TITLE: Mathematical aspects of "cluster eating" equations

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ABSTRACT: We present some results on the existence, uniqueness, regularity and long-time behaviour of solutions to a system of an infinite countable number of ordinary differential equations modelling "cluster eating". The equations, one version of which can be written as

$$\frac{dc_j}{dt} = \sum_{k=1}^{\infty} a_{j+k,k} c_{j+k} c_k - c_j \sum_{k=1}^{\infty} a_{j,k} c_k, \quad j \in \mathbf{N},$$

were introduced in the late 1980s but only recently have been subject to a more detailed study. Connections with other models of cluster equations will be discussed.

This is part of a joint work with João T. Pinto (IST, Lisbon) and Rafael Sasportes (UAb, Lisbon).