Course description
2nd class: Nash equilibrium & Incomplete information games

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Today's Schedule

You study a general solution in strategic form games, which is Nash equilibrium, and we extend normal form games into that of those of incomplete information.

Please read the following pages before listening to sound files:

Reading assignment: pp. 7.2.2 in page 311– page 325 (Before 7.3)

The purpose of today's class is to study the following:

- What is pure strategy Nash equilibrium?
- What is mixed Nash equilibrium?
- What is the definition of incomplete information games?
- How is Nash equilibrium revised in incomplete information games?

To read the above pages, please pay your attention to the following check list.

Check list:

1. How to solve pure Nash equilibrium in strategic form games;
2. How to solve mixed Nash equilibrium;
3. How to use Theorem 7.1 of simplified Nash equilibrium tests;
4. How to solve Bayesian Nash equilibrium.

Today's topics are quite abstract. In the sound and movie files, I explain these topics by using some examples.

- Lecture 2.1: Pure strategy Nash equilibrium (Handout p.2);
- Lecture 2.2: Mixed strategy Nash equilibrium (Handout p.3-5);
- Lecture 2.3: How to solve mixed strategy Nash equilibrium (Handout p.6)
- Lecture 2.4: [Movie] Visualization of Mixed strategy Nash equilibrium. (Two

versions of movie files, High- and low- quality. Please choose either depending on your internet environment. Both are the same contents.)

- Lecture 2.5: [No sound file] Basic properties of Nash equilibria and Nash equilibrium test. (Handout 7-8): This is just a summary of basic properties of Nash equilibrium in page 7. You try to make an example to describe each property. In page 8, I copy the simplified Nash equilibrium test in the textbook. To understand the test, please use the example of "battle of sexes" in Lecture 2.3. Then you can understand the meaning.

Exercises: 7.10-7.13 in pp. 365—367, 7.19 in p. 369

I ask you to submit your answers through submission page of Lec. 2 page of Waseda moodle before 23:59 of Japan time, May 16. I put a discussion room/thread in the 2nd lecture page on Waseda moodle. It is great to discuss among students. I will explain the exercises in the 3rd lecture.