

# A SMALL OBJECT ARGUMENT FOR KZ-DOCTRINES

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Starting from a set  $\mathcal{H}$  of 1-cells in a 2-category  $\mathcal{K}$ , we construct, for each object  $X$ , a transfinite chain leading to the components of the unit of a KZ-doctrine whose algebras are the objects of  $\mathcal{K}$  which are left Kan-injective with respect to  $\mathcal{H}$ . The appropriate “convergence” of the chain is ensured by a small object argument. This generalizes the Kan-injective reflection chain presented in [1] for order-enriched categories.

## REFERENCES

- [1] J Adámek, L. Sousa, J. Velebil, Kan-injectivity in order-enriched categories, *Math. Struct. In Comp. Science* 25 (2015), 6–45.

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