The influence of following on bidirectional flow through a doorway[1] AMY GRAVES, RACHEL DIAMOND, EDUARD SAAKASHVILI, Swarthmore College — Pedestrian dynamics is a subset of the study of self-propelled particles. We simulate two species of pedestrians undergoing bidirectional flow through a narrow doorway. Using the Helbing-Monlr-Farkas-Vicsek Social Force Model, our pedestrians are soft discs that experience psychosocial and physical contact forces. We vary the following parameter which determines the degree to which a pedestrian matches its direction of movement to the average of nearby, same-species pedestrians. Current density, efficiency and statistics of bursts and lags are calculated. These indicate that choosing different following parameters for each species affects the efficacy of transport - greater following being associated with lower efficacy. The information entropy associated with velocity and the long time tails of the complementary CDF of lag times are additional indicators of the dynamical consequences of following during bidirectional flow.

Amy Graves
Swarthmore College

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