OR 3: Lecture 8 - Subgame Perfection

Recap

In the previous chapter

- We took a formal look at extensive form games;
- Investigated an analysis technique for extensive form games called backwards induction.

In this Chapter we will take a look at another important aspect of extensive form games.

Subgames

We need the following definition:

Definition

In an extensive form game, a node x is said to **initiate a subgame** if and only if x and all successors of x are in information sets containing only successors of x.

In the following game all nodes initiate a subgame:

In the following game **that does not have perfect information** nodes c, f and b initiate subgames but all of b's successors do not.

Similarly, in the following game the only node that initiates a subgame is d.

Subgame pergect equilibria

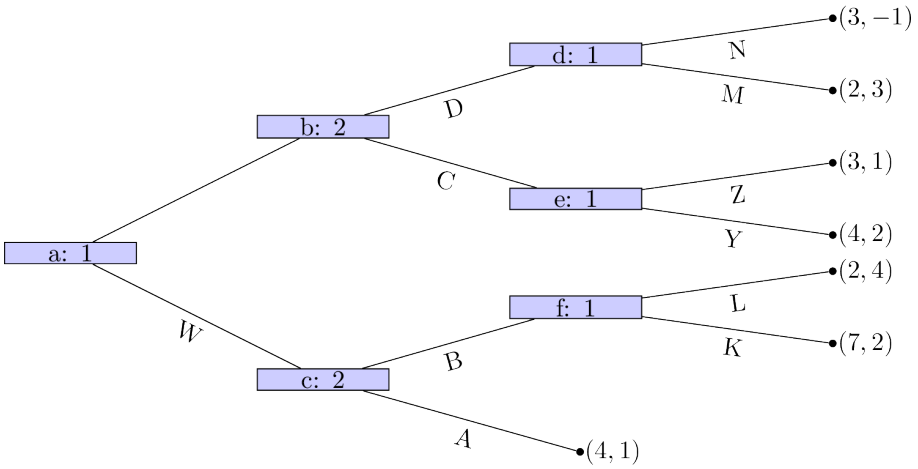

Figure 1:

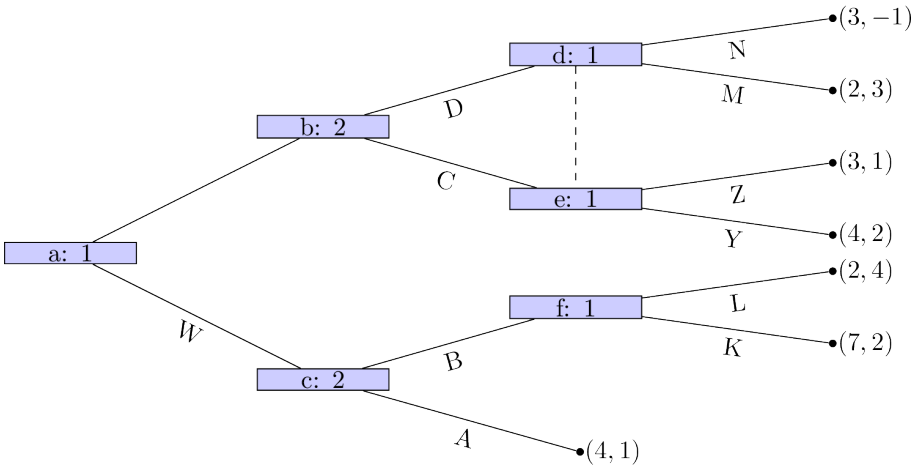

Figure 2:

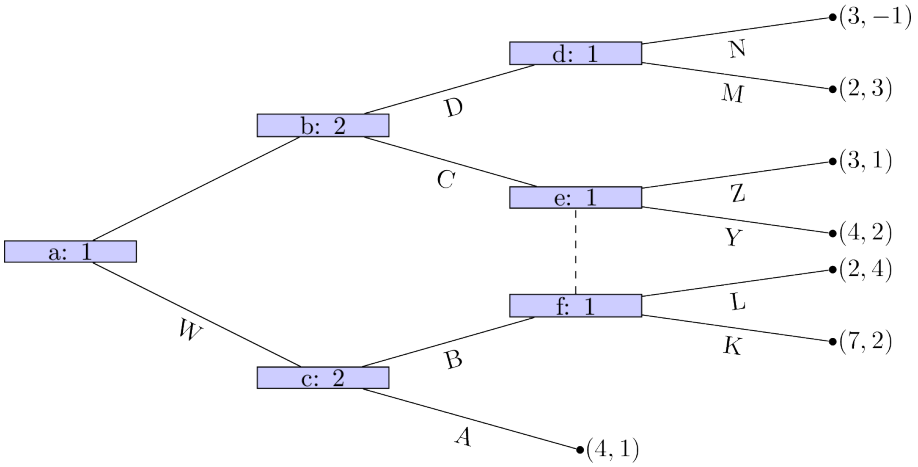

Figure 3: