

# Beyond Uncertainty

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Lesson 11/11

## 1 Uncertainty

### 1.1 Last lesson recap: What is Uncertainty? Main points of uncertainty?

- Known/Unknown consequences of our actions!
- Certainty: we know which is the best choice in a pool, and were it brings
- Risk: we know the probabilities of the outcome of our actions
- Uncertainty: We don't know the consequences of our actions. But we can acquire information through procedures(loops/spending resources) to narrow down the space of possibilities.

### 1.2 Example: Cuban missile crisis

During cold war, the Cubans started to stack nuclear weapons, so the Americans started to handle it, embargoing Cuba. An escalation started and everybody feared a nuclear war between the USA and Cuba.

What is the key point of Cold War? There's a theory called Mutually Assured Destruction. That says both sides are capable to destroy each other, independently who attacks first. This is Certain.

For example, a side radars can track the missiles in the air, and fire back before getting destroyed.

The Uncertainty element is the fact that the two sides had no information on what the other side was doing.

At a certain point, some ships broke the US Navy embargo, so, to reduce the uncertainty and assure the Mutually Assured Destruction theory before a war declaration, the USA sent an airplane to scout in Cuba missile sites. Cuba thought it was a military plane and shut it down.

Both sides spent resources to obtain information! Neither of them reached a point of optimum. Both sides had a wide margin of Uncertainty, so the nuclear war didn't started due to the only Certainty: The Mutual Assured Destruction theory.

## 2 Ambiguity & Enrolment

### 2.1 Contemporary Perspectives

- Objectivism became Subjectivism!
  - Objective World: Everyone agreed about every phenomenon
  - Subjective World: Different perspectives about a phenomenon

[Example: Vaccines] When we were kids, there were just 1 opinion (you have to do vaccines). Today, there are 2 billions of opinions! Is difficult to contradict them all.
- Post - Modernism: Flips all concepts of modernism! all assured topics started being questions.

Today, we will see that sometimes Uncertainty is not enough, and we will discuss Ambiguity.

### 2.2 Example: Roman generals war

Titius and Caius are two roman generals that have an equivalent army. They have to fight in a terrain with hills, rivers, forests... They want to make sure that even if the army is equal, someone have to win. How they have to use the terrain in order to win? It looks a matter of uncertainty, you have to scout information on the opposite army in order to adopt the best strategy to win (siege, hide in forest, use hills...). Every terrain can become an advantage or a disadvantage! They have to scout to gather information but still there will be uncertainty.

Even assuming they take the best path of decision given their information, the scenario is a given win for one or the other? is it pre-determined? no! There may be leaking information, misleading information, ...

NB. The map(my theory/knowledge) will never be the same as the territory (the reality)!!!

The two people can interact/change the environment to fulfill their aims (leverage the environment). Each can develop mental pressure to let the other make mistakes. To stimulate mistakes in judgment.

What the two generals are doing is called enrolment (DESCRIBED IN THE PAPER).

Enrolment: modify the environment in order to facilitates my tasks.

### **2.3 Example: Classroom Features Leveraging to get class attention**

- Projector (The fact that is fixed is a constraint, a good presentation can get even more attention)
- Blackboard (Fixed position too)
- Desks (Posed in a matter that facilitates students to see the teacher)
- Roles (as in the IBICT course)
- High ground (Easier to see/ definition of who is in charge!)

### **2.4 Environment Translation**

Translation def.: The process through enrolment to change from a state to another.

What are the main differences between the example of the roman generals and the classroom? The man made class have less degrees of freedom than the battlefield! The man artifacts removed ambiguity!

### **2.5 Example: Italian and German Highways**

How does they work:

In Italy, you pay a fee, and you have a speed limit.

In Germany, you pay no fees, and you have no speed limits.

How are they similarly safe with and without limits?

There are cultural norms on how people are supposed to behave.

### **2.6 Culture, Norms & Rules**

What are the cause and what are the effects in the example of the rules of the highways?

Cause: Culture?

Effects: Rules and Norms?

Actually is a muddy mix of causes and effects! There are multiple interpretations due to the artifact rules introduced by humans to educate other humans.

### **2.7 From Enrolment to Actor Network Theory**

Why is it important to talk about Enrolment/Norms in Innovation?

NB. You can change Environment/Rules/Norms that are set to do innovation!

## 3 Actor-Network Theory

### 3.1 Are all Ambiguity created equal? Are there subcases?

We saw examples with different environment, we can follow what environment does and try to get some out of it (Roman Generals) or try to change the environment to help our purpose(Classroom Enrolment).

What are the features of the 2 sub-buckets (2 types of ambiguity)?

- I follow what environment tells me
- I try to change the environment in order to reach my goal

Can i apply the same strategy to both the Environments?

It's again a meddling of cause and effects! i have to act a lot more in the case when i have to change the environment.

### 3.2 Actor-Network Theory

[PAPERS on ANT]

In some way, when we design artifacts, those things tells you what to do. They can taking Decisions in your place.

Example: When we use our phones, they decide how we communicate between us. We communicate with the phone, not with the other person.

What Actor Network theory tell us is how to map behaviours. Consider the relations between humans, and consider the interactions with non-humans around us.

### 3.3 Non-Human Agencies

- Phone example: What does the phone change in the way we talk?

The channel of information! It cuts some avenue of information (Body language, ...)!

- Google Results example: The selection algorithms make the decision for you of what you will see and what u will not. You are limited by the search engine.

Filter bubble: When you search for new things they show you stuff similar to something you've already seen. They are trying to narrow you down to a certain profile.

The designer's intent is to get you stucked in a certain profile, giving you what you want to hear.

The more you are narrowed down, the easier is to sell you things.

- Seat Belt Bipping example: The designer's intent is to make you drive with your seat belt on.

### 3.4 Designer's intent

The designer's intent is embedded in the artifacts he develop. Some cases are more obvious (Seat Belt) others are more obscure (Filter Bubble).

### 3.5 Example of Ambiguity: Fake News

Sensible case of innovation in the last years. Do you know if a news is fake or not when you read it? Usually not, so we try to find another trusted source to verify it. But is not that easy. You delegate your trust to someone.

Some people assume that the authoritiveness is there in every news they read. To break this constraint, they have to use a lot of resources (brain power, time, ...).

### 3.6 Example of ANT: Politicians Misleading

Is it more attractive a factual stuff or a controversial one? The controversial! So what politicians do?

In the same day, the politician take a factual bad decision but to mislead it take a controversial decision too!

So, everybody start to argue about the controversial one, and the factual don't even pass under the radar.

How does it involve the Actor Network theory?

Actors: Politician, People

Network: Social media (spread the information)

For example, twitter can set on top of your page just 1 news, and will be the one with highest sharings. So, the controversial news is spread a lot more than the factual one.

In the social media, things that are more shared are more relevant and are more likely to be true. So they influence the people thoughts.

### 3.7 Cost of falsification

Is the amount of resources you need to use to falsify (news)!

Flat earth example: Low cost, but still controversial.

Open the black box! We can track why the news become so popular and if it is true or not!

We can't know if this lesson is misleading us or not. The cost of falsification is much higher than the flat earth news.

### 3.8 Conspiracy theories example

key point: There must be hidden information! How can you falsify something that is hidden? [Example in slides of believed hidden information in tweets]