

***Grammatical sheaf cohomology, its MODOS proof-assistant and its learners-reviews via the WorkSchool 365 market.***

Short: The “double plus” definition of sheafification says that not-only the outer families are modulo the germ-equality, but-also the inner families are modulo the germ-equality. This outer-inner contrast is the hint that the “double plus” should be some inductive construction... that grammatical sheaf cohomology exists!

And its MODOS proof-assistant implements the cut-elimination confluence of this inductive construction:

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| Gluing : (forall G, forall (v : Site( G ~> V | in sieveVV )),  
            PreSheaves( Restrict F (sievesWW_ v) ~> Sheafified E ))  
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PreSheaves( Restrict F (sum sievesWW_ over sieveVV) ~> Sheafified E )
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where the generating topological site could also be grammatical with its own cut-elimination confluence of arrow-terms (in the signature for some adjunction, or comonad, or pairing-product, or 2-category, or proof-net star-autonomous category...). The usual algebra-operations of any sheaf-model are now constructed via the geometry of coverings (each term is covered by its subterms; indeed the composition operation  $[[f]] * [[A]] * [[g]] \rightarrow [[f \circ_A g]]$  is geometric, is some sheaf condition). The categorial semantics mimics the usual Kripke-Joyal sense, and the ability to express the generic model inside the proof-assistant is the ultimate goal. Possible applications are the constructive connecting-snake lemma for additive sheaves, or the constructive dependent homotopy types or the constructive geometry of quantum fields in physics.

Long history short, these are the outcome of fusing the prompts from two mathematicians:

**Kosta Dosen** and **Pierre Cartier**. But how to get qualified reviews from these prompts?

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