**Summary of the recitation on 18. 12. 2007**

We finished the proof of the infinite Ramsey theorem. We then looked at the following exercises:

- Let $K_{\mathbb{N}}$ be the complete graph on the vertex set $\mathbb{N}$. Assume that the edges of $K_{\mathbb{N}}$ are colored with two colors (red and green), such that for every $n$ there is a complete subgraph on $n$ vertices whose edges are all red. Can we conclude that there is an infinite complete subgraph with all edges red?
- Let $K_{X,Y}$ be a complete bipartite subgraph with countable infinite parts $X$ and $Y$. Is it true that for every two-coloring of the edges of $K_{X,Y}$ and for every $n$, the graph $K_{X,Y}$ has a monochromatic subgraph isomorphic to $K_{n,n}$? What about a monochromatic subgraph with one part of size $n$ and the other part infinite? What about a monochromatic subgraph with both parts infinite? (This exercise was not fully solved at this week's recitation.)