

Un-Thingy Things: What can they not do?

PHYSICS 102
,PROFS. YAVERBAUM & WALTERS
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- 1) Clear your desk of EVERYTHING EXCEPT *two arbitrary objects*--such as one pencil and one calculator, one piece of paper and one watch, one ring and one wallet, etc.
The shape, type, color of each object is utterly irrelevant to this exercise.
- 2) Choose one of the two objects. This object will be known from here on as "Thing #1." Thing #1 is defined by a geometric point at its center (of mass). If someone says, for example, that Thing #1 is somewhere some time, she means that the (mass) center of Thing #1 is at a particular point in space at a particular point in time.
- 3) Identify the remaining object. This object will be known here on as "Thing #2." Thing #2 is also defined by a geometric point at its center.
- 4) Attempt to perform each of the following five seemingly silly tasks. They all sound similarly silly, but some of them are far easier to perform than others. Some of them are, in fact, impossible. Do not spend too much time on these. But do remember them. You will be asked questions about them after the fact. On a sheet of paper,
KEEP track of which were possible and which were impossible!
 - i. Place (the center points of) Thing #1 and Thing #2 in two different points in space at the same point in time.
 - ii. Place (the center points of) Thing #1 and Thing #2 in two different points in times at the same point in space.
 - iii. Place (tcpo) Thing #1 and Thing #2 at the same point in space at the same point in time.
 - iv. Place (the center point of) Thing #1 in two different points in time at the same point in space.
 - v. Place (tcpo) Thing #2 in two different points in space at the same point in time.

5) Which of the five above tasks were impossible?

6) In exactly one complete sentence each, write down a response to each of the following questions. More than one possible right answer exists, but there is an infinity of answers that are wrong (e.g.: "They are both not fish")

i. In what way does time seem similar to space?

ii. In what way does time seem different from space?

*** AND NOW THE KEY QUESTION for Physics 204 ***

iii. Based on the activities you found to be possible or impossible, write down one complete sentence of English that provides *your best conjecture* for:

The definition of a physical "particle".