Designing A Multi-Agent Model Using BDI Architecture for Population Dynamics

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***Abstract*— Multi-Agent System (MAS) is a proven approach that permits to solve large and complex social problems. Due to heterogeneous nature of agents and various forms of variables, many population dynamics problems are difficult to be addressed properly with traditional micro-simulation methodologies. This research work focus on match making and fertility modules of population dynamics. In our model agents interacting with other agents and environment to find a life partner and then take decision about childbirth. The agent's age and socio-economics (referred to as education and income level) conditions are the key factors while taking decision for family formation and fertility. Using belief, desires and intensions (BDI) architecture, we explicitly take into account the agent's heterogeneity with respect to age and income level. Designing a conceptual multi-agent model, we are trying to explore how changes in agent's desires and intensions might be transmitted through a population to effect the overall perception while taking decision about life partner and childbirth. The implementation of our model will give more substantial evidence about how and why these attributes can influence the evolution of family formation and childbirth in Korea.**

Keyword— Multi-agent system, BDI architecture, match-making, population dynamics, socio-economics

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