QED

QUANTUM ELECTRO DYNAMICS

ELIOTT LEVY
HARRY KEMBLE
MIKAEL GUEDJ
MARGUERITE LAPIERRE

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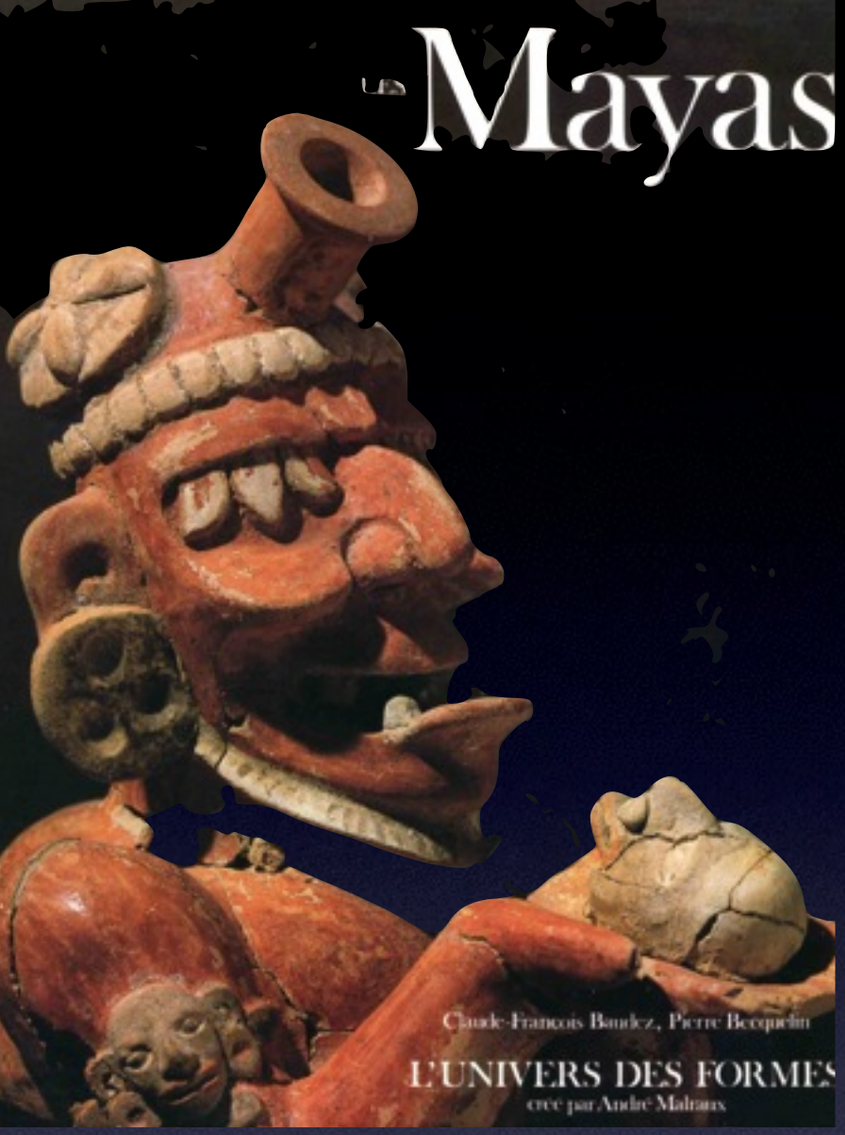
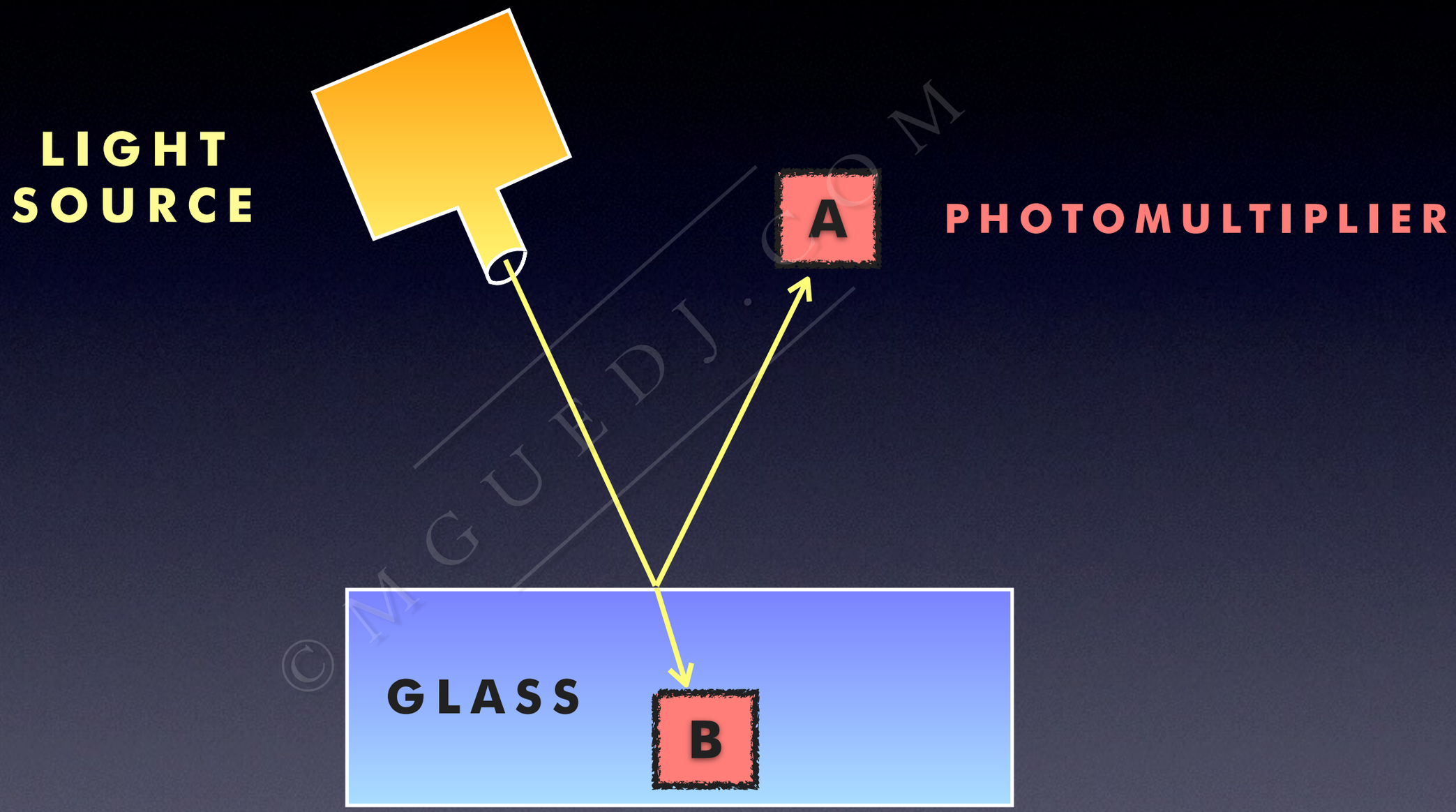
INTRODUCTION


Les Mayas
Claude-François Baudez, Pierre Becquelin
L'UNIVERS DES FORMES
créé par André Malraux

①

PARTIAL REFLECTION

SINGLE SURFACE



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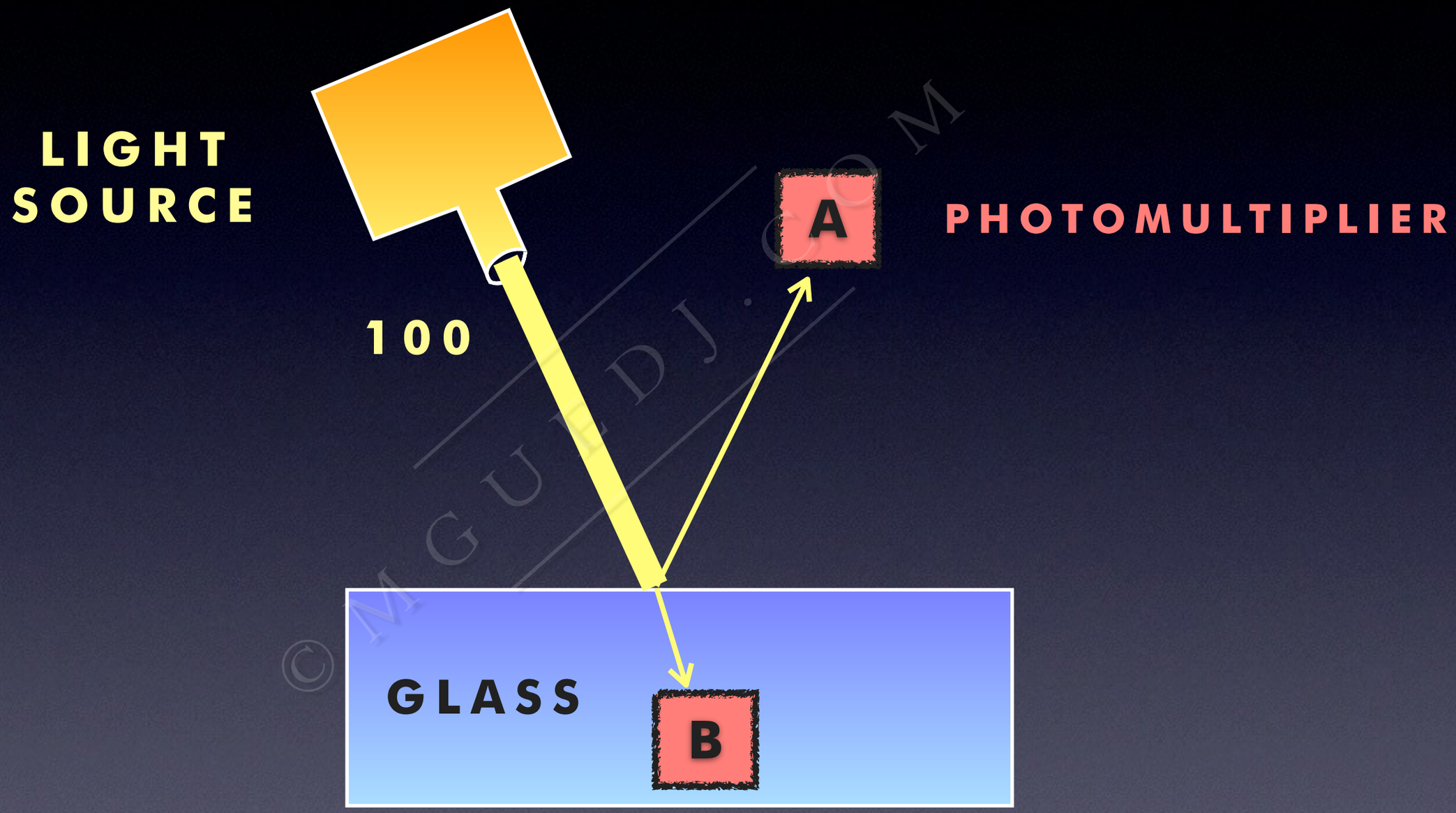
HOW MANY PHOTONS IN A ?



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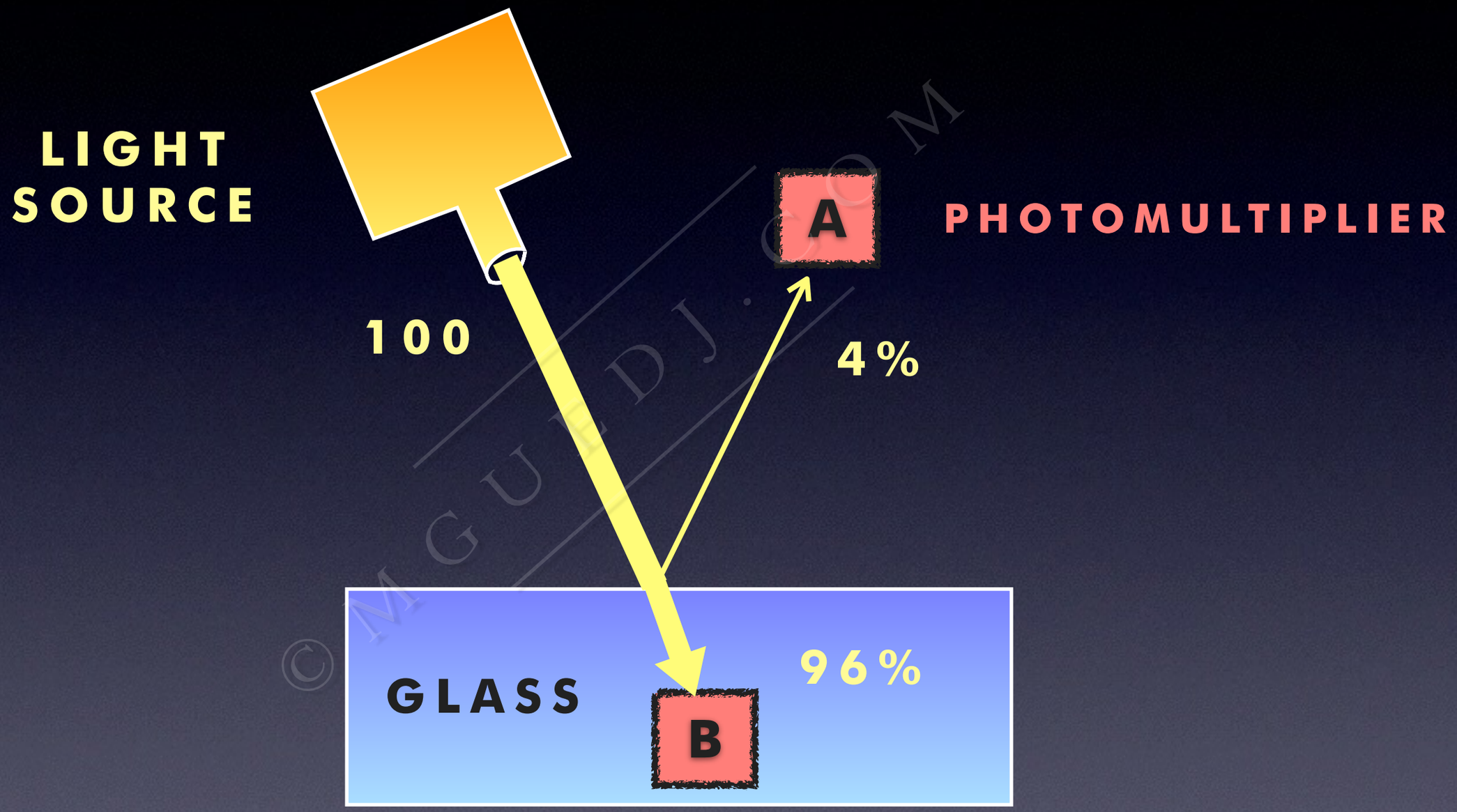
HOW MANY PHOTONS IN A ?



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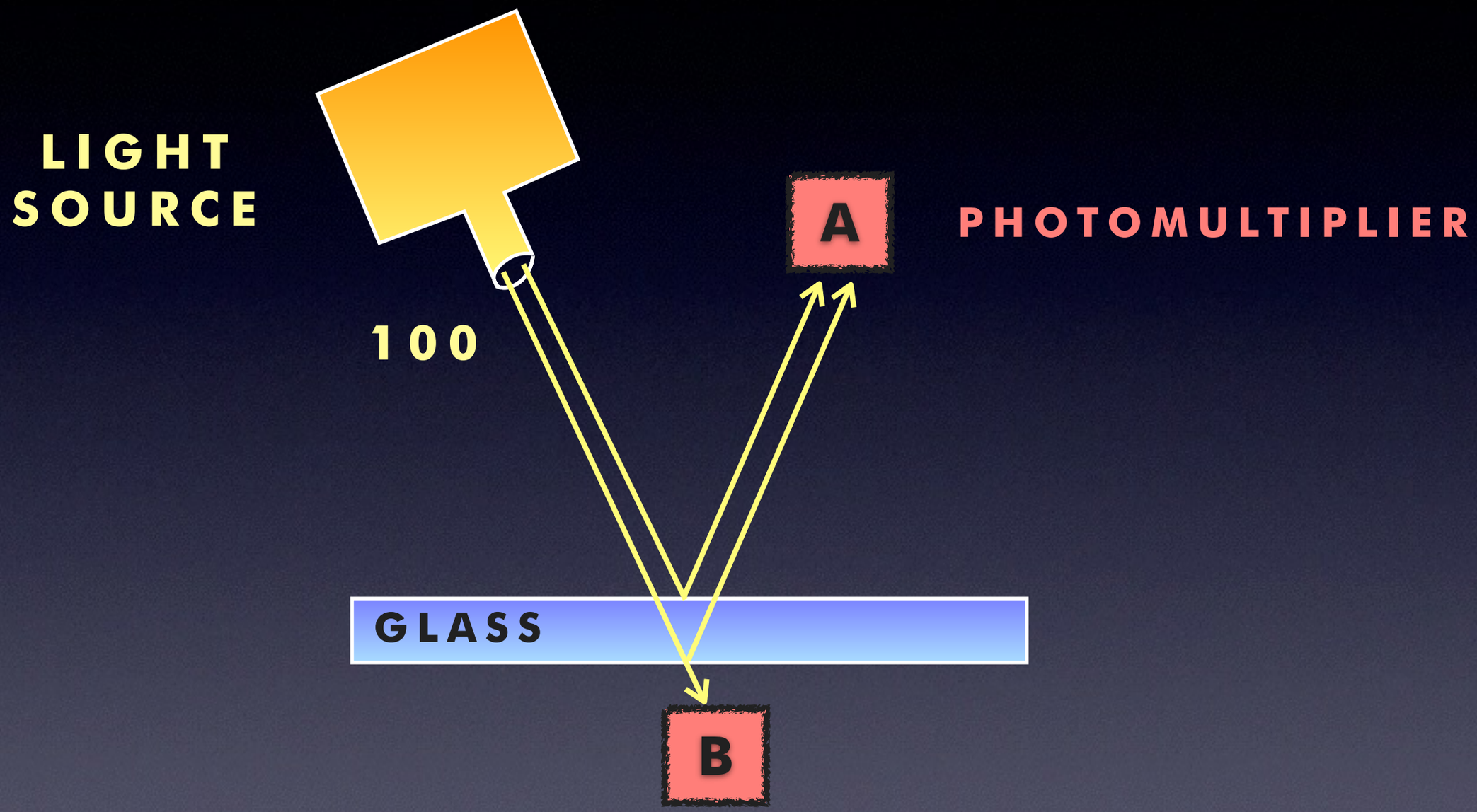
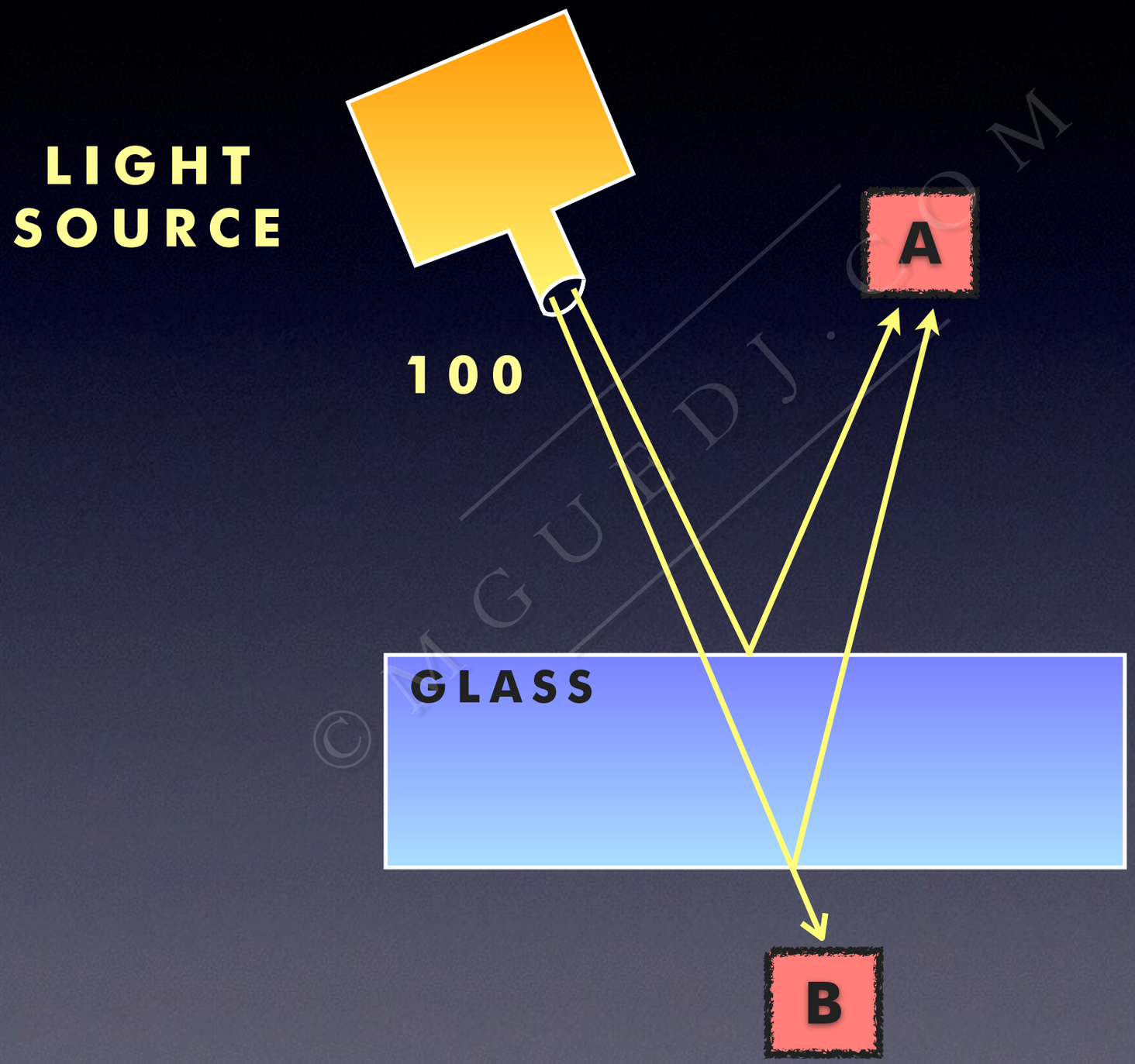
TWO SURFACES



THE THICKER THE GLASS, THE HIGHER THE REFLECTION ?



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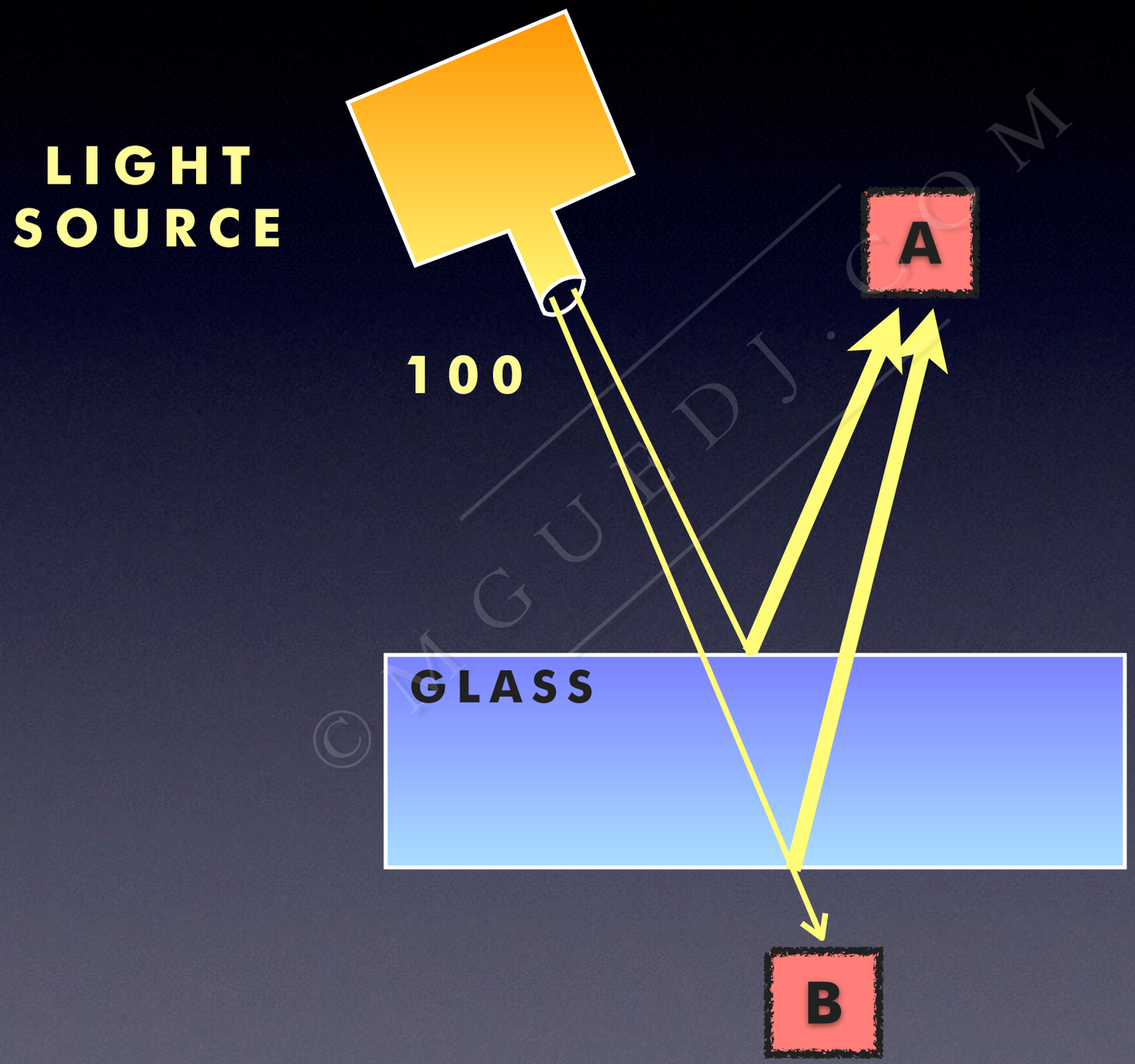
THE THICKER THE GLASS, THE HIGHER THE REFLECTION ?



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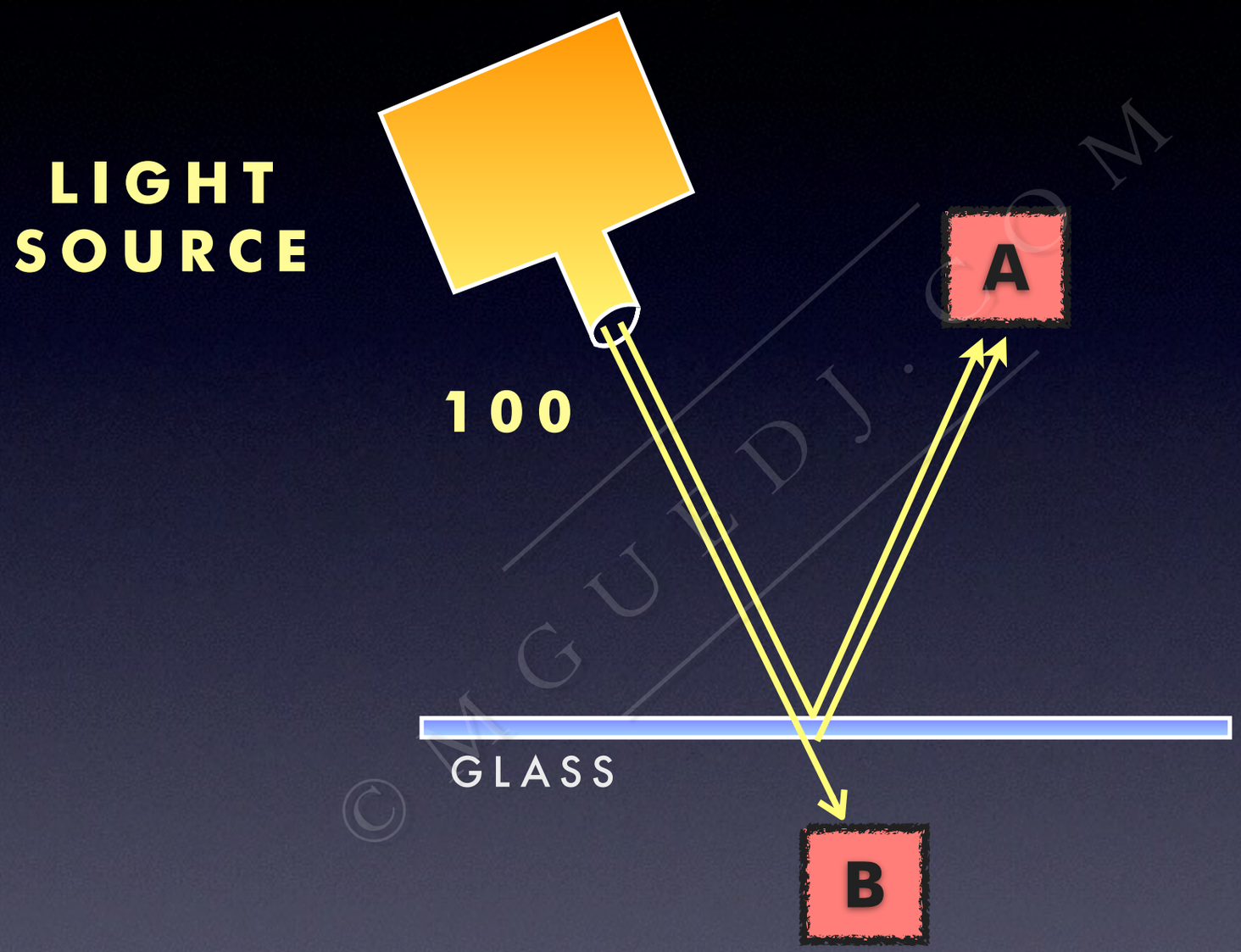
THE THINER THE GLASS, THE LOWER THE REFLECTION ?



