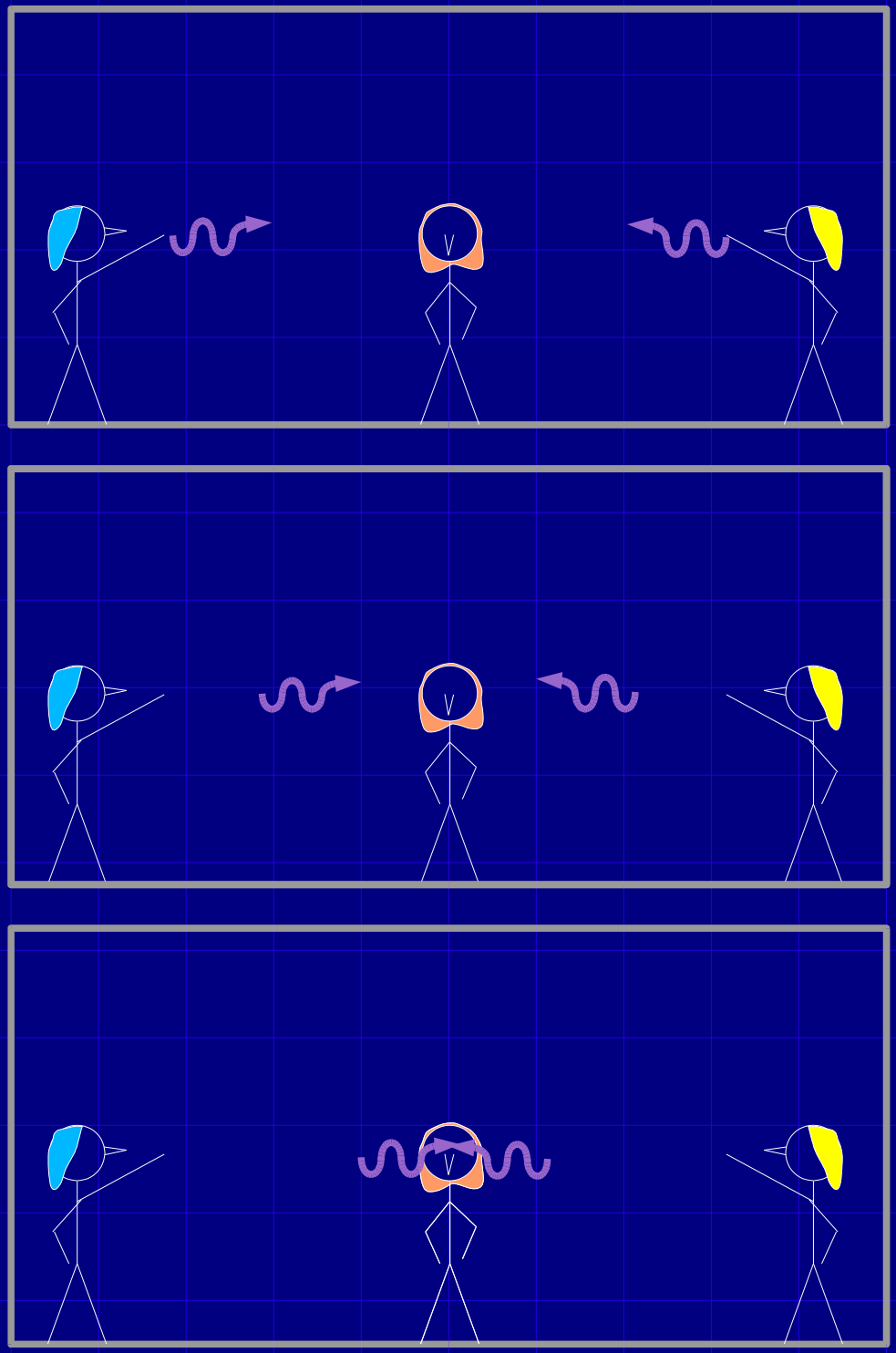
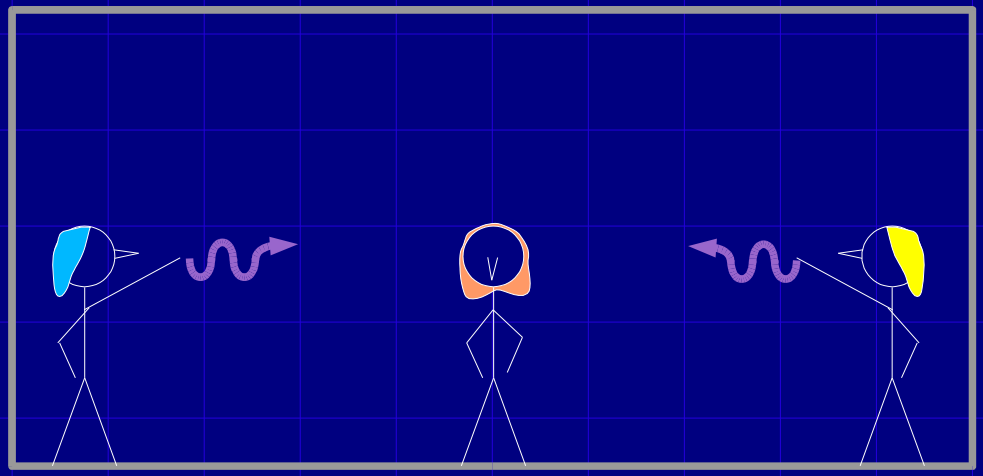
