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Cell structures and topologically complete spaces

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Abstract: This talk is about using discrete sampling to reconstruct spaces and their continuous mappings. An abstract graph is a discrete set G together with a symmetric and reflexive relation r on G. (The relation r tells you which vertices are adjacent to each other).

A cell structure is an inverse system $\{G_p, g_p^q, P\}$ where each G_p is a graph, P is a directed set (eg. $P = \mathbb{N}$) and $g_p^q \colon G_q \to G_p$ is a function which preserves adjacency and is such that $g_p^q \circ g_q^r = g_p^r$ for $p \leq q \leq r$ and satisfying also a mild local finiteness and a local contraction condition.

We will show how cell structures and cell mappings fit into the long history of obtaining spaces and their continuous mappings as nice continuous images of simpler spaces and systems of mappings of those simpler spaces.