**Latour’s Actor-Network Theory (ANT)**

Actor-Network Theory (ANT), developed by Bruno Latour, explains how people (humans) and things (non-humans) interact in networks to shape situations and outcomes. Instead of seeing society or technology as fixed structures, ANT shows that everything is formed through relationships.

Key Points:

* Everything is a network: ANT can be used to explain anything—from global issues like climate change to small events like a birthday party—by looking at the connections between people, objects, and ideas.
* Humans and non-humans matter equally: Unlike theories that focus only on society or technology, ANT treats both as equally important in shaping events.
* Power comes from connections: The way actors (people, tools, systems) connect and influence each other creates power and change. This process is called translation, where ideas shift and transform as they spread.
* Complexity depends on perspective: Scholars decide how detailed their networks should be when studying a phenomenon, as every actor is also part of a bigger network.

**History and Overview of Actor-Network Theory (ANT)**

Actor-Network Theory (ANT) is a way to understand how people and objects interact. It challenges the idea that everything is shaped only by society (social determinism) or only by technology (technological determinism).

**Key Points:**

* Origins: ANT started in the 1980s in France and Britain, mainly through the work of Bruno Latour and John Law. It was first used to study how scientific discoveries and technological innovations happen.
* Influences: Latour and Law built on earlier studies of science, technology, and ideas from French intellectuals.
* Core Concepts: ANT introduced ideas like translation (how ideas spread and change), generalized symmetry (treating humans and non-humans equally), and heterogeneous networks (systems made up of different types of actors).
* Growth Beyond Science: By the 1990s, ANT became popular in many fields, including business, healthcare, geography, sociology, anthropology, feminist studies, and economics.

**Key Components of Actor-Network Theory (ANT)**

Actor-Network Theory (ANT) focuses on how objects, people, and ideas interact to shape events. To explain this, it uses a few key terms:

**1. Assemblages (Networks)**

* An assemblage is just another word for a network—it’s the total of all the parts (actors) that make up something.
* This "thing" can be anything: a piece of technology, an idea, or even a hot dog!

**2. Actants (Actors)**

* Actants are the elements in a network. These can be people, objects, or systems.
* ANT treats everything equally—a smartphone is just as important in a social network as the person using it.
* Example: In Facebook’s network, both people and technology (computers, phones, software) play a role in shaping communication.

**3. Everything is a Network**

* Every actant is part of a larger assemblage, and every assemblage is made up of smaller actants.
* Example: A human is a network of organs, thoughts, and emotions.
* Example: A birthday cake is a network of ingredients (flour, sugar), tools (oven, spoon), and labor. The cake itself can be part of another network, like a birthday party.

**4. The "Black Box" Concept**

* To handle all this complexity, sociologists sometimes group a system into a single “black box”—a unit that works together, even if its details are complex.

**Translation in Actor-Network Theory**

Translation is a key idea in Actor-Network Theory (ANT). It explains how ideas, knowledge, and actions spread and change as they move through networks.

**Key Points:**

* Science succeeds through networks – Scientific discoveries work because they force things (like diseases, medicines, or lab tests) to pass through controlled spaces like labs or clinics to produce reliable results. [This means that scientific discoveries don’t happen in isolation. Instead, they rely on interconnected systems—labs, researchers, institutions, tools, and procedures—that ensure reliable and reproducible results. This is where the "black box" concept comes in: scientists don’t always need to understand every internal detail of a system as long as it works consistently.

**Example: COVID-19 Testing & Vaccination**

During the COVID-19 pandemic, scientists developed reliable tests and vaccines by creating controlled environments where variables could be managed.

**COVID-19 Testing (Controlled Lab Network)**

Scientists designed PCR (Polymerase Chain Reaction, a laboratory technique used to detect the genetic material of the SARS-CoV-2 virus, which causes COVID-19. It is one of the most accurate and reliable tests for diagnosing COVID-19 infections) tests that required samples to be processed in specialized labs using advanced machines.