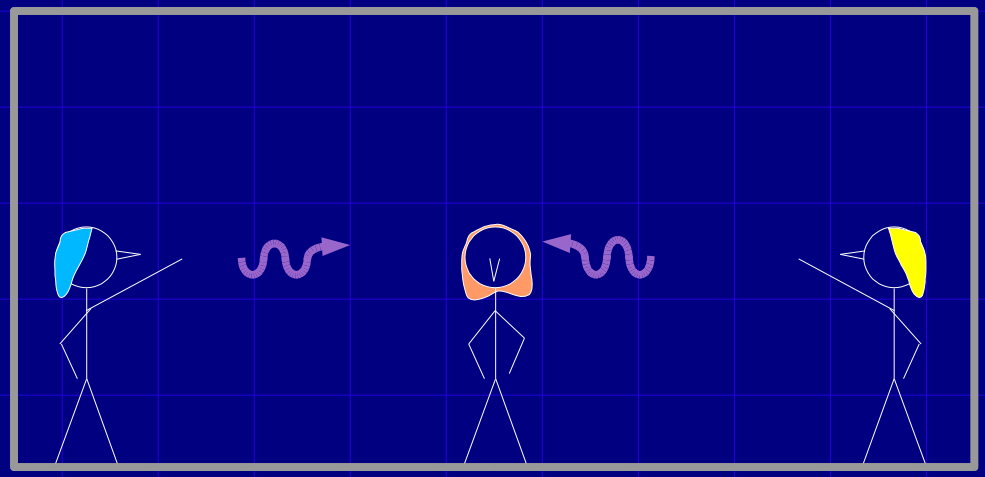
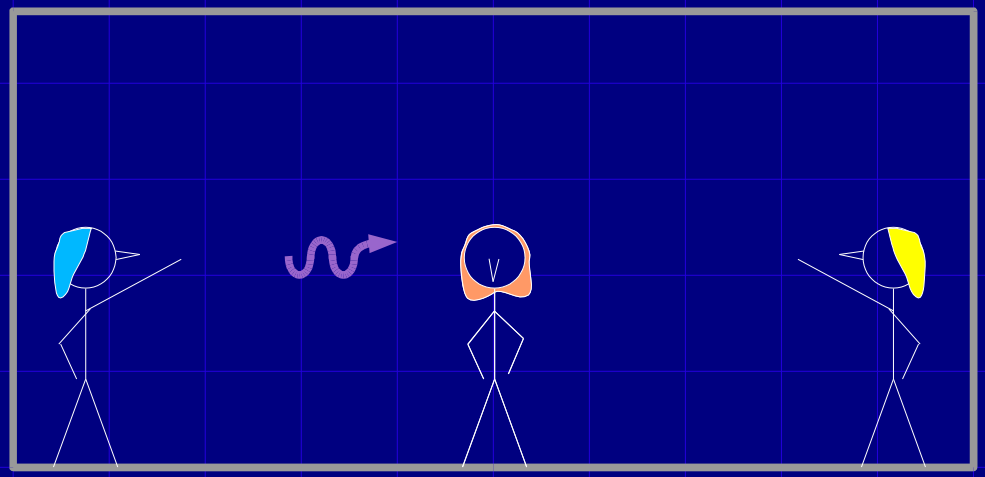


