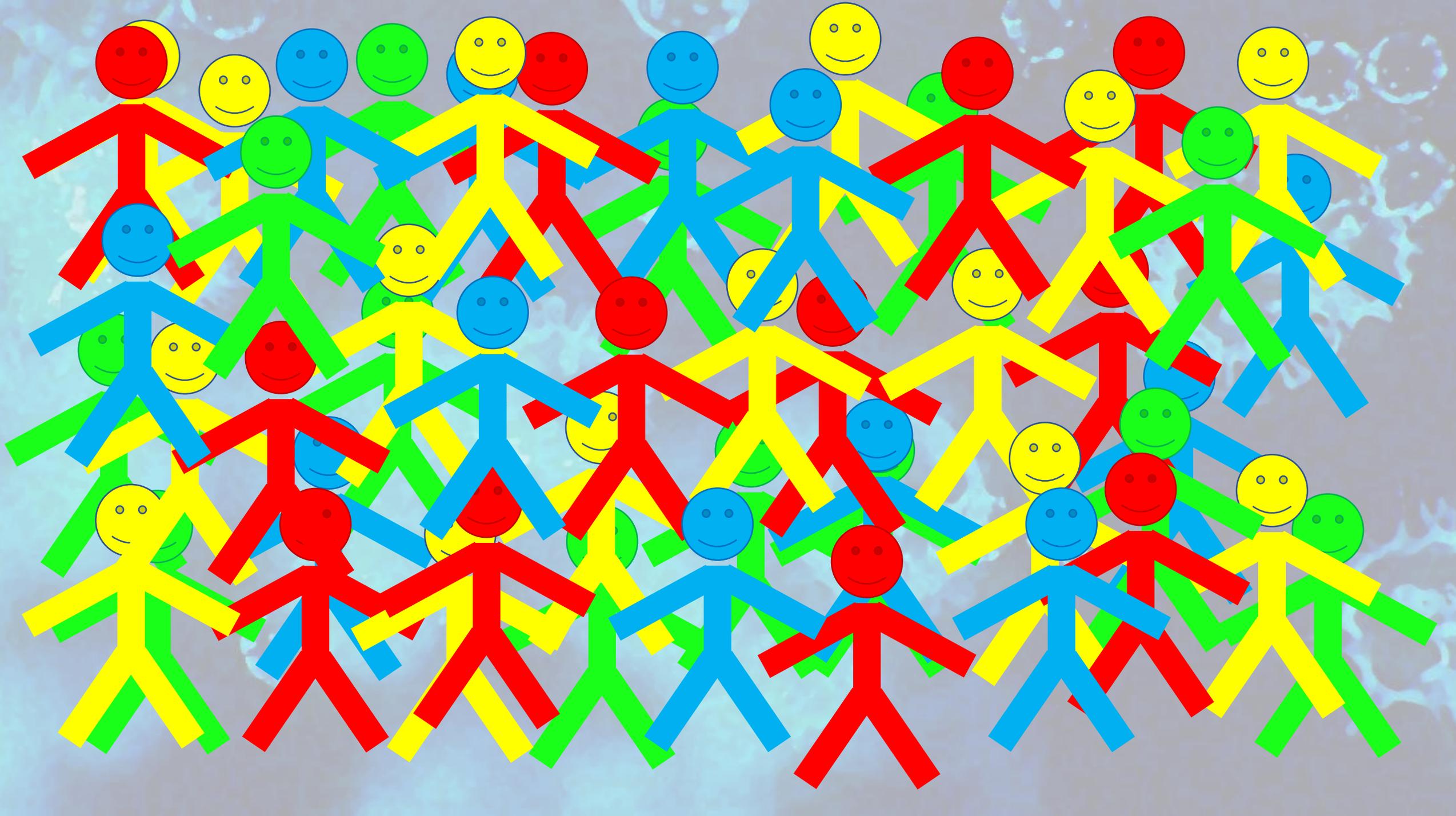
WITH REMARKS

ON THE SPECULATIONS OF MR. GODWIN,

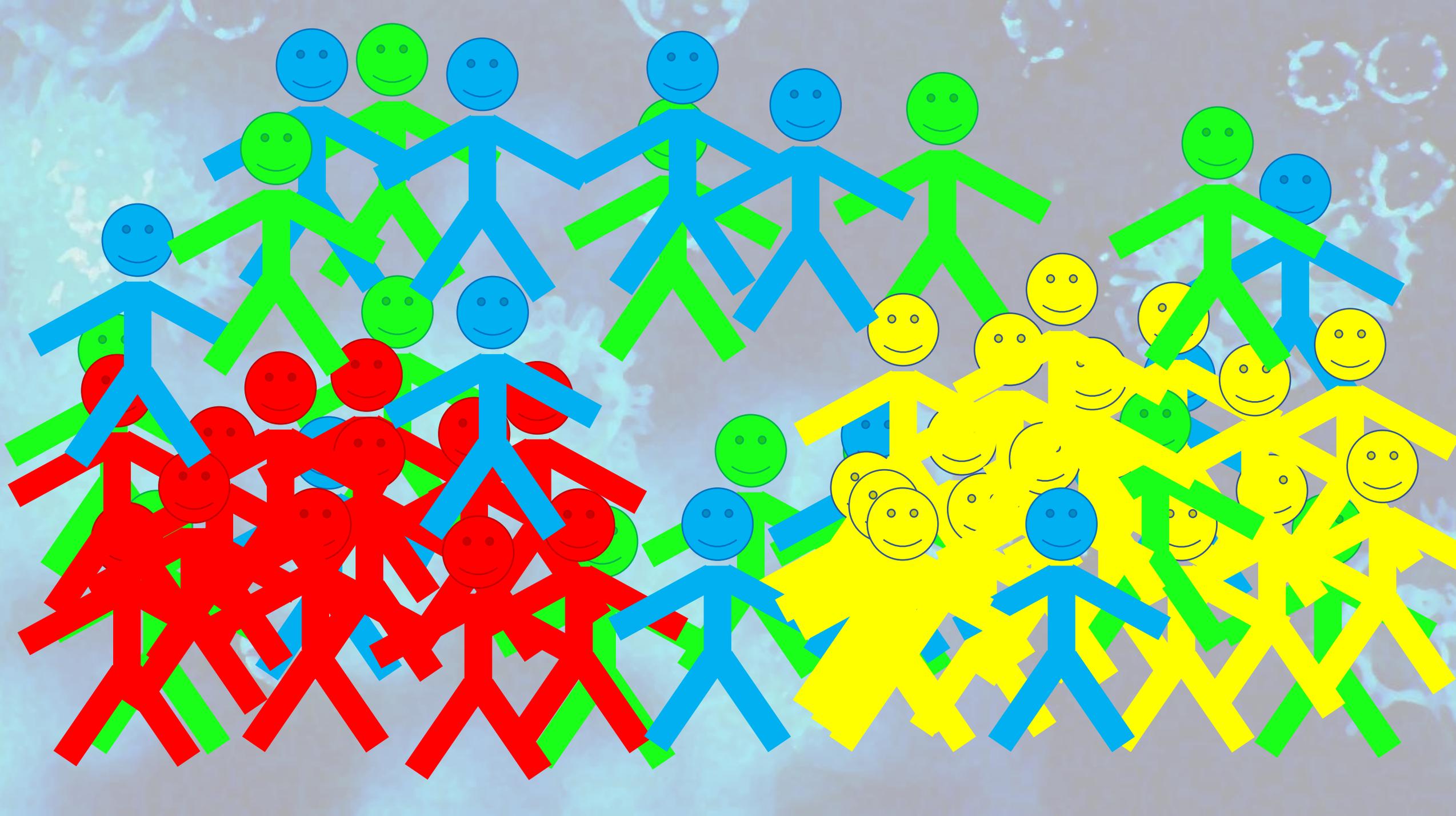
M. CONDORCET,

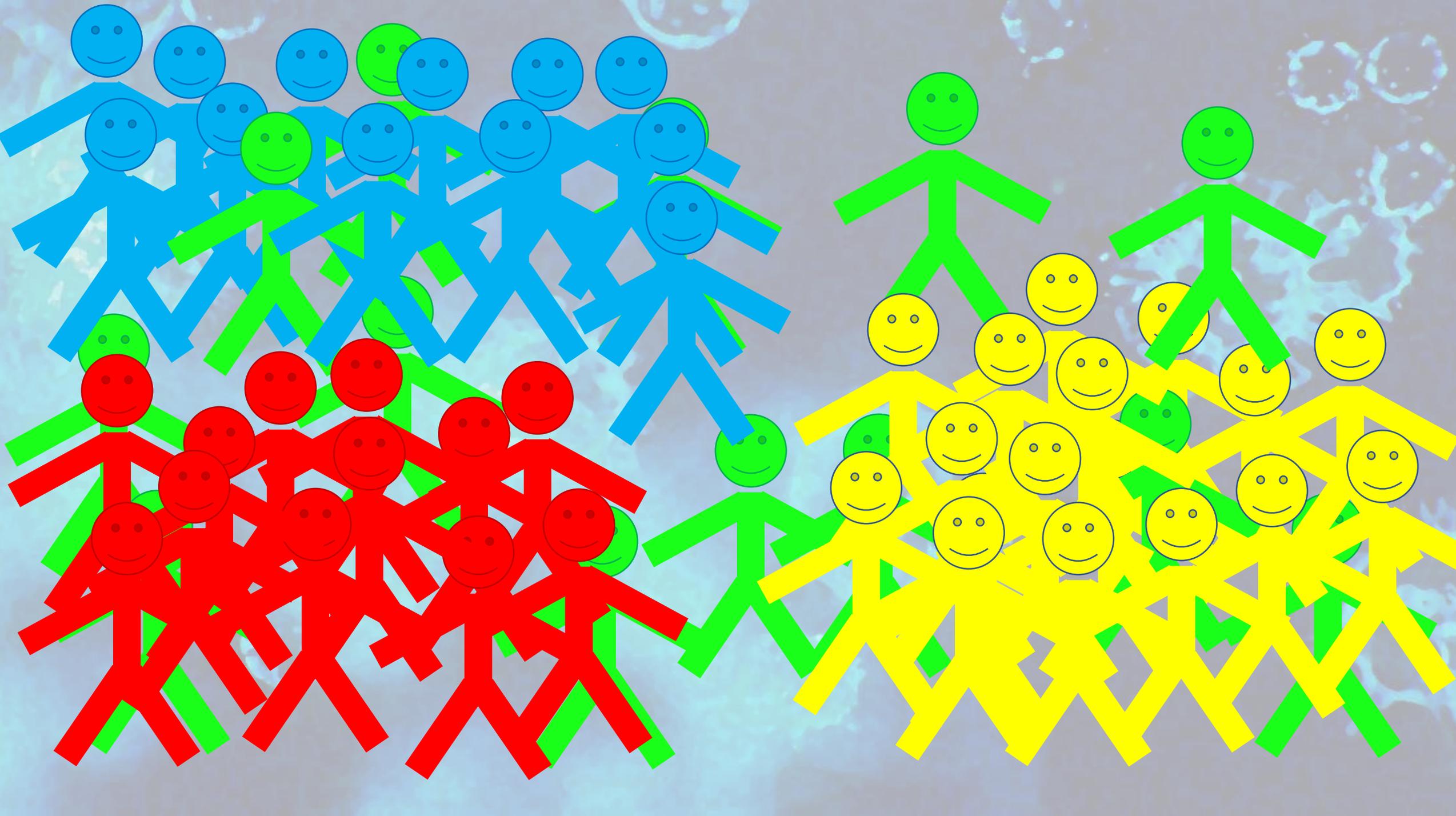


