

Two photons... relative distance question

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Consider Inertial Frame of Reference #1: 2 photons are travelling towards each other along the X-axis. Photon A is at position zero on the X-axis, and photon B is 1.5 light-seconds away:

FoR#2:

-> <-

A.....449688687 meters.....B

O1

Now consider the situation from Inertial Frame of Reference #2, in which the axes are the same as FoR#1 and photon A is also at position zero on the X-axis, but the observer, at rest in FoR#2, is travelling at 0.5c relative to FoR#1, in the same direction as photon A:

FoR#1:

-> <-

A.....X meters.....B

O2 (-> at 0.5c relative to O1)

Question 1: Is this scenario possible? (or have I misunderstood concepts in the theory of relativity?)

Question 2: Where is photon B in FoR#2? (i.e., what is the distance between A and B in FoR#2)?

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