

Notes on the Non Smooth Dynamical System construction

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1 Introduction

2 Class Diagram

3 Description

Objects must be constructed in the following order:

- DynamicalSystems
- NonSmoothLaw: depends on nothing
- Relation: no link with an interaction during construction, this will be done during initialization.
- Interaction: default constructor is private and copy is forbidden. Two constructors: xml and from data. Required data are a DSSet, a NonSmoothLaw and a Relation (+ dim of the Interaction and a number).
Interaction has an initialize function which allocates memory for y and lambda, links correctly the relation and initializes it This function is called at the end of the constructor. That may be better to call it in simulation->initialize? Pb: xml constructor needs memory allocation for y and lambda if they are provided in the input xml file.
- NonSmoothDynamicalSystem: default is private, copy forbidden. Two constructors: xml and from data. Required data are the DSSet and the InteractionsSet. The topology is declared and constructed (but empty) during constructor call of the nsds, but initialize in the Simulation, this because it can not be initialize until the nsds has been fully described (ie this to allow user to add DS, Inter ...) at any time in the model, but before simulation initialization).

4 misc

- no need to keep a number for Interactions? Only used in xml for OSI, to know which Interactions it holds.
- pb: the number of saved derivatives for y and lambda in Interactions is set to 2. This must depends on the relative degree which is computes during Simulation initialize and thus too late. It is so not available when memory is allocated (Interaction construction). Problem-> to be reviewed.