Exercise Sheet 10

Due at the beginning of the exercise session at 16:20. A total of at least 50% of all available points is required for the "Studienleistung" (I expect there to be 12 or 13 sheets).

Exercise 1 (2 points)**.** Let $f : \omega_1 \to \omega_1$, meaning that f is a function from the set of countable ordinals to itself. Let $C = \{\alpha < \omega_1 \mid \forall \beta < \alpha, f(\beta) < \alpha\}$. Show that C has the following properties:

1. for all sequences $\langle \alpha_n : n < \omega \rangle \subseteq C$, $\sup_{n<\omega} \alpha_n \in C$,
2. for all $\beta < \omega_1$, there is some $\alpha \in C$ such that $\alpha > \beta$.