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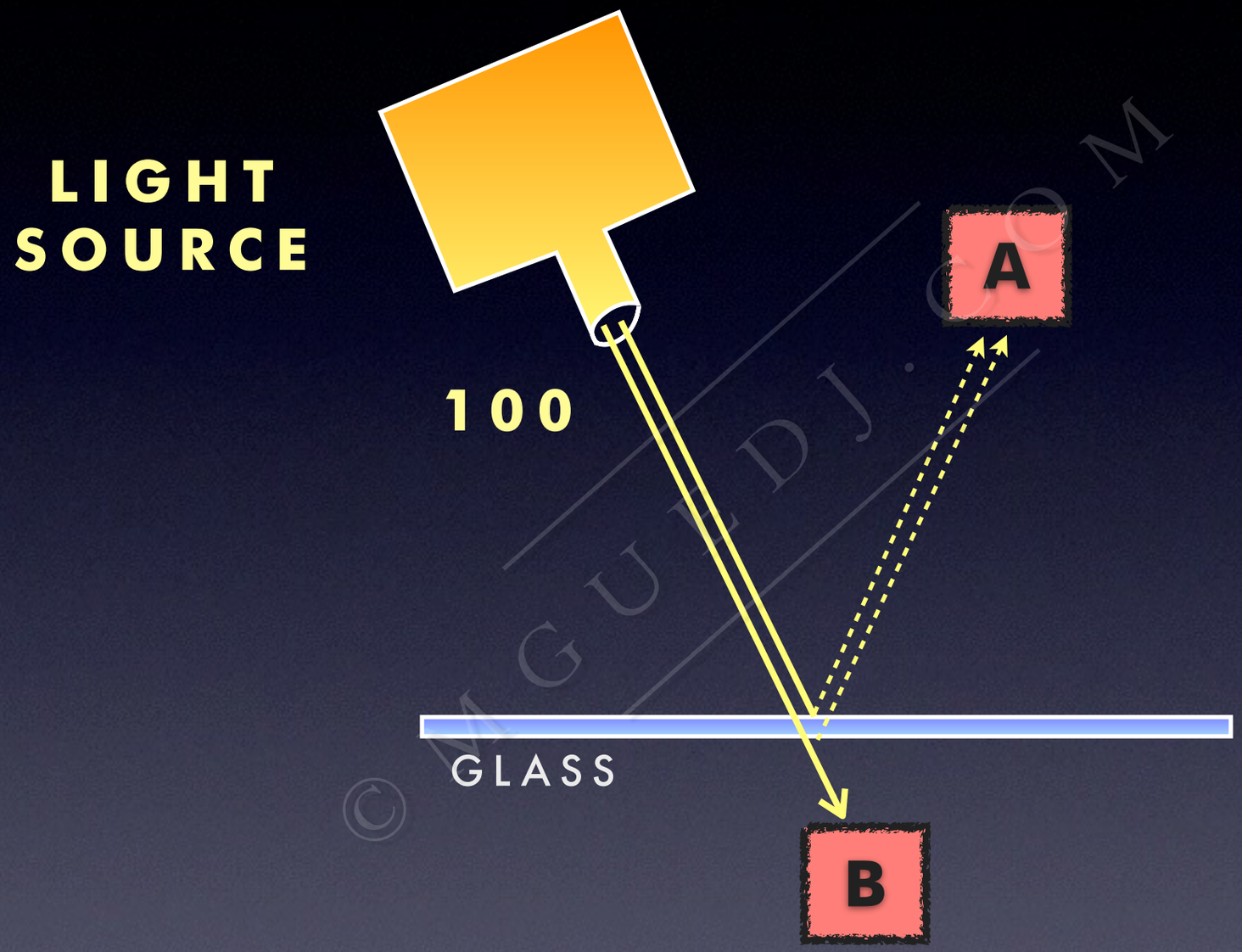
THE THINER THE GLASS, THE LOWER THE REFLECTION ?



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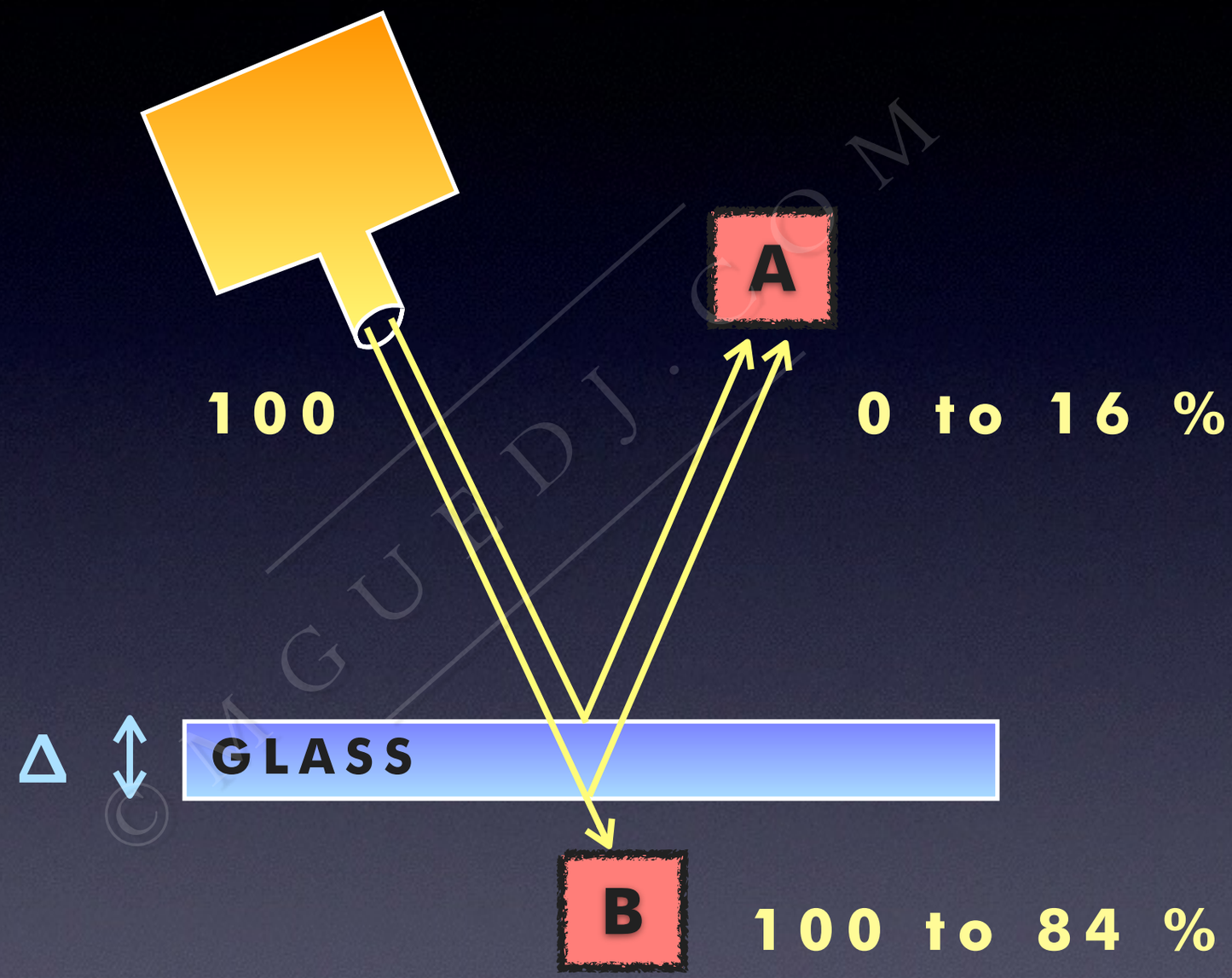
THICKNESS - DEPENDANT



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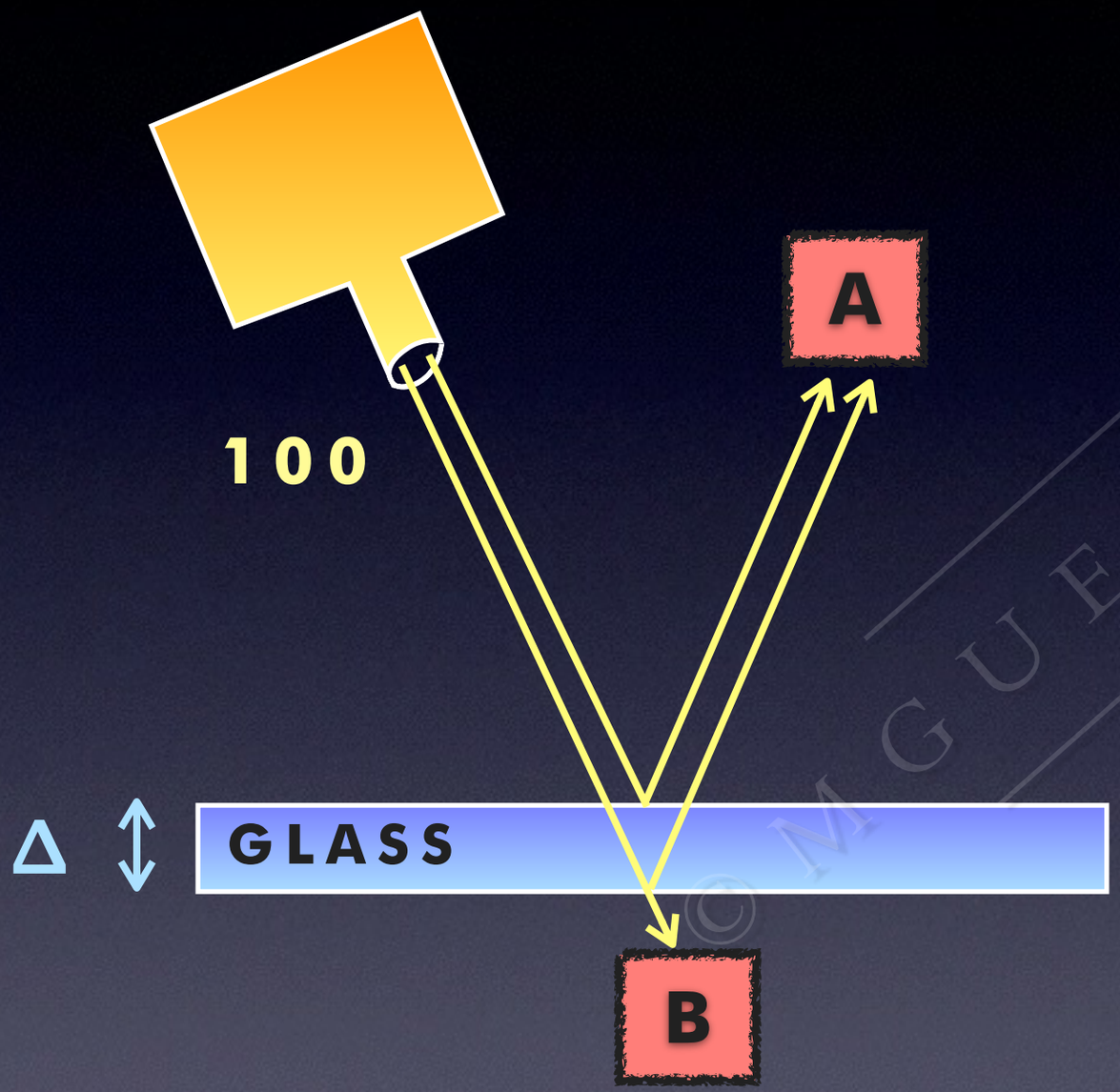
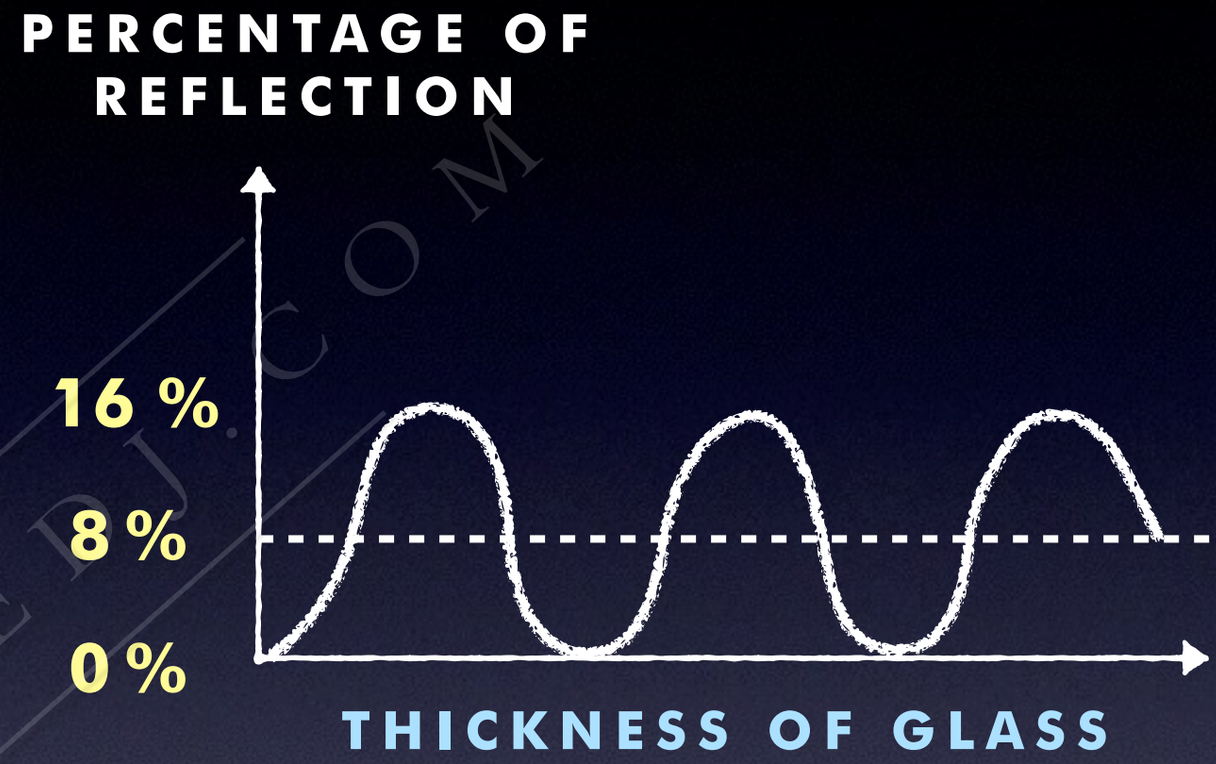
THICKNESS - DEPENDANT





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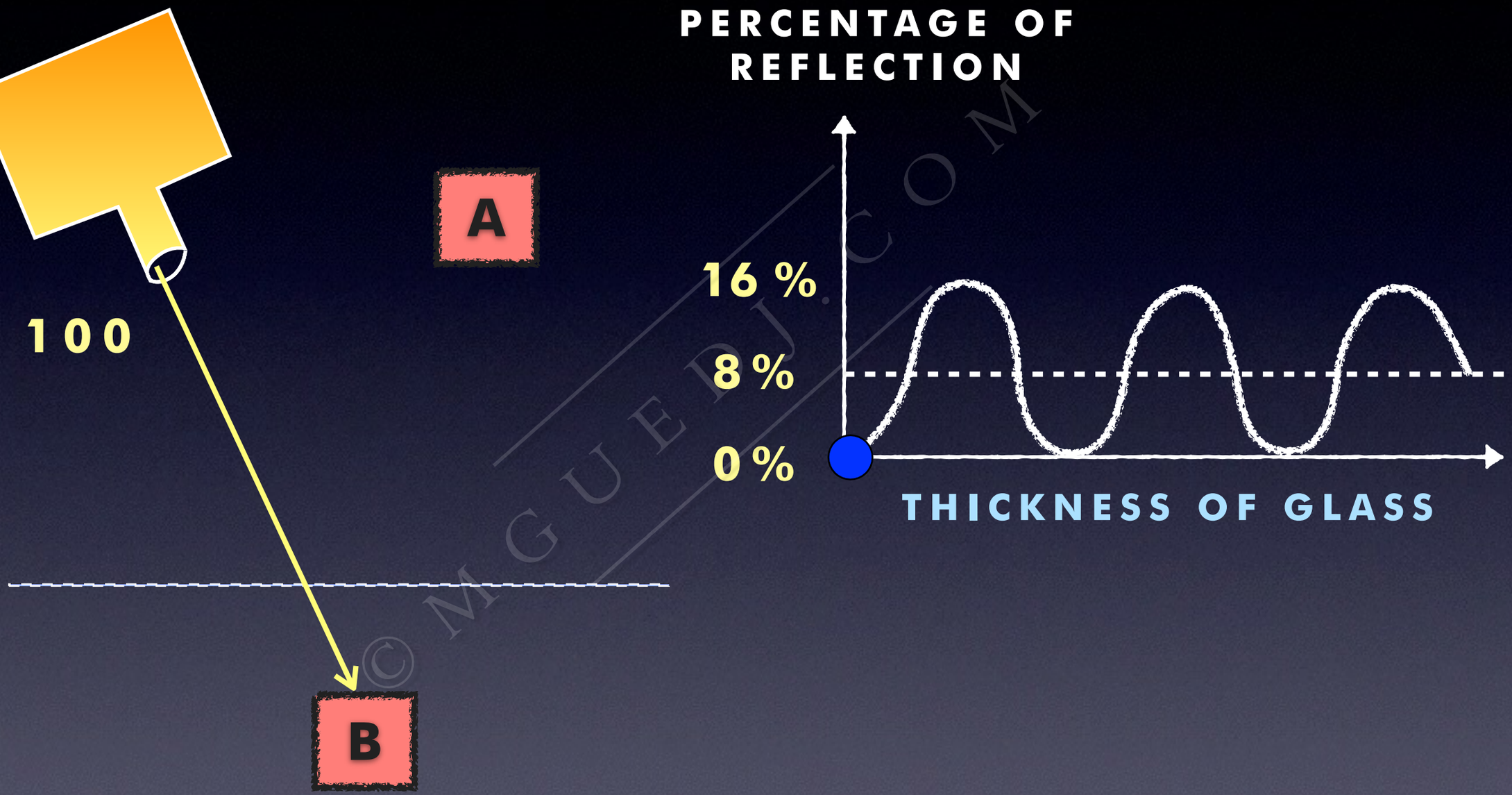

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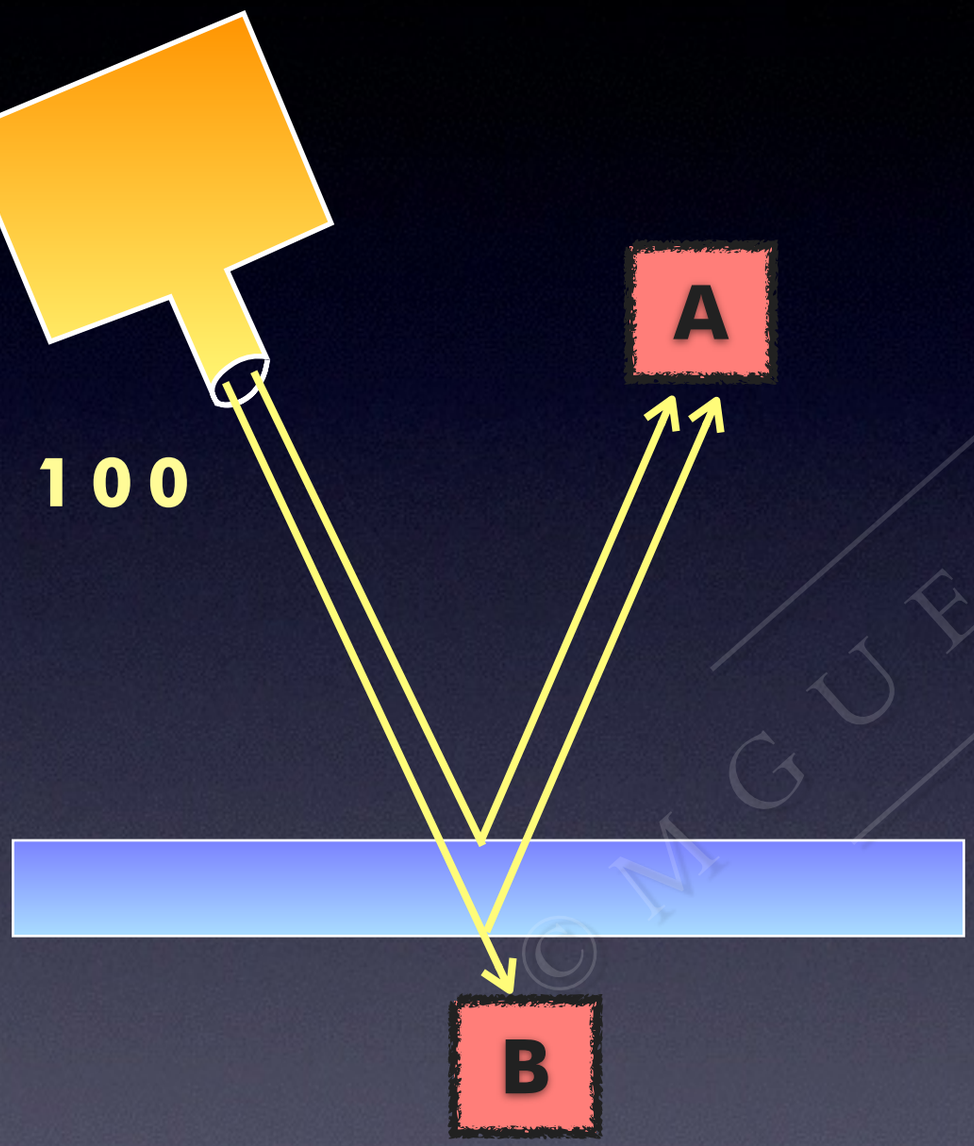

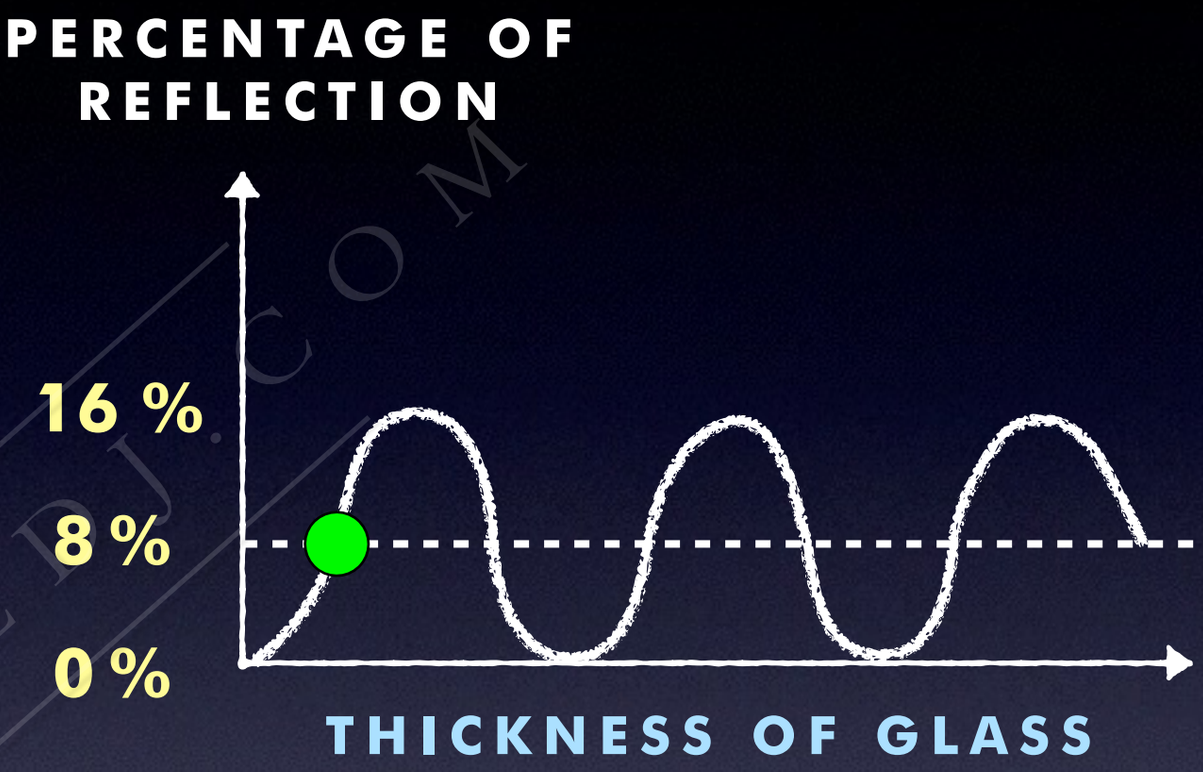

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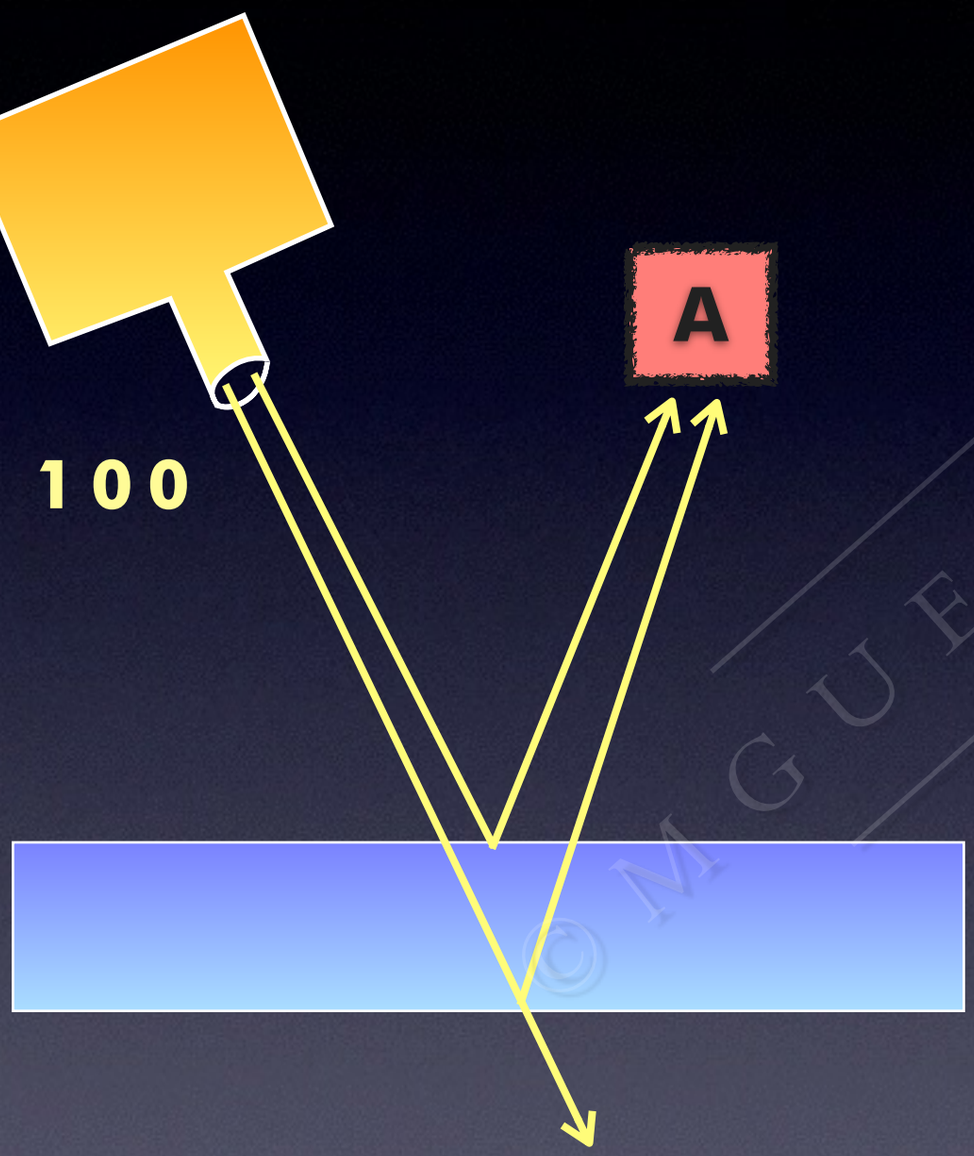
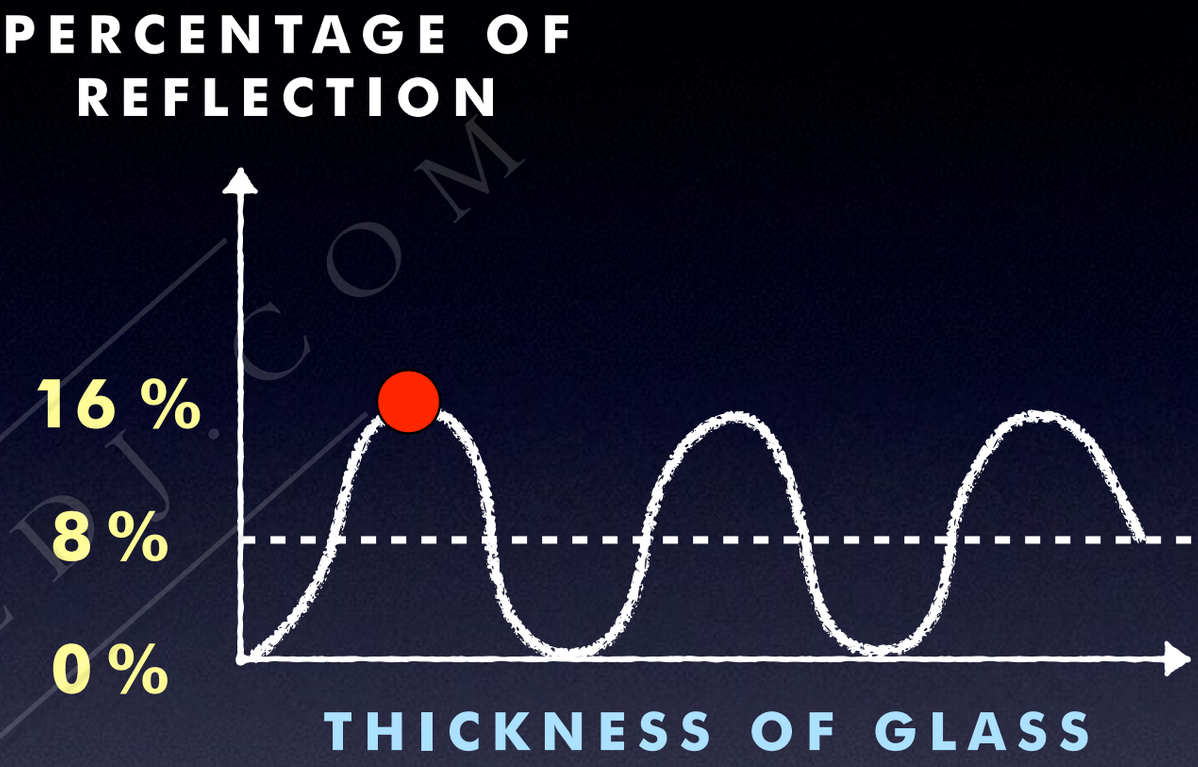
THICKNESS - DEPENDANT





