XS-systems: eXtended S-Systems and Algebraic Differential Automata for Modelin Cellular Behavior *

The above equations take, in general, the following *power law* form:

$$\dot{X}_i = \alpha_i \prod_{j=1}^{n+m} X_j^{g_{ij}} - \beta_i \prod_{j=1}^{n+m} X_j^{h_{ij}} \tag{3}$$

$$C_j(X_1(t), \ldots, X_m(t)) = \sum \left(\gamma_j \prod_{k=1}^{n+m} X_k^{f_{jk}} \right) = 0 \tag{4}$$

[illegible] α's and β's are called *rate constants* and are known [illegible] are cal[illegible] tive contributions to a given substance (represented by X_i as a function [illegible]

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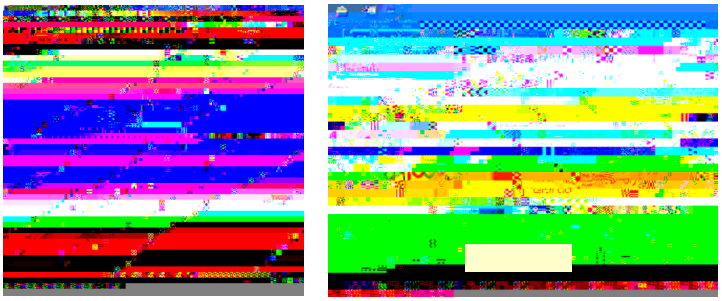
In this section we descıibe the genelal idea underlying the automata constıuction. O

English-ized form[4]. The main operators in ASySA (and CTL) are used to denote *possibility* and *necessity* over time. E.g. to express the query asking whether a certain protein



(a) Simpathica Main Window.

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