CS 7637 Homework 1

Lei Yao
lei_yao@gatech.edu

1 QUESTION 1

1.1 Semantic Network Explained

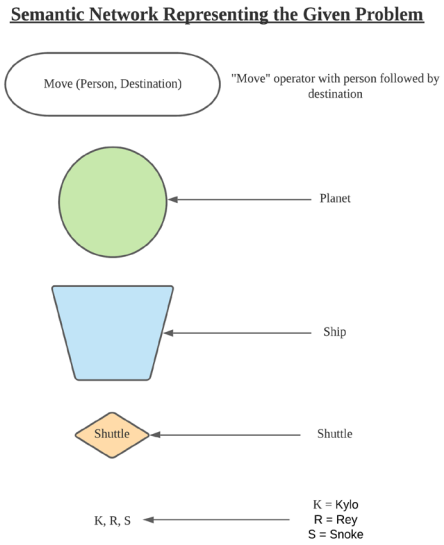


Figure 1: All components for a single state. Move operator also included.

Figure 1 shows the various components represented in the semantic network. Note that for Kylo, Rey and Snoke, they are represented with their respective letters. This level of abstraction is representative of the information and is intuitive. The shapes of the ship and planets are also carefully chosen to be intuitive for human processing. Colors are used to differentiate the major components.

1.2 Transition Explained

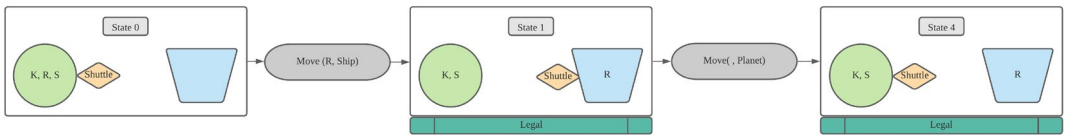


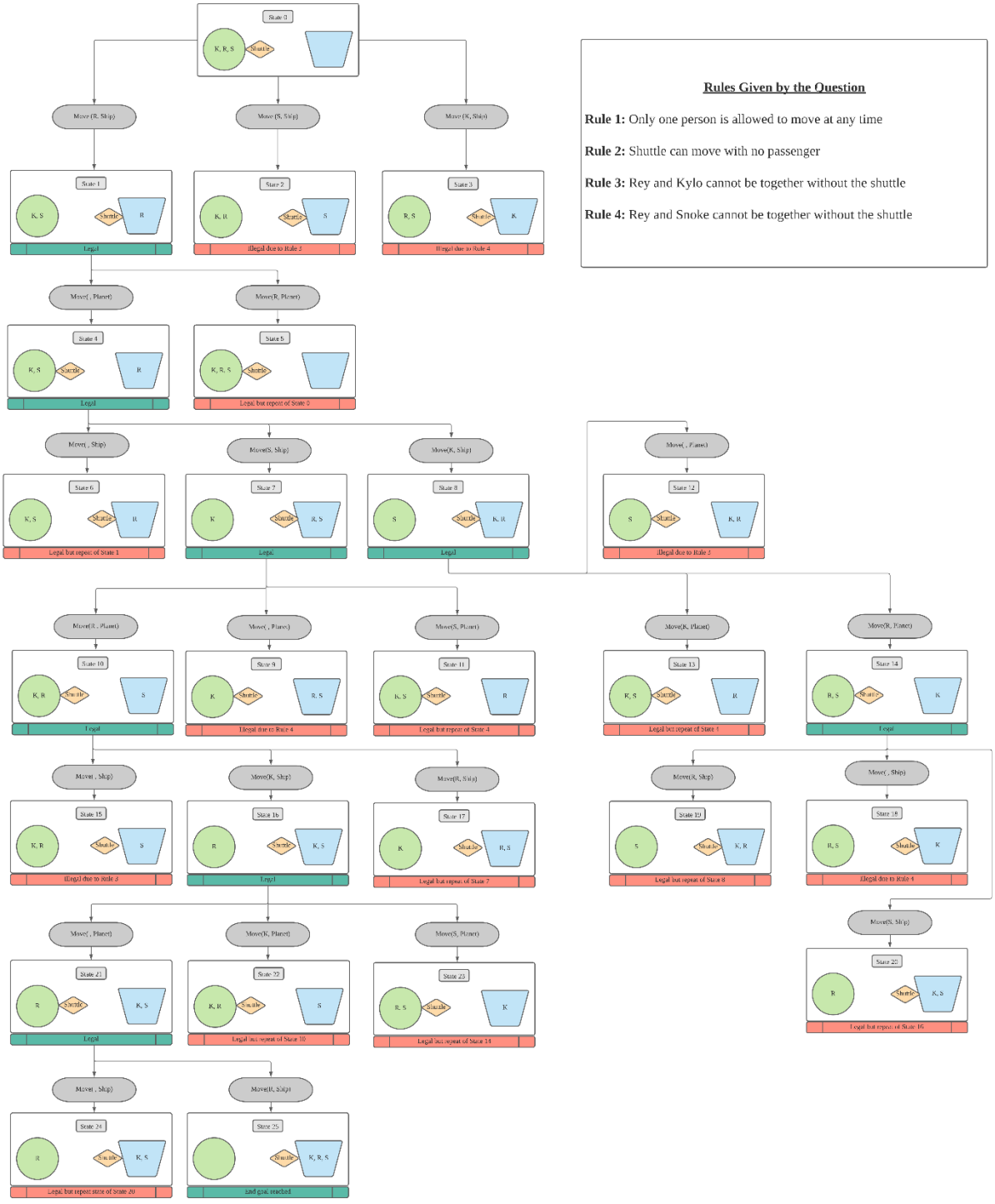
Figure 2: Transition between states with operator showing the destination and passenger fetched.