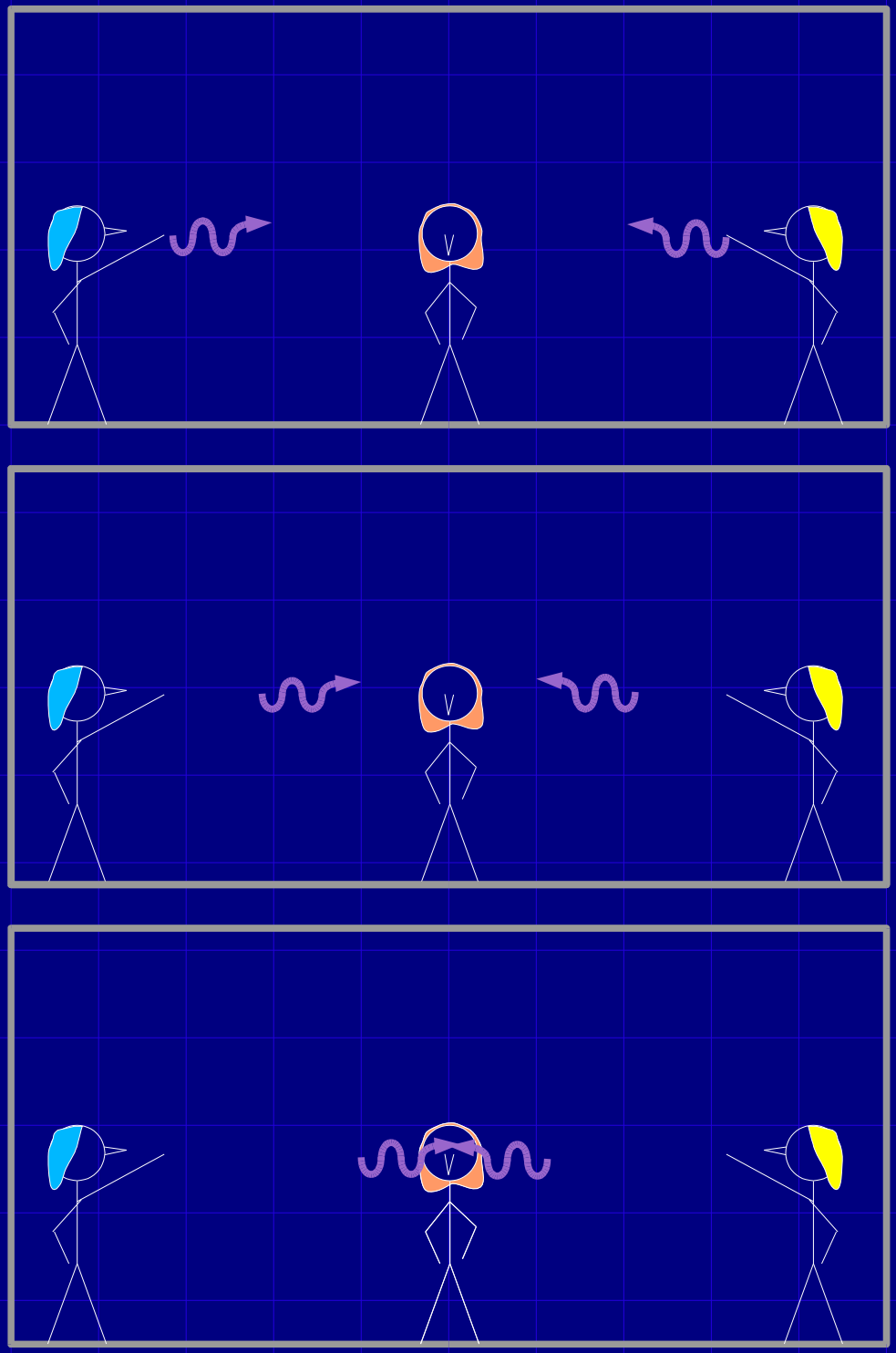


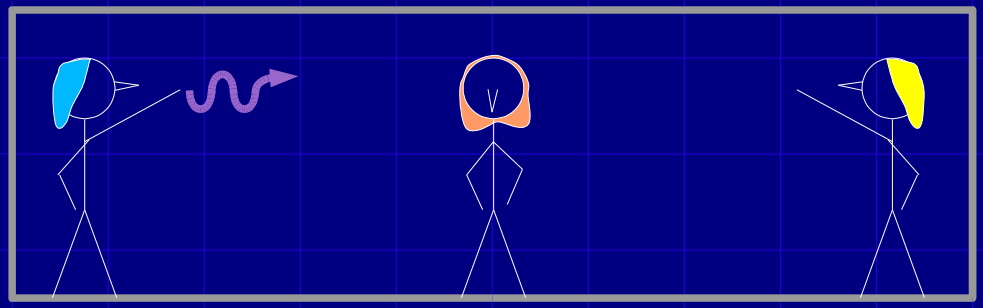
1.5×10^{8} m/s

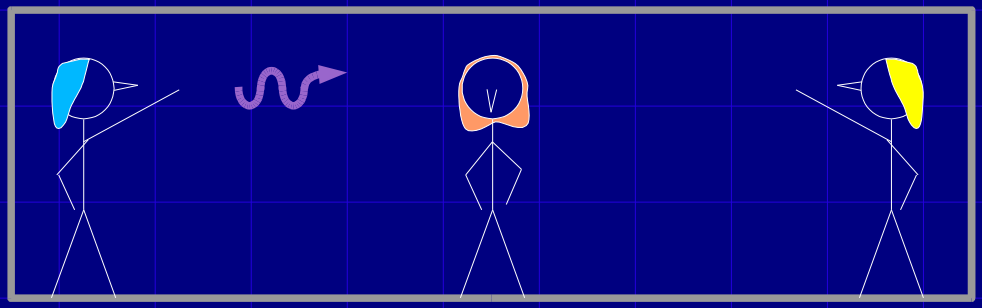


