Consider types $C = \{c_1, c_2, \ldots, c_l\}$, and $S = \{s_1, s_2, \ldots, s_J\}$, and a bipartite compatibility graph between $C$ and $S$. Given an infinite sequence of i.i.d. $c$'s and an infinite sequence of i.i.d. $s$'s, we consider matching the two sequences according to the compatibility graph, where we use a first come first served policy (FCFS). This model, which appears to be quite complicated at first glance turns out to be extremely tractable, yielding results on uniqueness, reversibility, and stationary probabilities. The model is helpful in analyzing some complex applied probability models. We will discuss its applications to the analysis of organ transplants and to the analysis of skill based service in call centers.