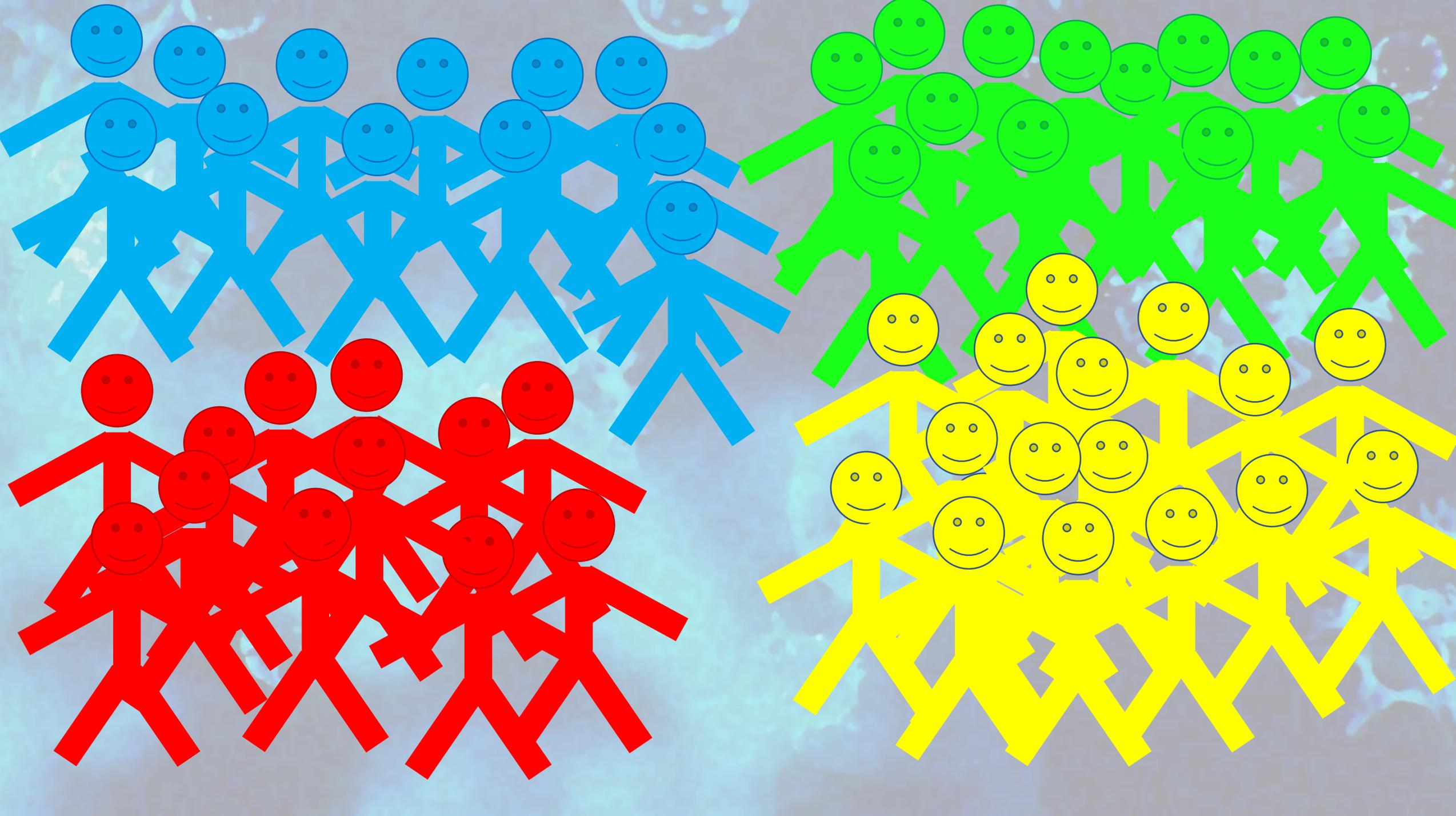






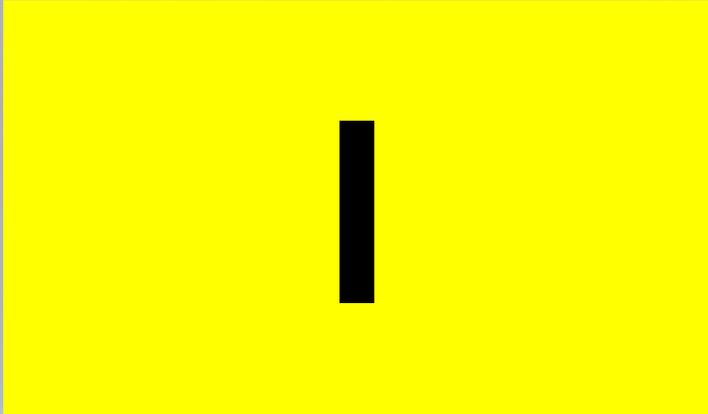






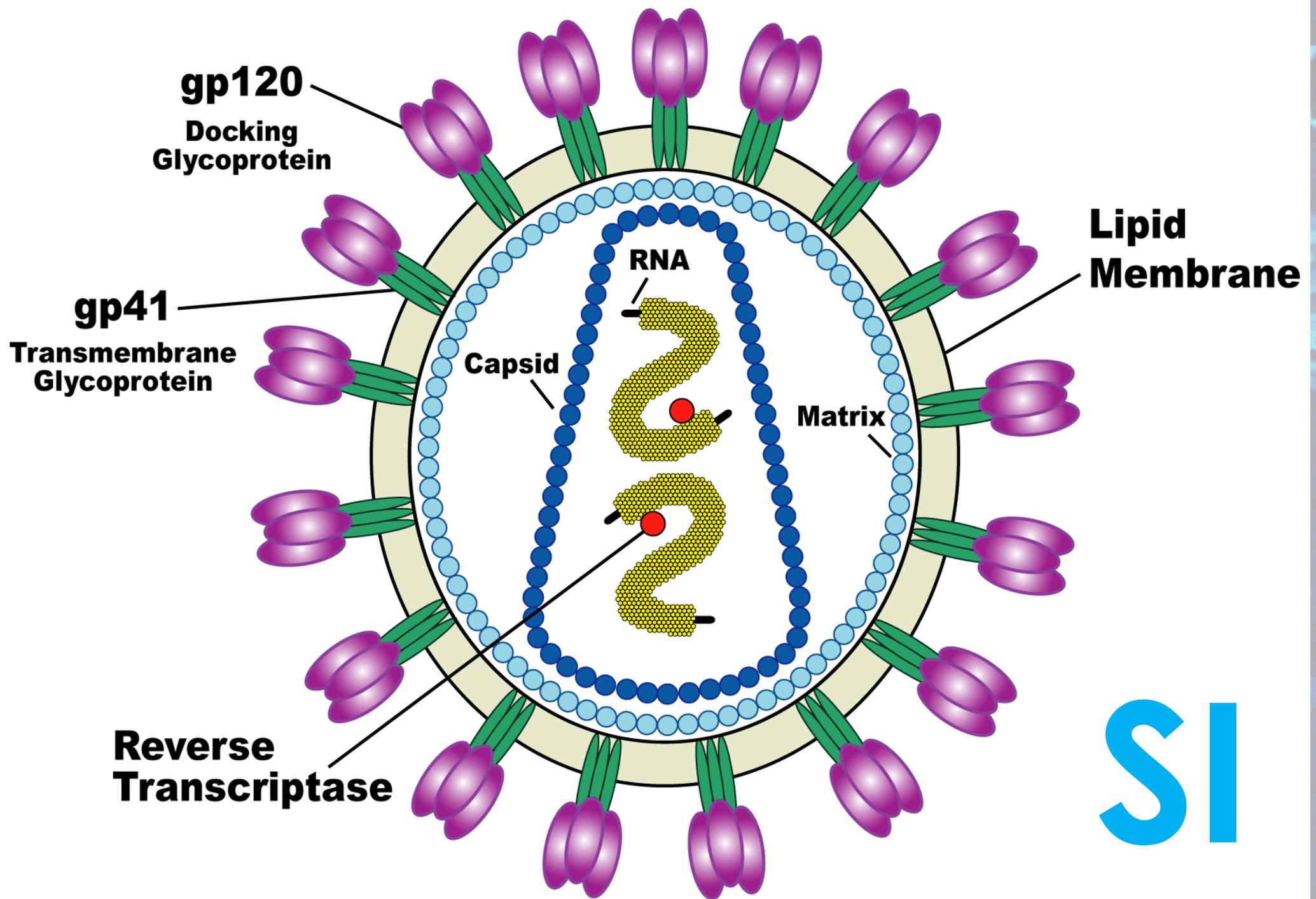


**S**

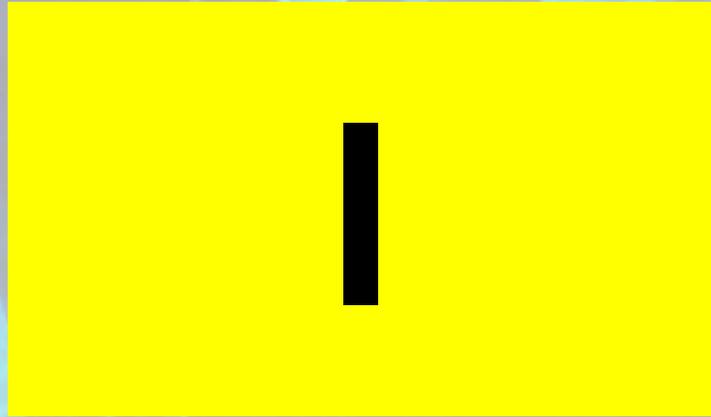
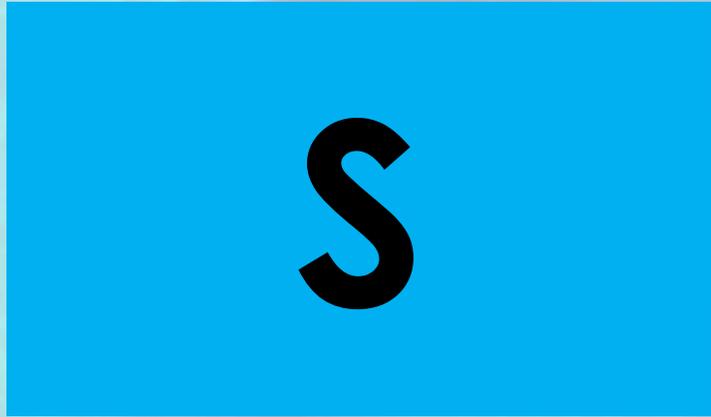