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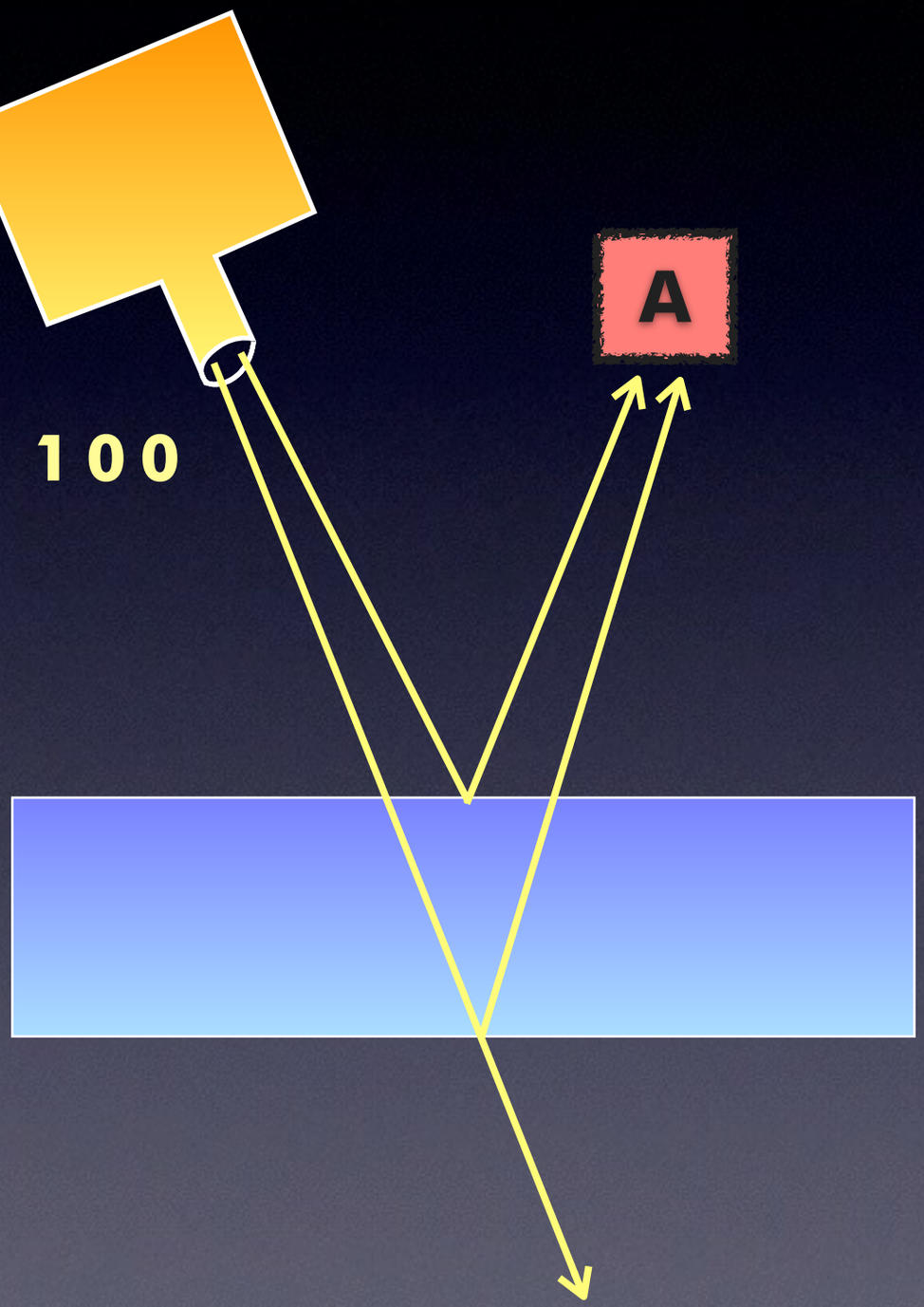

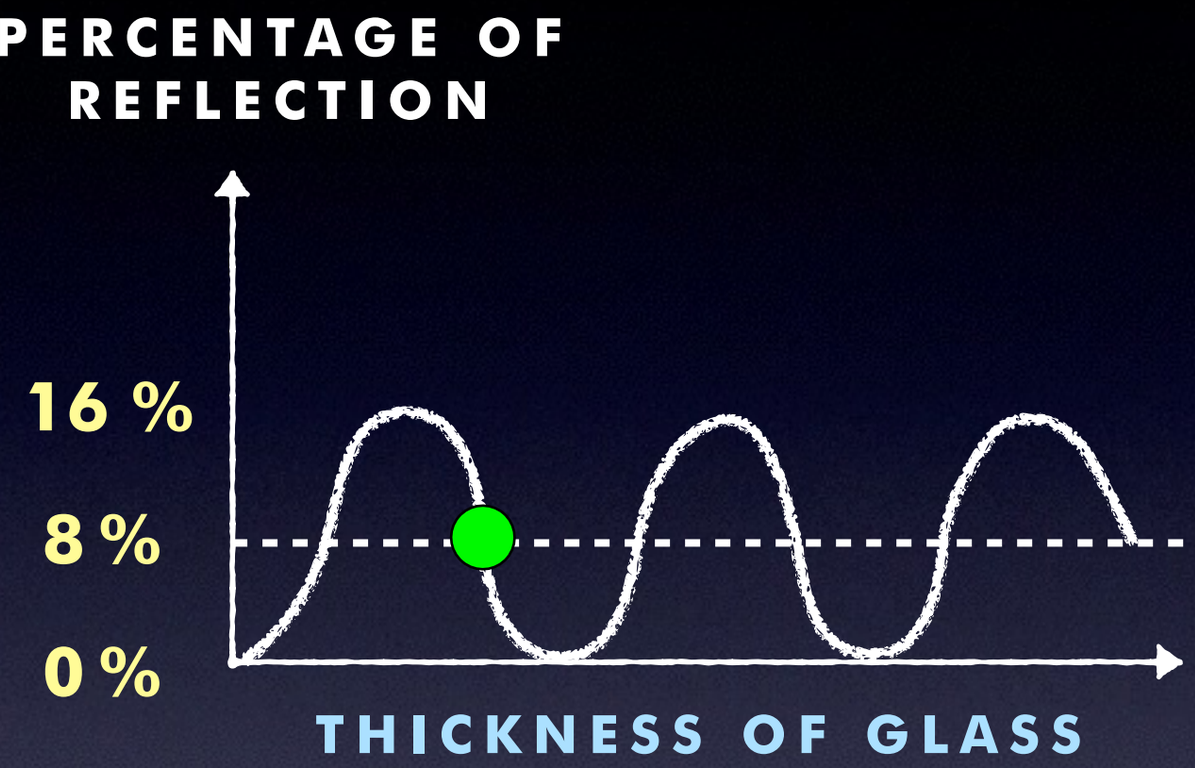

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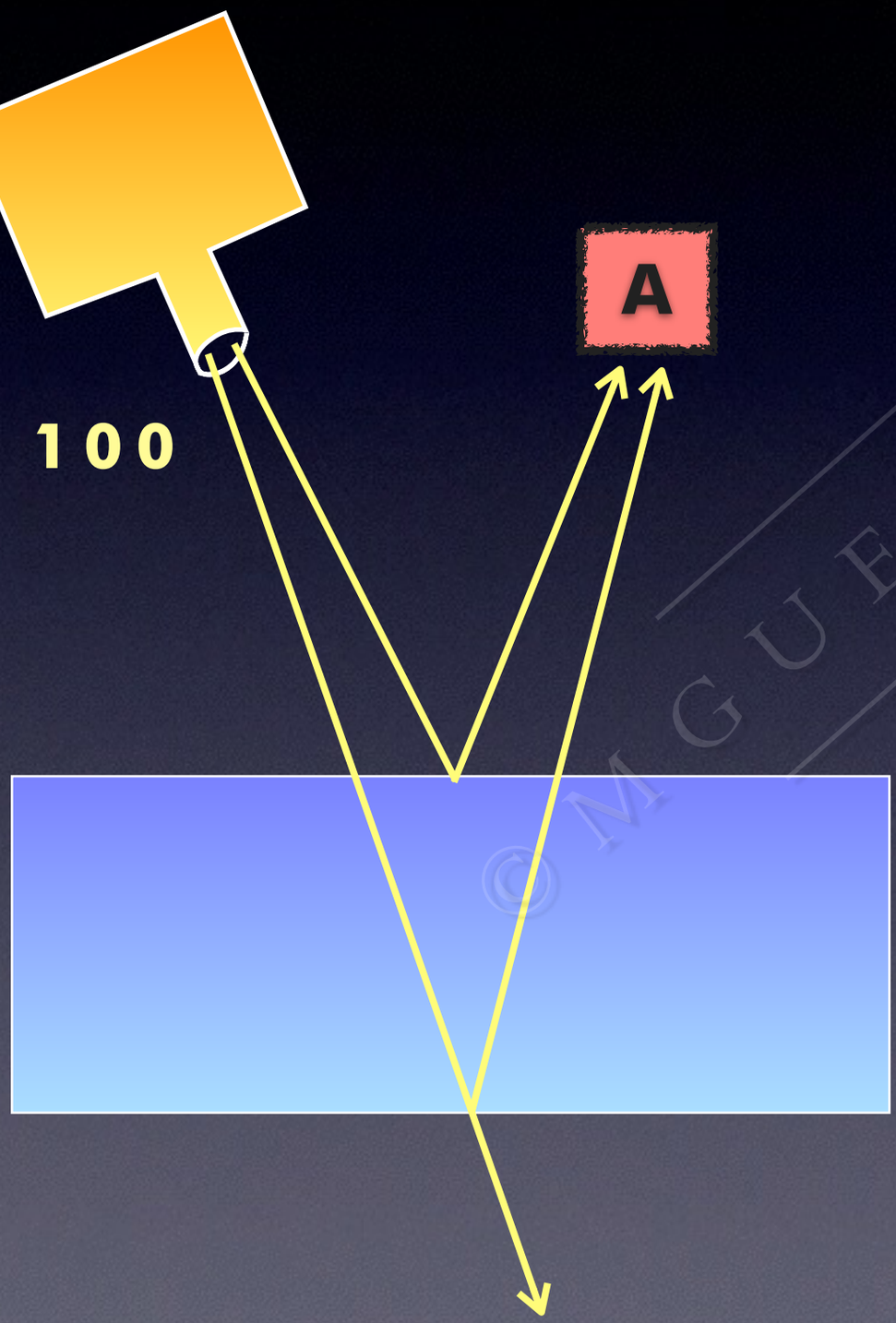

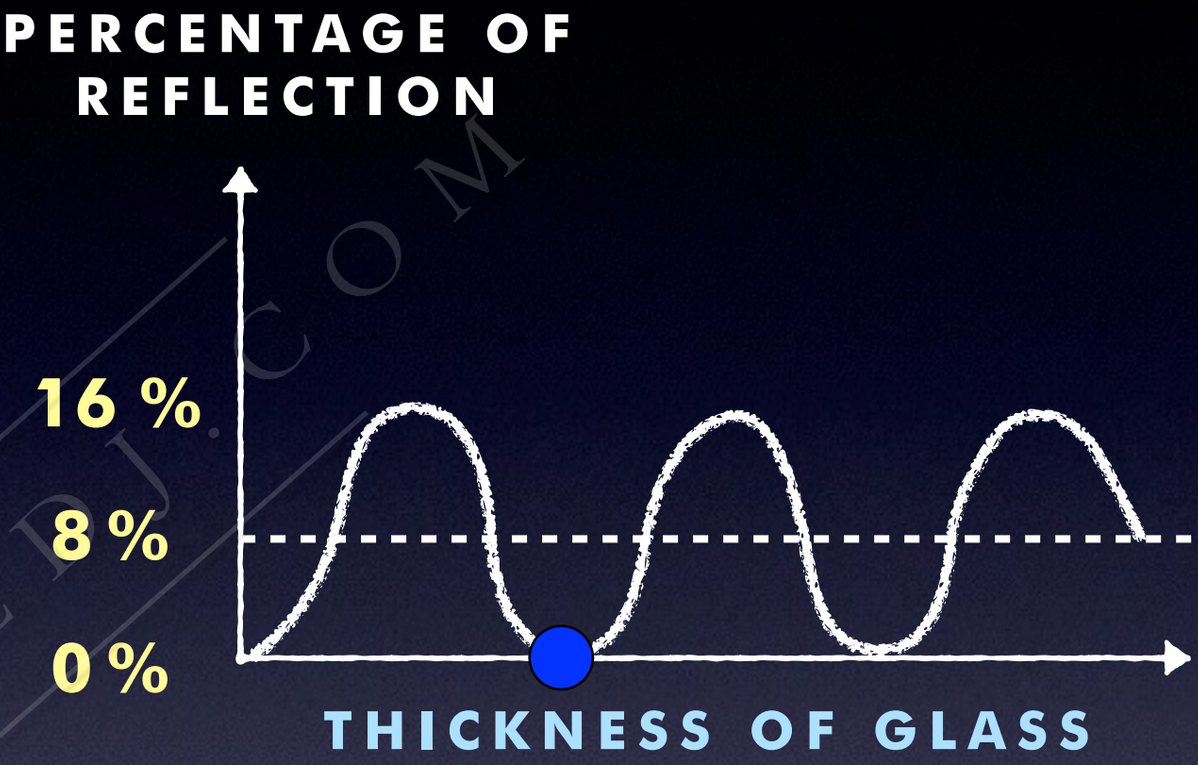

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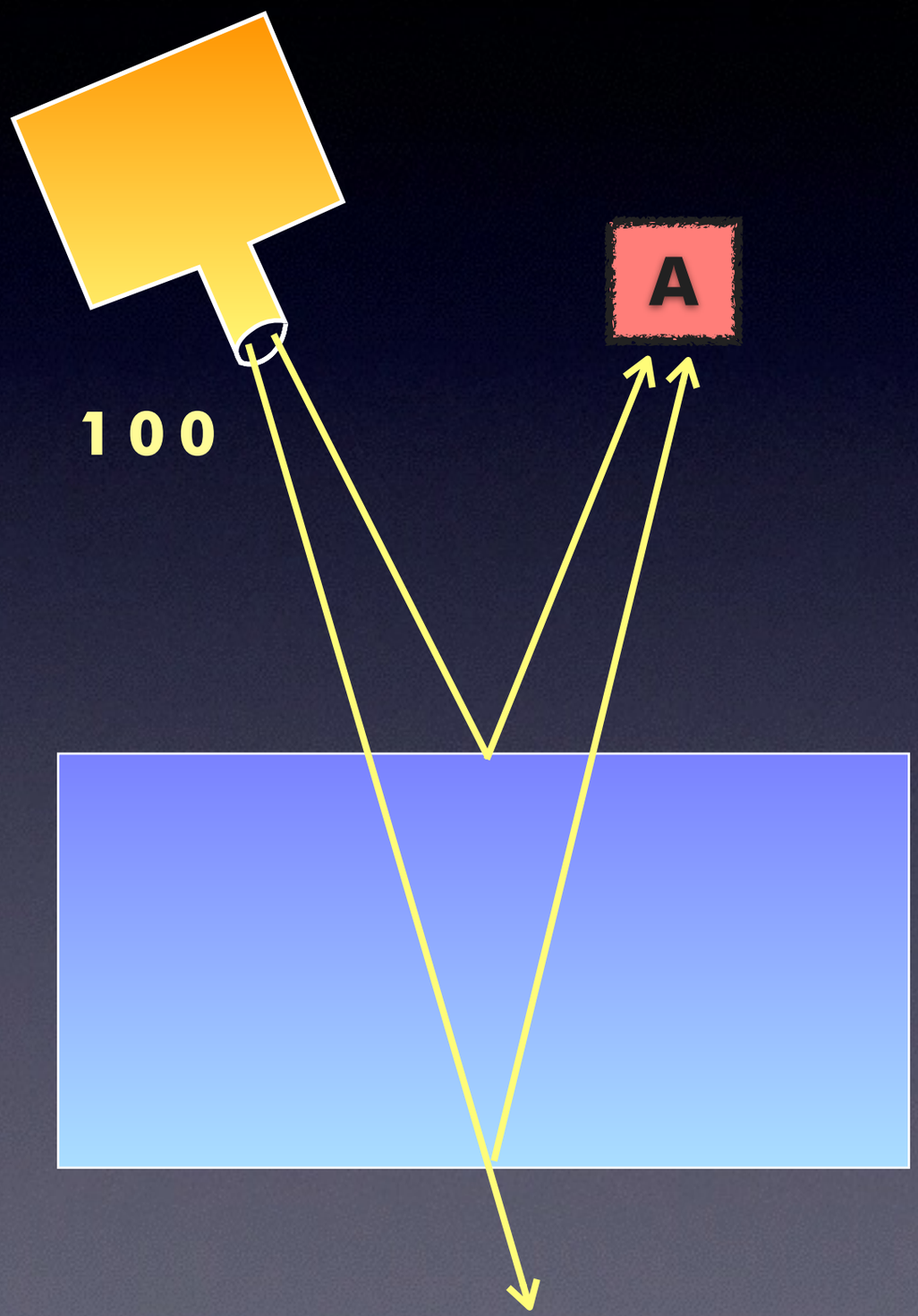

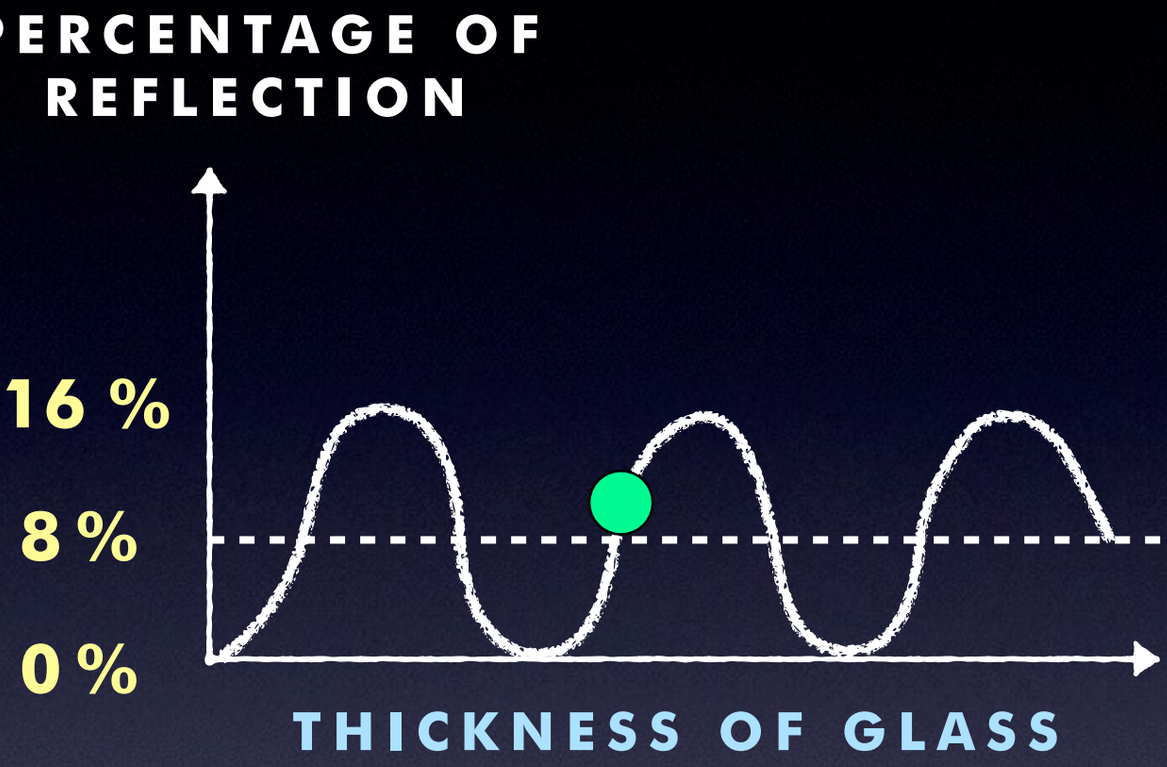

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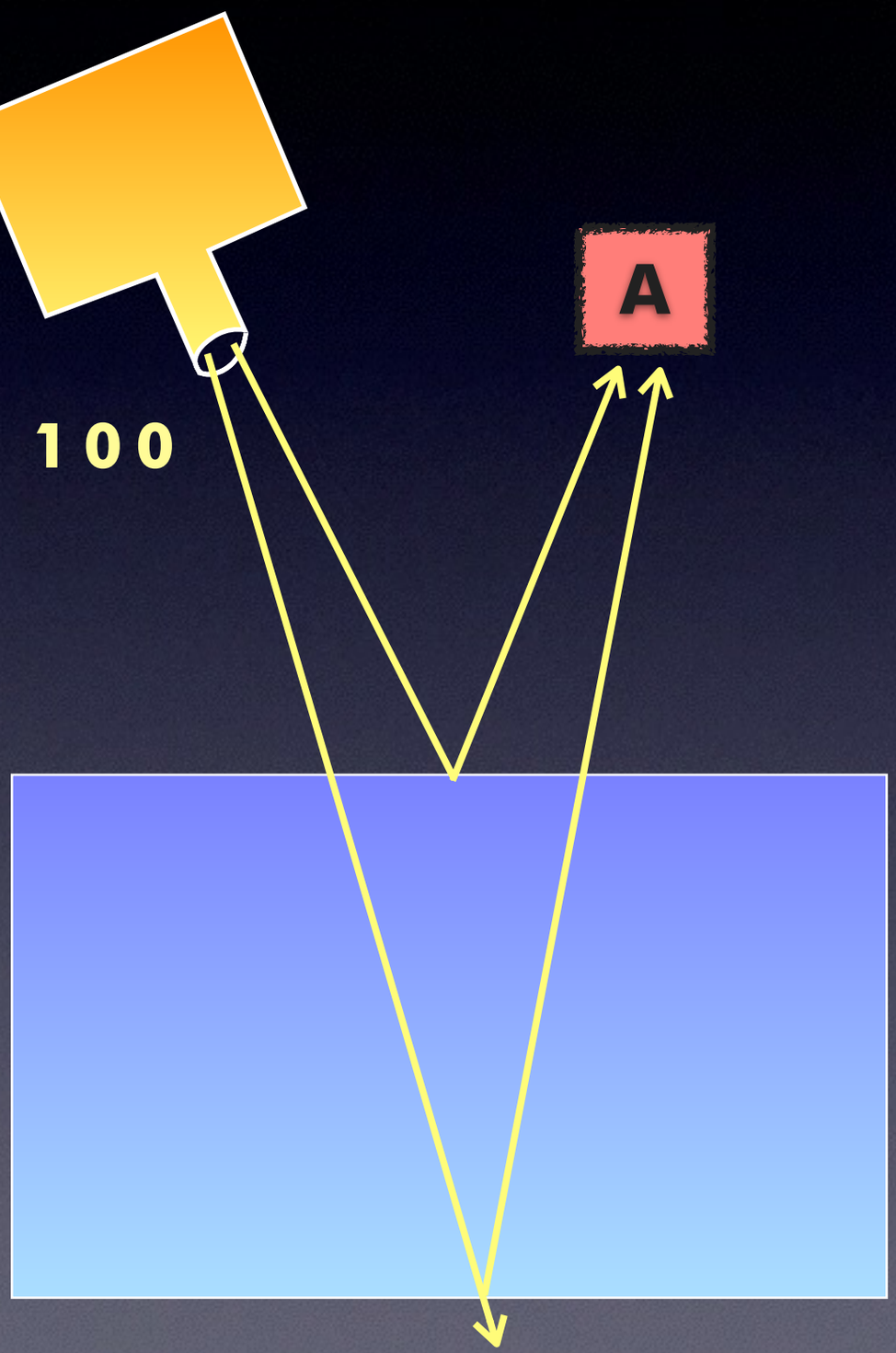
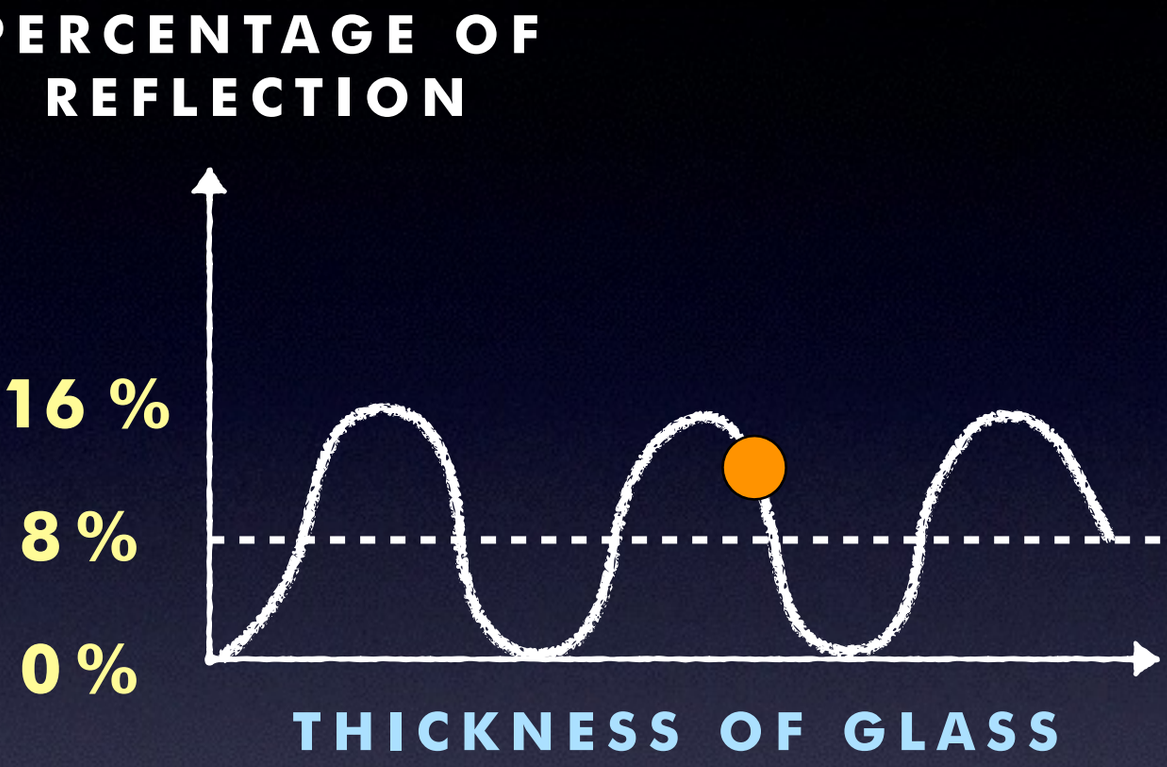
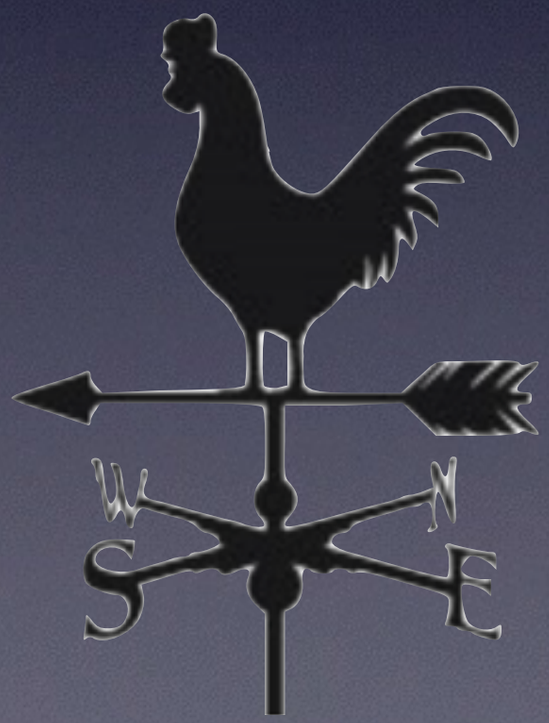




