Actor Network Theory

1. Summary

1.1. Summary of Sismondo, Chapter 6

Strayed from its origins in STS, ANT moved from single laboratory studies, single scientific experiments and single technologies to central and local government studies, thus broader meditations on social, ethical and policy analysis. The theory of Actor-Network Theory(ANT) foreground the role of technology in devlopment of society[1]. At first, the author talk about two things:

- Difference between ANT and SCOT,
- ANT's challenges to mainstream sociology and social theory.

There are different views about the merits of social construction. Howard Becker suppose that the orthodoxy within the sociology was socially constructed. Pearson and Twohig think that culture, context and cohort is less important than technology. Bijker think that technical artifacts are identify to be them because humans utter the statement of them, otherwise, no assumptions can be make to prove the existance of these artifacts.

In the view of Social Construction of Technology(SCOT), such as Latour, while non-huamn plays the leading role in the construction of society, human plays subordinate role. The difference between SCOT and ANT is that SCOT takes construction metaphorically and talks about the meaning of technology while ANT treats it literally talks about technology[1]. Opponents of SCOT suppose that technology does not neceaasrily perform the functionality that it declare without the agency. Only in the action, can technology make sense.

Further difference of SCOT and ANT is that SCOT is hightlight the technological innovation and ANT is more care about the implementation of technology. SCOT supposes that technology is build up on a solid social base, while ANT thinks that the social stability is not the cause but the consequence of the technology.

For ANT, objects are the key difference between humans and other animal. ANT suppose that the social consist of heterogeneous objects that collected together and keep changing and changing. Society, technology, and even agency, are in a network and influence each other[3].

"The significance of which goes well beyond its thoughts on technology" is an important intervention in the world of social theory[1]. ANT’s framework stresses the stability and durability of actor-networks, the strength or weakness of associations to explain what keeps society together. SCOT emphasis the effects of social groups in shaping a technological artifact through mechanisms. By contrast, ANT regards power as the prime motivating force[1]. Callon’s study have three principles and four moments of translation. The

three principles are: agnosticism, generalized symmetry, and free association. The four monments of translation are problematization, interessement, enrollment, and mobilization. Translation can predict and control the behavior by connecting disparate entities and making common cause. For instance, the translation can represent the a kind of things that the different of the represented things attract less attention.

The topics of power, materiality, the nature of social, non-human agency and technological neutrality show ANT's intellectual debt to Foucault. ANT define the power and success as the ability, effect and strategy to affect the actions of others. Power is a serial of human and non-human actors. Power is made possible through concrete arrangements. Power is a multiple network of diverse elements rather than a network of forces[1]. Foucault develop the moral dimension of technology. Humans cannot be separeated from the technology that constitute them. The zone of technological production specific effects of power.

The criticisms of ANT states that ANT yet has not pay attention to these groups. Latour thinks that we should care about the the people who are marginalized, oppressed, or cannot access to the ANT. It worth noting that the people out of the network can not be free of the technologies. ANT pay much attention to the people that benefit from technolgy and neglect the people that far away from the resource. Fujimura acknowledges the criticisms regarding source constraint and concluded that when scientists can align tasks to three levels of work organization---experiment, laboratory, and social world, the problem is "doable". Humanists object the ANT because ANT downgrades the importance of human beings and emphasis the importance of non-humans.

1.2. Summary of Mathewman, Chapter 5

ANT was developed to understand technology and science, centering on technoscience, rather than just a theory of technoscience. It regards technoscience as the crestion of larger and stronger network [2]. Political actor assembles of scientists, engineers and alliances allows people to maintain power. Actor **build networks** to achieve a consistent effect, turn beliefs into taken-for-granted facts. ANT is a materialist theory that reduces the social part in science to the material. Science and technology takes their effects by translating material actions and forces from one form into another. ANT is a theory explains the centrality of science and technology to the idea of modernity. Technologies reshape the field of agency. Science and technology engage in objects and representations, creating more situations for humans and non-humans to affect each other. Generally, their networks often stabilize and become part of the background or invisible. Actor-network theory is based on *relational ontology* and *relational materiality*.

2. Discussion

In my opinion, the Latour's actor network theory is of great significance for us to expand the horizon of scientific research and clarify the research direction of future sociology of science. The network of actors theory argues eloquently that the people who actually do science do not all sit in the laboratory. On the contrary, experimental scientists exist only because there are more people who do science outside the laboratory. Society is the real foundation and the deep reason why scientific activities are possible. Recently, I am learning the deep learning, a module of deep learning. I found that the deep learning is so similary to the ANT that maybe I can apply the research result from one area to another.

3. Reference:

[1] Sismondo, Sergio. *An introduction to science and technology studies*. Vol. 1. Chichester: Wiley-Blackwell, 2010.

[2] Matthewman, Steve. *Technology and social theory*. Macmillan International Higher Education, 2011.

[3] Bruni, Attila, and Maurizio Teli. "Reassembling the social—An introduction to actor network theory." *Management Learning*38, no. 1 (2007): 121-125.