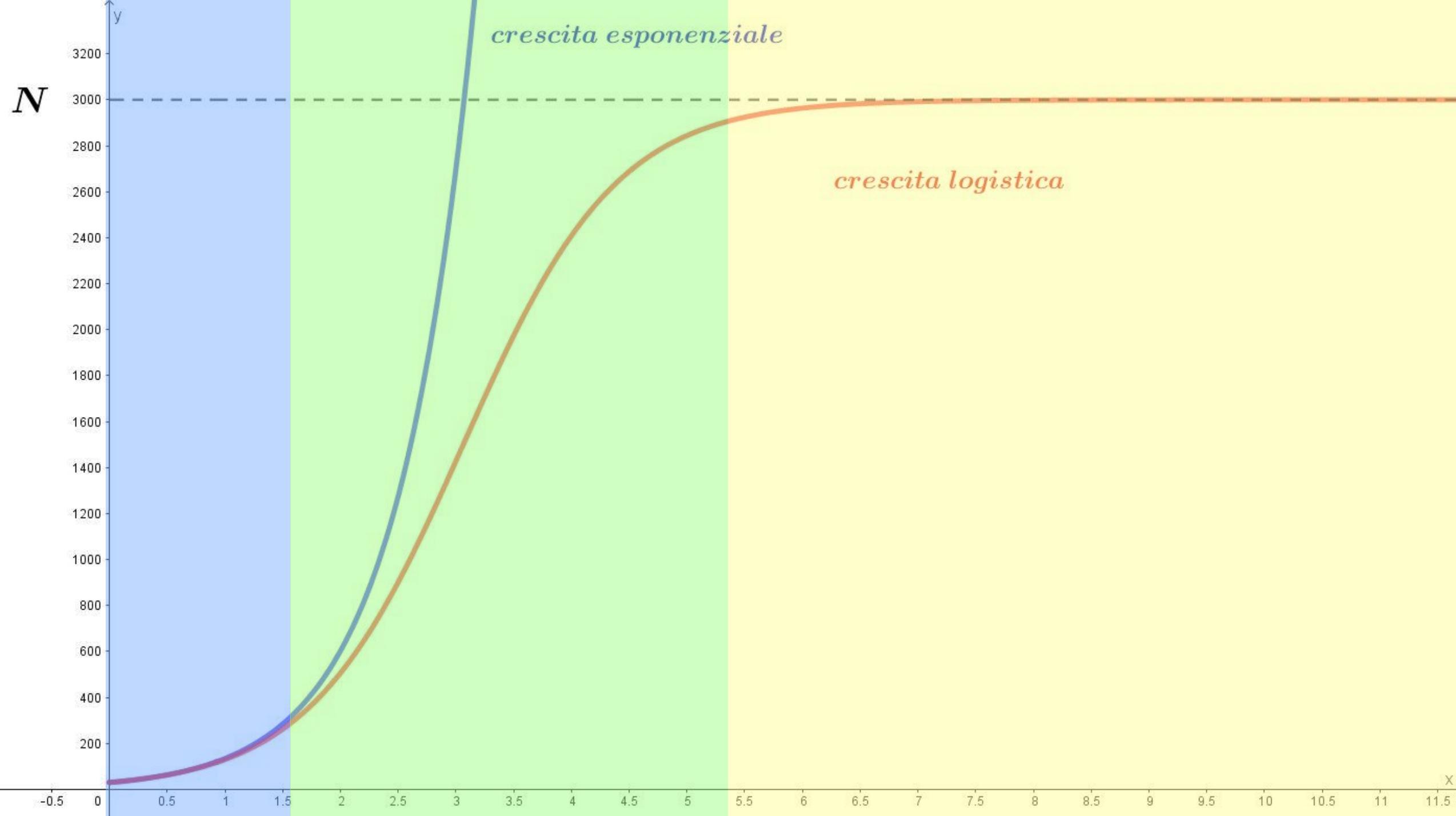
**I**

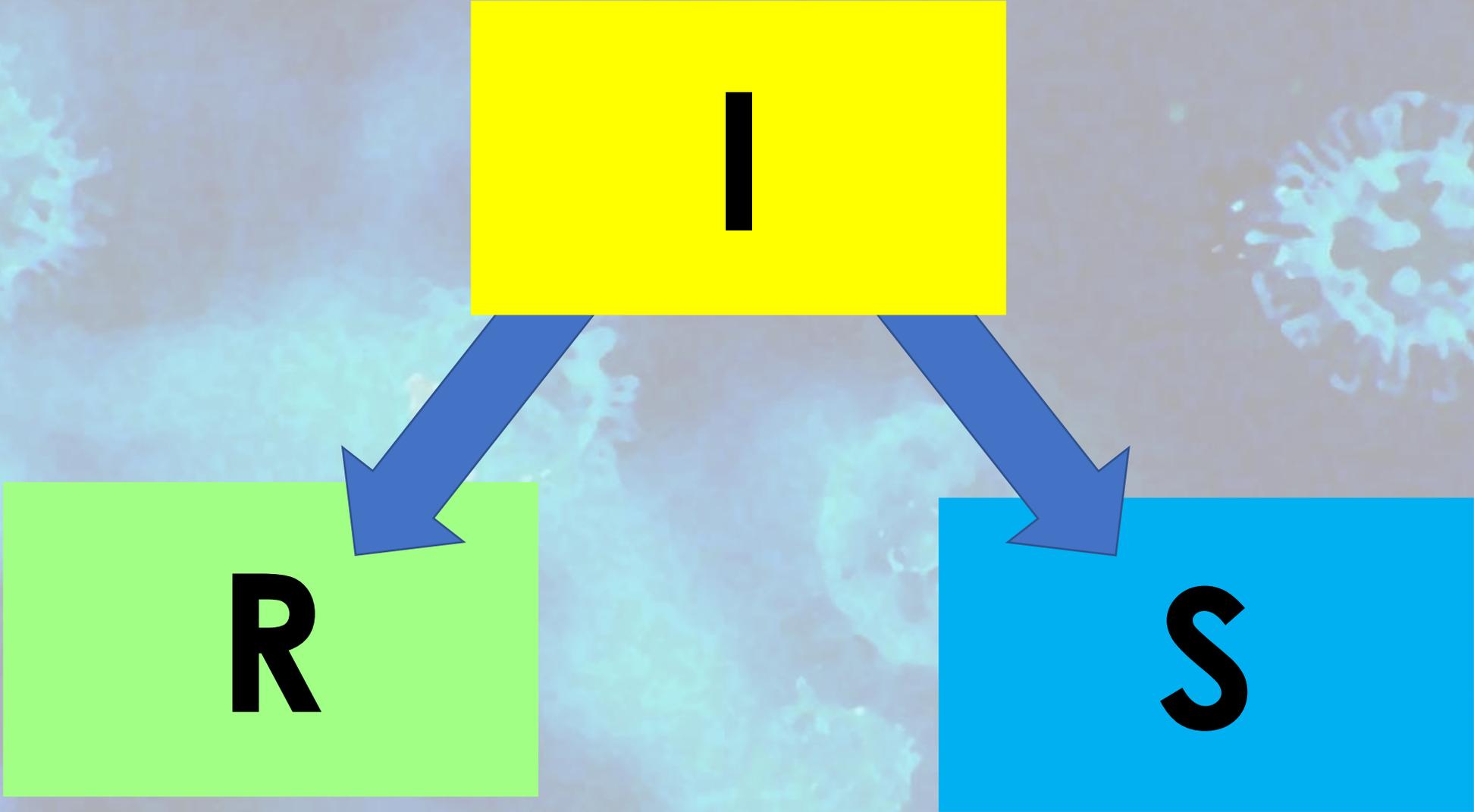
$$N = S + I$$



SI



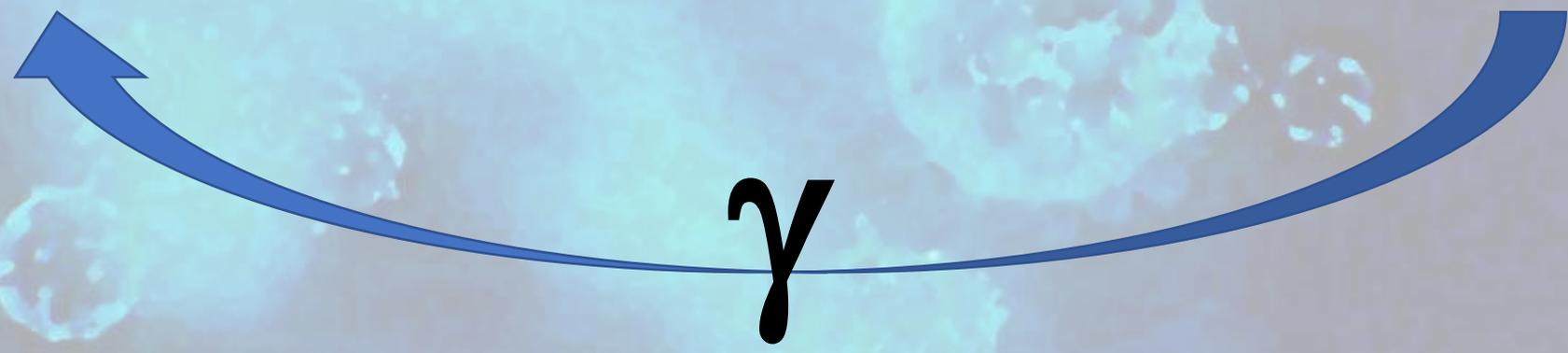
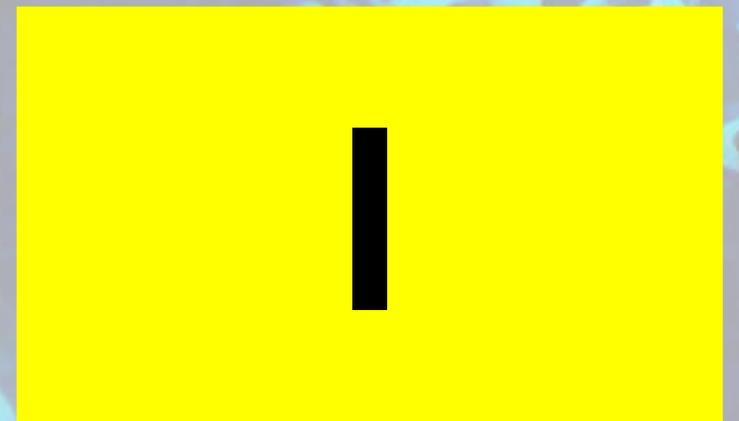
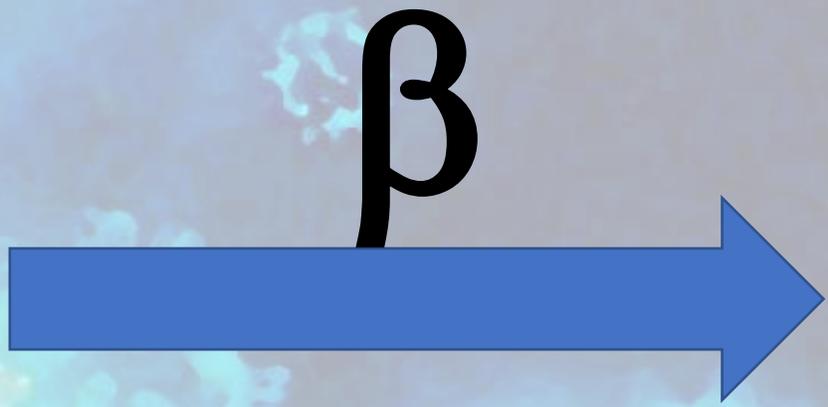


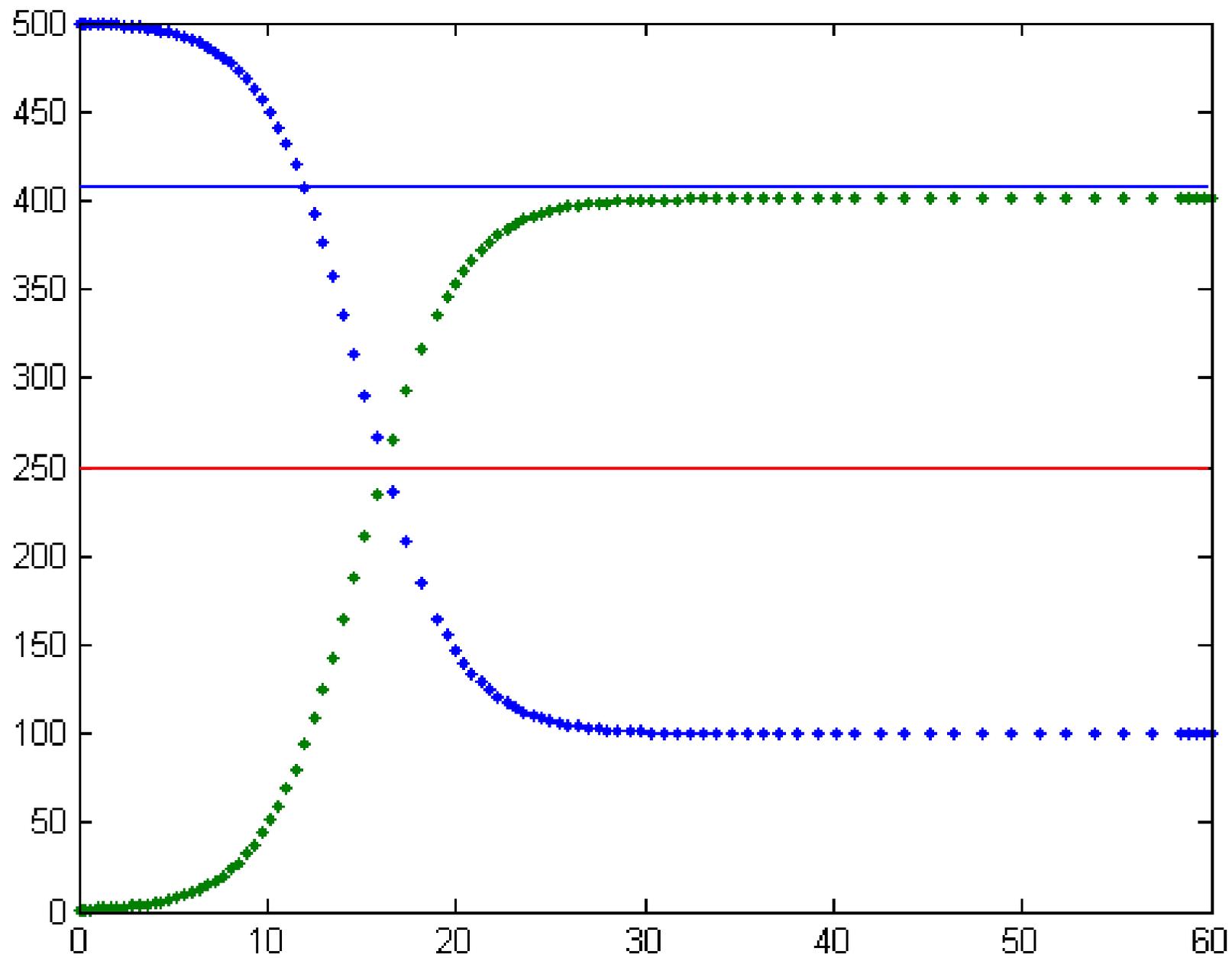


