Notes for Autonomous Robotic Networks

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1 Distribuited Architecture

A Synchronous network S is a digraph $S = (I, E_{con})$, $I = \{1, 2, \ldots, n\}$

$$(i, j) \in E_{con} \rightarrow i \text{ can send messages to } j$$

A distruibted algorithm DA for network S has an alphabet $\mathbb{A}$, processor state $W^{[i]}, i \in I$, and allowable state states. See section 1.5 of BulloCortesMartinez. Read this, instead of notes.

2 Network Evolution

Given an intial state,

$$w_0^{[i]} \in W_0^{[i]}, i \in I$$

$$q^{[i]}(l) = \text{stf}^{[i]}(w^{[i]}(l), y^{[i]}(l))$$

Where l is time and

$$y^{[i]}(l) = \begin{cases} \text{c} msg^{[j]}(w^{[j]}(l-1), i), & (j, i) \in E_{con} \\ null, & else \end{cases}$$