# Applied Compositional Thinking for Engineers (ACT4E)

## Session 3a

## Questions & Answers

**Q: To my eye, the picture of cartesian product looks like B*A instead of A*B. Any comment ?**
A: Why is this?
According to number of rows and columns. But maybe it is not so important.
A: What matters is the form of the tuple, if it is <xi,yi> where xi in A and yi in B, then it belongs to AxB
So the order does matter. Right ?
A: Yes, we will see the concept of "isomorphism" to describe morphisms from AxB and BxA

**Q: I think, the Y is not defined in the definition of relation composition. In the current slide, yes it is defined.**
A: Sure, I think you refer to the set Y, which should be B (it's a typo). Yes.

**Q: Injective and bijective are the same , right?**
A: Why? No, injective + surjective gives bijective. Aha, thanks.

**Q: What would be an example of an injective but not a single valued relation?**
A: R = {<x1, y1>, <x1, y2>, <x2, y3>}
A: square root

**Q: What does total mean exactly ?**
A: answering now live

**Q: isnt the notation on slide 25 for endorelation on R^2 somehow missleading since we use <x1,x2> for x1 is related to x2?**
A: I see the confusion. Though, here <.,.> represents pairs, i.e. elements of R^2.