**Non c'è incubazione**

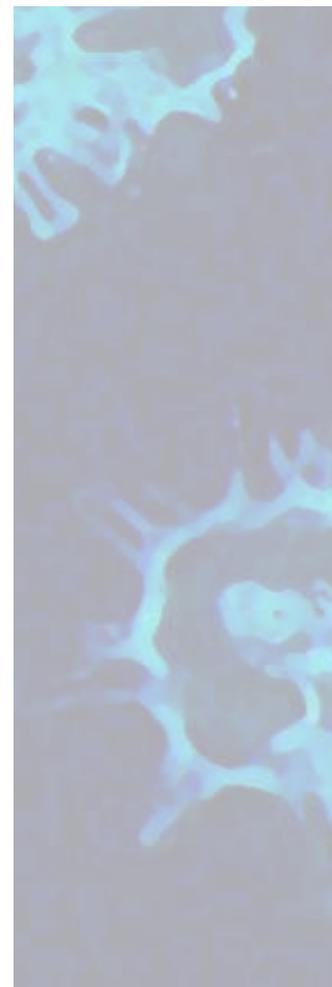
**$\beta$  e  $\gamma$  costanti**

**Probabilità di infezione  
uguale per tutti**





$$N \left( 1 - \frac{\gamma}{\beta} \right)$$



**S**



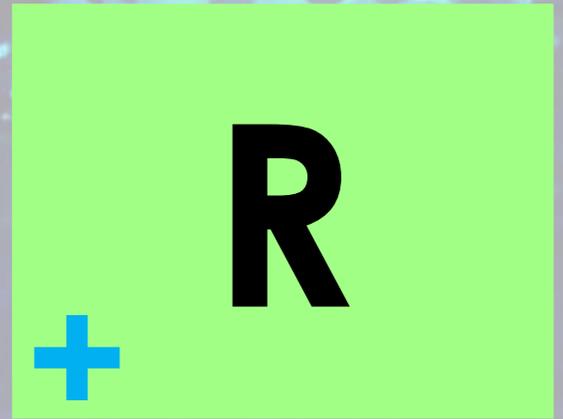
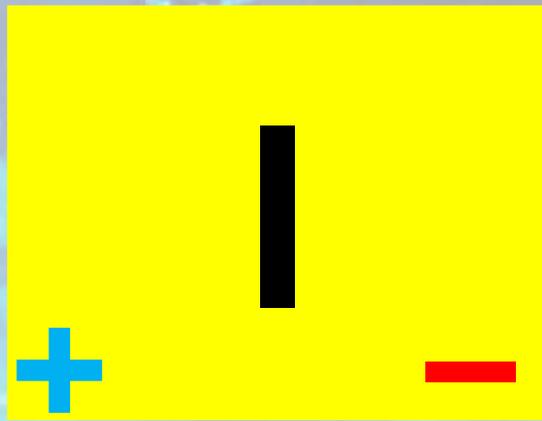
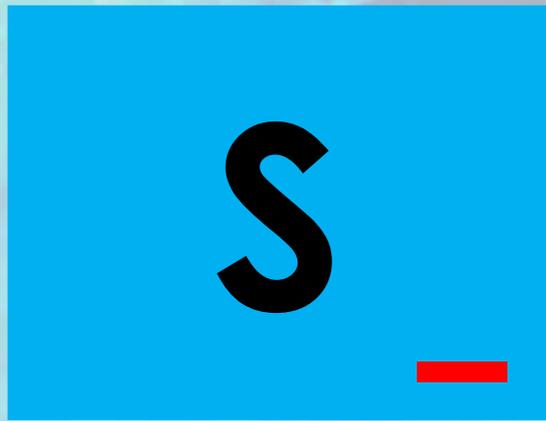
**I**