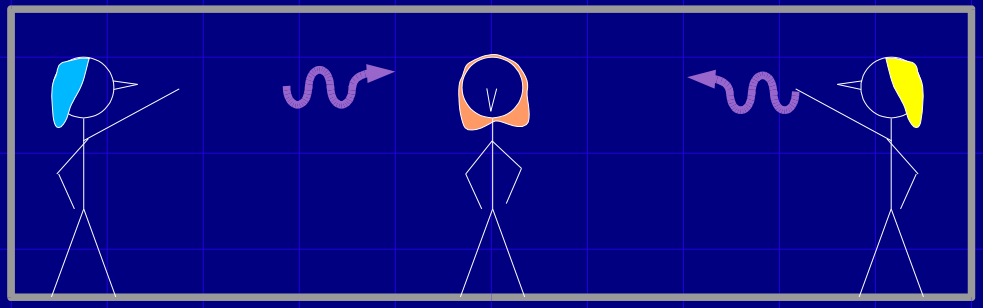


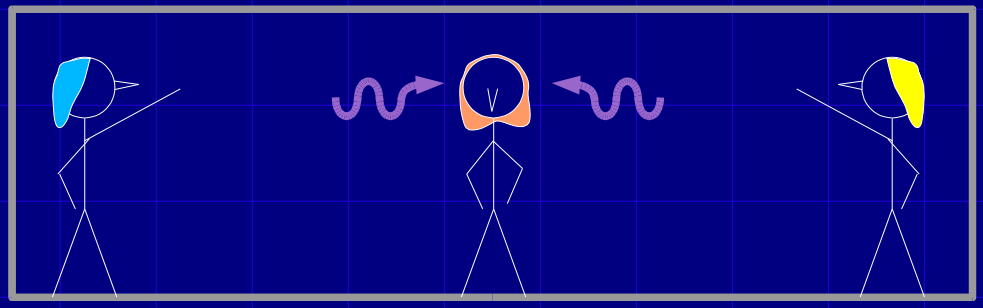
Not the same experiment as on the last slide!











