1145-18-1403   **Jared Culbertson***, jared.culbertson@us.af.mil, and **Paul Gustafson**, **Daniel E Koditschek** and **Peter F Stiller**. *Semantics of Dynamical Systems.*

We will present ongoing work in providing a formal semantics for the composition of dynamical systems that model robotic behaviors. Using the well-known Curry–Howard–Lambek correspondence and more recent extensions (which show how to formalize computational semantics using categorical structures) as a guide, we will discuss our progress in abstracting certain kinds of dynamics for gaits in robotic legged platforms as well as dynamics in multi-agent systems. Mathematically, this requires understanding how aspects of these systems such as trapping regions or attracting and repelling sets relate to formalizations of sequential composition, coupled systems and equivalences. (Received September 21, 2018)