**R**

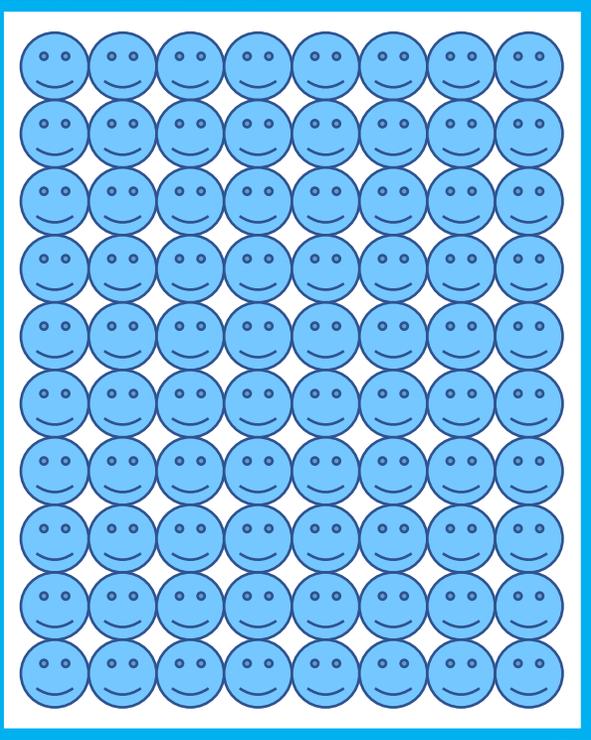
**Acquisizione di immunità**



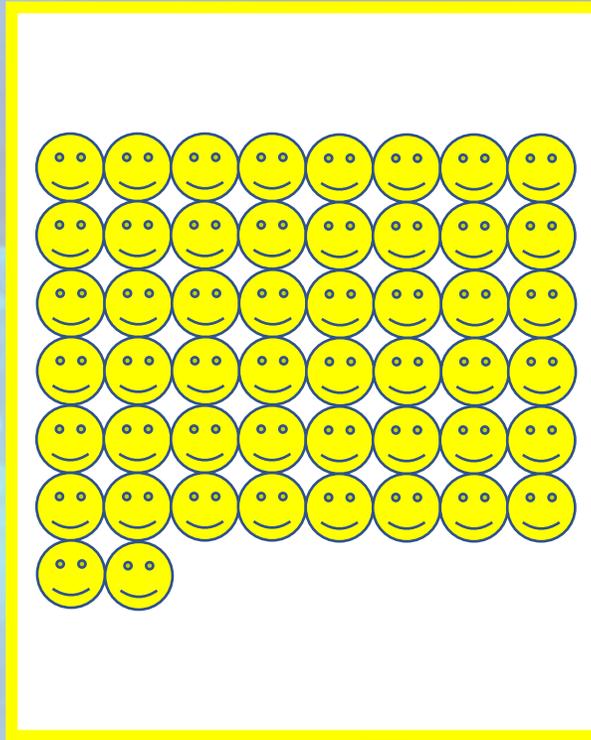


$$\beta S(t) I(t)$$

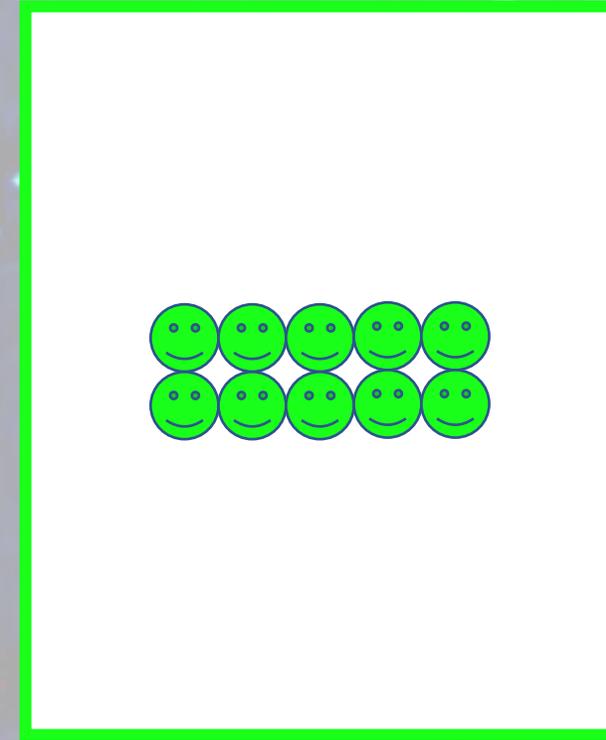
$$\gamma I(t)$$



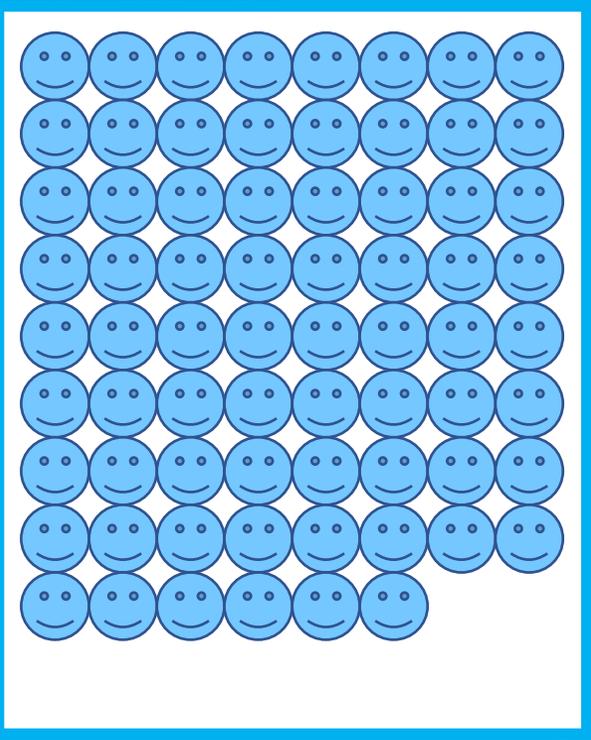
**80**



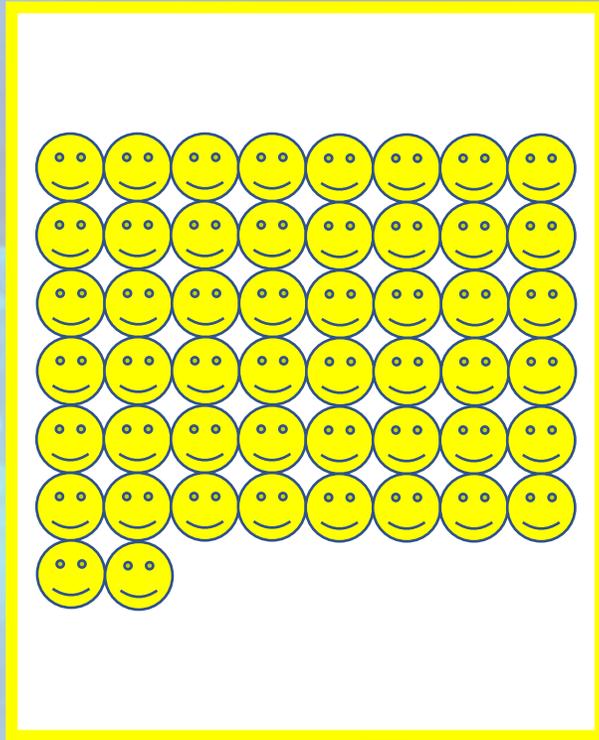
**50**



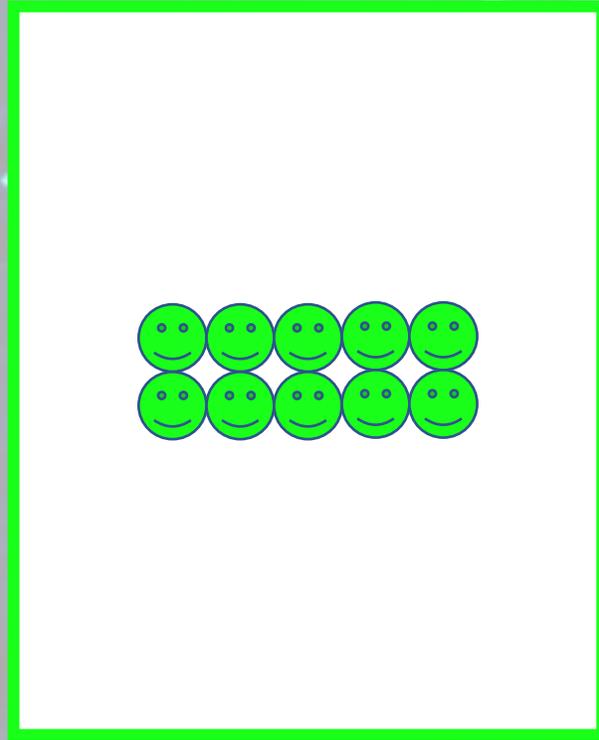
**10**



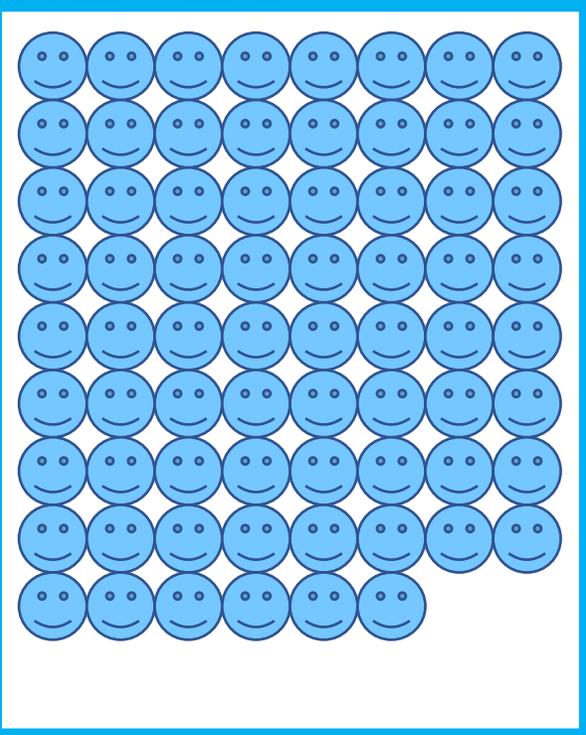
70



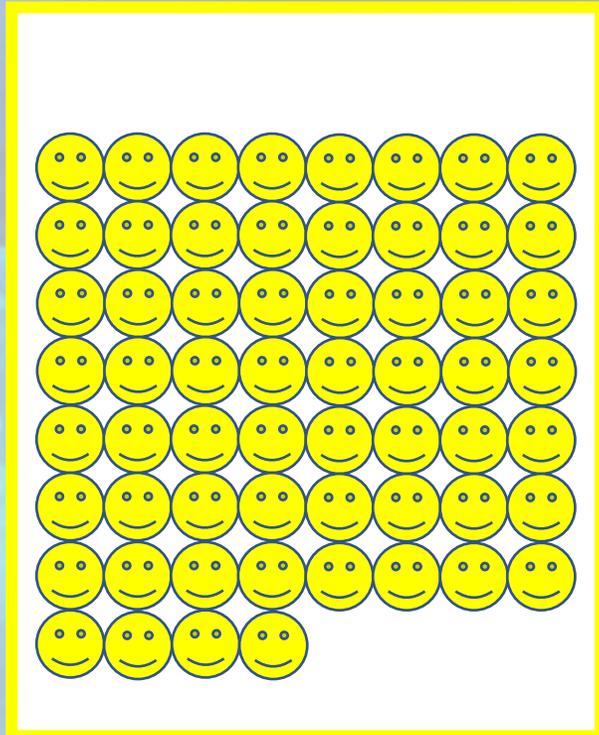
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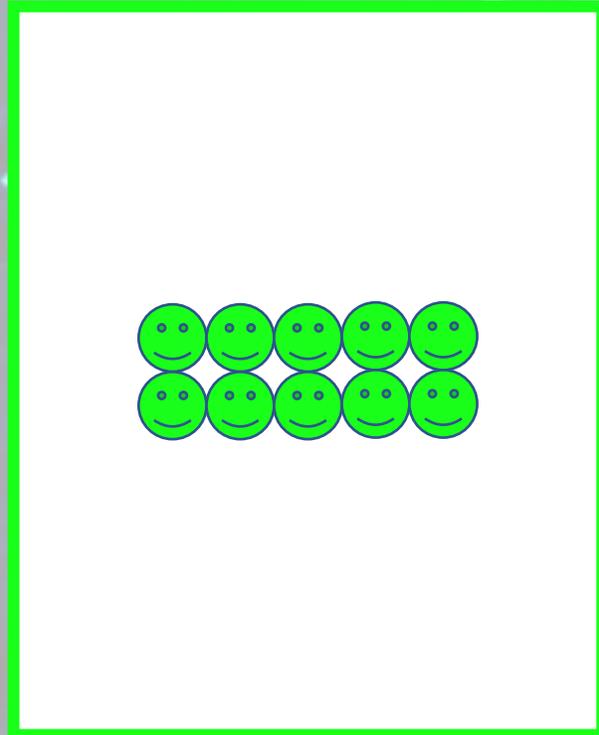
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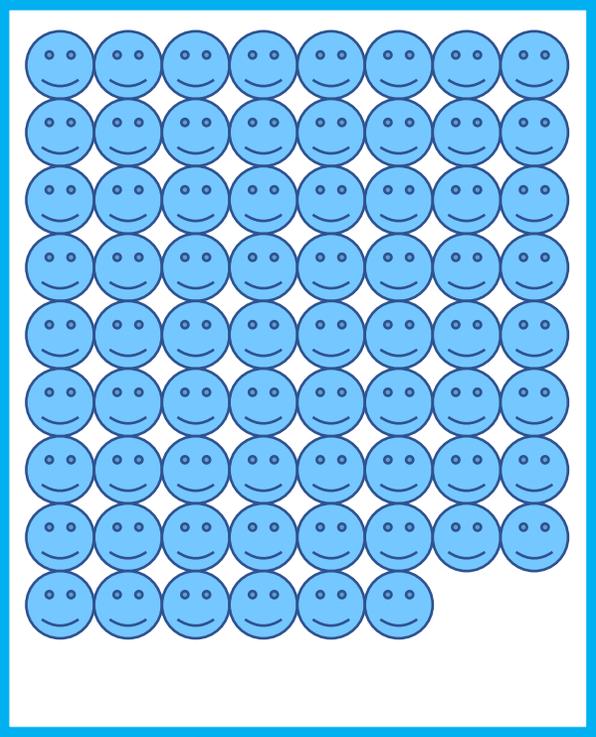