ARROWS & STOPWATCHES



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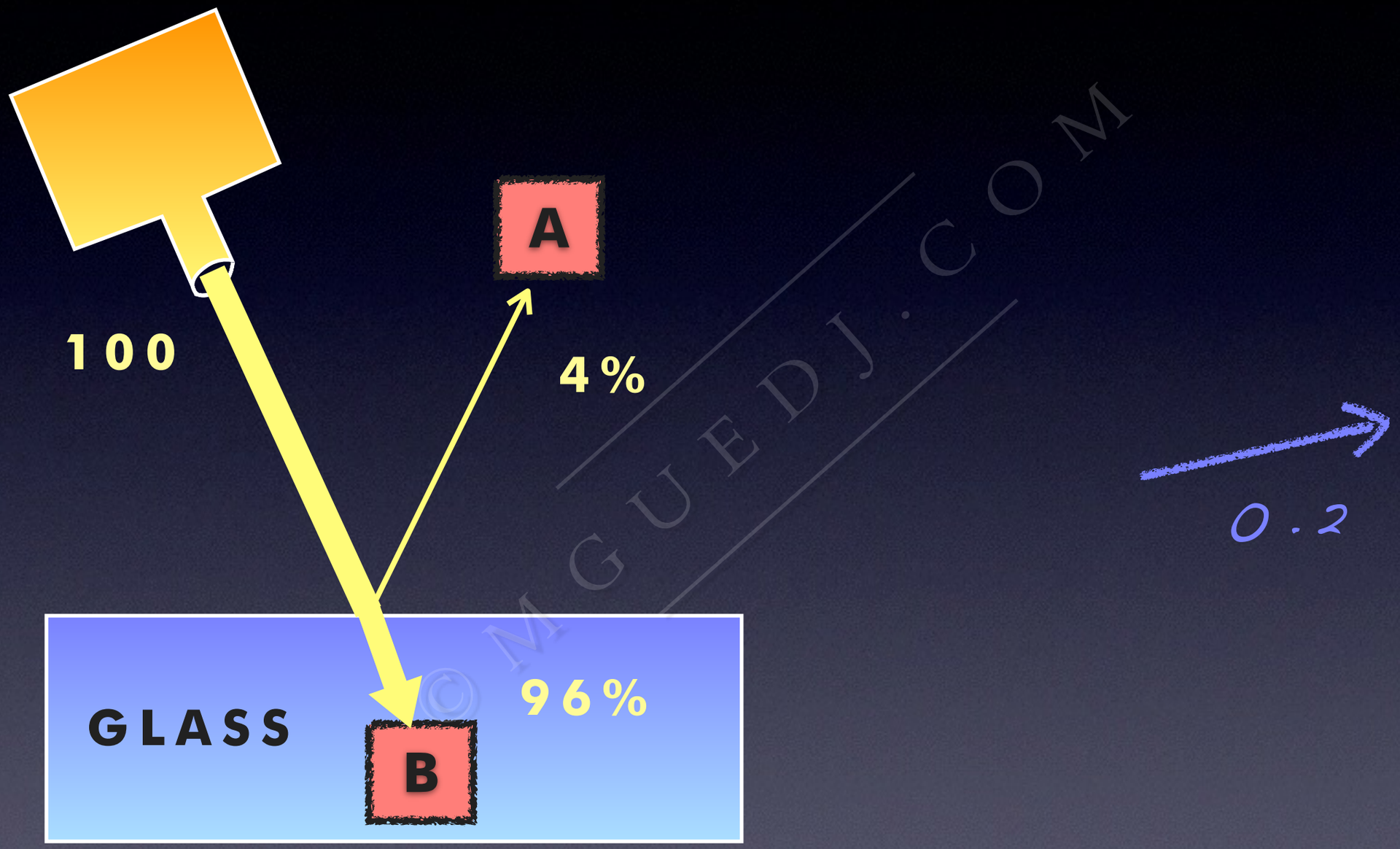
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A
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GLASS
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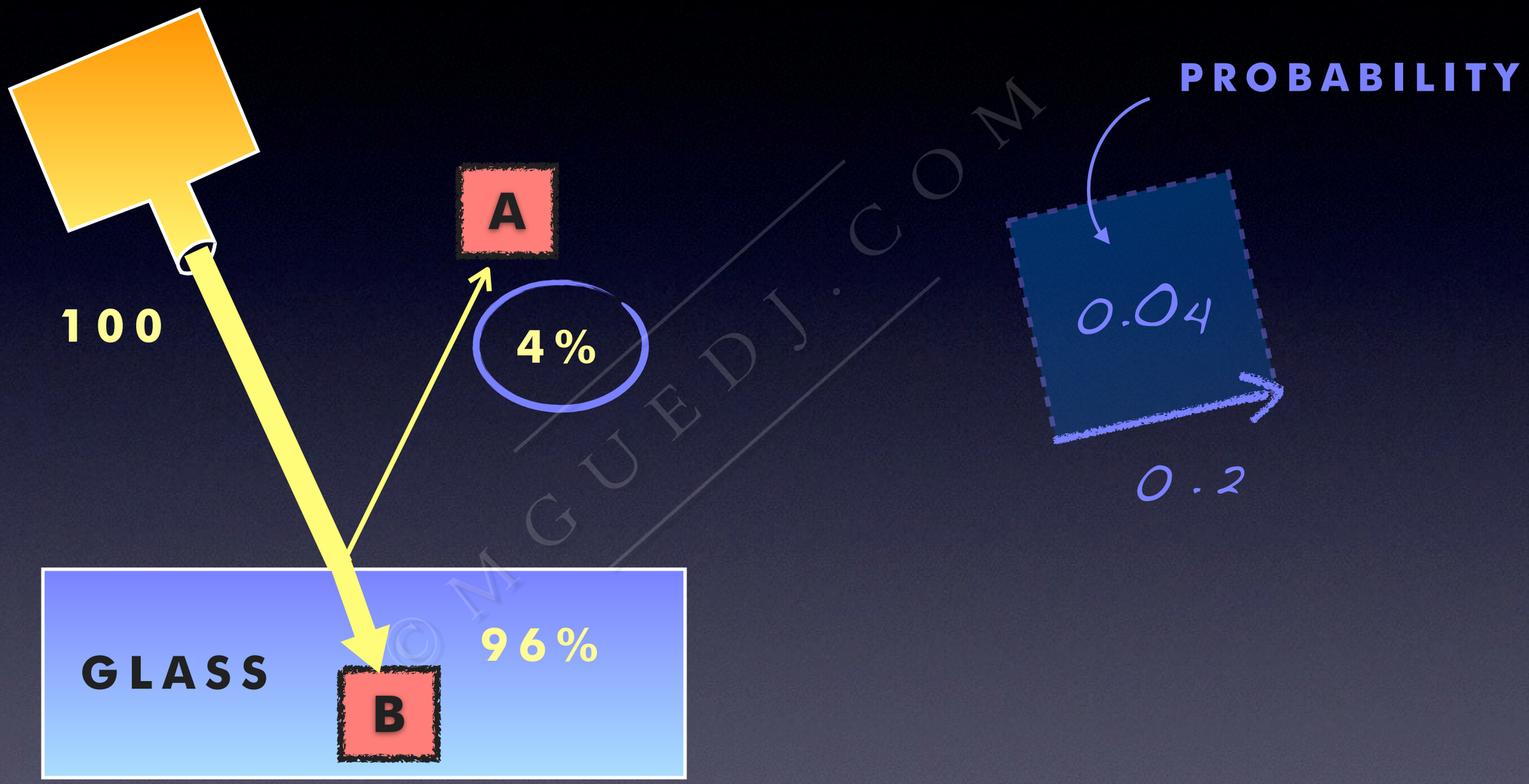
B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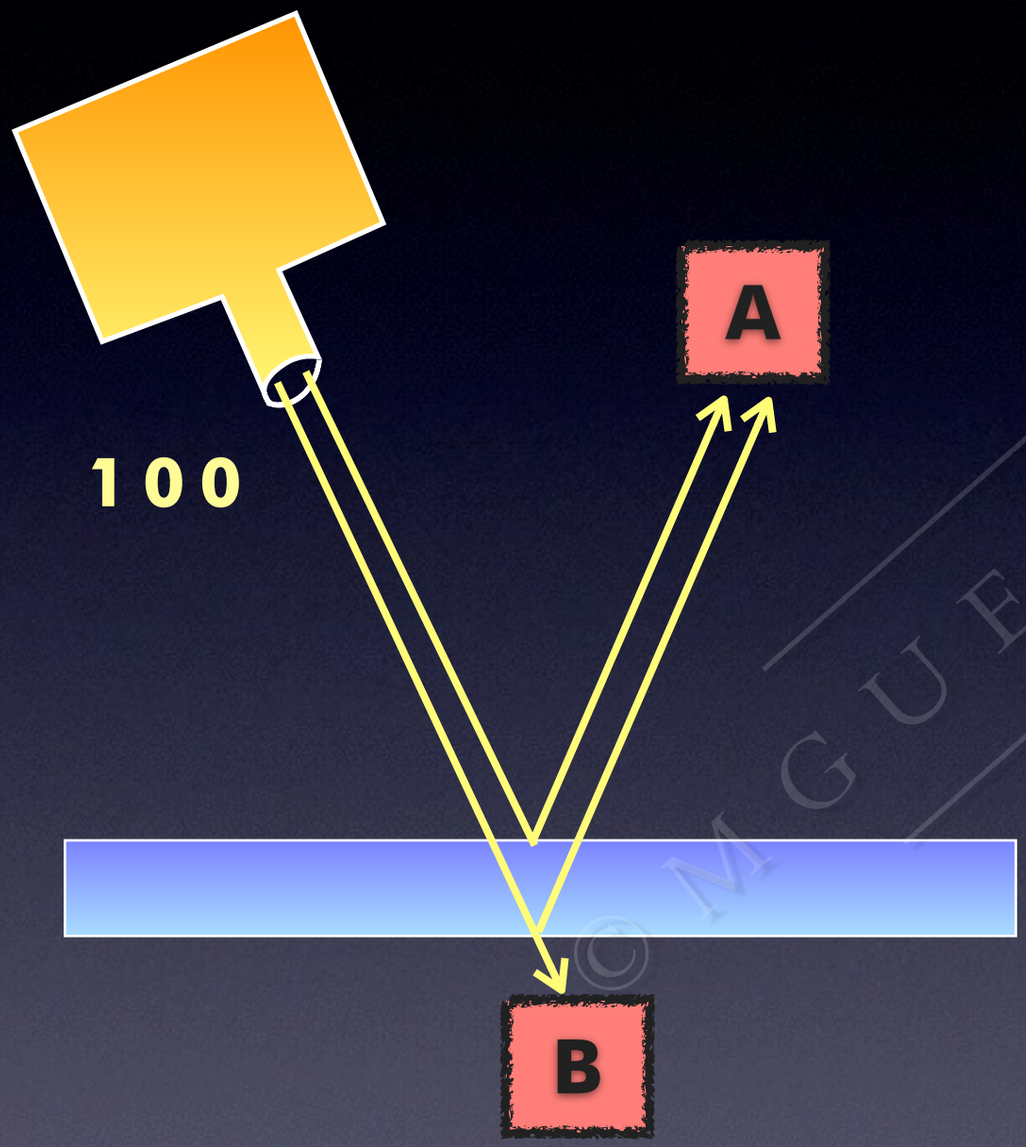

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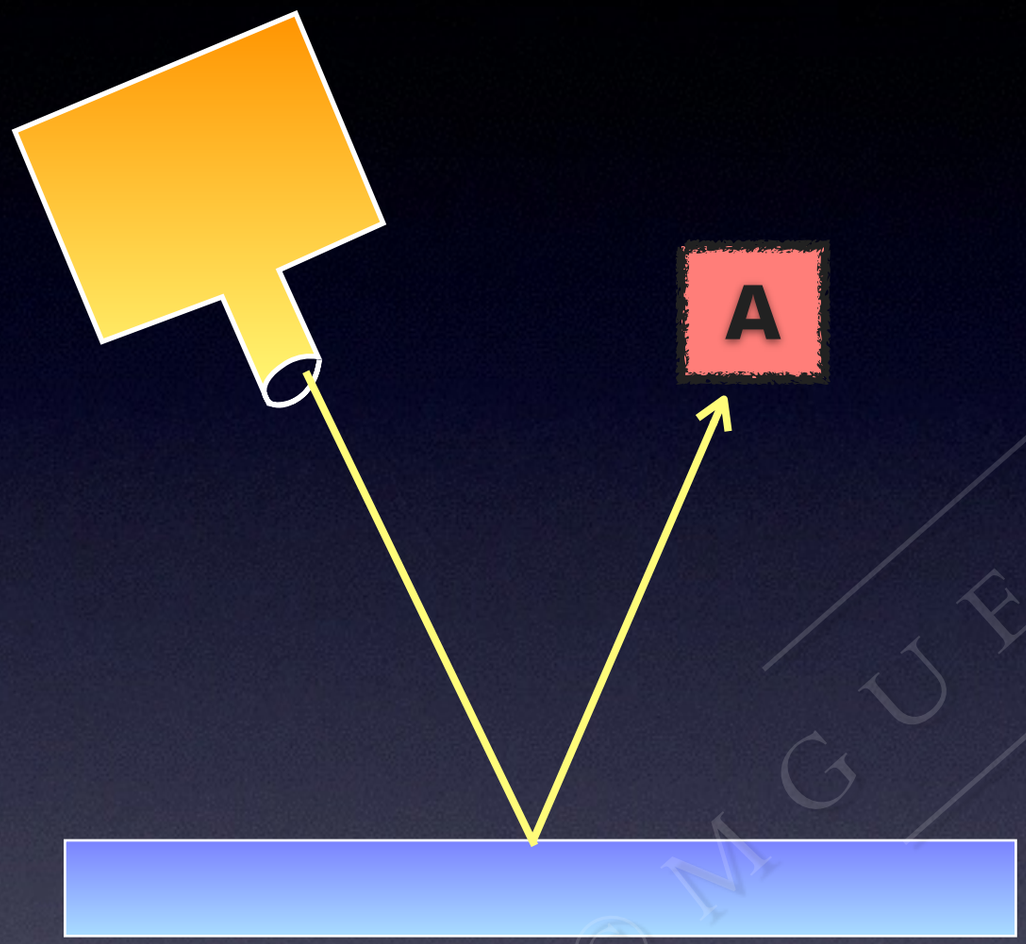

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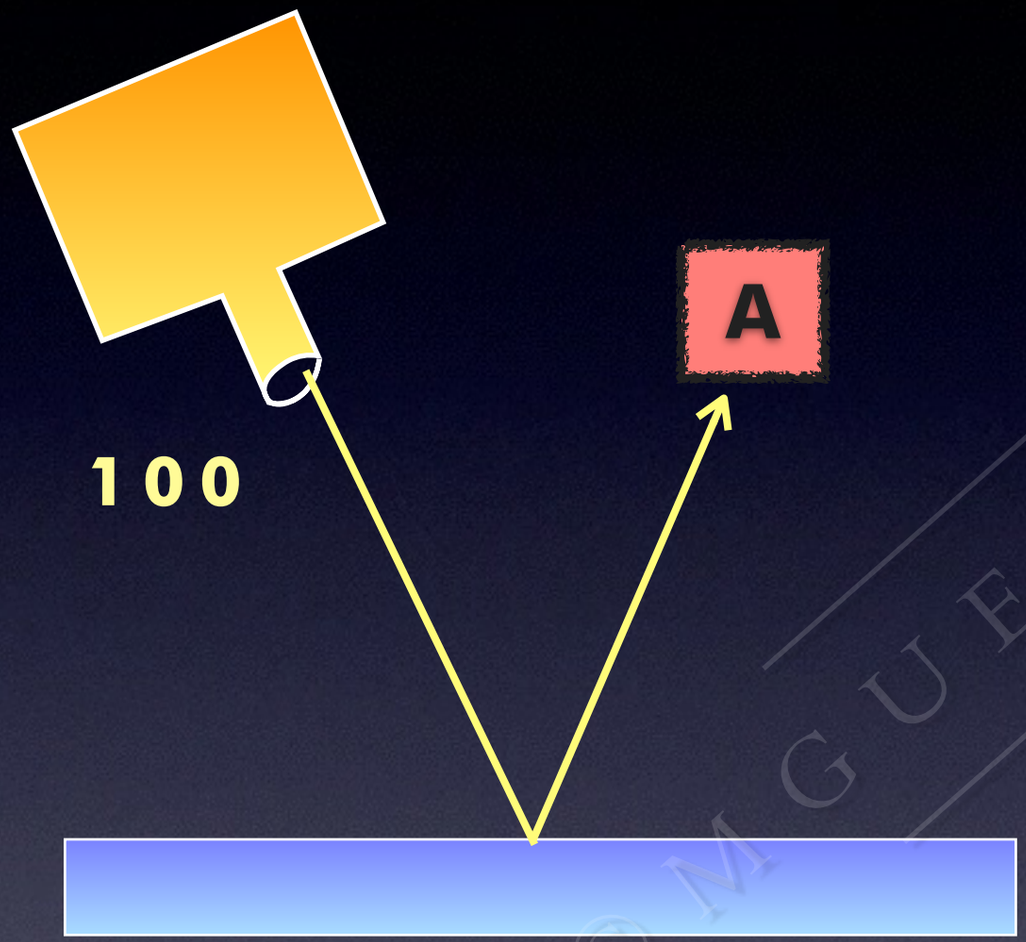

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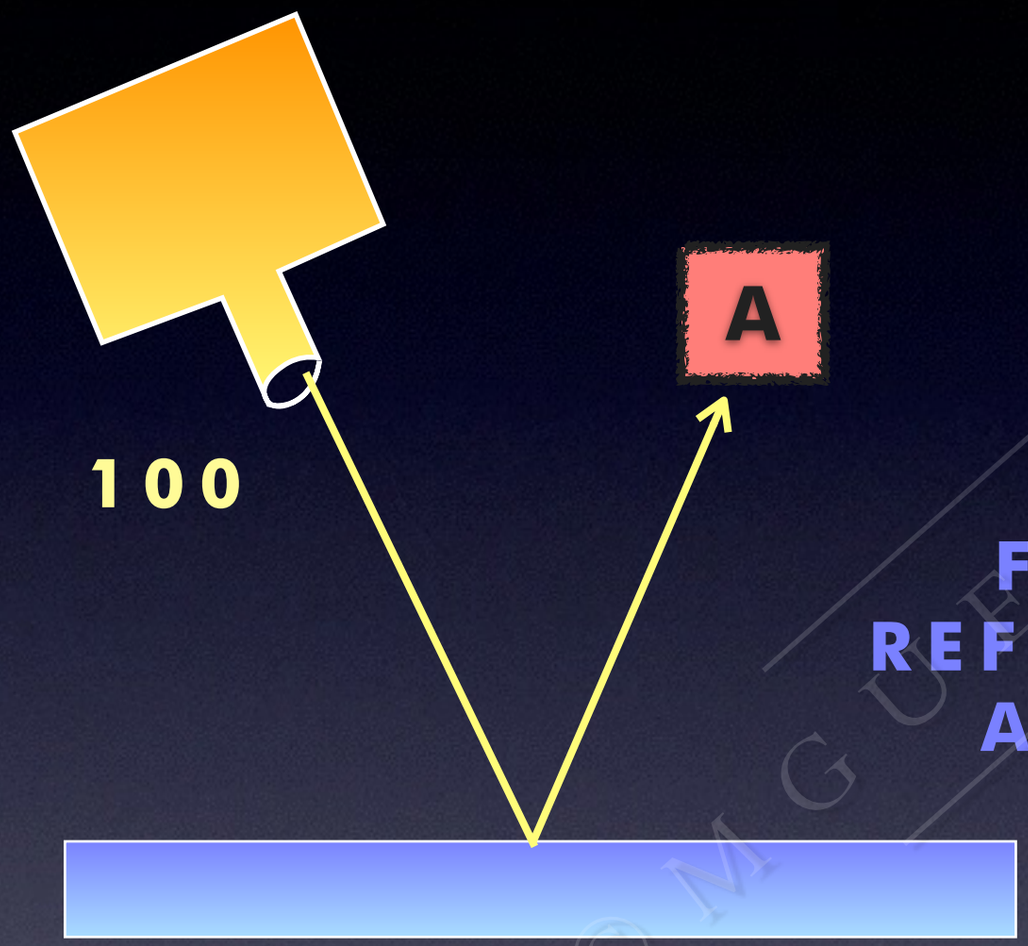

FRONT REFLECTION ARROW

OPPOSITE DIRECTION TO THAT OF THE STOPWATCH HAND

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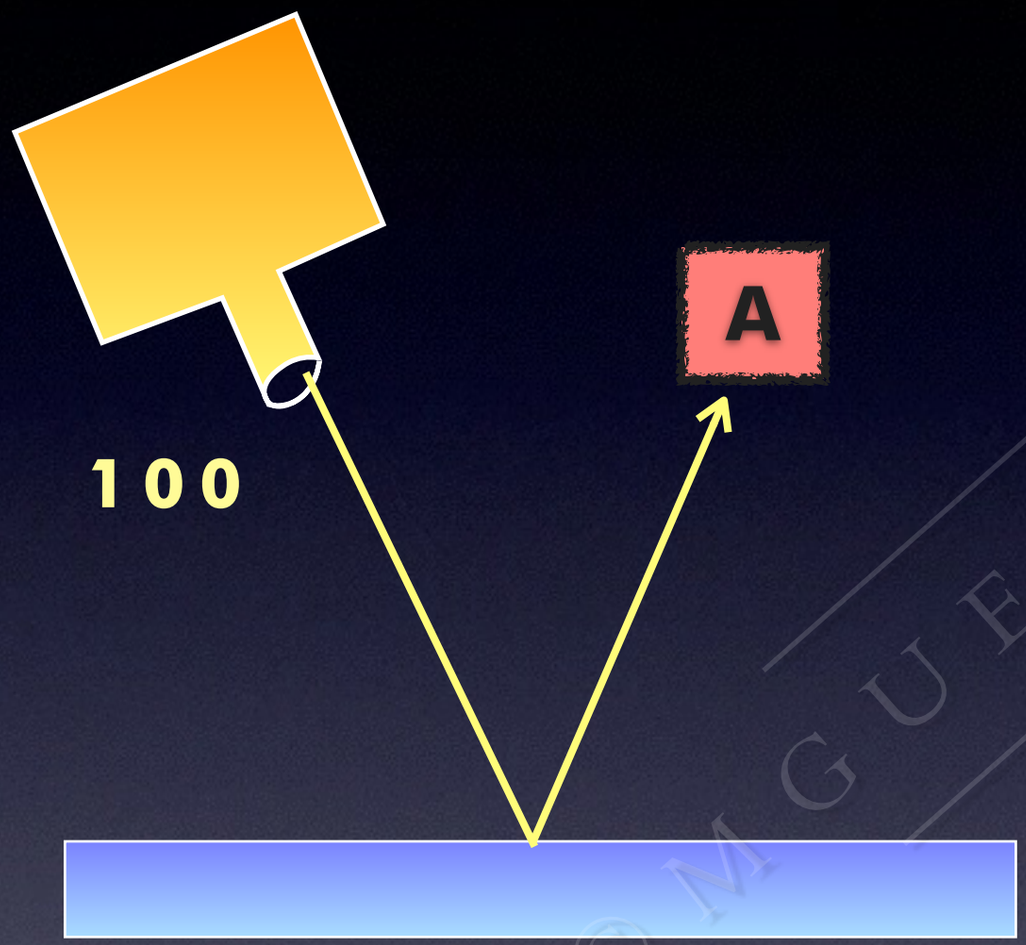

