

⊖ Paradox (private beta)

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This paper engages with proving the existence of a theoretical paradox that is based on some concepts of math.

Check out <https://www.github.com/ShimronAlakkal> for more updates on this paper.

Introduction:

This experiment shows us a theoretical paradox of the relationship between an angle, θ , made by a stretched line from two stationary points on a line from time $t = 0$ s to $t = t_s$. (refer to figure 1)

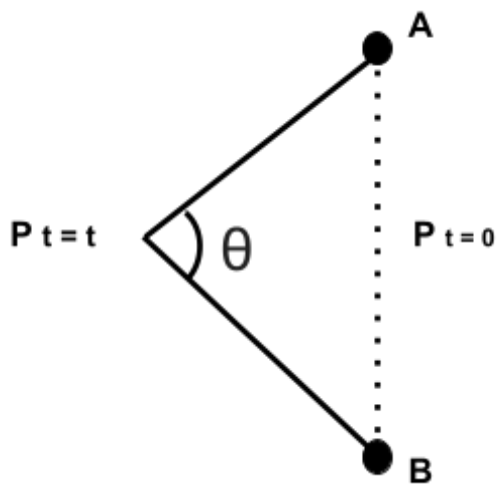


Figure 1

INTRO

Part 1 :

Assume that 'A' and 'B' are two stationary points on a single plane, separated by a constant distance 'x' ,

'x' $\neq 0$ or $0 < x \leq \infty$ (only considering 2D now), which are joined by a line 'AB', which is an infinitely stretchable line.

At a time $t = 0s$ -- which is the initial time -- the angle θ between the points is 180 degrees (π rad).

At a time $t = t$, i.e. when the line is stretched from a specific point (point of stretching), even for a minute distance say dY , the angle is made between the points 'A' and 'B' , opposite to the direction of stretch of line which is always < 180 degrees ($< \pi$ rad) and a perpendicular distance, say 'y' is made from the point used for stretching to the final destination at time $t = t$ (which would be y).

(refer to figure 2.1 and 2.2)

