Some thoughts on Yoneda's "Regular Spans" and related notions

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In his 1960 paper [1], Nobuo Yoneda described a formal setting in order to describe the behavior of n-fold extensions in an additive category with respect to the change of bases. He introduced for this purpose the notion of "Regular Span".

In my last year talk, I showed as the generalization of such a description to crossed n-fold extensions could be related to a non-additive generalization of the formal setting developed by Yoneda. We called the last "Setting for a Strict Obstruction Theory", since it gives an Obstruction Theorem that generalizes the classical Schreier-Mac Lane Theorem of classification of group extensions.

An analysis of Yoneda's definition shows that the notion of Regular Span is more general than the one of two-sided fibration, but still it determines a two-sided discrete fibration. In my talk, I shall explore how Yonedas notion of regular span fits into the non-additive "Setting for a Strict Obstruction Theory".

This is joint work with Alan Cigoli and Sandra Mantovani.

References

[1] Nobuo Yoneda, *On Ext and exact sequences*, J. Fac. Sci. Univ. Tokyo Sect. I **8** (1960) 507–576.