

TCORE 122D Introduction to Science

Example Questions from Readings and Slides

Critical Thinking

These questions are examples of the kind of critical thinking that you should be learning to apply to all information you receive. Critical thinking does not mean “criticism”. It means examining claims, premises, evidence, and conclusions in light of your own knowledge and asking questions to reconcile any differences you detect between what is given to you and what you think based on your own knowledge.

Here are a few example questions that could be generated as a result of critical thinking about the subject of this course as given in both Meadows’ book and my slides. You must never simply accept what some supposed authority says is the truth without examining it in light of a body of knowledge. And if you do not have sufficient knowledge to do so, YOU ASK QUESTIONS!

1. Meadows, page 95: Referring to sources and sinks, “They rarely mark a real boundary, because systems rarely have real boundaries.” And, on page 97 in the side box she says: “The world is a continuum. Where to draw a boundary around a system depends on the purpose of the discussion--the questions we want to ask.” Yet in your principle of systemness you insist that part of what makes a system is the existence of a real boundary, even if it is fuzzy. **How do you reconcile these opposite views?**
2. On page 91, Meadows claims that we think linearly but so many systems have nonlinear responses and that is why the world always surprises us. **Is it absolute that we can only think linearly? Why, if the world is full of nonlinear systems, wouldn’t we have evolved to be able to think nonlinearly too?**
3. In slide 36 you show something called “chance structures.” **What exactly does this mean? What does chance have to do with it?**
4. Meadows, page 105, in the side box, claims, “When there are long delays in feedback loops, some sort of foresight is essential.” **Is this related to your hierarchical cybernetic model?**
5. Meadows, page 107, claims, “We live in an exaggerated present--we pay too much attention to recent experience and too little attention to the past, focusing on current events rather than long-term behavior.” **What exactly does she mean by an “exaggerated present?” Why doesn’t meta-learning (slide 69) allow us to overcome this “boundedness” in our knowledge?**