

Numerical Study of Boolean Networks^{*}

Gonzalo Hernández^{1,2†} and Andrés Moreira³

¹*University of Valparaíso, School of Industrial Engineering, Valparaíso, Chile*

²*University of Chile, Center for Mathematical Modeling, Santiago, Chile*

³*University Santa Maria, Department of Informatics, Valparaiso, Chile*

Abstract.

In this talk is presented the first version of the Matlab[®] library: Boolean Networks Numerical Dynamics, that was designed to study computationally the dynamics of a threshold boolean function. This version permits to:

- Define a threshold boolean function
- Define different deterministic update schema: block iteration mode
- For a specific block iteration mode compute all the attractors over the hypercube
- For all block iteration modes compute all the attractors
- Visualizes the dynamics for an initial condition

This library was programmed in Matlab[®] and utilizes some commands of the Random Boolean Network Toolbox (C. Schwarzer).

Keywords: Boolean Functions, Dynamics

^{*} Supported by MORPHEX Research Grant

[†] Corresponding author address: University of Valparaiso, Las Heras 06, Valparaíso, Chile, gonzalo.hernandez@uv.cl