A move operator is used to explicitly transform one state from another. The operator consists of the person to be moved and destination. The location of the shuttle is self-explanatory – it starts off at the planet in State 0 and moves to the ship in State 1. To transit from State 0 to State 4, the move operator is first applied

to State 0 with destination set to the ship and fetching Rey. From State 1 to State 4, the shuttle is "moved" with no passenger, but its destination is set to planet. Hence the shuttle returned to the planet in State 4.

1.3 Solution to Problem

The follow diagram explores all states from State 0. The goal is at State 25. Note the comments at the bottom of each state. Legal, illegal, or repeated states are clearly labeled. Only legal states are explored while the rest are ruled out.



2 QUESTION 2

2.1 GDPR and Personalized Experience

Personal data, according to Clause 1 of Article 4 (Consulting, 2018) of GDPR, includes name, phone number, IP addresses, location data etc. The new GDPR protects such personal data by giving rights to individuals and increasing legal obligation to by firms to protect such data. In the context of personalization of user experience, the firms must explicitly inform individuals on the collection of their personal data and protect it upon collection.

GDPR gives rights to individuals to reject any forms of automated decision making on their personal data. For firms, they can no longer freely share any collected personal data with other firms. When applied to the use of AI to create personalized experiences, the GDPR gives individuals the explicit rights to opt out from providing AIs with their personal data. For example, individuals now have the option to reject cookies that are used to "personalize" marketing data – something that AI would do at the backend previously to provide personalized experiences. Another example is how Google accounts use previously searched terms, combined with user's personal data (given during registration) to personalize or customize advertisements on search results.

2.2 LinkedIn and ASOS (UK) as Examples

LinkedIn is a company in which personalization is deeply embedded in its functional purpose and business model. LinkedIn collects user data such as name, gender, work experience etc. LinkedIn also requires users to indicate their preferred industries and if they are "looking for a job".

Personalization is then built around this user profile to recommend job openings, provide industry news feeds etc. Naturally, one can opt out from including certain personal information and change their cookie settings, but the user experience will not be as personalized.

The online apparel company (ASOS) will be one that, without personalization, there will be no service. The company needs personal data such as name and personal measurements for personalization. Without it, ASOS could be recommending female apparels to male users. Also, the apparels that are recommended might not even fit. Therefore, ASOS' service is built on personalization.

2.3 European Economic Area (EEA)

The EEA consists of the Member States of the European Union (EU) and three countries of the European Free Trade Association (EFTA) (Iceland, Liechtenstein and Norway; excluding Switzerland) (Eurostat, 2020). A few articles in GDPR that are relevant in the examples provided above are explained below:

Article in GDPR	Details of Article	Relevance in Example
Article 21	Right to object	LinkedIn users can reject using their personal data for other purposes
Article 22	Right not to be subjected to automatic marketing	LinkedIn users can choose their cookie setting to avoid targeted marketing
Article 37	Designating a Data Protection Officer (DPO)	Though not immediately obvious, both LinkedIn and ASOS have DPOs to ensure GDPR compliance

With respect to the EEA, the GDPR brings some interesting thoughts. For example, if GDPR covers the EEA and I am from outside of EEA, do I have the same legal coverage on my personal data? Most interestingly is, perhaps, if my home country (outside of EEA) has different laws on personal data protection, which set of legal coverage will I receive when I use LinkedIn and ASOS services? While I do not have the answers to these questions, I do expect problems when executing GDPR articles between users from within the EEA and those outside of it.

2.4 Adapting and Evaluation

To adapt to various restrictions named in the articles above, it seems that both companies have adopted measures such as cookie settings, explicit requirement from users on the use of their personal data etc. to match GDPR restrictions. It is not entirely possible to allow EEA users to use these tools and still maintain their GDPR rights because the internet is borderless (but laws only work within well-defined borders). For instance, LinkedIn (Germany) and ASOS (UK) might set up measures to abide by GDPR requirements because they are providing goods and services within the EEA, LinkedIn (USA) do not have any legal obligation to provide similar protections. If a user within the EEA sets up an account in LinkedIn (USA), his/her GDPR rights will not be covered. Therefore, the tools **only** work if both the users and the services are located within the EEA.

3 REFERENCES

Consulting, I. (2018). *Artical 4: Definitions*. Retrieved from gdpr-info.eu: https://gdpr-info.eu/art-4-gdpr/

Eurostat. (2020, Feb 3). *Glossary:European Economic Area (EEA)* . Retrieved from Eurostat:https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:European_Economic_Area_(EEA)