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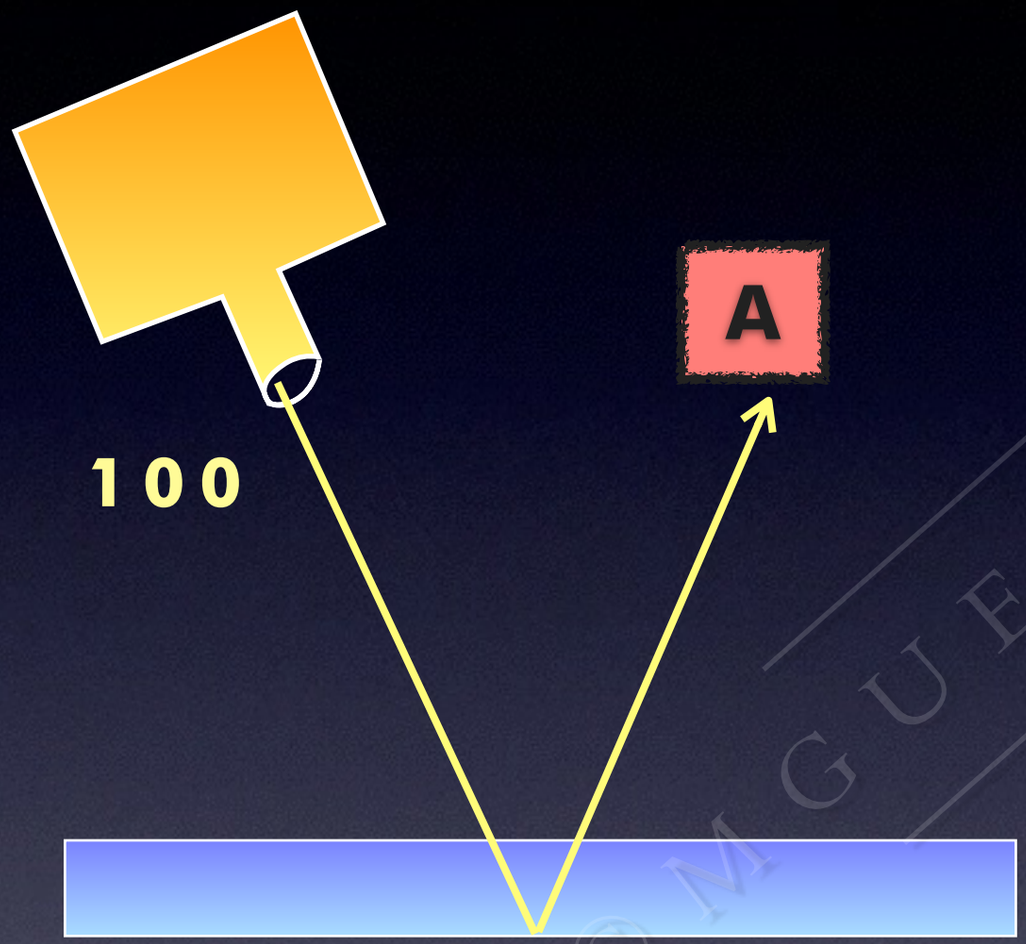

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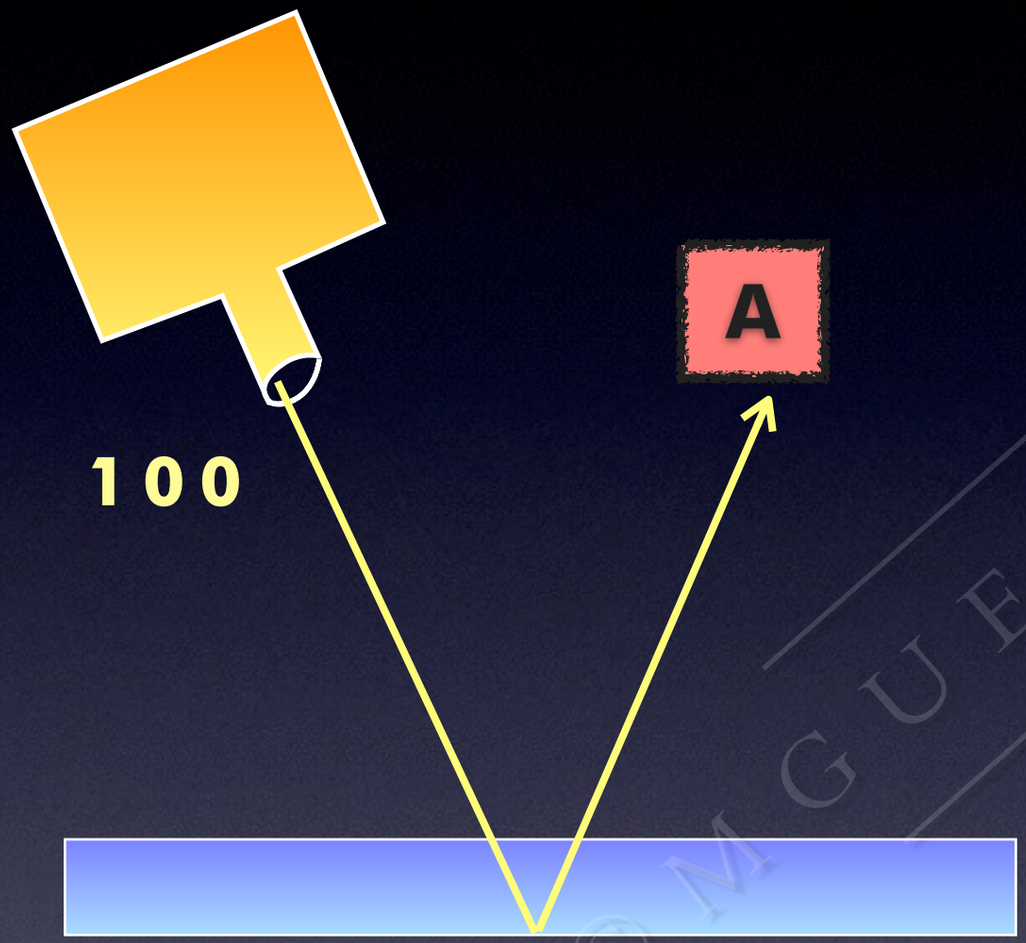

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100

A

BACK REFLECTION ARROW

0.2

SAME DIRECTION TO THAT OF THE STOPWATCH HAND

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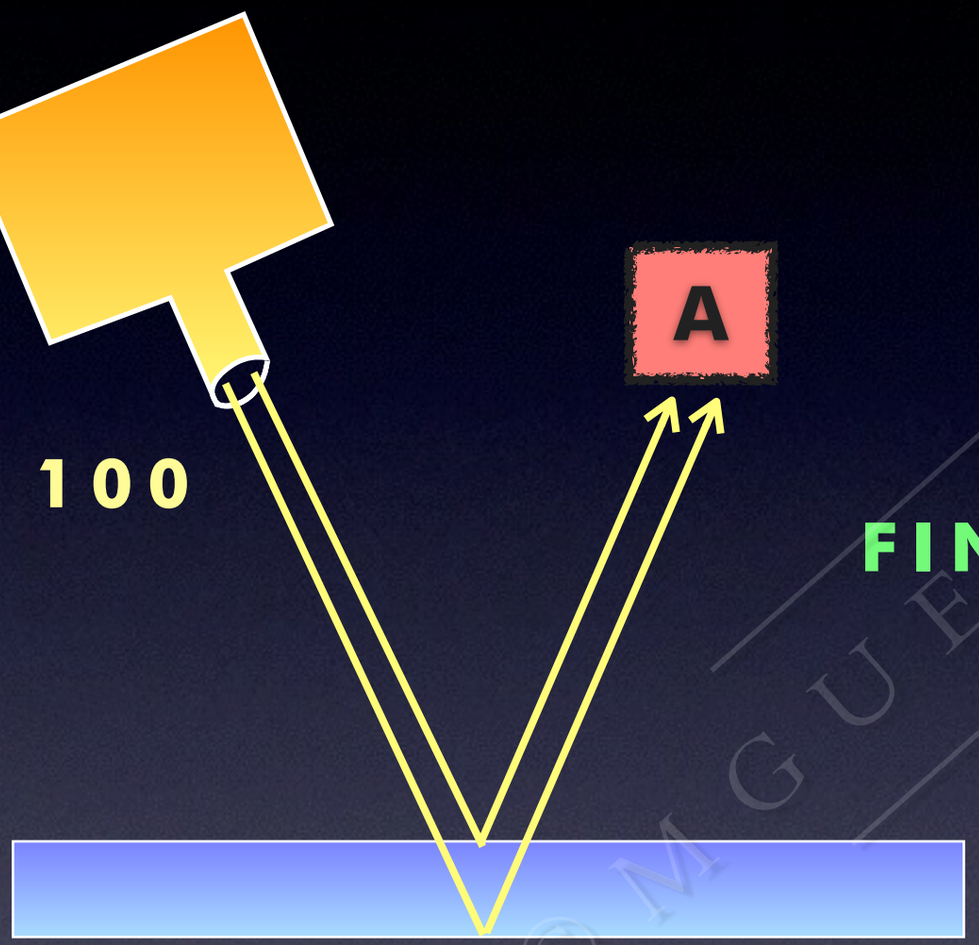

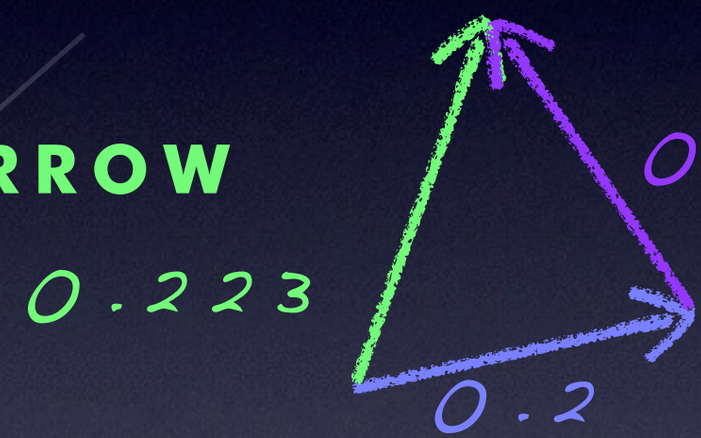

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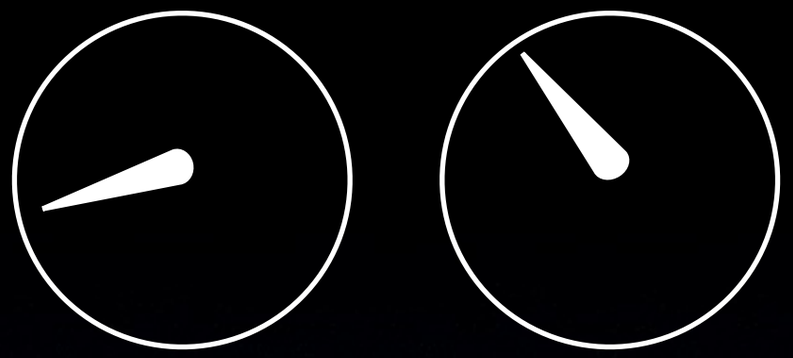

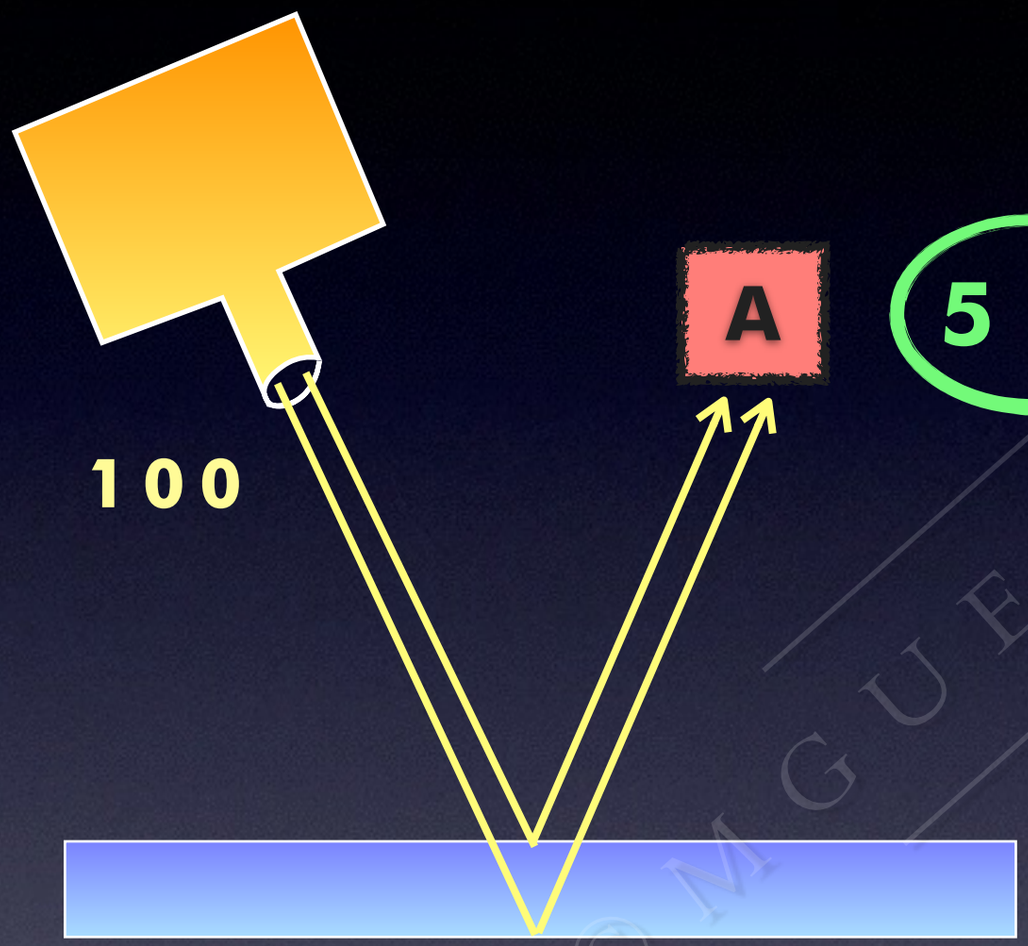

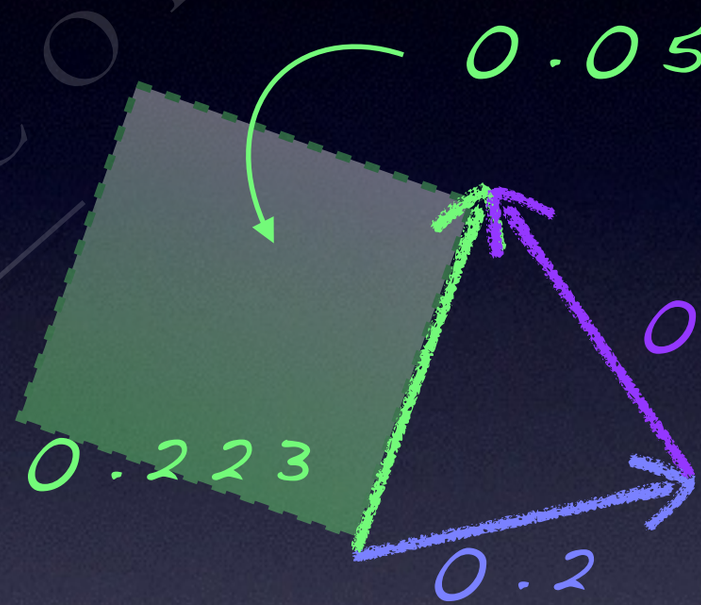

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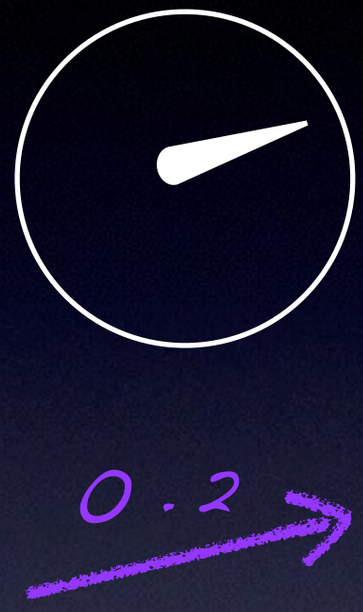
FRONT
REFLECTION
ARROW



BACK
REFLECTION
ARROW

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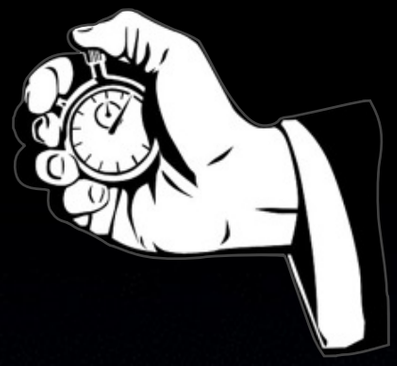

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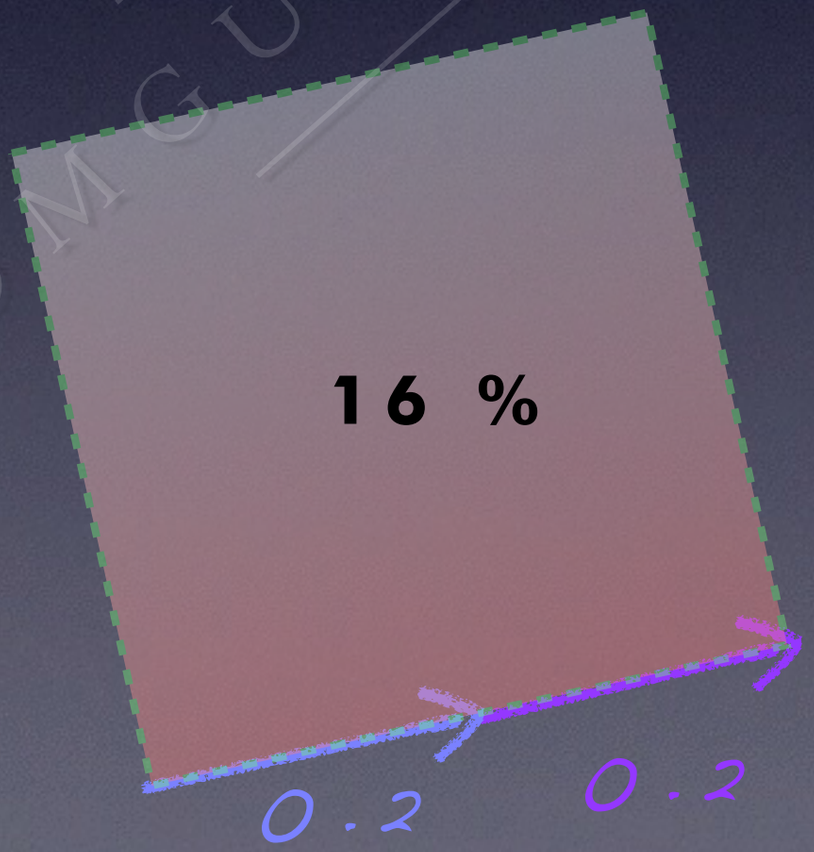
FRONT REFLECTION ARROW

BACK REFLECTION ARROW



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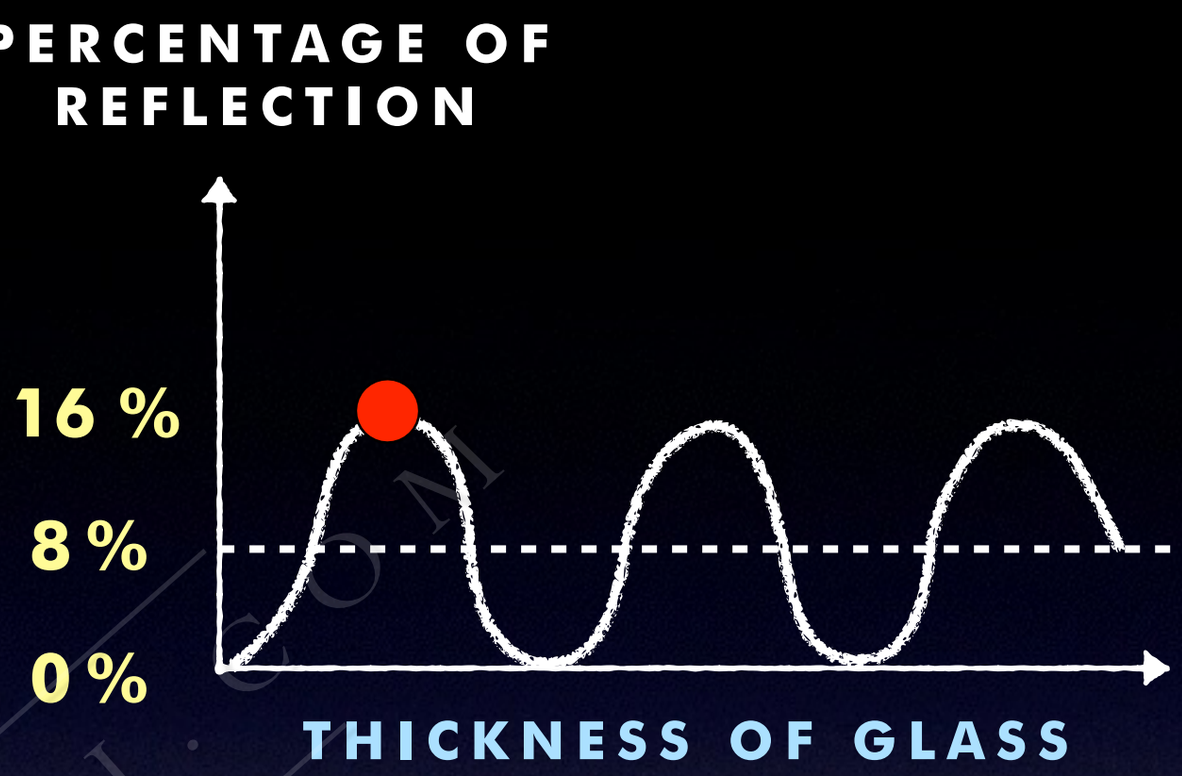

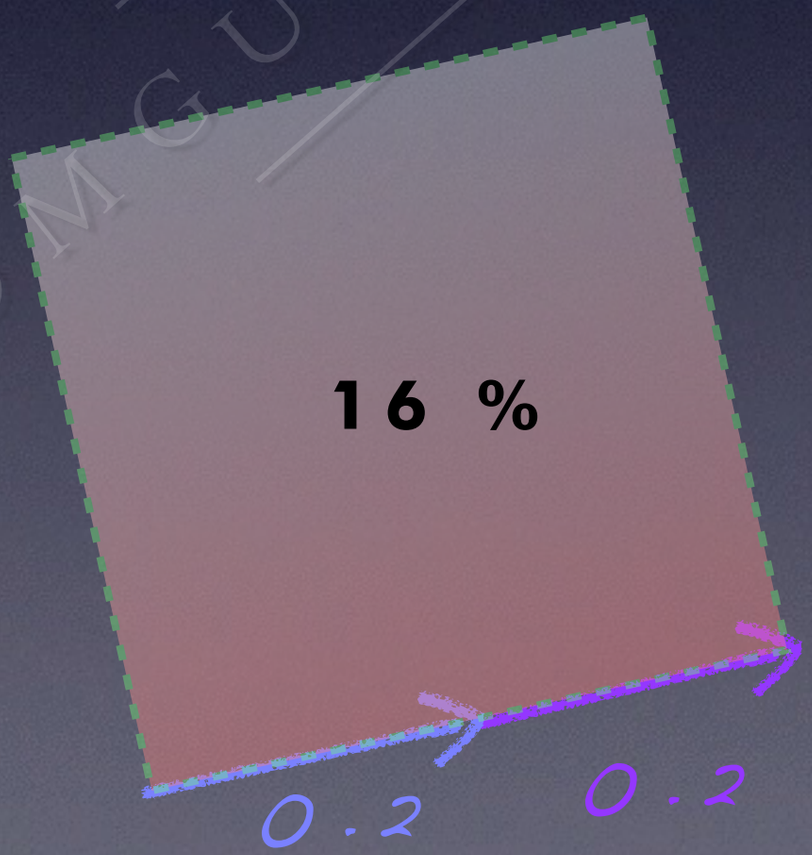

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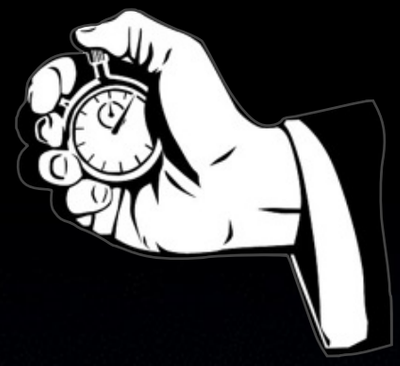
FRONT
REFLECTION
ARROW

BACK
REFLECTION
ARROW

©MGUEDJ.COM



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FRONT REFLECTION ARROW

BACK REFLECTION ARROW

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0 %

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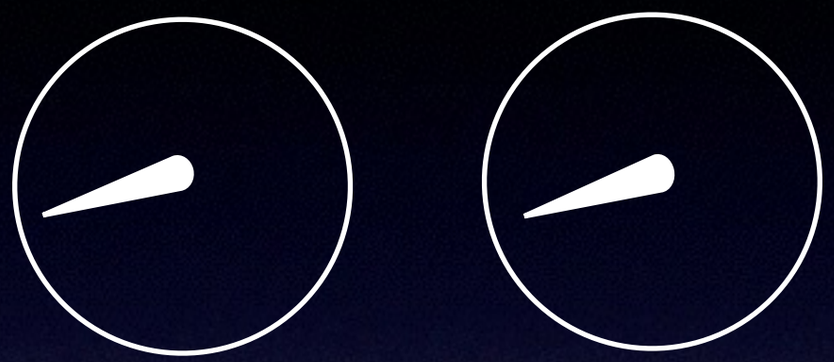

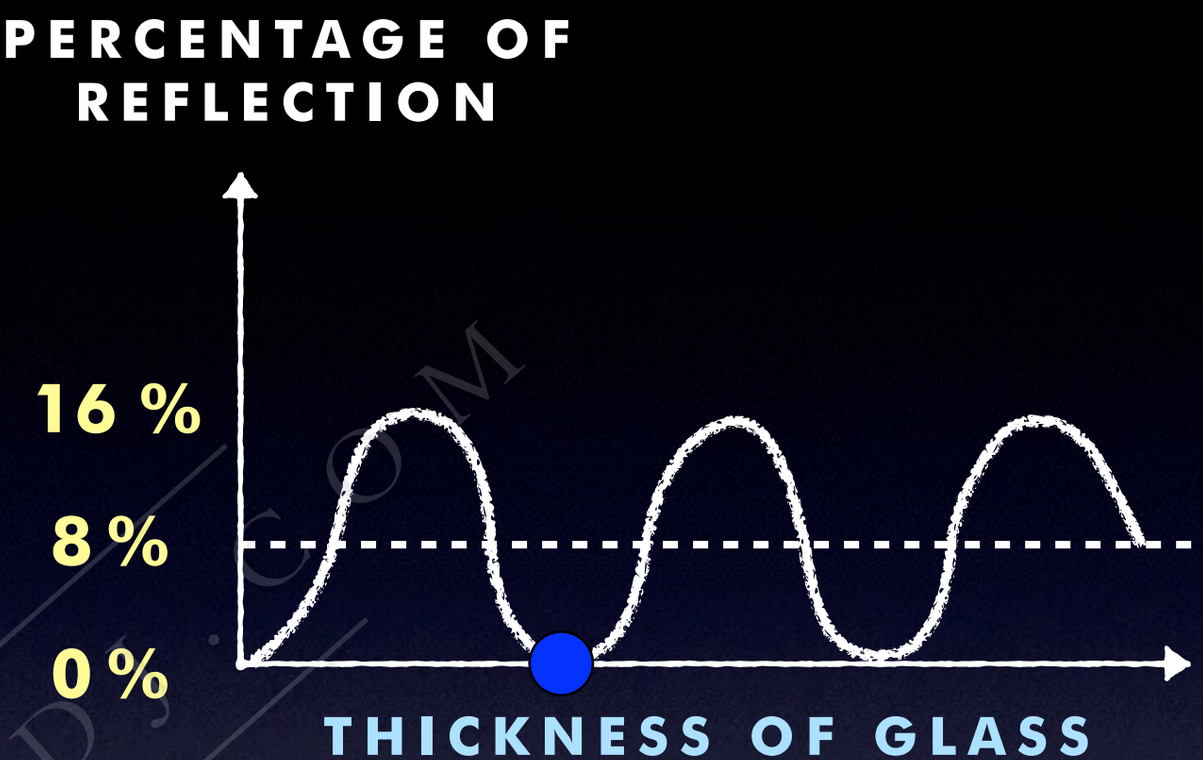

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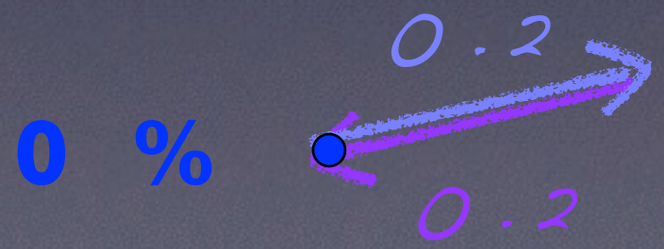