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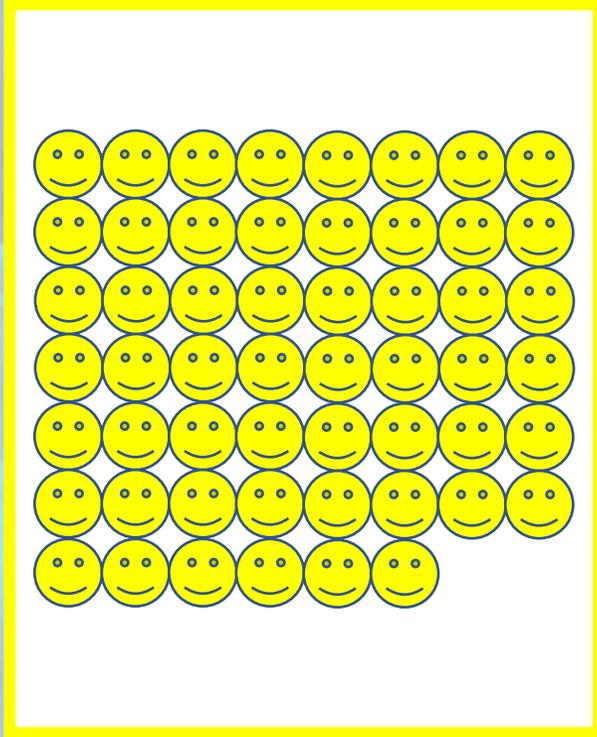
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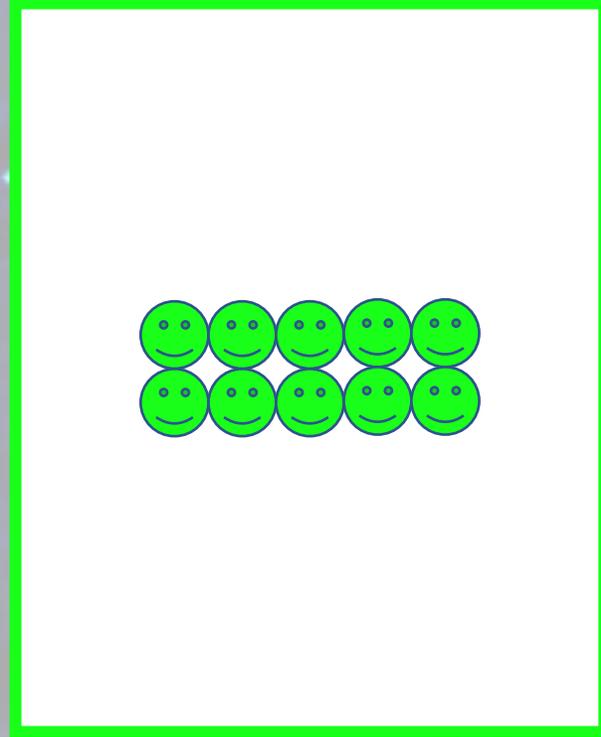
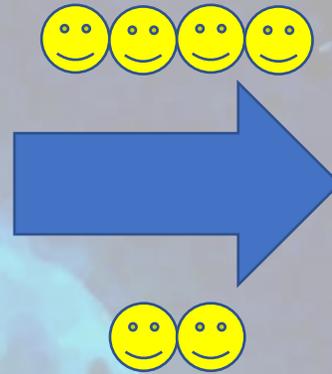
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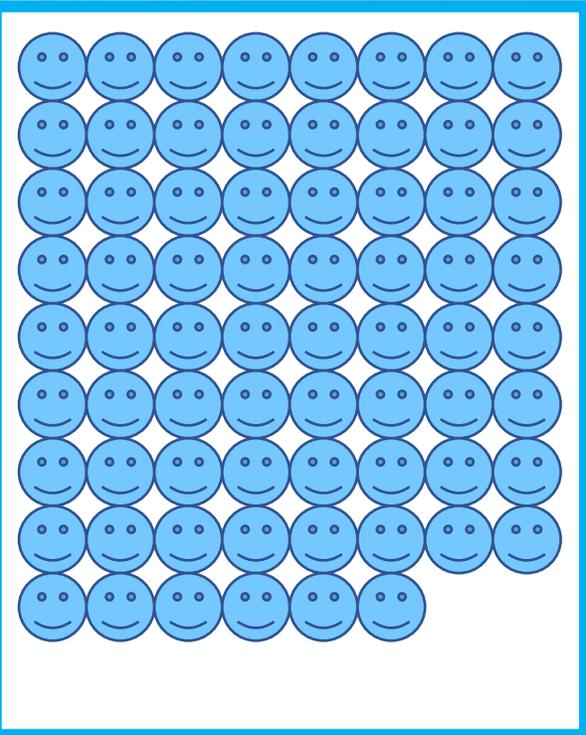
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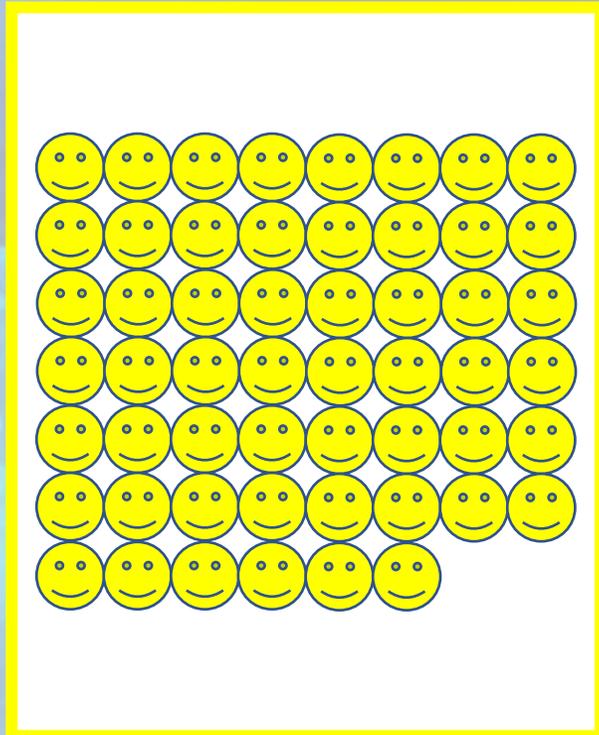
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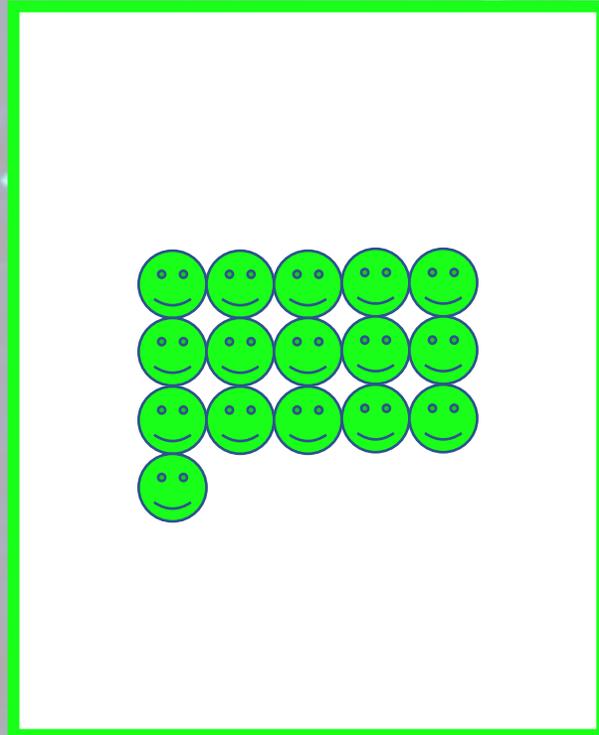
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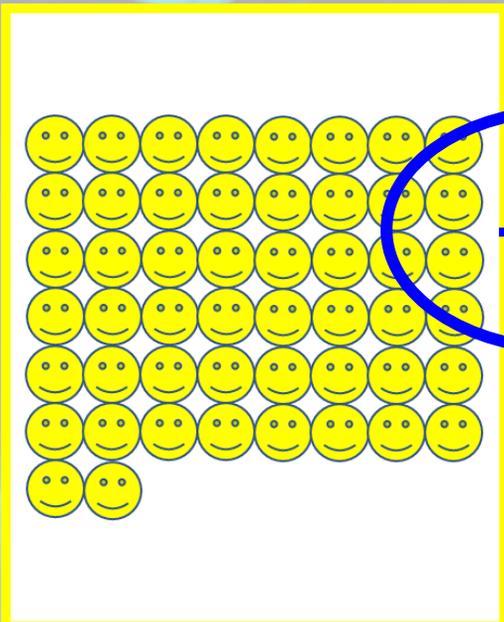
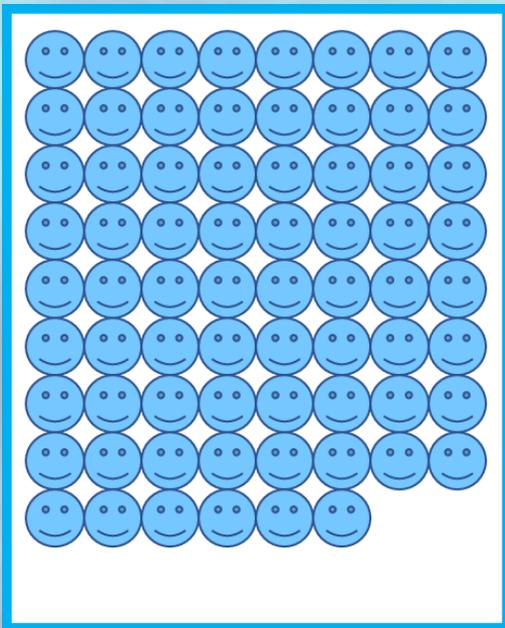
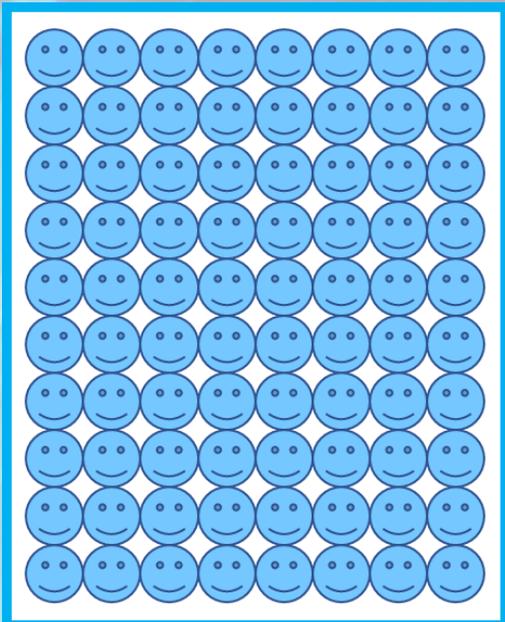


