Introduction

In the critique part of the assignment, my own view to information will be introduced firstly. Discovering what information could be a critical challenge to information technology (IT) workers when they process things about information. From relativity to possibility of information, which are curial to implement a secure reliable network to clients.

Also, network information theory can be properly applied in different work situations in the IT field, especially in information security, leading the experts to a satisfied work performance. Network information theory, extended from Shannon’s point-to-point information theory. It addresses communication, security, and network topologies by providing insights into various scenarios, ensuring the network and information security.

Finally, "entropy" in Shannon’s theory shows the uncertainty to information. As we have more information about a situation, we are having lower reliance of sensory, and vice versa. When faced with uncertainty, people may change usual top-down processing to reverse thinking to clarify the situation and avoid potential dangers. On the other hand, in Dretske's theory, information carries the point of unlimited possibility, suggesting that events can lead to many outcomes. Based on dual process theories, people process information using both intuitive (system 1) and logical (system 2) systems. However, System 2 is much more useful to IT colleagues while solving technical issues.

Cognitive perspective

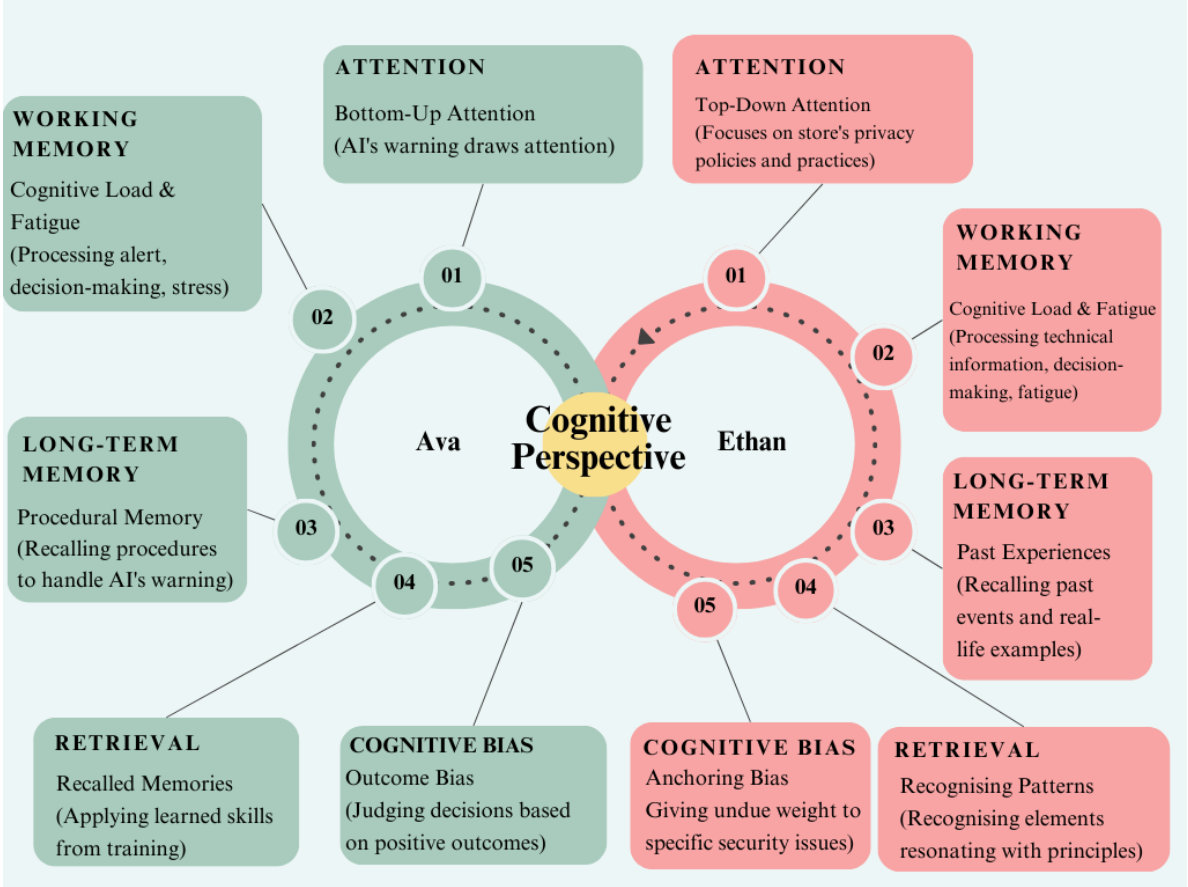

Figure1: Ava vs. Ethan

Event propositions

Event-Proposition 1: **It is good to ask customers' satisfied face to face**

Ava's decision-making might need the thought of the cognitive aspect and be affected by the outcome bias of the information to ensure their clients' satisfaction is accurately maintained.

Ethan may find it easier to use cold cognition and consider previous relative experiences while approaching decision-making; the result may be affected by anchoring bias in order to measure the risk standard. However, it is also possible for him to struggle with the measurement standard because the real situation is varied.

Event-Proposition 2: **The customer has illegal behaviours in the shop**

Ava might pay a lot of attention to cognition and the timeliness of informational aspects to deal with unexpected situations ASAP.

Ethan's top-down attention may be focused on understanding the implications of the technical information, helping him to get familiar with the AI system and make sure the system does not threaten user privacy in various situations.

Event-Proposition 3: **Something wrong with the AI system**

Ava may solve the situation with her language and perception of cognition through the integration of informational aspects. By providing a serious level of efficiency in communication with the customer, which may lead to a better shopping experience.

