賽局論作業 (古慧雯)

1. Please read sections 12.1–12.4.

2. In the textbook, it is said:

   > Properties (K3) is really redundant because it can be deduced from (K2) and (K4).

   Recall that

   $$\begin{aligned} (K2) &\quad KE \subseteq E \\ (K3) &\quad KE \subseteq K^2E \\ (K4) &\quad PE \subseteq KPE \end{aligned}$$

   Please prove this claim using (K2) and (K4) without involving any other theorems.

3. Please practice 12.12.4 (on p.377) yourself, and write down the proof that (K0)–(K4) implies (P4).

4. 12.12.8

5. 12.12.14

6. Consider the universe $\Omega = \{1, 2, 3, 4, 5\}$. A's possibility sets are known as follows: $P_A(1) = \{1, 2\}$, $P_A(3) = \{3, 4, 5\}$.

   (a) Name a truism for A.

   (b) In which state will A know that the event $\{4, 5\}$ has occurred?

   (c) B's possibility sets (known to A) are as follows: $P_B(1) = \{1, 2, 3\}$, $P_B(4) = \{4, 5\}$. B is allowed to tell A how many elements B's current possibility set contains. How will B's announcement change A's possibility partition?