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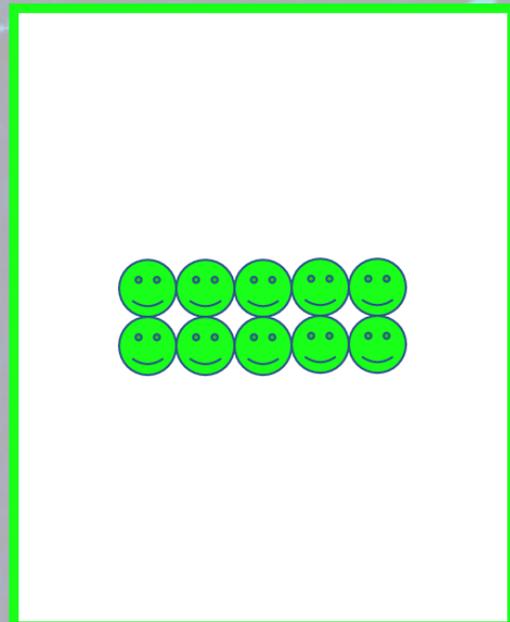


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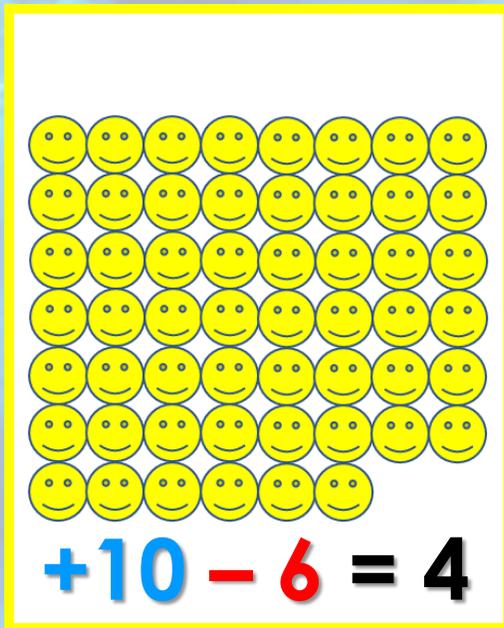
- 10



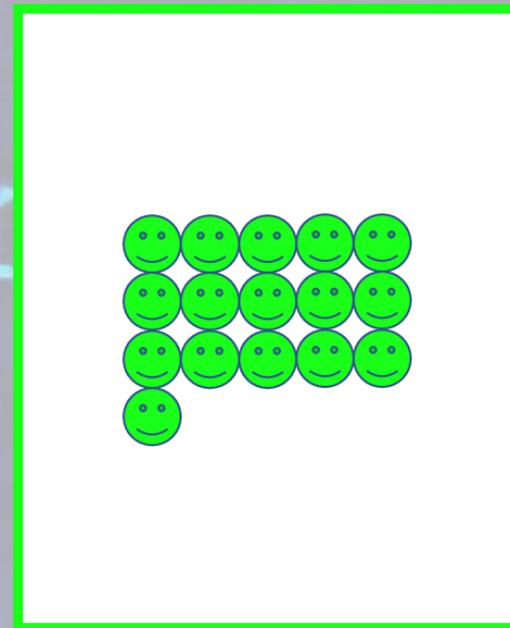
+ 4

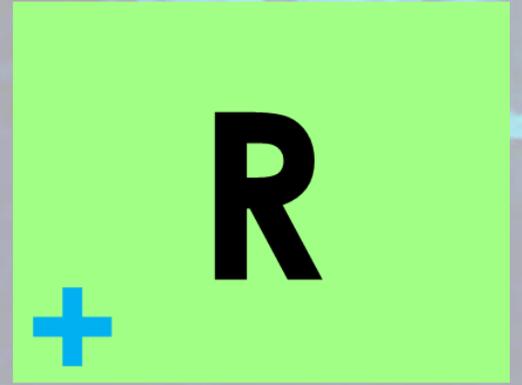
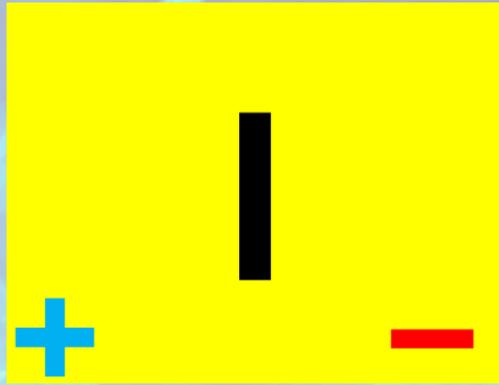


+ 6



$+10 - 6 = 4$



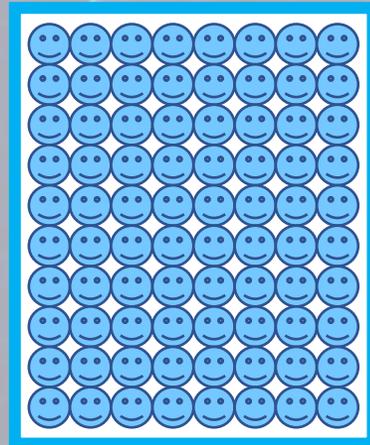
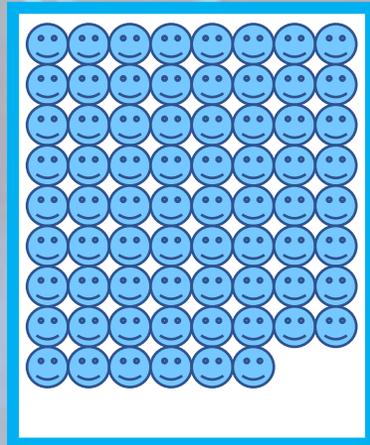
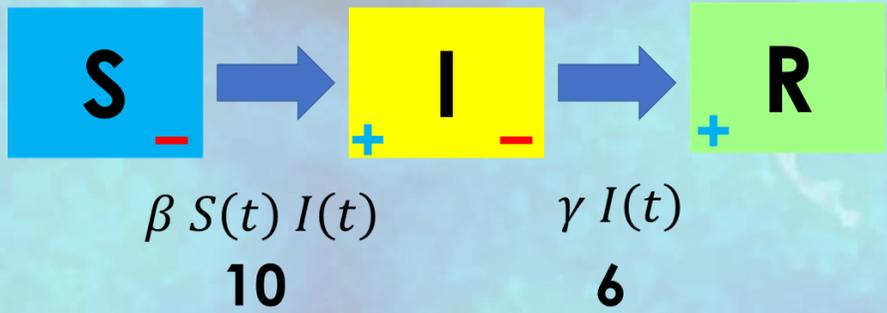


$$\beta S(t) I(t)$$

10

$$\gamma I(t)$$

6



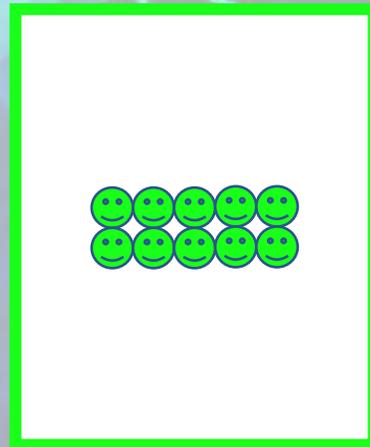
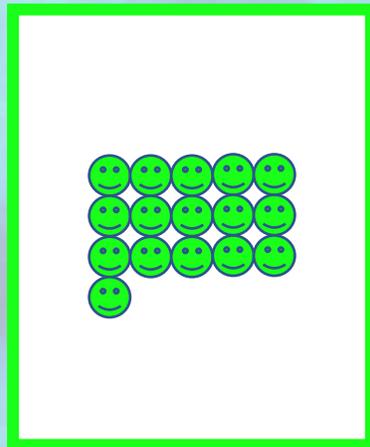
-

= -10



-

= 10 - 6



-

= 6

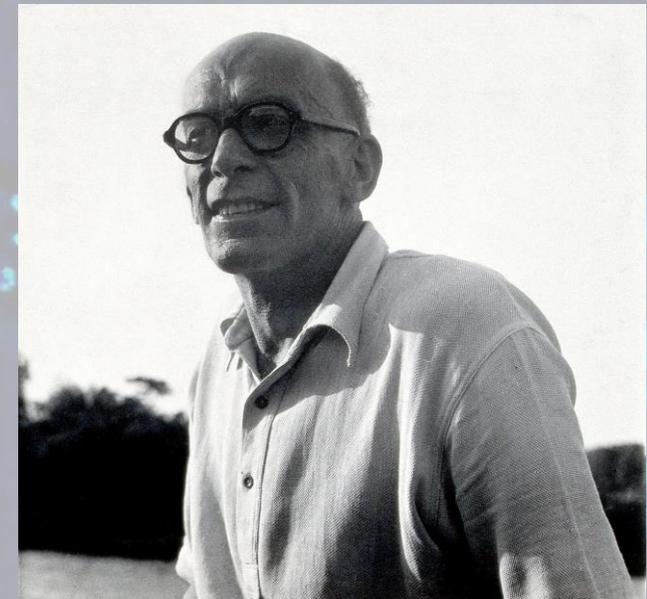
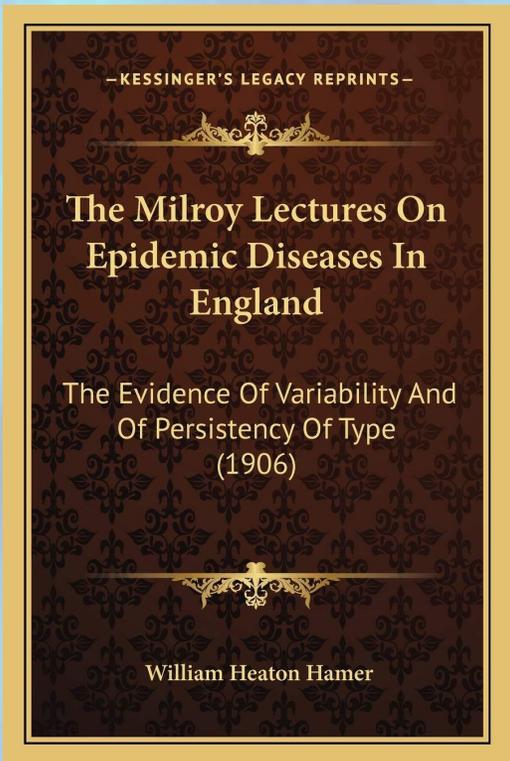


$$\beta S(t) I(t) - \gamma I(t) > 0$$

$$\beta S(t) \cancel{I(t)} - \gamma \cancel{I(t)} > 0$$

$$\beta S(t) - \gamma > 0$$

$$S(t) > \frac{\gamma}{\beta} \quad \frac{\beta}{\gamma} S(t) > 1$$

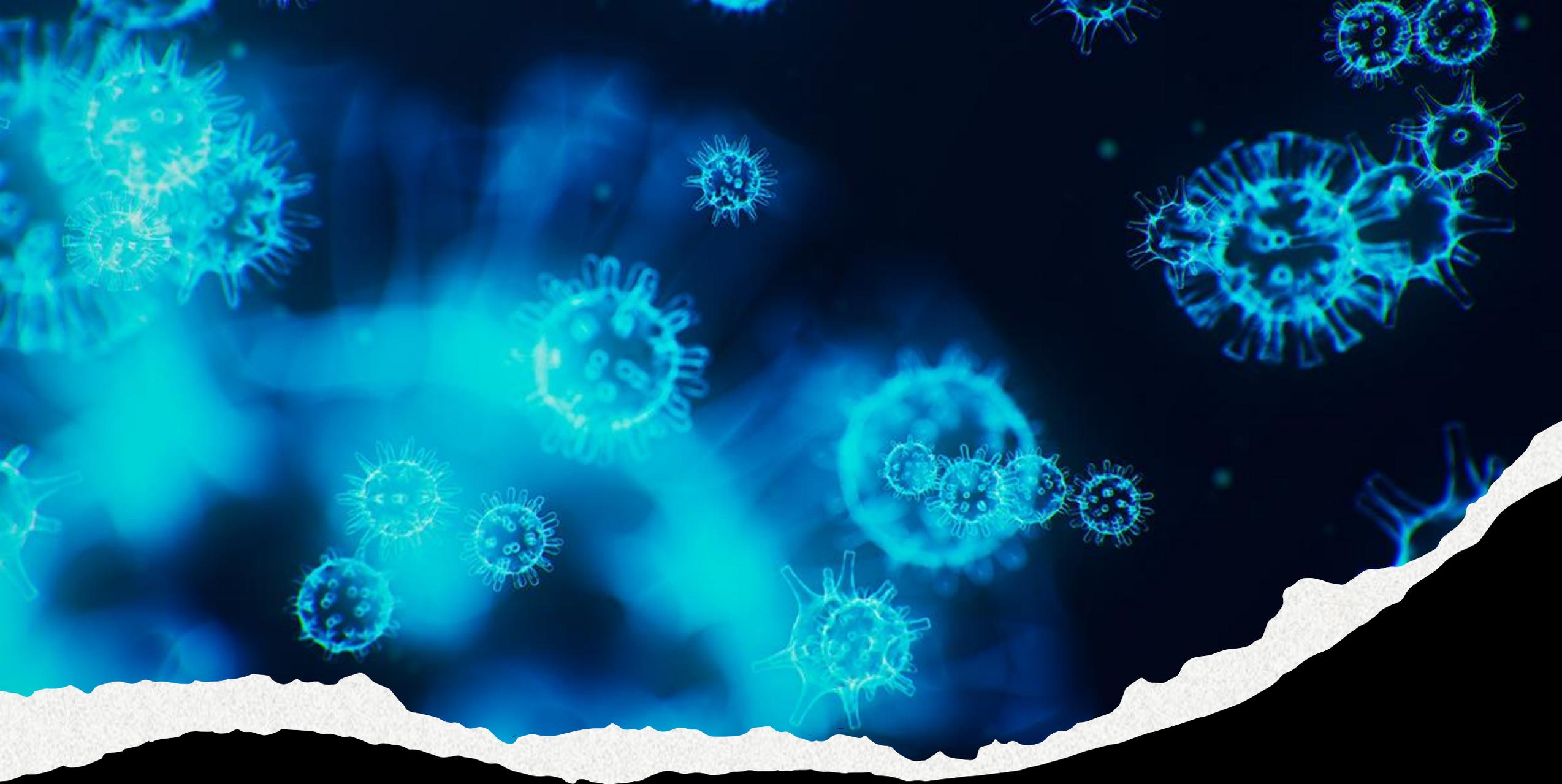


$$R_0 = \frac{\beta}{\gamma} S(t)$$

$R_t$

«Non lasciare mai che una crisi  
diventi un'opportunità sprecata»

(Rahm Emanuel, capo di gabinetto di Barack Obama, 2008)



Grazie per l'attenzione!