

Online Appendix for Obvious *Ex Post* Equilibrium

Shengwu Li*

1 Definition of Extensive Game Forms with Consequences in X

An *extensive game form with consequences in X* is a tuple $\langle H, \prec, A, \mathcal{A}, P, (\mathcal{I}_i)_{i \in N}, g \rangle$, where:

1. H is a set of histories, along with a binary relation \prec on H that represents precedence.

- (a) \prec is a partial order, and (H, \prec) form an arborescence.
- (b) h_\emptyset denotes $h \in H : \neg \exists h' : h' \prec h$
- (c) H has bounded depth, i.e.:

$$\exists k \in \mathbb{N} : \forall h \in H : |\{h' \in H : h' \prec h\}| \leq k \quad (1)$$

- (d) $Z \equiv \{h \in H : \neg \exists h' : h \prec h'\}$
- (e) $\sigma(h)$ denotes the set of immediate successors of h .

2. A is a set of actions.

3. $\mathcal{A} : H \setminus h_\emptyset \rightarrow A$ labels each non-initial history with the last action taken to reach it.

- (a) \mathcal{A} is one-to-one on $\sigma(h)$.
- (b) $A(h)$ denotes the actions available at h .

$$A(h) \equiv \bigcup_{h' \in \sigma(h)} \mathcal{A}(h') \quad (2)$$

*Harvard Society of Fellows, 78 Mount Auburn Street, Cambridge, MA 02138, shengwu.li@fas.harvard.edu.

4. P is a player function. $P : H \setminus Z \rightarrow N \cup c$
5. \mathcal{I}_i is a partition of $\{h : P(h) = i\}$ such that:
 - (a) $A(h) = A(h')$ whenever h and h' are in the same cell of the partition.
 - (b) For any $I_i \in \mathcal{I}_i$, we denote: $P(I_i) \equiv P(h)$ for any $h \in I_i$. $A(I_i) \equiv A(h)$ for any $h \in I_i$.
 - (c) Each action is available at only one information set: If $a \in A(I_i)$, $a' \in A(I'_j)$, $I_i \neq I'_j$ then $a \neq a'$.
6. g is an outcome function. It associates each terminal history with an outcome.
 $g : Z \rightarrow X$