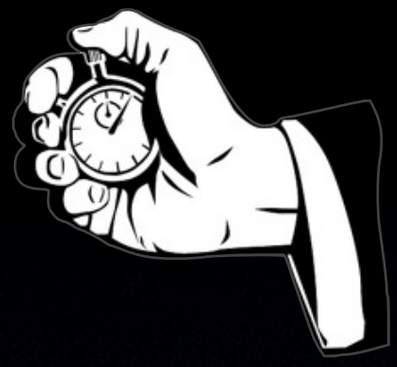

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or

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0.2

FRONT
REFLECTION
ARROW

BACK
REFLECTION
ARROW

©MGUEDJ.COM

FRONT
REFLECTION
ARROW

BACK
REFLECTION
ARROW

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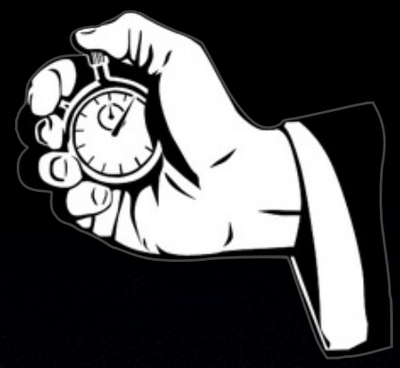

0.2

8 %

8 %

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or

0.2

FRONT
REFLECTION
ARROW

BACK
REFLECTION
ARROW

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PERCENTAGE OF REFLECTION

16 %

8 %

0 %

THICKNESS OF GLASS

8 %

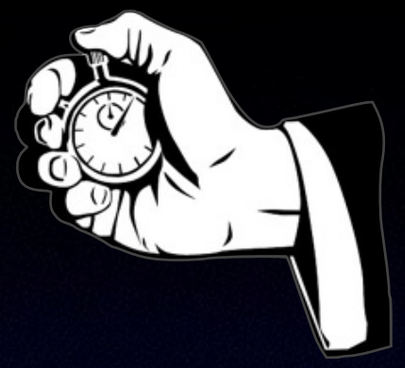
8 %

©MGUEDJ.COM

DIFFERENT CYCLE SPEEDS

RED PHOTONS

BLUE PHOTONS



PERCENTAGE OF REFLECTION

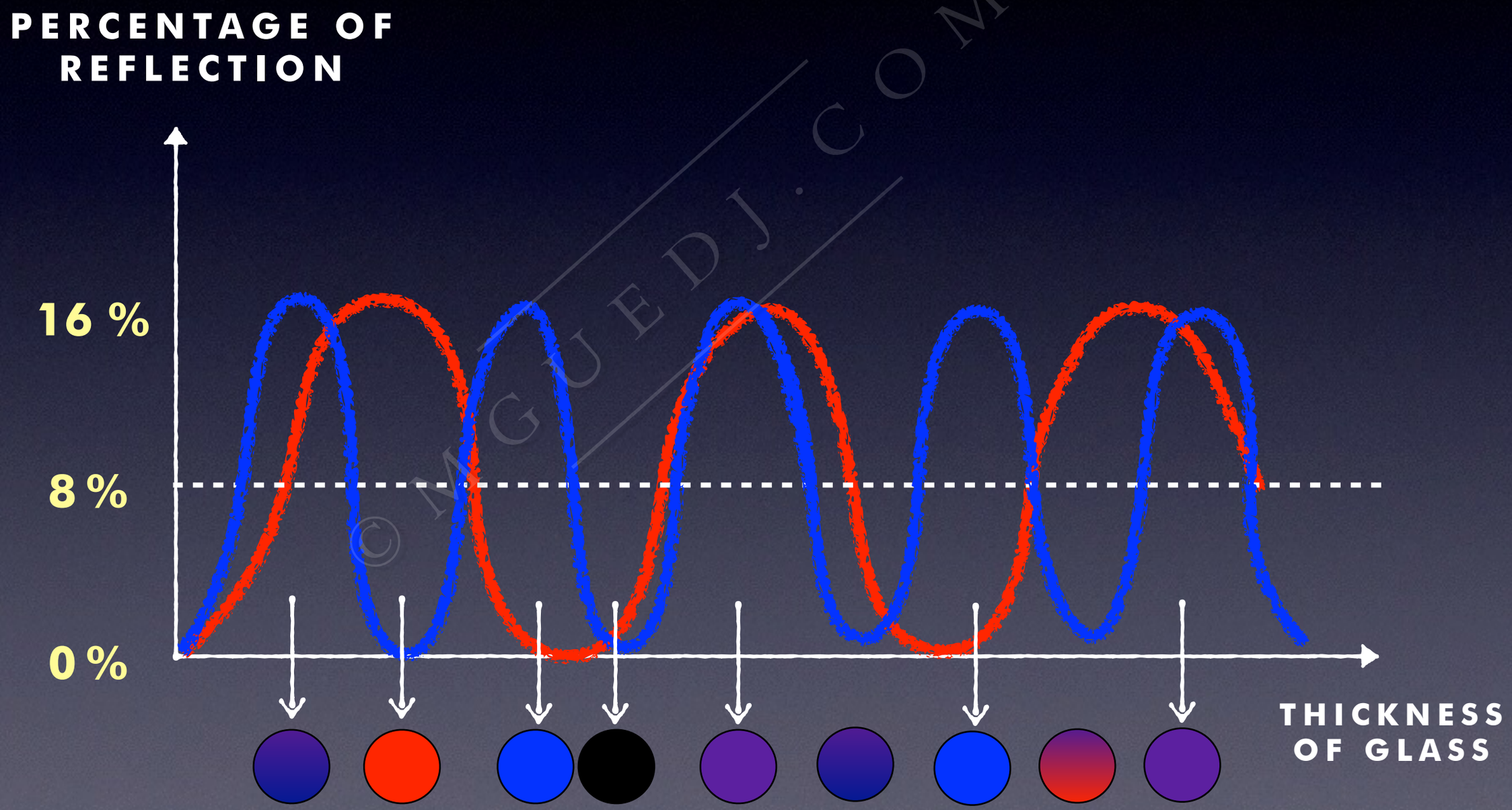
16 %

8 %

0 %

THICKNESS OF GLASS

© MGUEDJ.COM


PERCENTAGE OF REFLECTION
16 %
8 %
0 %
THICKNESS OF GLASS

IRIDESCENCE

VARYING THICKNESS

PERCENTAGE OF REFLECTION

16 %

8 %

0 %

THICKNESS OF GLASS

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②

REFLECTION ON A MIRROR

SCREEN

LIGHT SOURCE

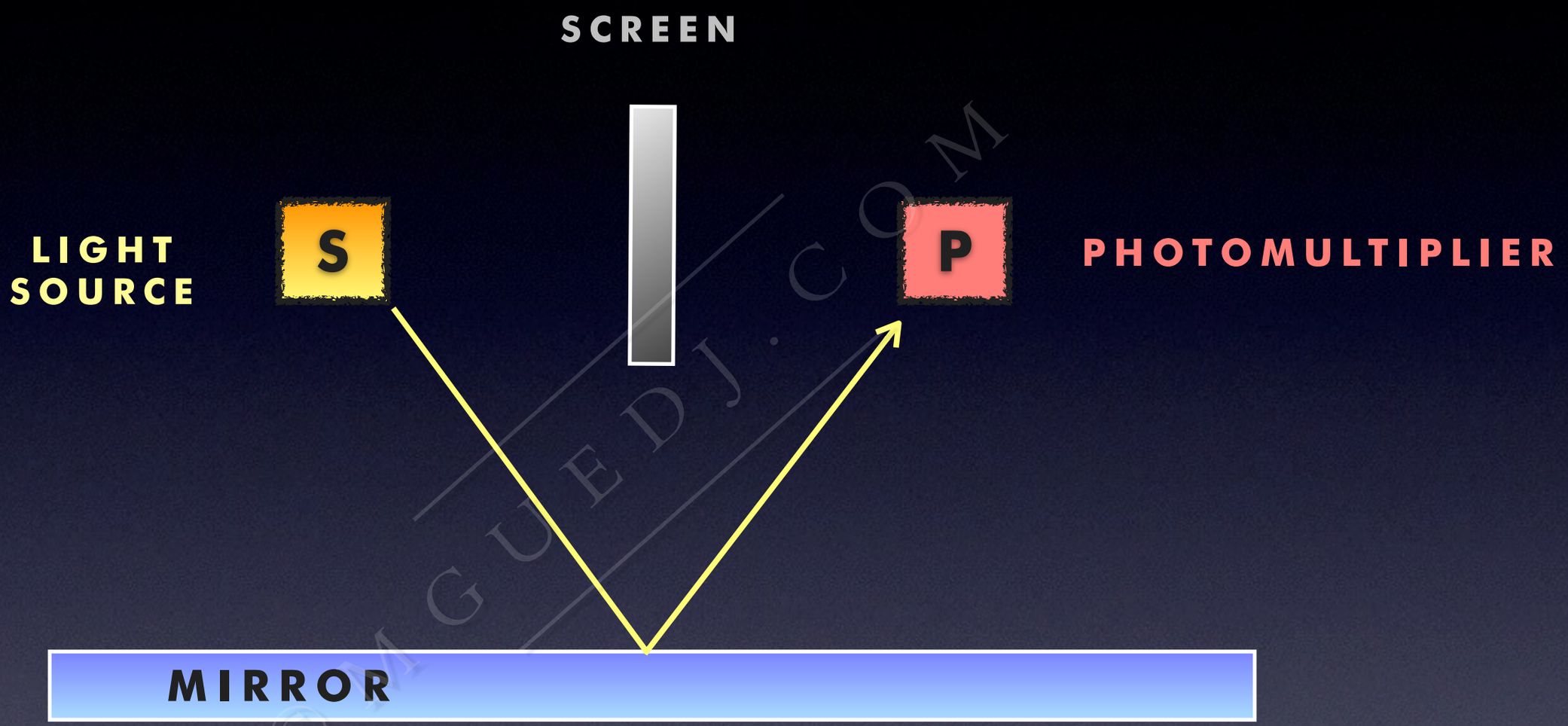
S

P

PHOTOMULTIPLIER

MIRROR

©MGUEDJ.COM



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SCREEN

LIGHT SOURCE

S

P

PHOTOMULTIPLIER

MIRROR

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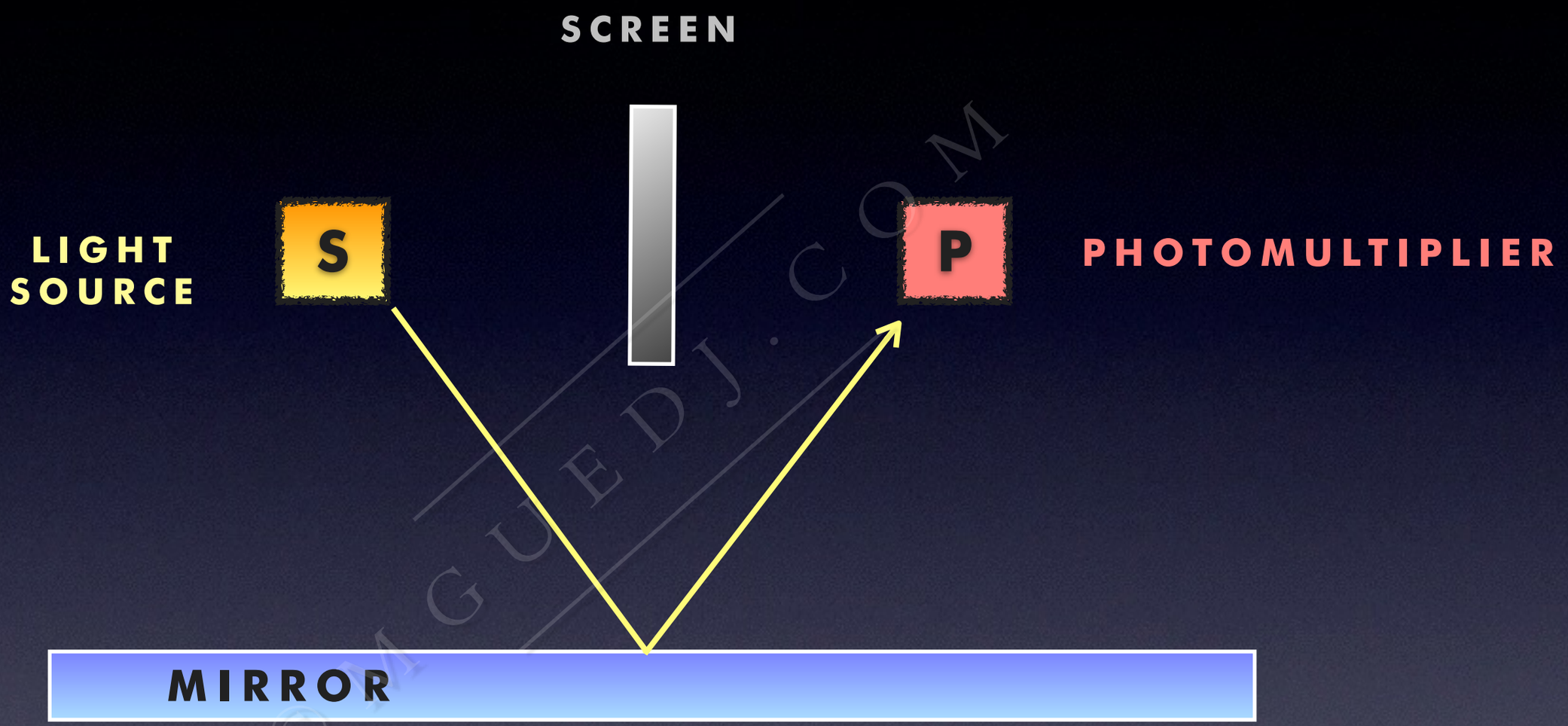

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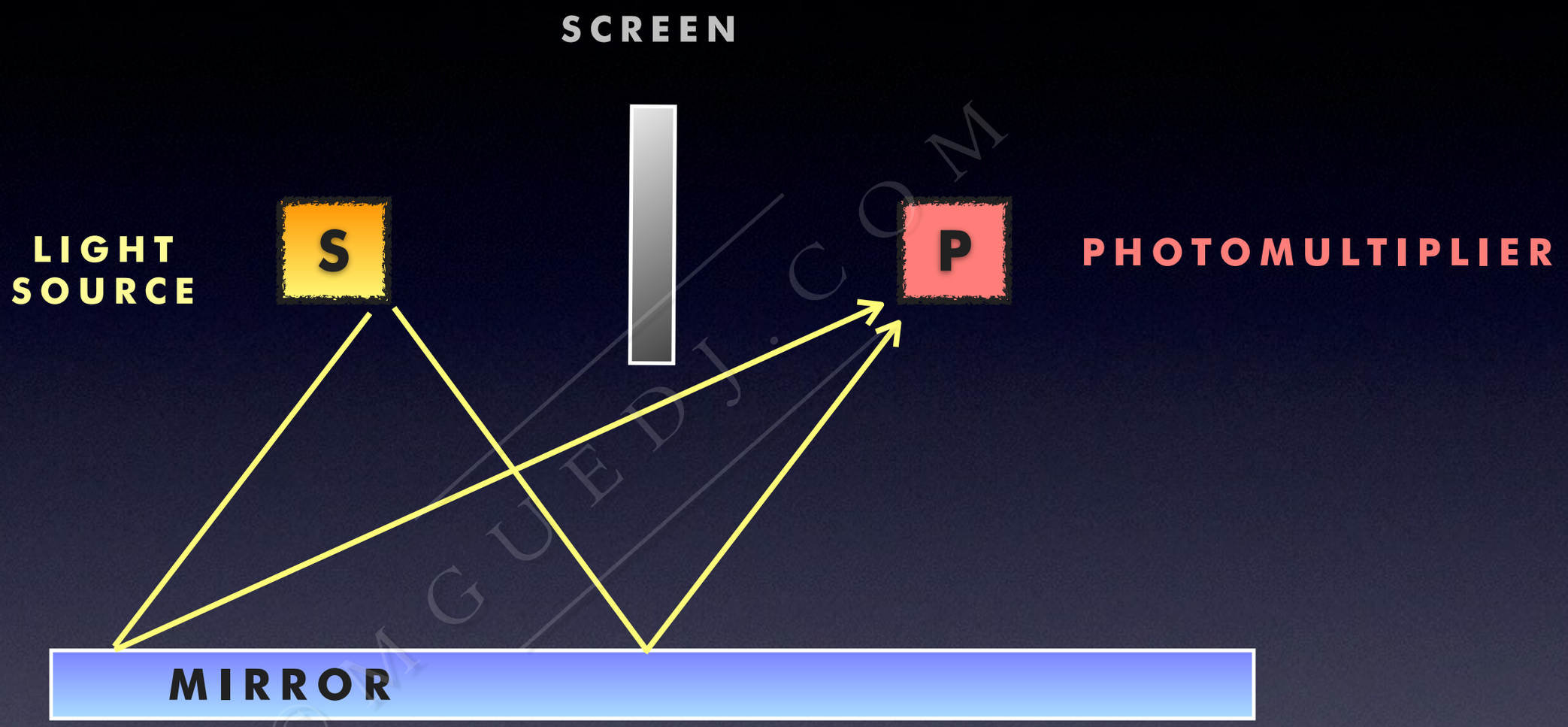
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LIGHT SOURCE
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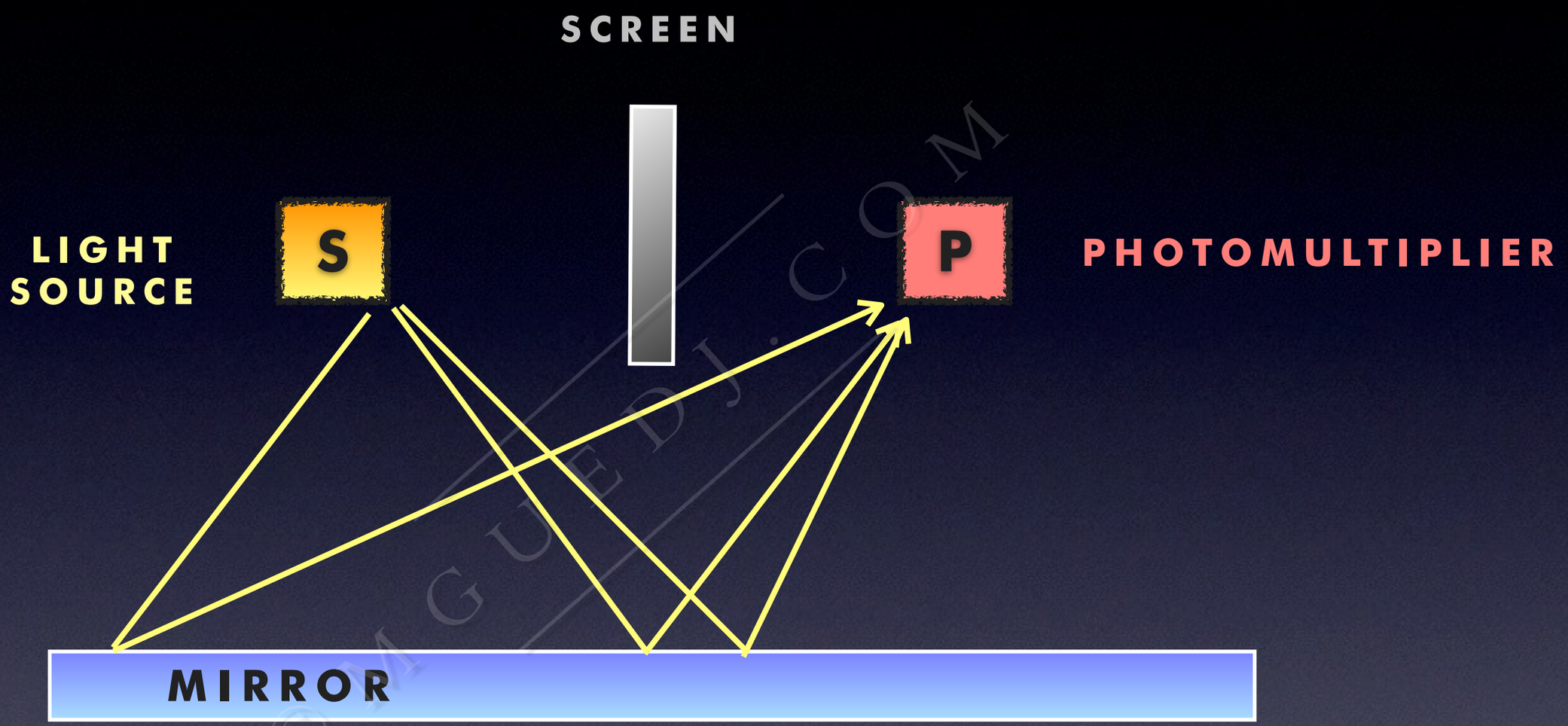
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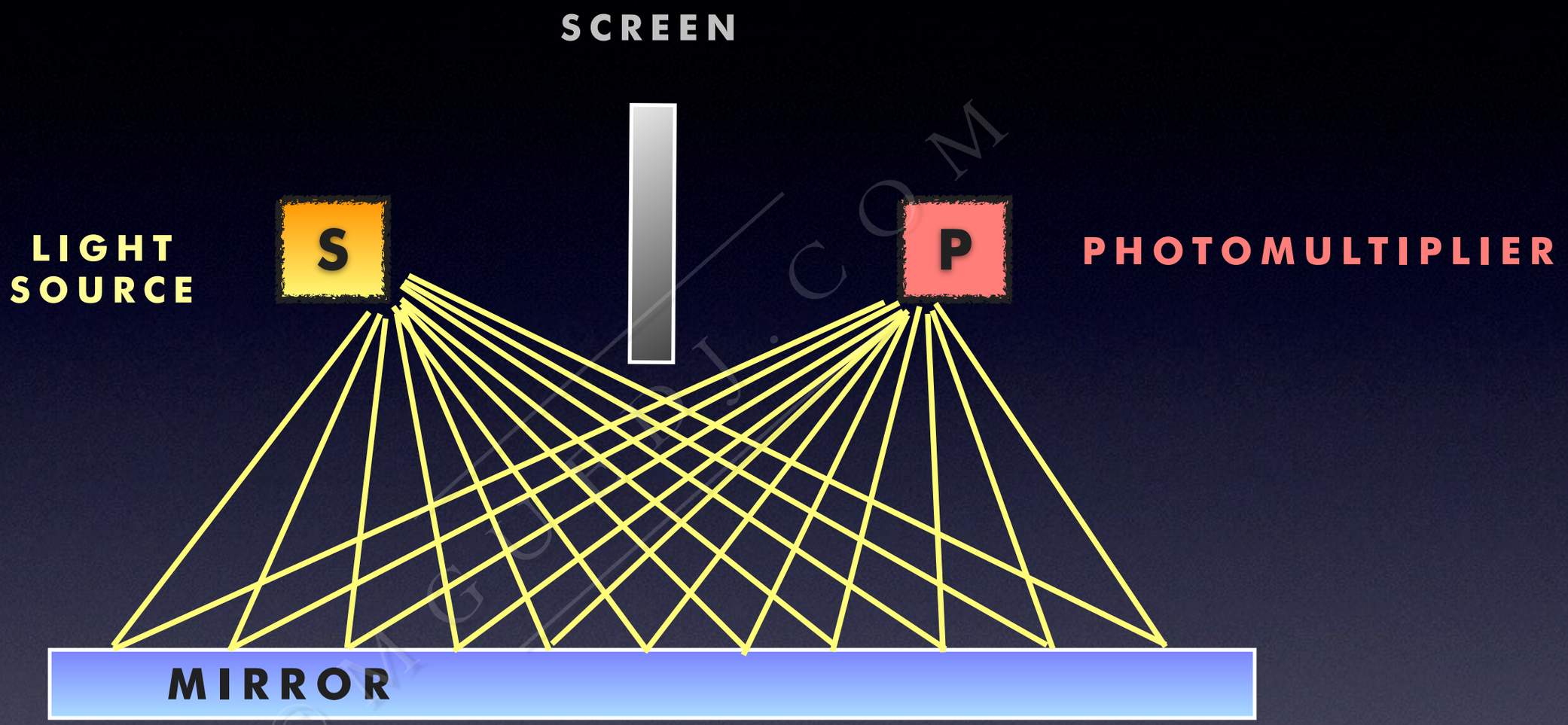
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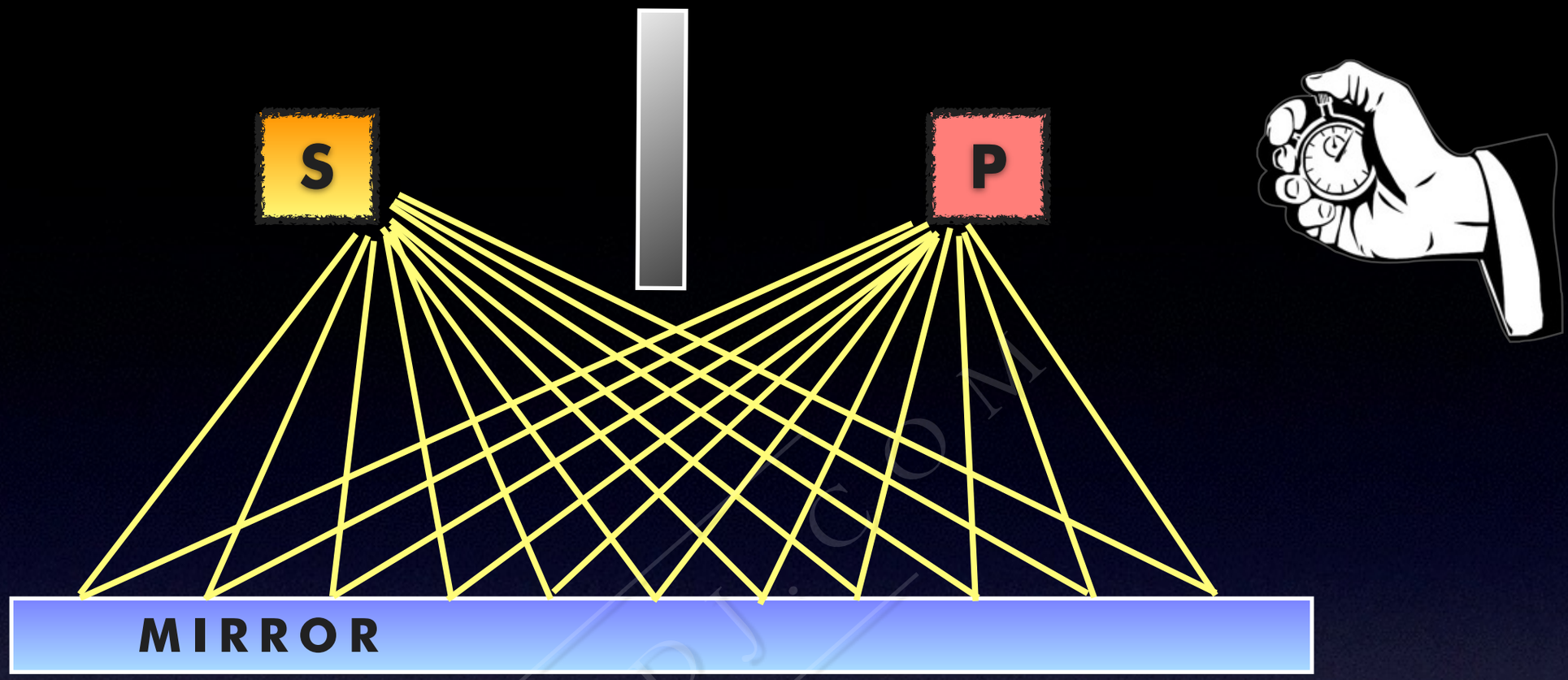

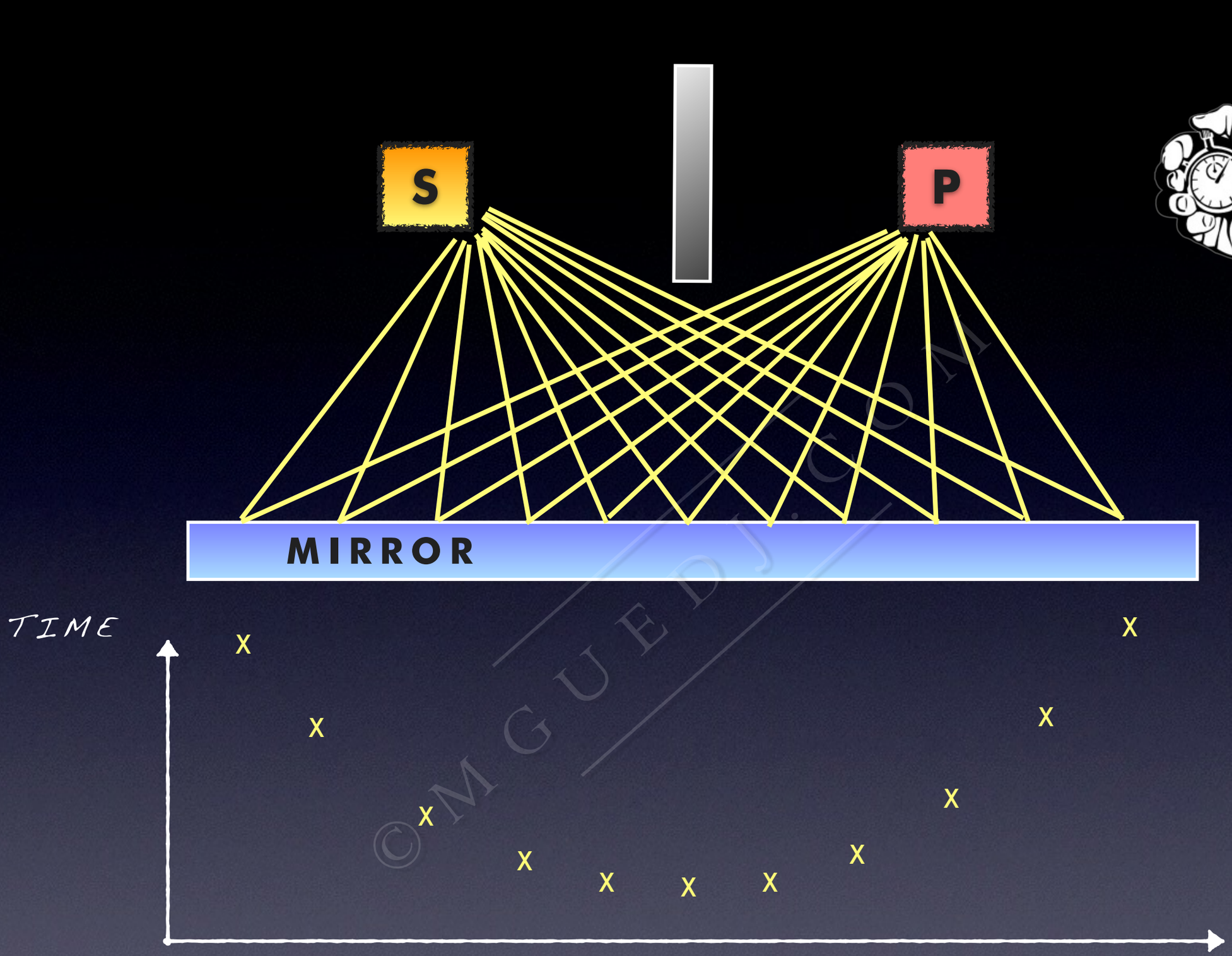

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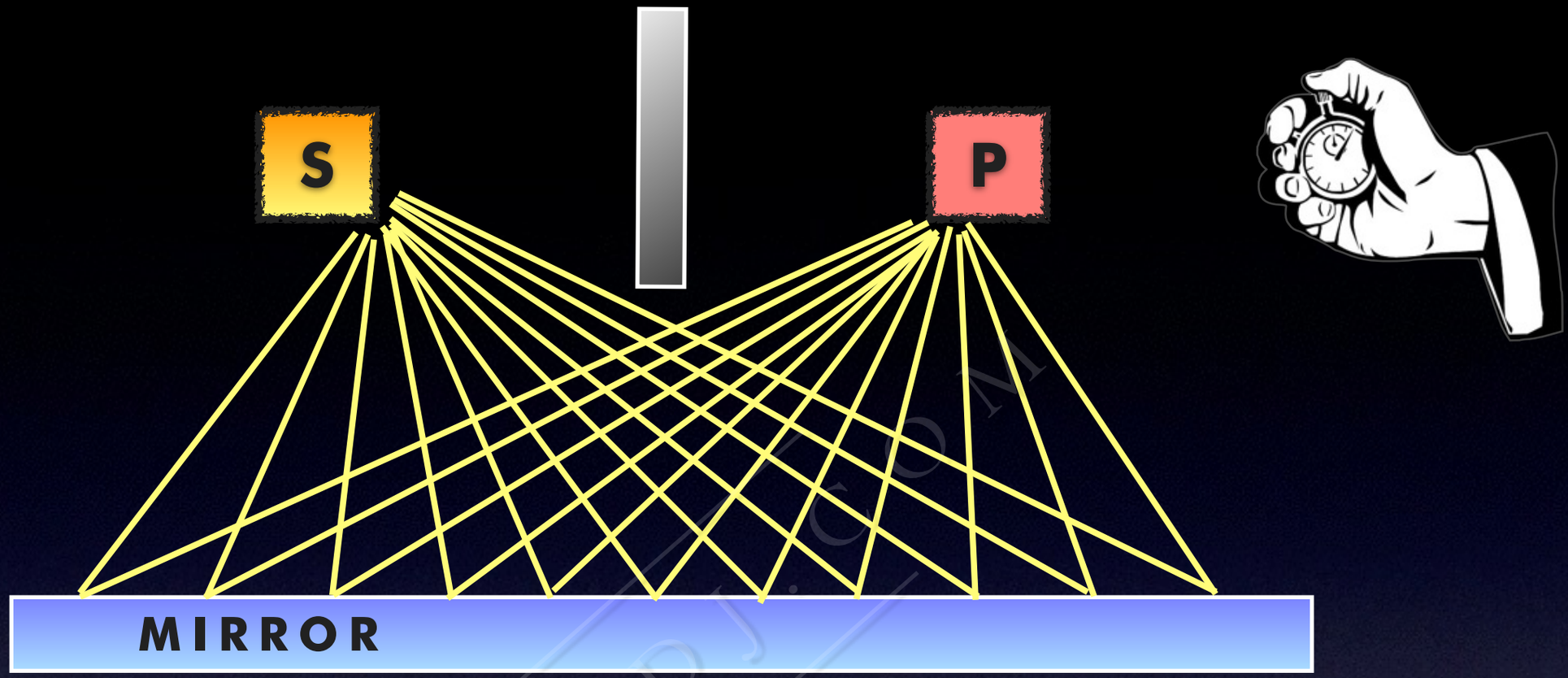

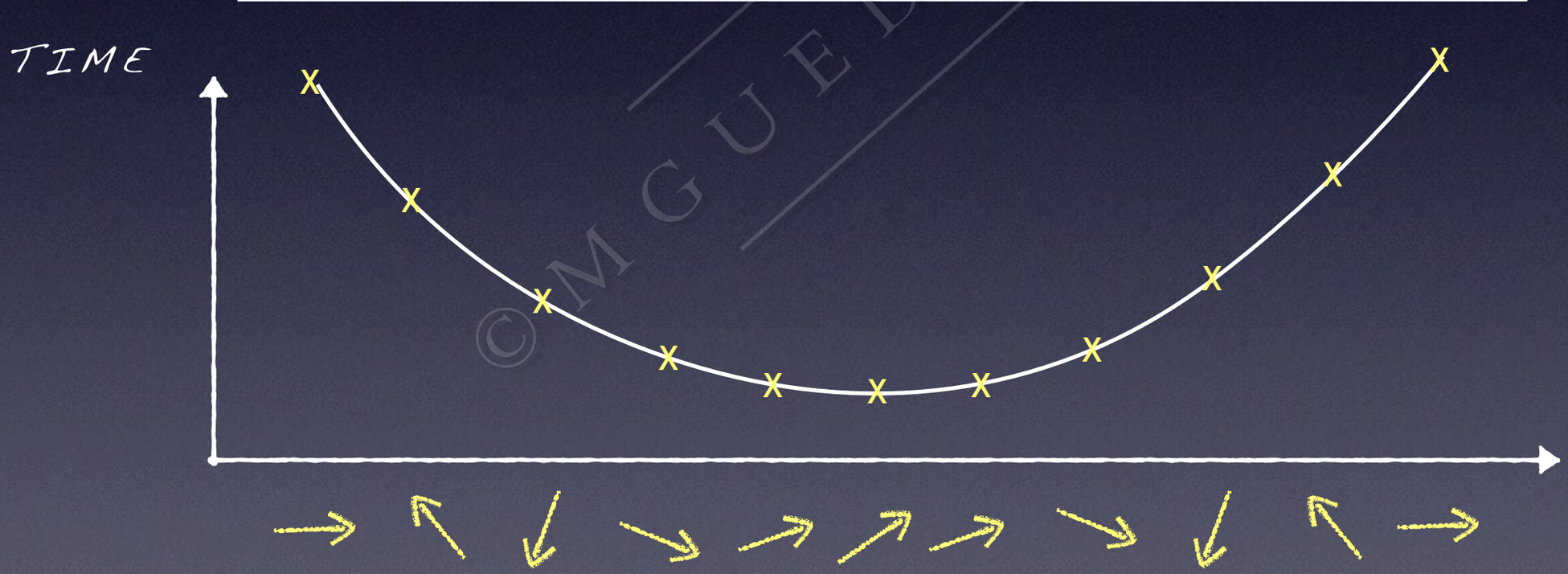

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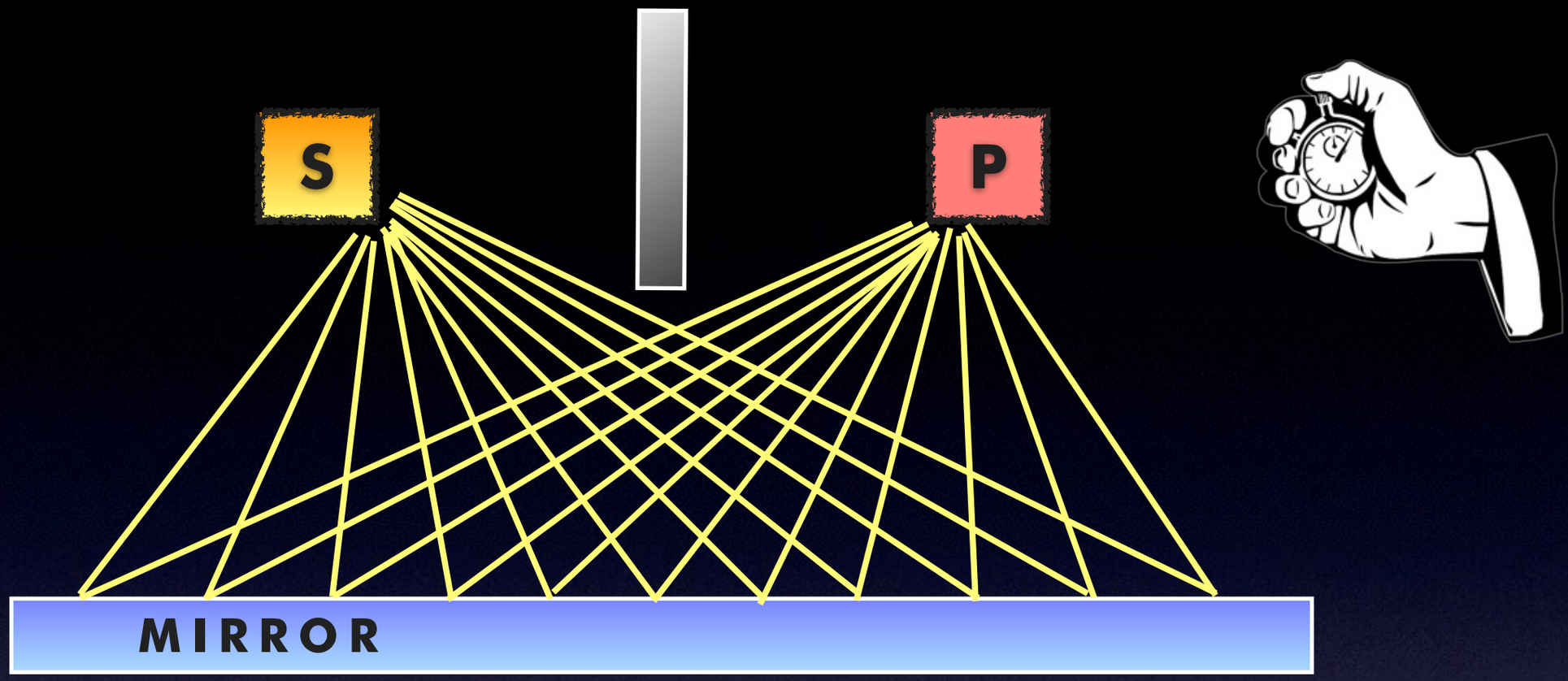
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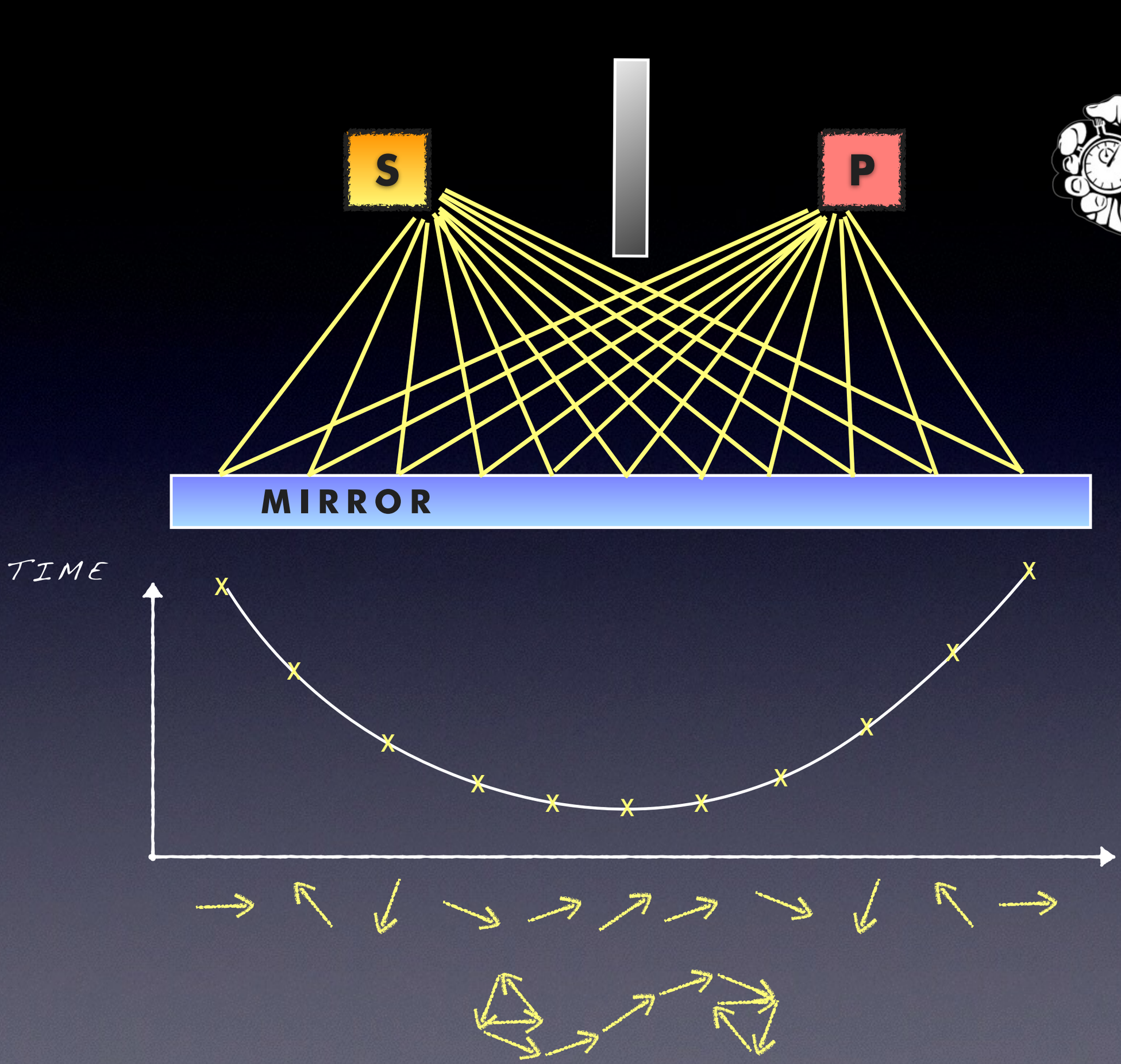
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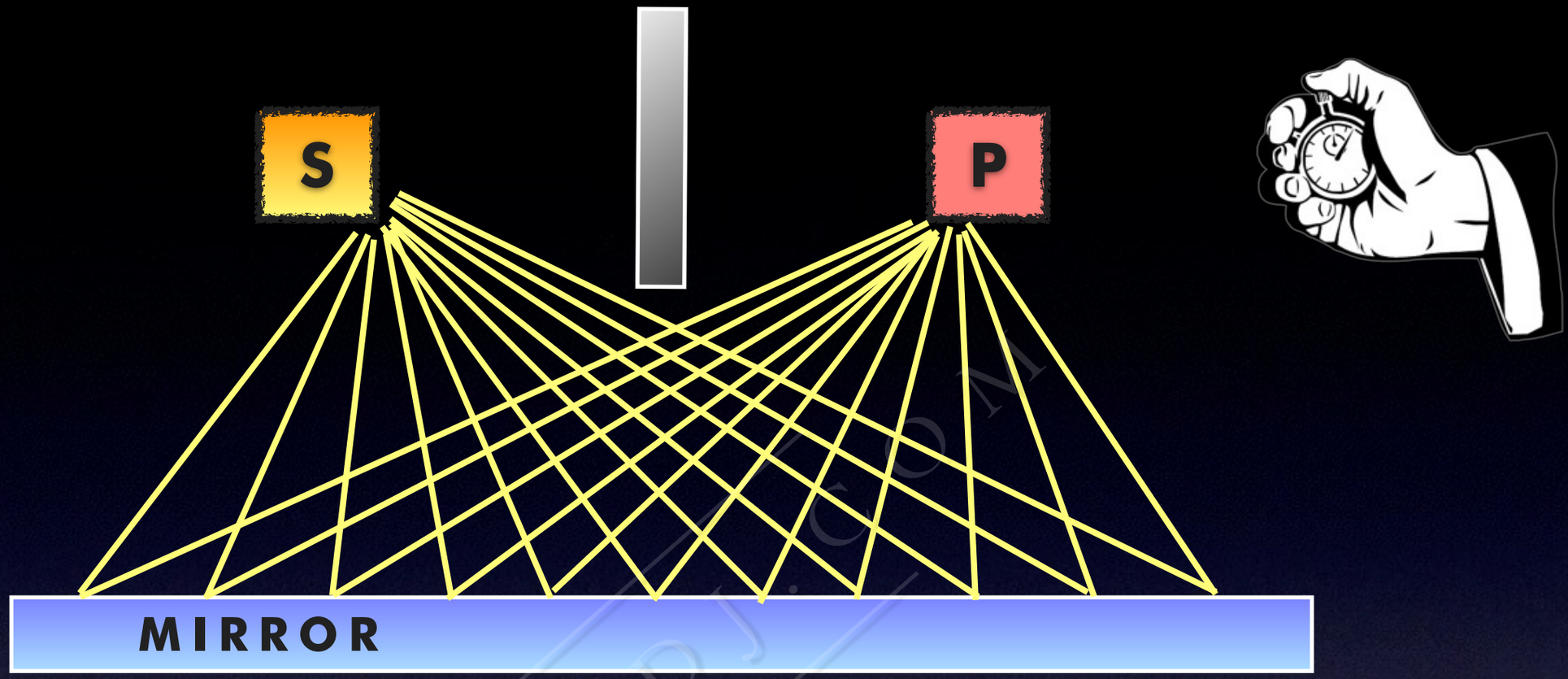

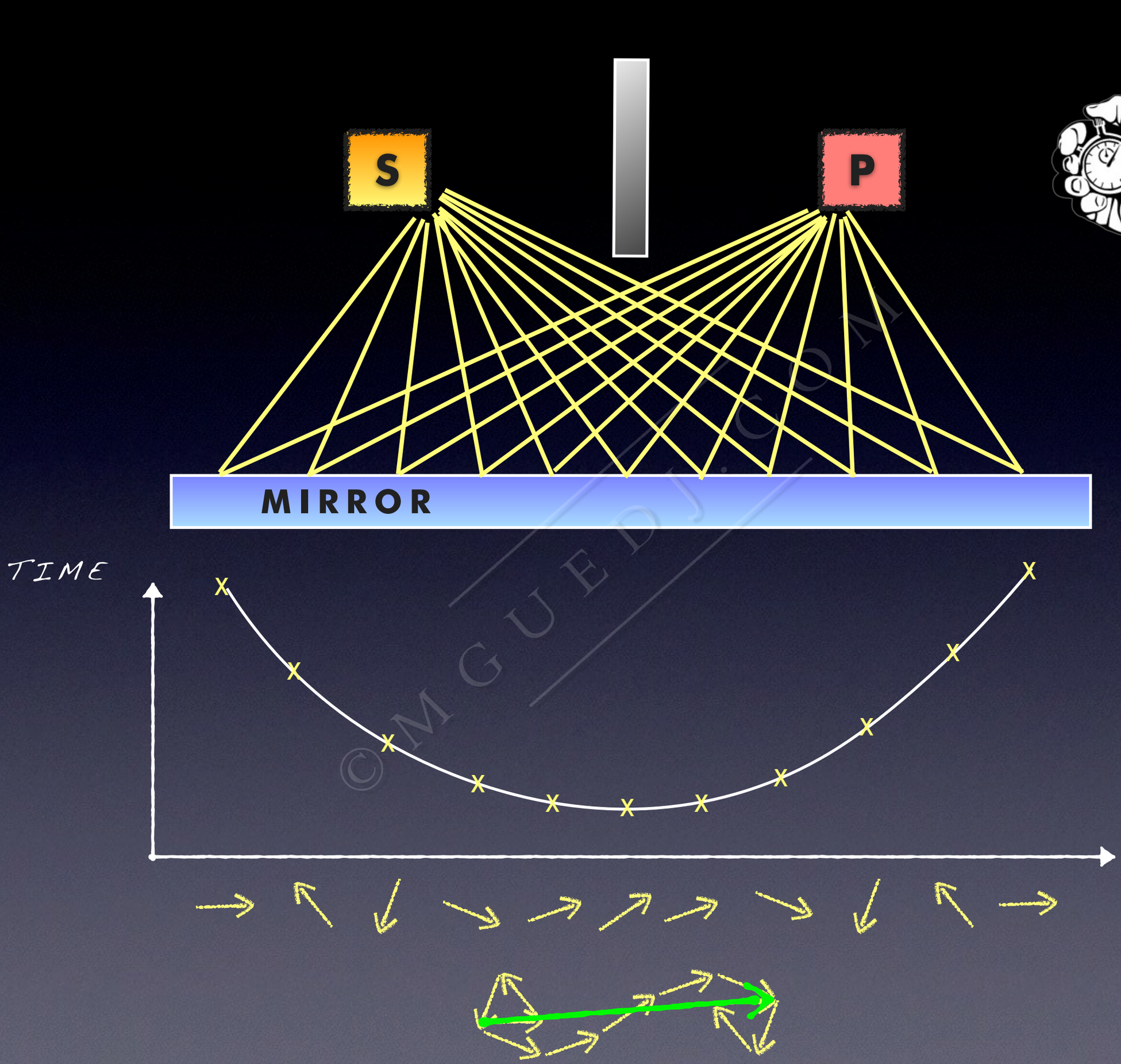

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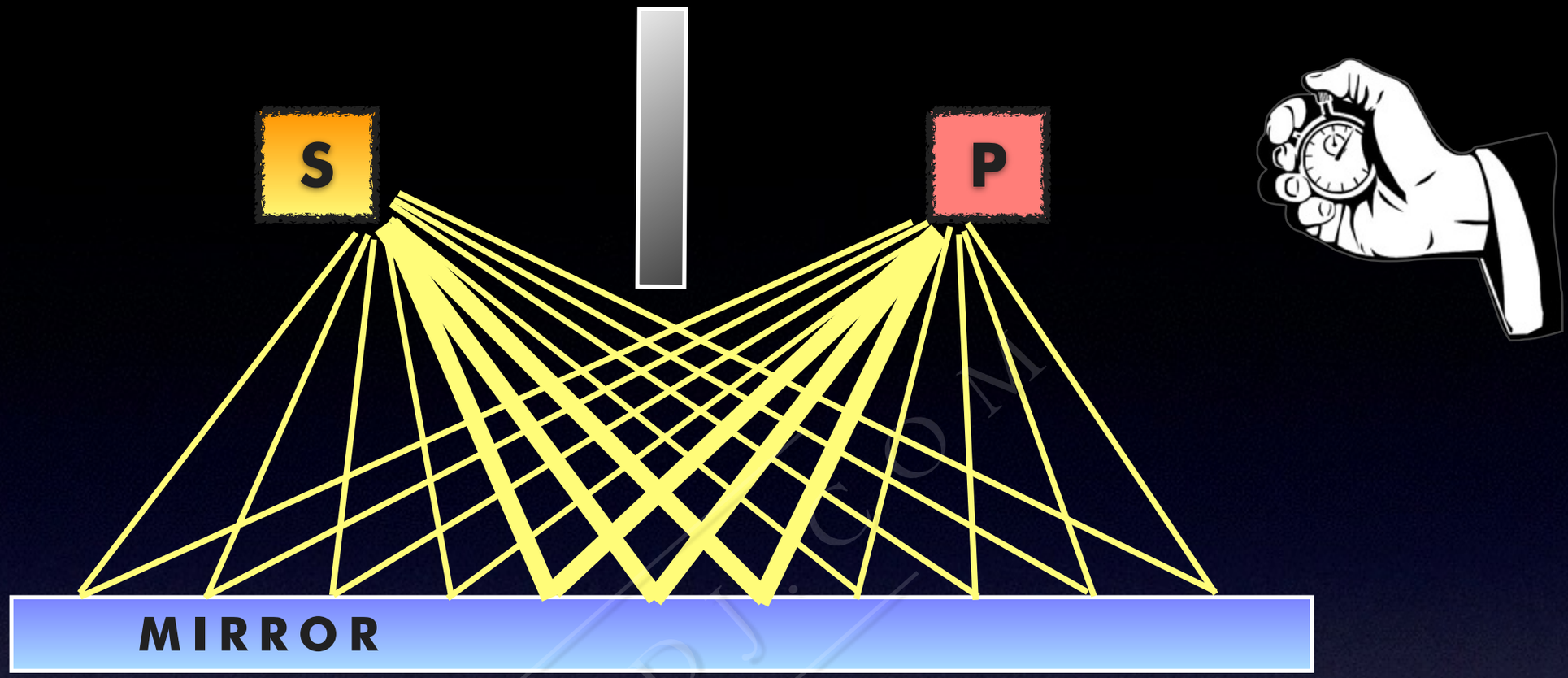

