

Final Report

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PART II:

CONSISTENCY ON PARTITION FORM GAMES

1. Definitions

1.1 Partitions

A *partition* P of a set T is a set of nonempty subsets of T which are pairwise disjoint and whose union is T .¹ Suppose P and Q are partitions of sets A and B respectively. We say P and Q are *disjoint* if $A \cap B = \emptyset$. Throughout the remainder of this section, P and Q will be disjoint partitions of sets A and B respectively.

We define a *joint partition* R from P and Q to be a set R of ordered pairs (p,q) where $p \in P \cup \{\emptyset\}$, $q \in Q \cup \{\emptyset\}$, and $(\emptyset, \emptyset) \notin R$, such that each element p of partition P appears exactly once in a pair (p,q) , and each element q of partition Q appears exactly once in a pair (p,q) . We define the *partition from* R to be $\text{part}(R) = \{p \cup q : (p,q) \in R\}$. We see that $\text{part}(R)$ is a partition of $A \cup B$. For example, if $P = \{\{a,b\}, \{c\}\}$ and $Q = \{\{X,Y\}\}$, then the three

¹In the degenerate case, \emptyset is the only partition of \emptyset .

