Appendix

A. Computing the Adversary Strategy in a TME

After computing the team-maxmin strategy profile x_T, we can compte the adversary strategy x_n by minimizing the team's utility and making sure that no team members would like to deviate from their strategies in x_T (von Stengel & Koller, 1997). Then x_n can be computed by solving the following linear program (von Stengel & Koller, 1997):

$$\min_{x_n} \sum_{i \in T} z_i \tag{8a}$$

$$z_i - \sum_{a_n \in A_n} x_n(a_n) u_T(a_i, x_{T \setminus \{i\}}, a_n) \geq 0 \quad \forall i \in T, a_i \in A_i \tag{8b}$$

$$\sum_{a_n \in A_n} x_n(a_n) = 1 \tag{8c}$$

$$x_n(a_n) \geq 0 \quad \forall a_n \in A_n \tag{8d}$$

B. Omitted Proofs

Corollary 1. *x may not be an NE in G_T if $\overline{x}$ is a CTME in G_T and is computed in G'_T, and x is a TME in G'_T.*

Proof. Suppose a CTME $\overline{x}$ is computed in G'_T and $A' = (\times_{i \in T} \underline{A}_{i,\overline{x}_T}) \times \underline{A}_{n,\overline{x}_n}$. By Proposition 7, x may not be an NE in G_T, even if x is a TME in G'_T. □

Proposition 8. *x may not be a TME in G_T if $\overline{x}$ is a CTME in G_T, and x is a TME in G'_T with $A' = (\times_{i \in T} \underline{A}_{i,\overline{x}_T}) \times \underline{A}_{n,\overline{x}_n}$ and an NE in G_T.*

Proof. Consider the case in Eq.(3). A CTME $\overline{x}$ is $\overline{x}_T(1,1) = \overline{x}_T(2,2) = 0.5$ and $\overline{x}_3(1) = \overline{x}_3(2) = 0.5$ with utility 5 for the team (it is easy to verify that no players would like to deviate to other strategies). Then we have G'_T with with $A'_1 = A'_2 = A'_3 = \{1,2\}$. According to the analysis on the case in Eq.(3), x with $x_i(1) = x_i(2) = 0.5$ is a TME in G'_T with utility 2.5 for the team. x is an NE in G_T. However, according to the analysis on the case in Eq.(3), x is not a TME in G_T. □

Corollary 2. *x may not be a TME in G_T if $\overline{x}$ is a CTME in G_T and is computed in G'_T, and x is a TME in G'_T and an NE in G_T.*

Proof. Suppose a CTME $\overline{x}$ is computed in G'_T and $A' = (\times_{i \in T} \underline{A}_{i,\overline{x}_T}) \times \underline{A}_{n,\overline{x}_n}$. By Proposition 8, x may not be a TME in G_T, even if x is a TME in G'_T and an NE in G_T. □

Proposition 9. *If $\overline{x}$ is a CTME in G_T, and x is a TME in G'_T with $A' = (\times_{i \in T} \underline{A}_{i,\overline{x}_T}) \times \underline{A}_{n,\overline{x}_n}$, then playing x_T may cause an arbitrarily large loss to the team.*

Proof. Consider G_T with utilities shown in Eq.(7). As shown in the proof for Proposition 7, A CTME $\overline{x}$ is $\overline{x}_T(1,1) = \overline{x}_T(2,2) = 0.5$ and $\overline{x}_3(1) = \overline{x}_3(2) = 0.5$ with utility 5 for the team. Then we have G'_T with with $A'_1 = A'_2 = A'_3 = \{1,2\}$, and x with $x_i(1) = x_i(2) = 0.5$ is a TME in G'_T with utility 2.5 for the team. Given x_T, the adversary best response is action 3 with utility $u_T(x_T, 3) = 0.5 \times 0.5(10+10-10-10) = 0$ for the team. Now an NE $x' = ((\frac{1}{3}, \frac{2}{3}), (\frac{1}{3}, \frac{2}{3}), (\frac{2}{3}, 0, \frac{1}{3}))$ (it is easy to verify that no players would like to deviate to other strategies, e.g., action 3 for the adversary with $u_T(x_T, 2) = \frac{40}{9} > \frac{10}{9}$ is not better than x'_3) will given utility $\frac{10}{9}$ to the team. Then, playing x_T may cause an arbitrarily large loss to the team because $\frac{10/9}{0} = \infty$. □

Corollary 3. *If $\overline{x}$ is a CTME in G_T, and x is a TME in G'_T where $\overline{x}$ is computed, then playing x_T may cause an arbitrarily large loss to the team.*

Proof. Suppose a CTME $\overline{x}$ is computed in G'_T and $A' = (\times_{i \in T} \underline{A}_{i,\overline{x}_T}) \times \underline{A}_{n,\overline{x}_n}$. By Proposition 9, playing x_T may cause an arbitrarily large loss to the team. □