

Infinite Games
Sommersemester 2019
Exercise sheet 4, 06.06.2019

1. Show that any perfect set has cardinality 2^{\aleph_0} .
2. Given $A \subseteq 2^\omega$ put $H_A := \bigcup\{[s] : [s] \setminus A \text{ is meager}\}$. Show that:
$$G^*(A \setminus H_A) \text{ is determined} \Rightarrow A \text{ has the Baire property.}$$
3. (a) Let $T \subseteq 2^{<\omega}$ be a perfect tree. Show that $[T]$ is a perfect set.
(b) Let $P \subseteq 2^\omega$ be a perfect set. Show there exists $T \subseteq 2^{<\omega}$ perfect tree such that $P = [T]$.