Ethan could use the learning of cognition and completeness of information aspects to point out a real issue to potential customers from his blog readers so that they get more useful information to decide whether to try the new shopping type or not.

Shannon and Dretske's Information Perspectives

Event-Proposition 1: **It is good to ask customers' feedback face to face**

a. Shannon's theory to Ava's: P(E-P 1) = 0.4, information value = **1.32 bits**
b. Shannon's theory to Ethan's: P(E-P 1) = 0.2, information value = **2.3 bits**
c. Dretske's theory to Ava's: P(E-P 1) = 0.8, information value = **0.32 bits**
d. Dretske's theory to Ethan's: P(E-P 1) = 0.2, information value = **2.3 bits**
e. Shannon: Ava may think that talking face to face is not an effective way, because it is a bit too common. Ethan does not likely to do so at all, he might think most of costumers they only talk face to face about positive aspects.

Dretske: Ava may expect that get surprise responds by the normal way. Ethan does not likely to do so, because it may bring out privacy issues.

Event-Proposition 2: **The customer has illegal behaviours in the shop**

a. Shannon's theory to Ava's: P(E-P 2) = 0.1, information value = **3.32 bits**
b. Shannon's theory to Ethan's: P(E-P 2) = 0.85, information value = **0.23 bits**
c. Dretske's theory to Ava's: P(E-P 2) = 0.6, information value = **0.73 bits**
d. Dretske's theory to Ethan's: P(E-P 2) = 0.5, information value = **3.32 bits**
e. Shannon: Ava thinks negatived and just need to adjust the sensitivity of sensors, because she may have similar experience before. Ethan thinks there is something need to check if that is the one only case happened in the day.

Dretske: Ava may want to have a small talk with the customer, because she may be punished if the company ask why she did not do so. Ethan may refer Ava's opinion because he does not have too much relative experience.

Event-Proposition 3: **Something Wrong With the AI System**

a. Shannon's theory to Ava's: P(E-P 3) = 0.5, information value = **1 bits**

b. Shannon's theory to Ethan's: P(E-P 3) = 0.6, information value = **0.73 bits**

c. Dretske's theory to Ava's: P(E-P 3) = 0.95 , information value = **0.07 bits**

d. Dretske's theory to Ethan's: P(E-P 3) = 0.88, information value = **0.18 bits**

e. Shannon: Ava may does not really sure, so prefer ask her colleague Ethan's expert suggestions. Ethan would rather have a check the system because it is a chance to familiar with it.

Dretske: Ava assumes yes, because the result could influence their further business, like brunches and facilities management, so she wants to check whether the system work properly. Ethan agrees Ava's idea. He knows it technically involve various IT skills, from hardware to software and cloud engineering.

Critical Comparison

Own Views of Information

As fast-growing high technology has become important over the past few decades, people are finding themselves in a situation where they need to process unlimited information as soon as they open their eyes. This has led to the need for functions that can assist in managing their information. Then what is information? Although information can be anything, personally, it is knowledge about the world and can be presented in any format, whether it is physical or non-touchable. Likewise, an item put on the place can be seen as information, and based on its real background and situation, it can further bring out other related information unlimitedly. E.g., a no-answering computer put on next to the mug cup with some spilt water, which might present the reason why the computer does not work, showing a lot of information. Having this kind of cognition is pretty important to me, the person who wants to become an information security expert within the next five years. Moreover, recognising the relativeness of information is crucial. A single piece of information can lead to a bunch of related insights. A security breach in one part of a network may have unlimited possibilities

for implications for the entire system. Therefore, by understanding information, information security experts can develop stronger defence strategies to modern threats.

Network Information Theory

According to Gamal and Kim (2011), the network information theory illustrates solving problems about the following components: communication, security, source destination, and the topologies of the network between information flow as well as the computer system network. It also extends Shannon's point-to-point information theory to networks with several sources and destinations (Howell, n.d.). As information security management has been applied across fields of business and technology over the past few decades, along with communication between the real-world and computer networks, it is possible that comprehension network information theory can help me gain a satisfactory working performance.

Shannon's Theory

While "entropy" in Shannon's theory illustrates information meets something about uncertainty, in my opinion, it also relates to our perception and influences the use of our senses. When something happens, as we know more about the present situation, the senser becomes less active; likewise, if we have less information, we use more sensers to understand the present environment. On the other hand, people who usually use top-down or button-down methods in their attention and processing could be temporarily changed to the opposite method when they cannot get the information they want—reverse thinking, in other words. The reason is that the" entropy" element can help people clarify the situation and prevent uncertain things from leading us into a dangerous environment.

Dretske's Theory

Due to Dretske's theory, it can carry out many other events, which means it has the element of unlimited possibility. Under dual process theories, although everyone processes information by both systems one and two obviously, the part of people who usually rely on their intuition could use heuristic-based systems one more than system two. It refers to system one, which works automatically, compared with controllable logic-based system two. Consequently, as an IT expert, both systems one and two are required, while system two may be frequently applied during working hours.

References

Gamal, A. E., & Kim, Y. (2011). *Network Information Theory*. Cambridge University Press.

Howell, J. (n.d.). *An Introduction to Network Information Theory with Slepian-Wolf and Gaussian Examples*.

https://www.umsl.edu/~siegelj/information_theory/projects/NETWORKInformationTheoryProject.pdf