

We will continue on Thursday, **February 13, in M5 at 1pm** by the talk

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## **Dilators and Ptykes**

Abstract:

Dilators are endofunctors  $D:WO \rightarrow WO$  preserving pullbacks and directed co-limits, where  $WO$  is the category of well-orderings and strictly monotone maps. This notion was introduced by J.-Y. Girard as one of central notions within his approach to certain problems in proof-theory (calculation of proof-theoretic ordinals). Some more sophisticated applications motivate higher-order generalizations of the notion of dilator, known as ptykes. For example, ptykes of the type  $(WO \rightarrow WO) \rightarrow WO$  are functors from the category of dilators  $Dil$  to  $WO$  that preserve pullbacks and directed co-limits (here  $Dil$  is the category of dilators and Cartesian natural transformations).

In the first part of the talk I plan to discuss dilators, some basic results about them, and give some idea about their applications in proof-theory. Next I plan to talk about my approach to the theory of ptykes, where types of ptykes are interpreted as classes of relational structures that are closed under substructures.