The reliability of these tests depended on standardized procedures, trained technicians, and regulatory approvals.

While people taking the test didn’t need to understand the intricate workings of PCR technology, they trusted the results because they passed through the network of controlled scientific processes.

**Vaccine Development & Distribution (Global Network)**

Pharmaceutical companies developed vaccines in research labs using controlled clinical trials.

The vaccines were tested in multiple phases under strict conditions to confirm safety and effectiveness.

Once approved, the vaccines were distributed through a healthcare network—clinics, hospitals, and pharmacies—ensuring proper storage, transport, and administration.

While most people didn’t know how mRNA vaccines worked at the molecular level, they trusted the scientific system that delivered them.]

* Networks grow through struggles – Different actors (people, institutions, technologies) have their own goals and compete to influence outcomes.
* Power comes from connections – Power doesn’t belong to one actor alone but is created through relationships in the network.

**What is Translation?**

* Translation = Change During Movement – When something (like an idea, technology, or scientific discovery) spreads, it doesn’t stay the same—it gets adapted or reshaped.
* Example: As scientific knowledge spreads, it is modified to fit new contexts, creating slightly different versions of the original idea.

**[How a Scientific Discovery Changes Across Cultures?**

Scientific discoveries don’t remain the same everywhere—they adapt based on cultural beliefs, social norms, and local contexts. When a discovery (like a COVID-19 vaccine or prevention strategy) moves from one culture to another, people interpret, accept, or modify it based on their traditions, trust in science, and government policies.

**Examples from COVID-19**

**1**. Vaccine Acceptance & Hesitancy

In Western countries (USA, UK), some people hesitated to take vaccines due to concerns about safety, government control, or misinformation.

In many Asian and African countries, people initially showed high vaccine acceptance, often trusting government and religious leaders.

In India, traditional beliefs led some to prefer herbal remedies alongside vaccines.

In some Muslim-majority countries, people questioned whether vaccines contained haram (forbidden) ingredients like pork-derived gelatin, requiring religious scholars to issue fatwas (Islamic rulings) to assure safety.

**2. Mask-Wearing Norms**

In East Asian countries (like Japan, South Korea, China), wearing masks was already common due to past pandemics (SARS, MERS), so people adopted it quickly.

In Western countries, mask-wearing was politicized—some saw it as a loss of personal freedom rather than a public health measure.

In some rural communities worldwide, people avoided masks, thinking they were only for sick individuals.

**3. COVID-19 Treatment & Traditional Medicine**

In China, Traditional Chinese Medicine (TCM) was widely promoted alongside modern medicine.

In Africa, some people believed in herbal treatments over vaccines, and myths spread about "natural immunity."

In Latin America, some communities relied on home remedies like eucalyptus and ginger, seeing them as more "natural" alternatives to pharmaceutical drugs.

**4. Lockdown & Social Behavior**

In European countries, lockdowns were enforced with fines, and remote work became common.

In Bangladesh and India, lockdowns were challenging for daily wage earners who needed to work to survive.

In Sweden, the government took a different approach, avoiding strict lockdowns and relying on voluntary measures.]

**Three Main Principles of Actor-Network Theory (ANT)**

ANT has three key principles that challenge the idea of strict divisions between society, nature, and technology.

**1. Agnosticism (No Assumptions)**

* Researchers must stay neutral and avoid making assumptions about how networks form or how actants (people or objects) influence them.
* Every explanation should be unbiased, without favoring any perspective.

**2. Generalized Symmetry (Equal Treatment)**

* ANT treats humans and non-humans the same when studying networks.
* Example: When studying a social network like Facebook, both people and technology (computers, algorithms) should be analyzed in the same way.

**3. Free Association (No Divisions)**

* There is no real boundary between social and natural phenomena—these distinctions come from the network itself.
* Example: A scientific discovery isn’t purely "social" or "natural"—it’s shaped by both human and non-human influences, like researchers, lab equipment, and funding.

**How Actor-Network Theory (ANT) is Used?**

ANT helps researchers understand how technology shapes society and how different actors (both human and non-human) interact in complex networks.

**How is ANT Useful?**

* Understanding Complexity: It helps researchers see how different elements (people, objects, ideas) work together to shape events.
* Better Sampling: It encourages researchers to study everyone and everything related to a technology, not just people.
* New Vocabulary: ANT provides useful terms to describe interactions in a network.

**Criticism of ANT**

* Focus on Description: ANT is great for mapping networks but doesn’t explain outside influences like gender, religion, or culture.
* Overcomplication: In theory, everything can be broken down endlessly (e.g., a network of atoms in a smartphone), making it hard to apply practically.

**Main Criticism: Can Objects Really Act?**

* Critics (like Langdon Winner) argue that only humans can act intentionally, while objects and animals cannot.
* ANT’s Response: ANT does not claim that objects have intentions like humans. Instead, it says that agency (the ability to influence outcomes) comes from the connections between humans and non-humans.

**Is ANT Amoral?**

* Some say ANT ignores moral and political issues.
* Response (Wiebe Bijker): ANT can include morals and politics, but first, researchers should describe networks before making judgments.

**Where is ANT Used?**

* Science & Technology: Studying how innovations happen.
* Medicine: Understanding how diseases are experienced.
* Law, Art, Religion & Architecture**:** Exploring how different systems come into existence.

**Example: Scallops in Brittany, France**

ANT studies how humans and non-humans interact to shape outcomes. A famous example is the study of scallops in St. Brieuc Bay, France.

**What Happened?**

* In the 1980s, scientists wanted to solve the problem of declining scallop (ঝিনুক জাতীয় প্রাণি) numbers in the bay.
* They introduced new devices to collect scallop larvae and study their behavior.
* Fishermen, scientists, and scallops all became part of a network, influencing each other’s actions.

**How Does ANT Explain This?**

* Success depended on the collaboration of both human (fishermen, scientists) and non-human (scallops, measuring devices) actors.
* The network shaped the outcome—not just the humans involved.

**Actor-Network Theory in Education & Technology**

**Education: Cosmopolitanism & ANT**

* Cosmopolitanism is the idea that all humans are part of one global community.
* Saito (2010) used ANT to show how cosmopolitanism develops through interactions between people and objects.
* He suggested using cosmopolitan education to help students:
  + Connect with people and cultures from other countries.
  + Understand global networks they are part of.
  + Act on this knowledge to build stronger global relationships.

**Technology: ANT in the UK Health System**

* Bloomfield (1991) applied ANT to study how information systems were developed in the UK’s National Health Service.
* His research showed that:
  + Technology and society influence each other—neither works alone.
  + Different networks create different outcomes, even with the same technology.
  + The process of persuasion and collaboration between actors shapes the final result.

**Actor-Network Theory vs. Social & Technological Determinism**

There are three main ways to explain how technology and society interact:

1. **Technological Determinism** → Technology alone shapes society.
   * Example: A new smartphone exists only because of technological advancements—not social influences.
2. **Social Determinism** → Society alone shapes technology.
   * Example: A smartphone’s design is only influenced by social and cultural needs, not by technical limitations.
3. **Actor-Network Theory (ANT)** → **Technology and society shape each other** in networks.
   * Example: A smartphone’s keyboard design is a mix of technical factors (how fast it processes input) and social expectations.

**Why ANT is Different**

* ANT rejects the idea that technology or society acts alone.
* Instead, it looks at how human and non-human actors (like machines, people, and ideas)interact to shape outcomes.
* What seems "purely social" is partly technical, and what seems "purely technical" is partly social.

So, technology and society are interconnected networks, not separate forces.Bottom of Form