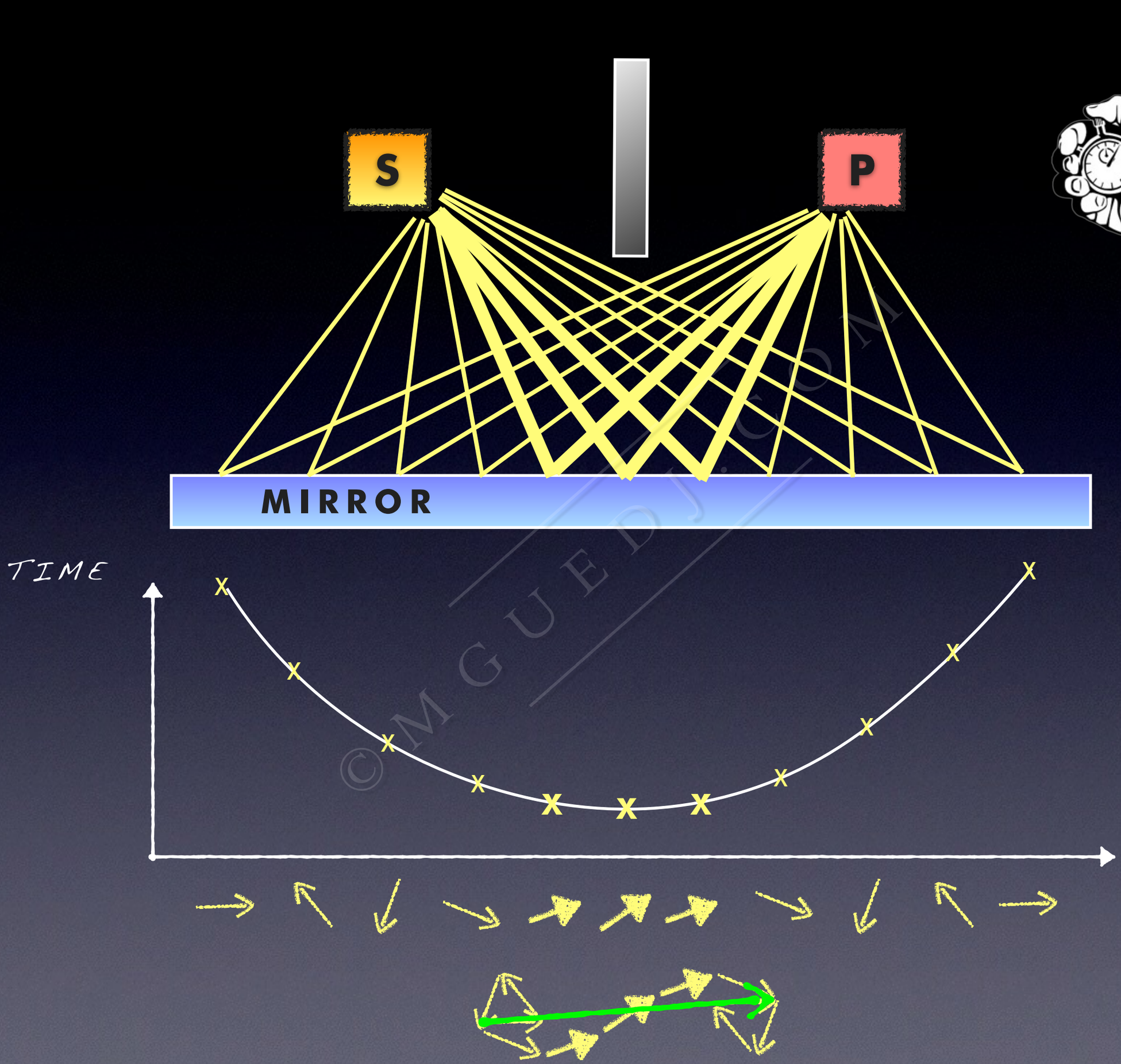

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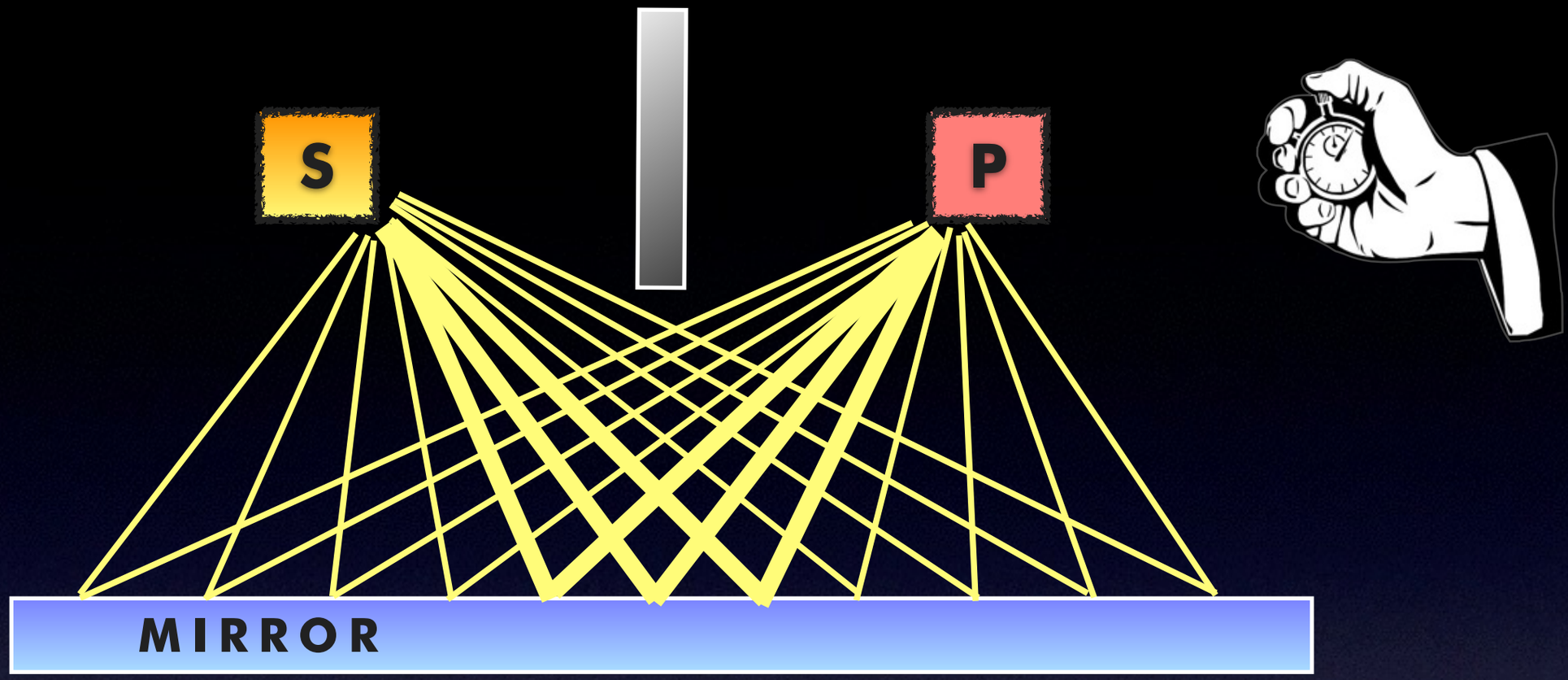
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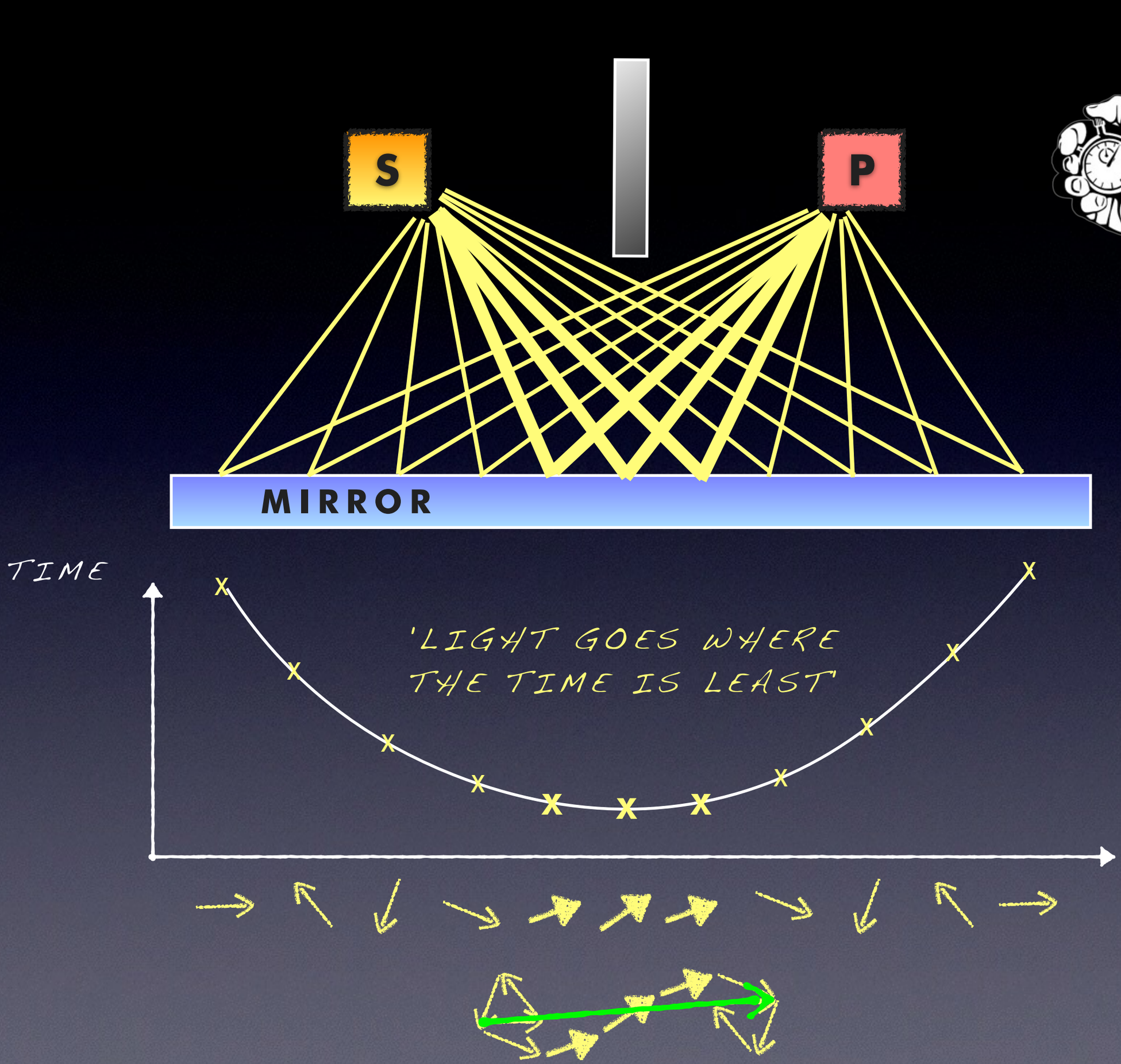
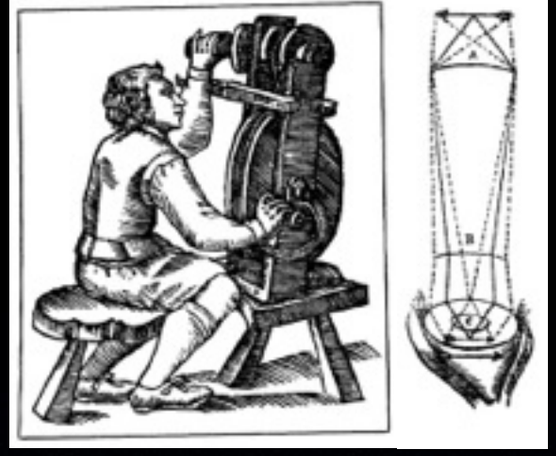

TIME
'LIGHT GOES WHERE
THE TIME IS LEAST'



REFRACTION, MIRAGES & LENSES

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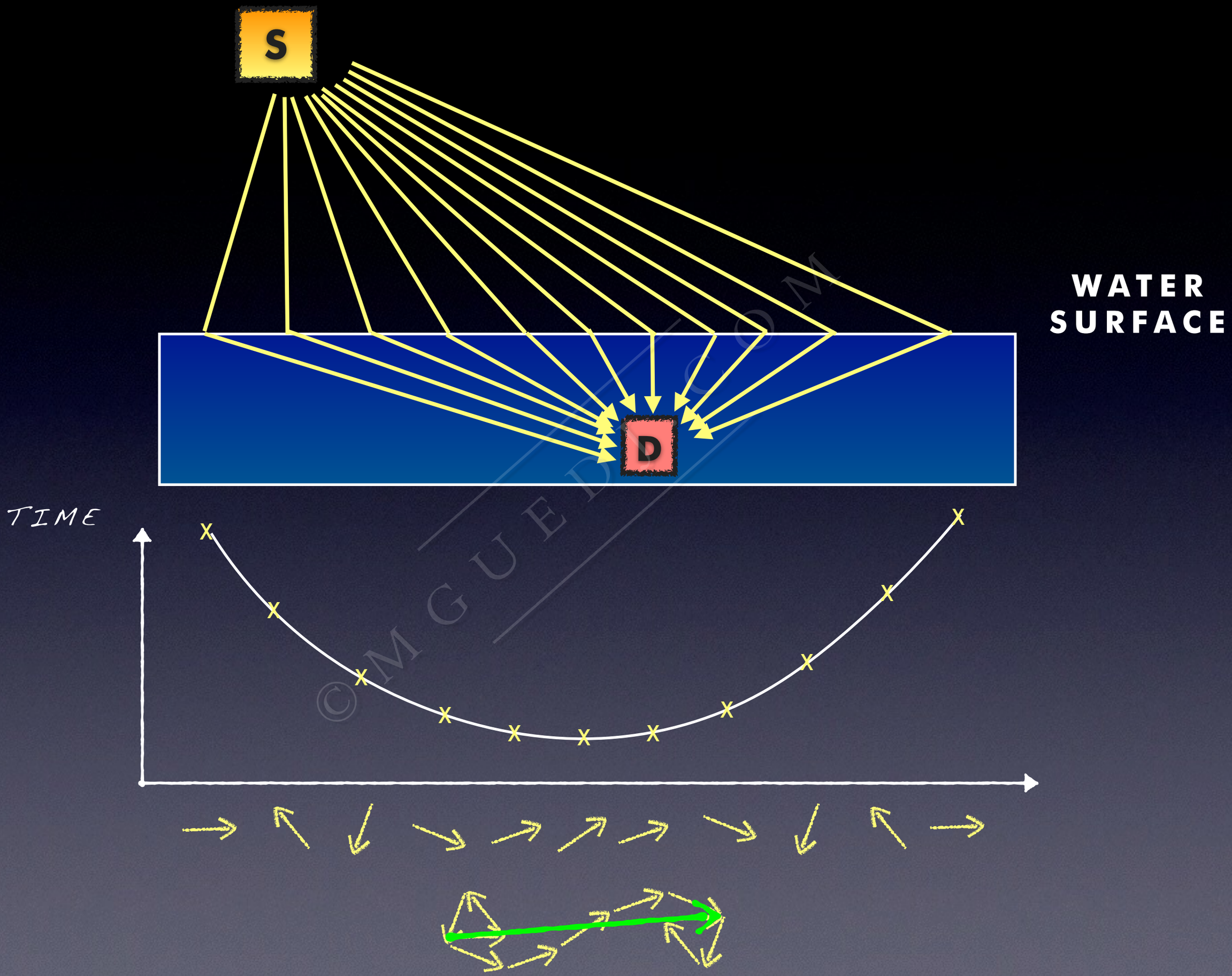
S
D
WATER
SURFACE
TIME

S

VERY LONG PATH

WATER SURFACE

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TIME

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LEAST DISTANCE

WATER SURFACE

D

TIME

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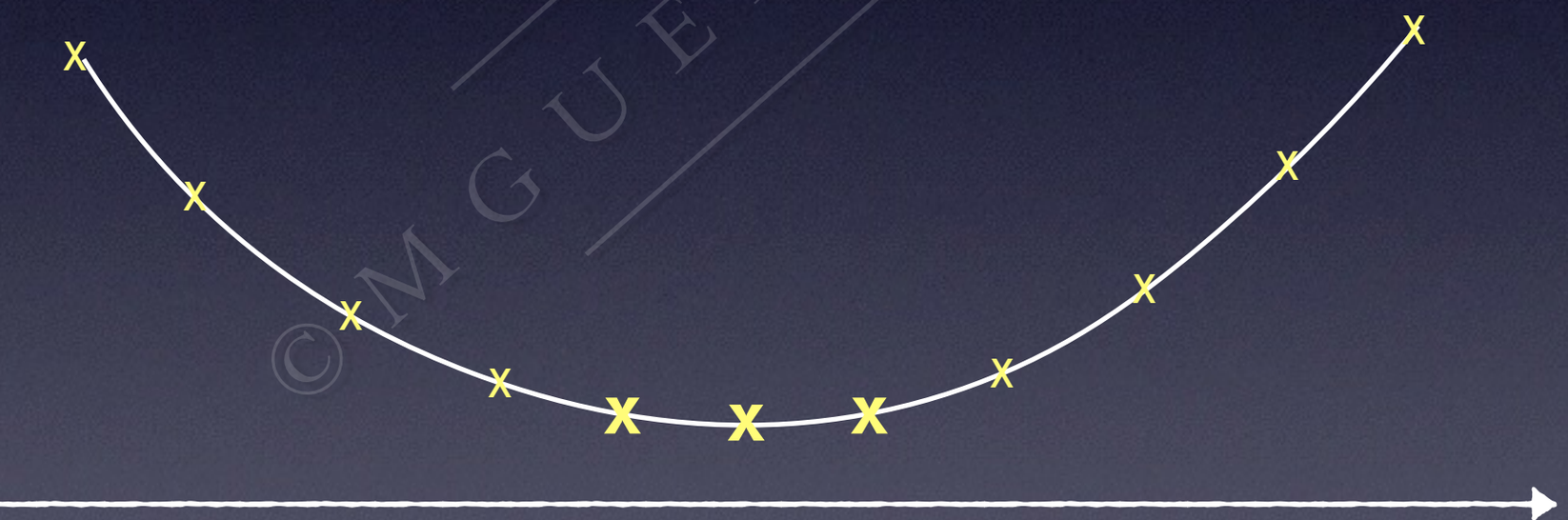
S

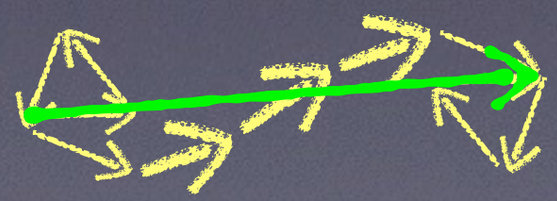
LEAST WATER

WATER SURFACE

D

TIME





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LEAST TIME

WATER SURFACE

D

TIME

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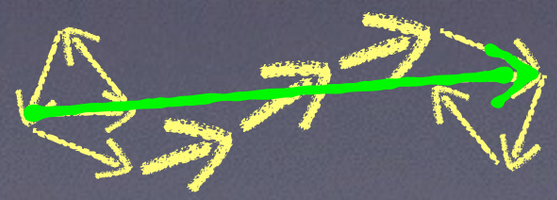

S

LEAST TIME

WATER SURFACE

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TIME

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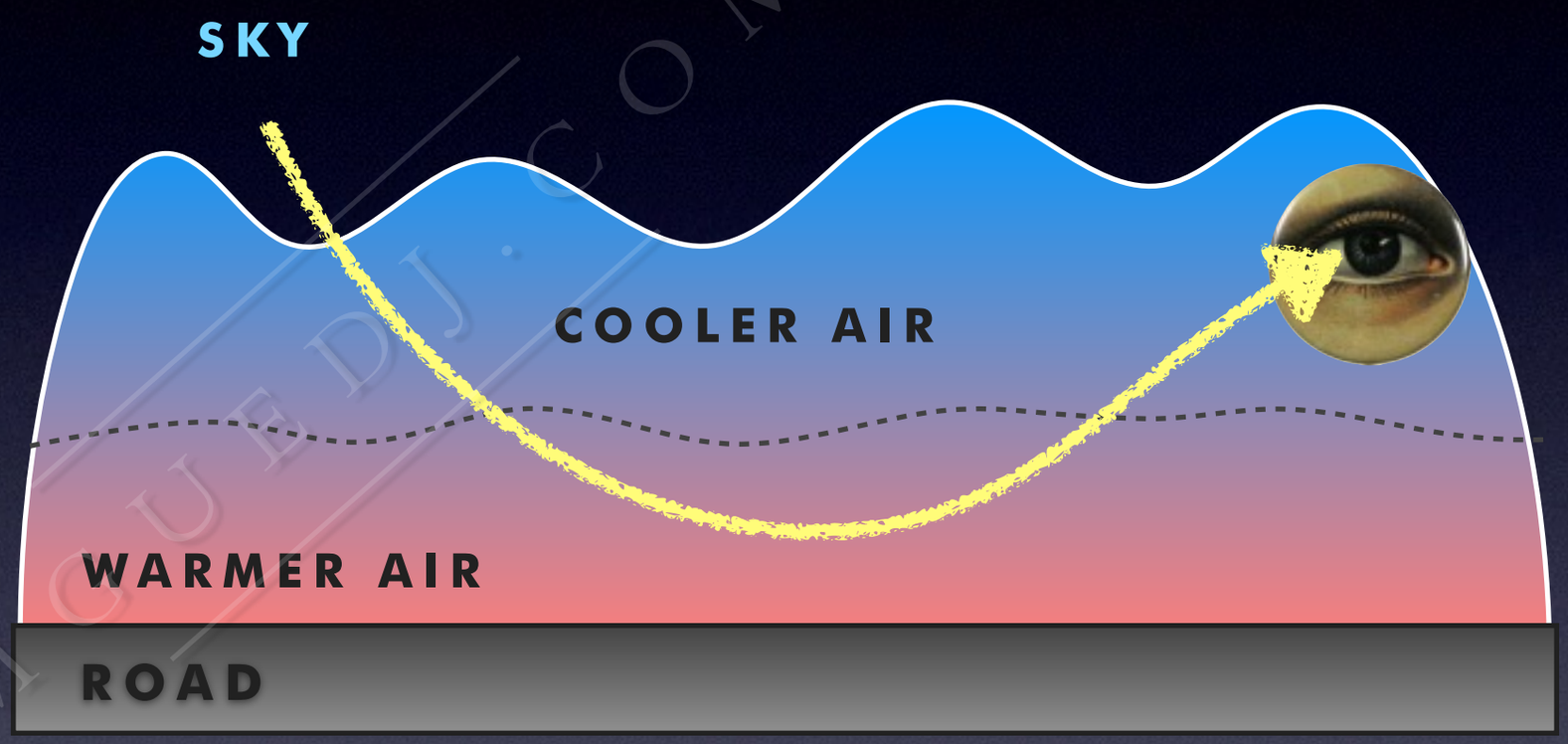

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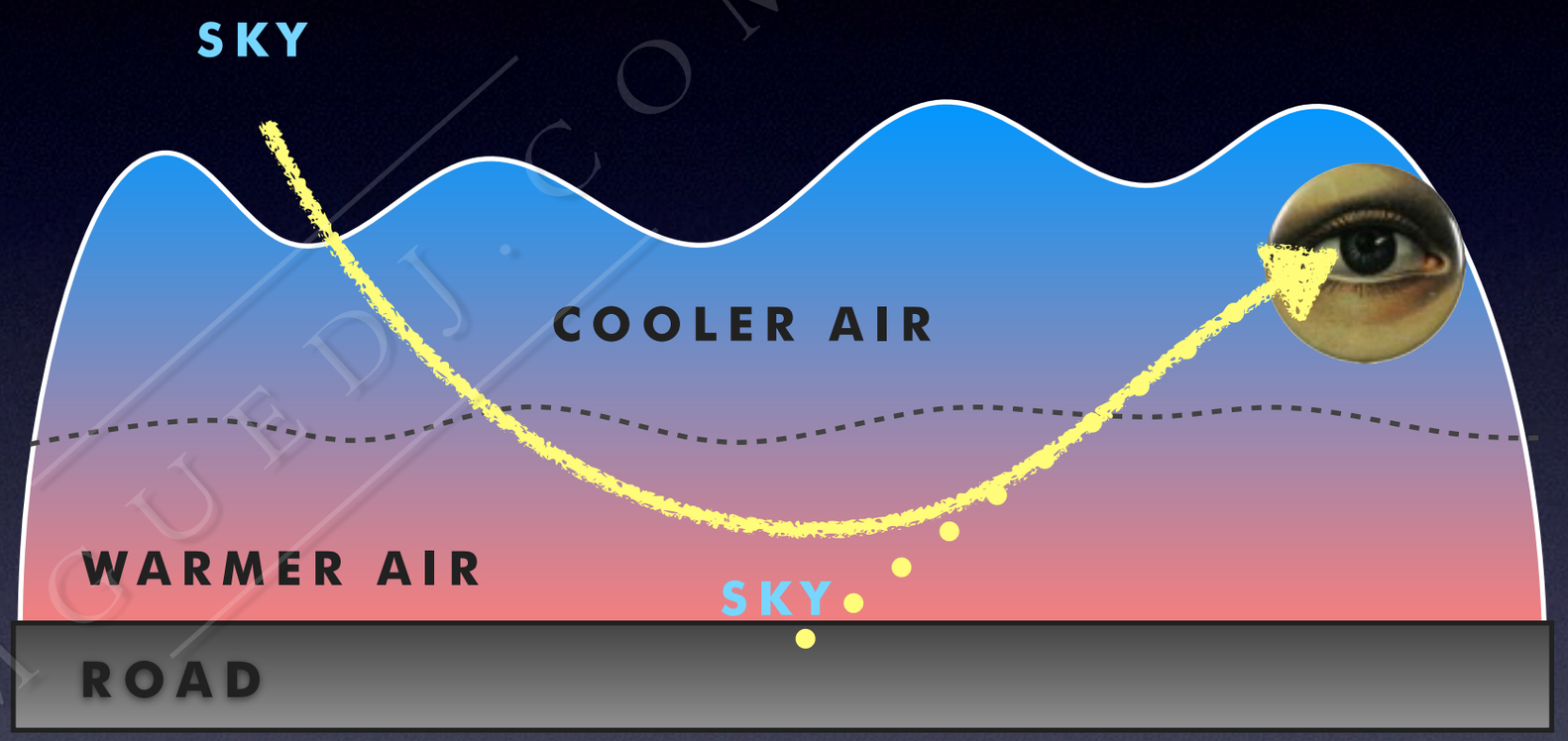

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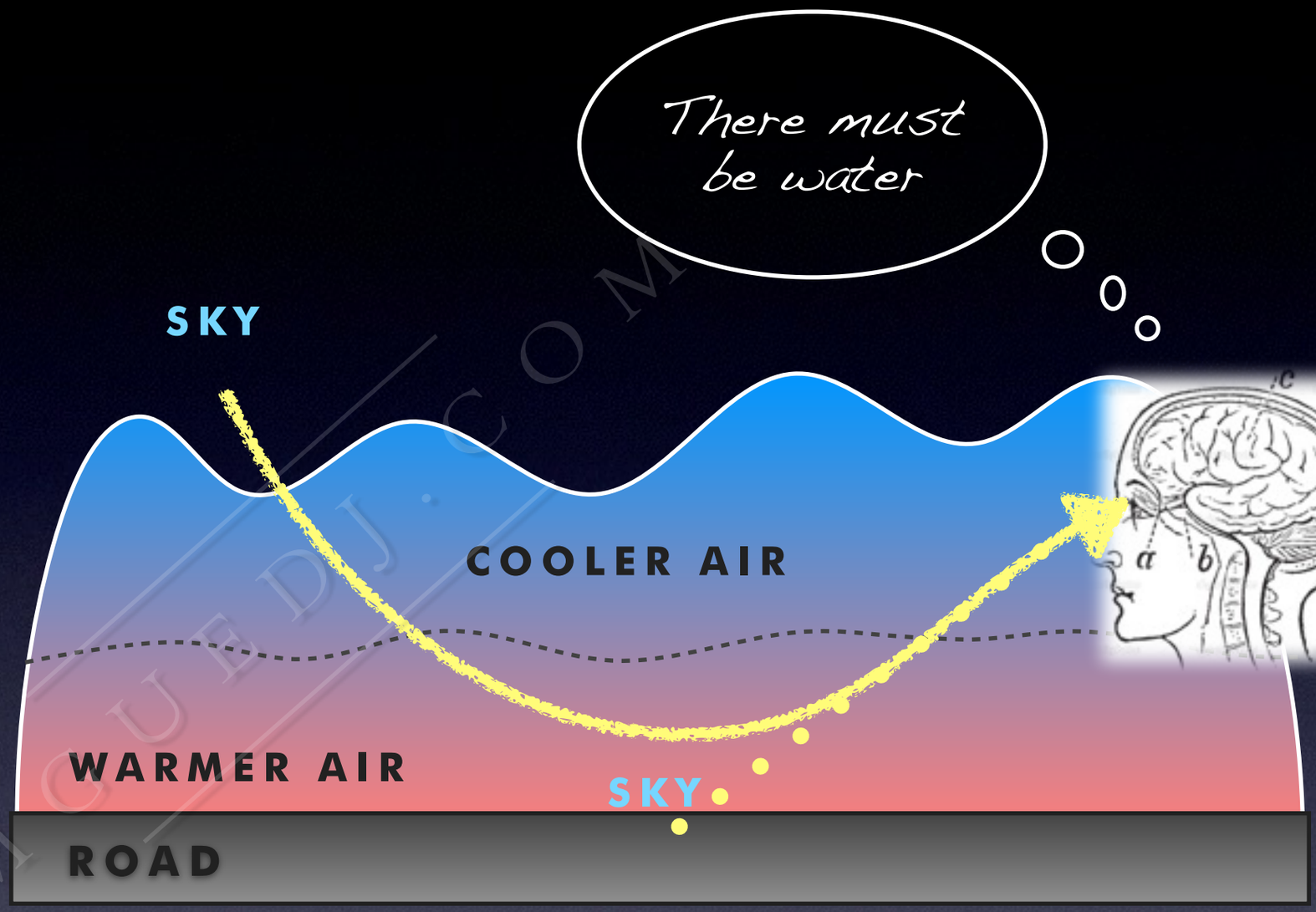
MIRAGE



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