Homework 1:
CS7637

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1 THE REY-LO PROBLEM

The Rey-Lo problem is a hypothetical scenario where Rey, Snoke and Kylo are stuck on a planet with a poisonous atmosphere. The task is to get all three of these onto an orbiting ship while maintaining a few constraints. The first is that the transport ship between the planet and orbiting ship can carry at most one person. The next is that Rey and Kylo can never be at the same location without the transport ship and the final is that Rey and Snoke must never be at the same location without the transport ship. I will construct a semantic network to solve this problem.

1.1 Semantic Network Structure

The basic structure for my network will look like Figure 1. Each state contains two boxes, one represents the planet Quesh and the other the orbiting ship. Within each box there is a 3x1 matrix which is the current population of those locations. The location of the transport ship is indicated by a box with an arrow. In Figure 1 we see that the transportation ship is located on the planet Quesh and will be going back to the orbiting ship. The current population of the planet Quesh is Rey, Kylo and Snoke, while the ship in orbit has a zero population.
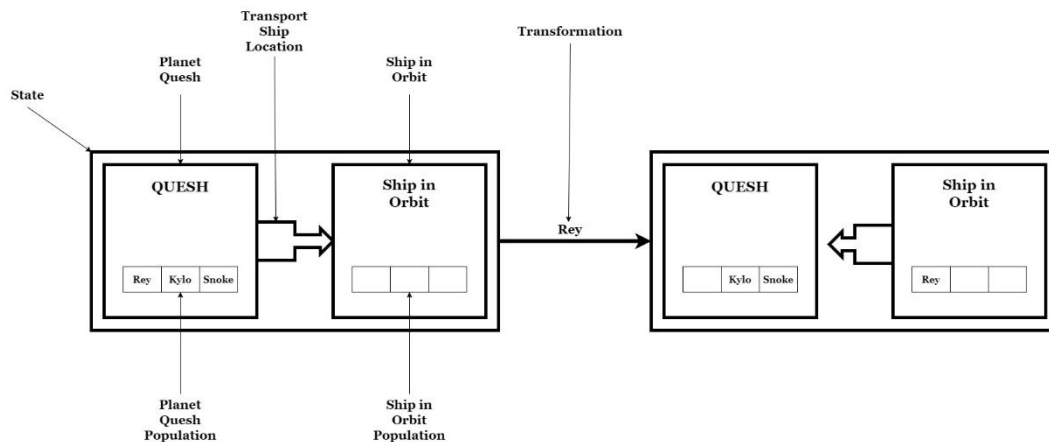
Figure 1—Semantic Network representation of the Rey-Lo problem.