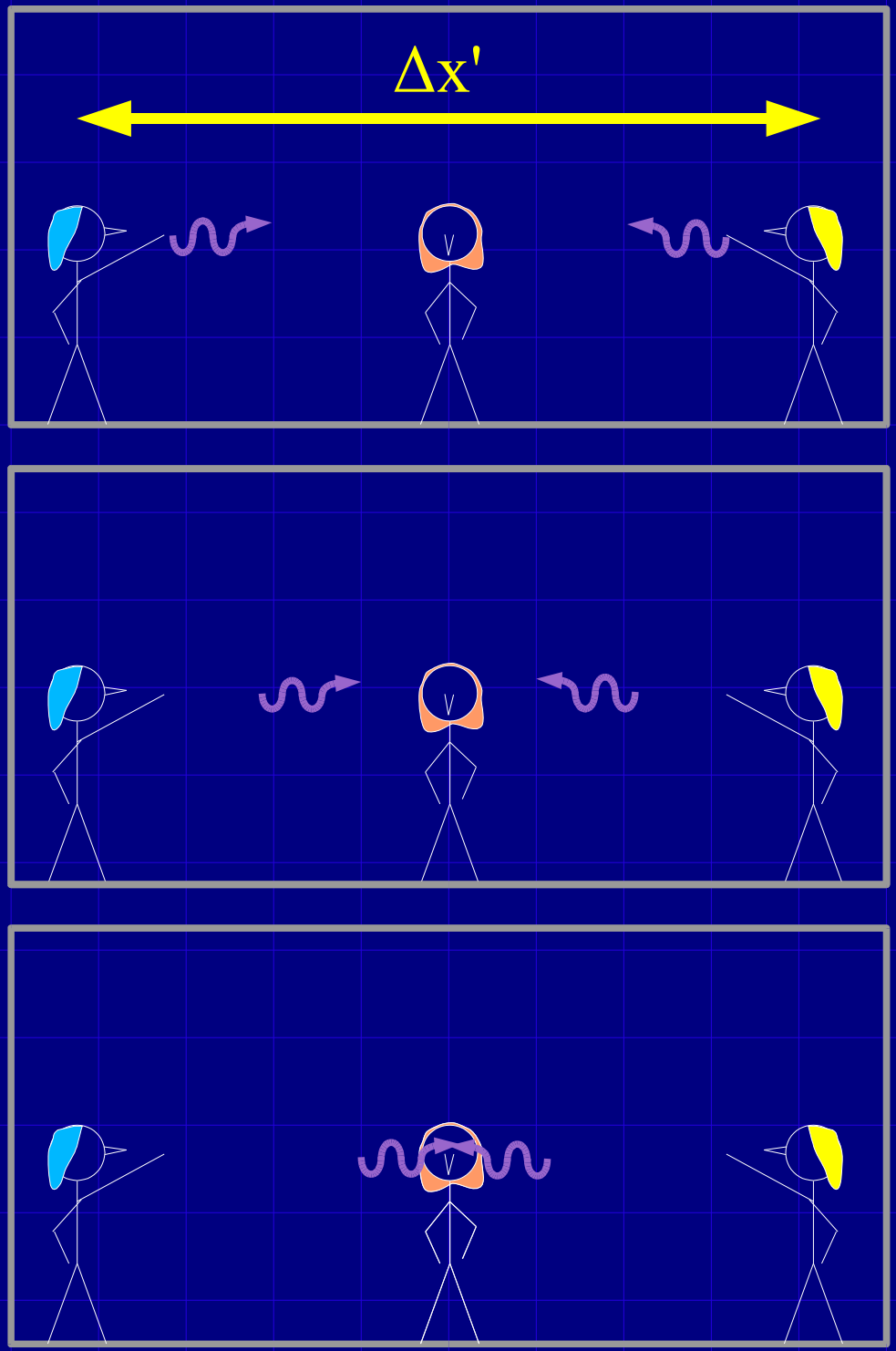
1.5×10^8 m/s

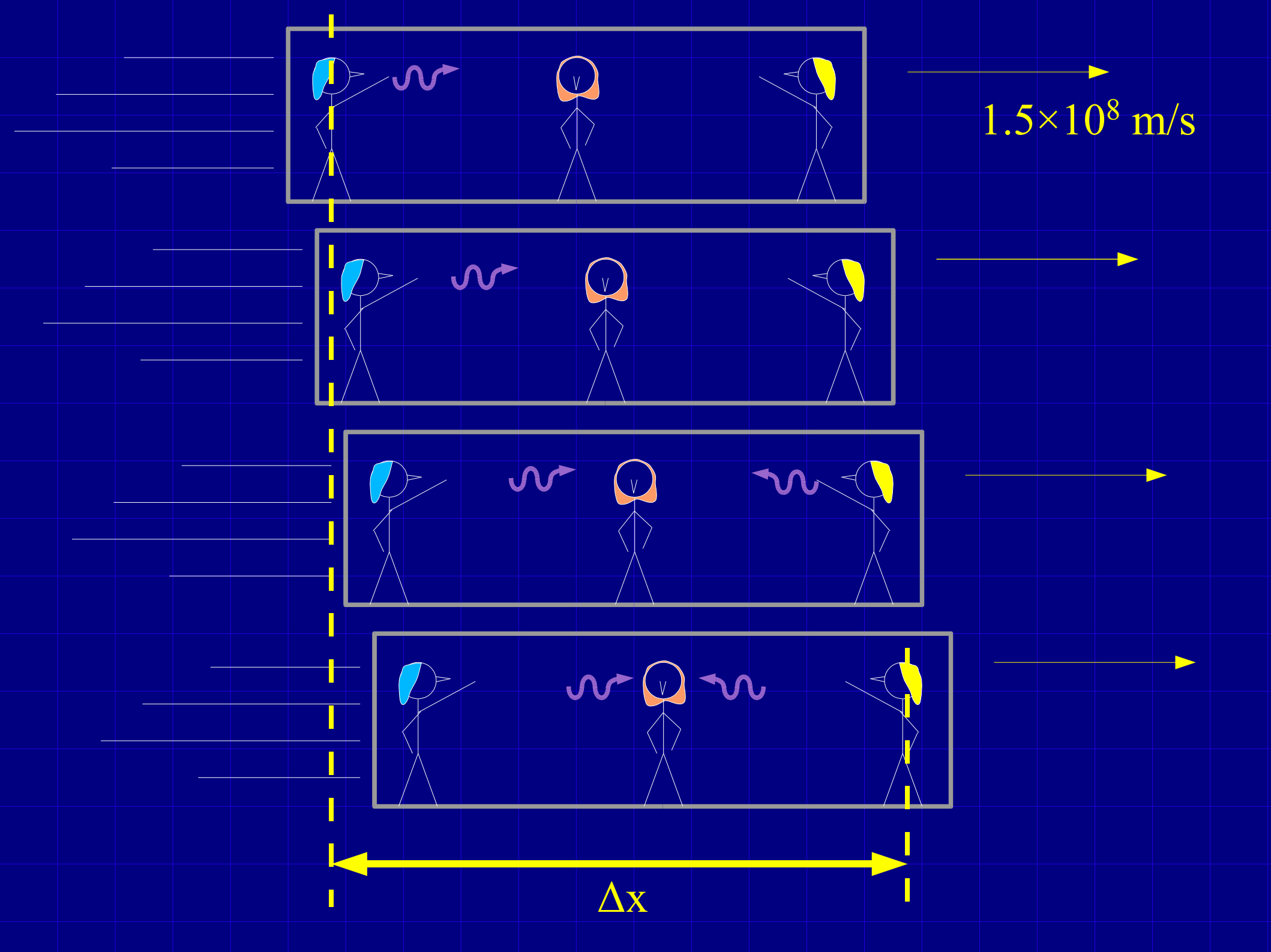
So who released the photon first? That depends on the frame of reference!

