

Assignment 3

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Positional Games, Winter 2009-10

Quiz on Nov 10th (Tuesday) at 16:15PM

Problem 1 Show that if the strong n^d -game is a draw, then the strong $(n+2)^d$ -game is also a draw.

Open Problem (For the whole half a year HW credit -:)) Is it true that if the strong n^d -game is a draw, then the strong $(n+1)^d$ -game is also a draw?

Open Problem (For the whole half a year HW credit -:)) Is it true that if the strong n^d -game is a win for Player I, then the strong n^D -game with $D > d$ is also a win for Player I?

Problem 2 Let $\mathcal{F} \subseteq 2^X$ be an n -uniform hypergraph (that is, for every set $A \in \mathcal{F}$, we have $|A| = n$). Suppose $|\mathcal{F}| + \Delta(\mathcal{F}) < 2^n$. Give a strategy for Breaker (as second player) to win. ($\Delta(\mathcal{F}) := \max_{x \in X} |\{A \in \mathcal{F} : x \in A\}|$)