Figure 2 shows the full network with both valid and invalid states. Valid states are highlighted in green and invalid are in red.
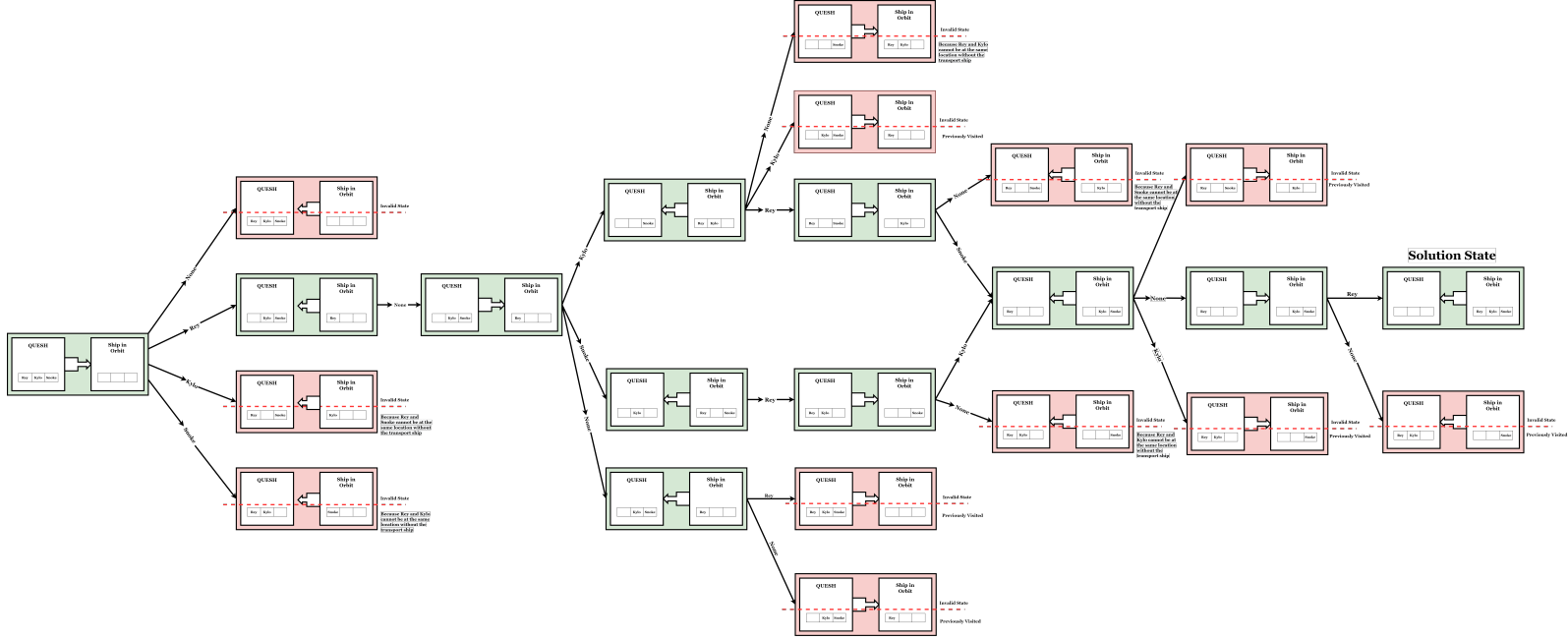

Figure 2—Full Semantic Network representation of the Rey-Lo problem.

Invalid states have a red dashed line through then as well as the reason for the state being invalid, to the right of that state.

2 GENERAL DATA PROTECTION REGULATION

2.1 Describe and Analyze

General Data Protection Regulation (GDPR) was developed to protect people within the European Union (EU) and European Economic Area (EEA). The regulation establishes that all companies working and obtaining personal data, must provide methods for EU citizens to restrict the gathering their personal data. The regulation establishes standard practices for handling, processing, transferring personal data. The restrictions that the GDPR impose can restrict some products and services from operating normally. Such as creating a personalized experience requires some knowledges of the individual using the product. Many times, the required information is not something people realize

or even want to waste their time putting into a system. Therefore, many products or services gather as much data about the user as they are allowed, such as GPS location or erroneous activities. The GDPR is there to protect the EU citizens and has implemented some regulations which will make it more difficult to produce personalized experiences.

2.2 Product Usage of Personal Data

Amazon Alexa is a cloud based personal assistant for all people. When Alexa receives a voice command, that command is recorded and sent to one of Amazons servers where Natural Language Processing (NLP) is used to parse out recognizable commands. Those commands are then processed, and the results are sent back to the Alexa device. Amazon and the Alexa devices are deeply embedded with gathering and processing personal data. The data that is gathered is used to make their product better, such as making better recommendations to improving the range of dialects understood by the device.

If a user chose to not allow Amazon and Alexa to use their personal data, the product would stop working. The reason the product would stop working is that the GDPR considers voice recordings to be personal data. Alexa fundamentally works by recording your voice command and sending it to the cloud for further processing. Thus, if a customer says Alexa cannot use their personal data, then Alexa cannot record their voice which completely restricts Alexa's abilities.

Facebook is a product which is based on personal data, but it extends much further than many people realize. Facebook would work continue to work as it does without knowing your GPS location, what apps you use outside of the Facebook app, or what things you search for.

2.3 Evaluate and Defend

Amazon Alexa could be modified to process locally versus using cloud-based services. This would dramatically increase the price of an Alexa device and the device still would need internet access to download updated models. This could be one way to adapt the Alexa product to the GDPR restrictions. Facebook should only be allowed the information which is explicitly entered by the user. I personally think that an EU citizen who decides to use a product or service which needs personal data, must waive their GDPR right. I also believe that a product

or services should only be allowed access to personal data which is explicitly defined as a requirement for some service.

3 REFERENCES

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