

# Factorization Systems on (Stable) Derivators

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(joint work with Fosco Loregian)

## Abstract

After giving the definition of a *triangulated factorization system* on a given triangulated category, I will sketch an argument showing that a suitable subclass thereof (the *triangulated-normal torsion theories*) corresponds bijectively to *t*-structures on the same category.

This result will be then placed in the framework of derivators, regarding a triangulated category as the underlying category  $\mathbb{D}(\mathbf{1})$  of a stable derivator  $\mathbb{D}$ . More generally, I will define derivator factorization systems in the 2-category  $\mathbf{PDer}$  of pre-derivators, and prove that a similar characterization still holds true: for a stable derivator  $\mathbb{D}$ , a suitable subclass of the class of derivator torsion theories on  $\mathbb{D}$  (the *normal derivator torsion theories*) corresponds bijectively with *t*-structures on the underlying category  $\mathbb{D}(\mathbf{1})$ .

These two result can be regarded as the triangulated- and derivator- analogues, respectively, of the theorem that says that ‘*t*-structures are normal torsion theories’ in the setting of stable  $\infty$ -categories, showing how the result remains true whatever the chosen model for stable homotopy theory is.

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