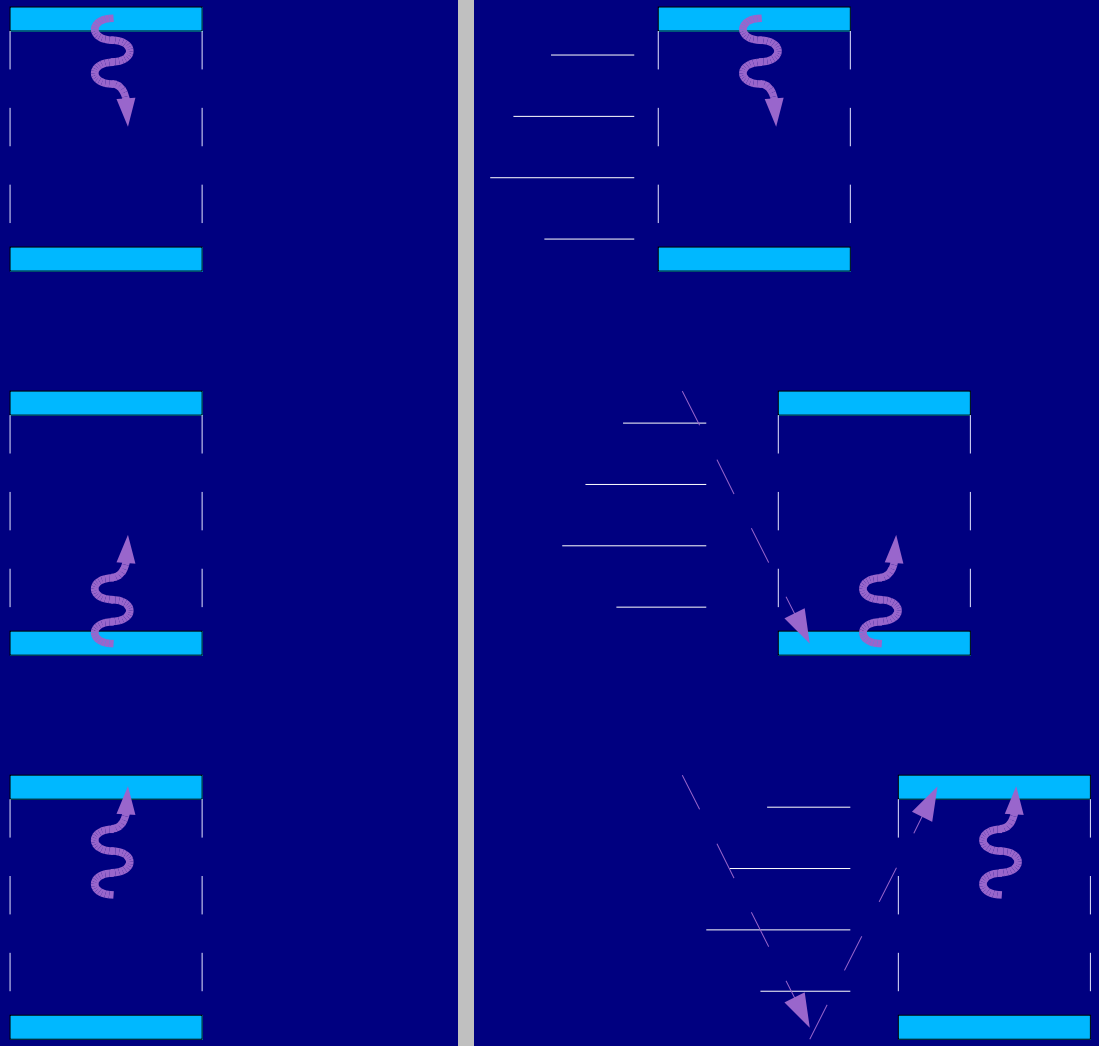
Simultaneity is absolute only for events which happen at the same point in space!

At first sight, this seems surprising, since one might expect length contraction, and not "dillatation", when talking about length measured in frames moving at relativistic speeds.

However, what we measure in the second frame, mainly delta x', is not a length, but merely the distance between 2 point which correspond to simultaneous events in the first frame. To measure a length one needs to measure the position of both ends in the same time.


Δx'


1.5×10^8 m/s
Δx



Case A:

1 Second Elapsed

Case B

Moving clocks run slow!