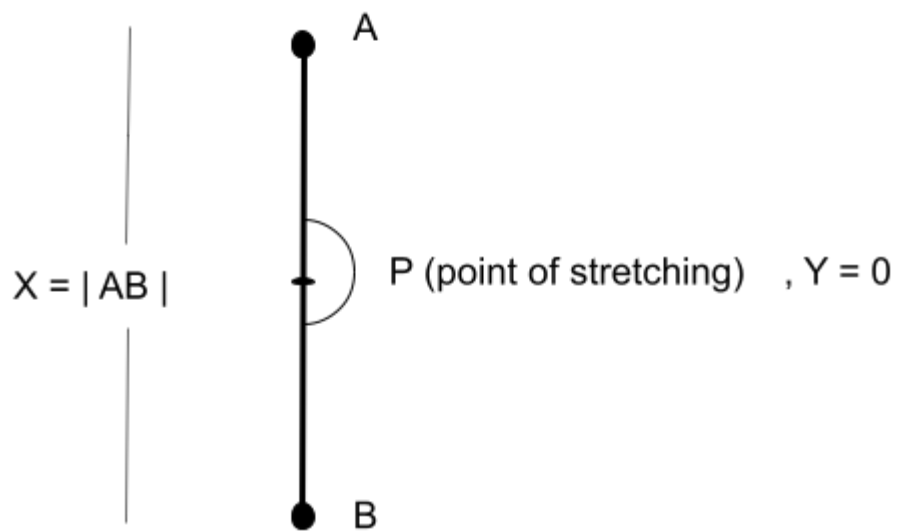


Figure 2.1, Initial state of line

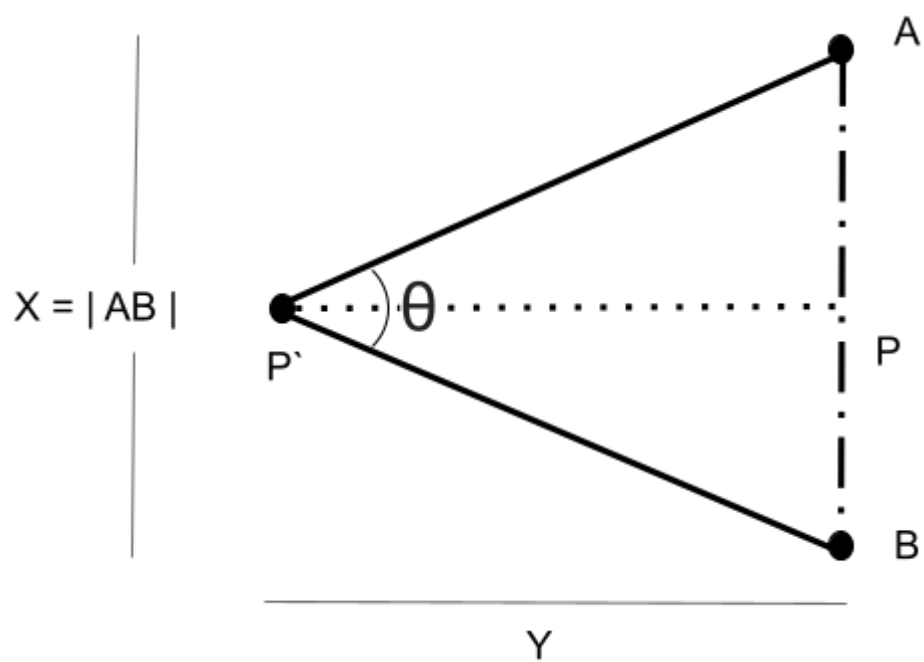


Figure 2.2, final state at a time $t = t$, $\theta < 180$

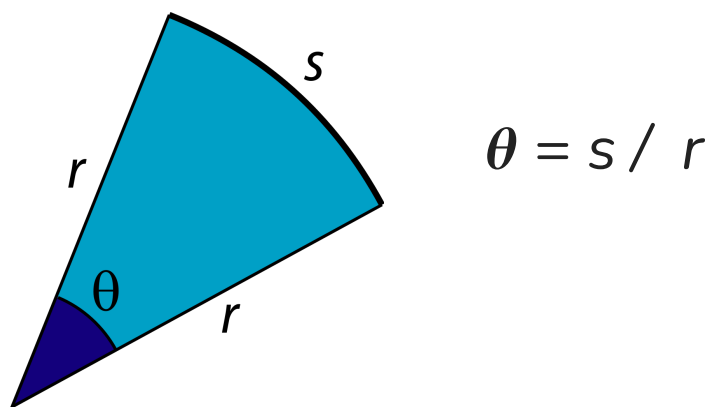
As long as **y** is stretched the angle θ is always < 180 .
 The graph of the relation between angle as a function of distance from **P to the line joining A and B** goes similar to that of a $f(x) = 1/\log(x)$ graph.

From figure 2.2, we get (eq 1):

$$\theta \approx AB / PB = AB / PA = x / PB$$

... similar to the applications in Physics

It is known that central angle in a circle subtended by an arc length (in radian) = Arc length / radius



When a circle has an infinite radius, a tangent to a part of the circle would be parallel to the circle,

passing through the circle itself. Therefore, **A CIRCLE WITH AN INFINITE RADIUS IS A STRAIGHT LINE.**

When the line (stretchable line between points A and B taken above) is stretched so that the magnitude of the perpendicular vector distance between the initial point of stretching and the final point is infinite, the angle **AP'B** is 0° . (refer to figure 3)

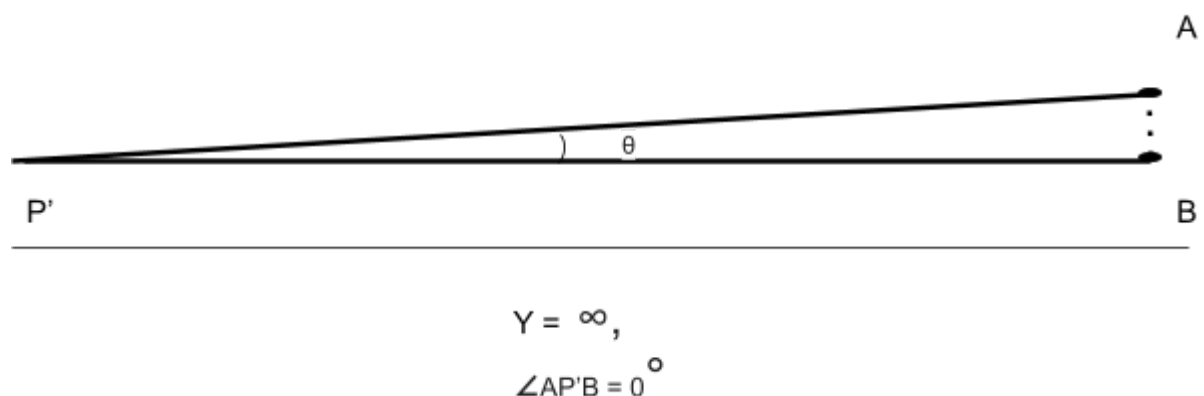


Figure 3

The above picture shows **P'** extended from a point **P**, which is the midpoint of **AB** (taken for ease of solving).

The above image is also scaled to pictorially represent an infinite distance. The magnitude of **AB** is still **X** units and will always be throughout.

Math:

From figure 3, when $y = \infty$.

$$\theta = AB / P'B \quad \dots \text{ [circle with infinite radius is a line]}$$

Here **AB** can be a part of a circle with a radius = $y = \infty$,

Central angle subtended by an arc on a circle =

$$\theta = AB / P'B = x / P'B$$

$$\therefore \theta = x / \infty$$

$$\therefore \theta = 0 \text{ rad} = 0^\circ \quad \dots \text{ [Any number divided by infinity is equal to 0]}$$

Since the distinct parts of the lines, namely **P'A** and **P'B** from the point **P'** are originating from the same point and since $\theta = 0^\circ$ (**angle between P'A and P'B**), it is safe to say that these are the same lines when $y = \infty$.

$$\text{i.e} \quad |P'A| \cong |P'B|$$

. i.e. the lines $P'A = P'B$ and are both one and the same and they start and end at the same point P' and P , respectively.

BUT we've always had a stationary distance separating these lines, 'x' which is not changing throughout the process, which is never going to be 0 even when the distance $y = \infty$.

$$\Rightarrow 0 < x \leq \infty$$

$$\Rightarrow \theta \neq 0, \text{ or } \theta > 0$$

This can either be the proof of the statement that human mind can never comprehend infinity and at infinity θ is 0 (at an infinite value for y) which proves this Paradox.

If this is not a paradox, then it proves that the mathematical formula for the value of $\theta = s / r$

form the above equations breaks at a point infinity.

Please contact Shimron Alakkal using the below link for any corrections or other opinions
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