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Mark W. Johnson* (mwj3@psu.edu), Penn State Altoona, Ivyside Park, Altoona, PA
16601-3760. *Deconstructing Waldhausen's S_\bullet construction*. Preliminary report.

By writing Waldhausen's S_\bullet construction as a series of steps, it is possible to address naive questions such as “why are quotients even involved in defining d_0 ?” and “why so much care with these choices of quotients?”. The key observation here is that d_0 arises as a left adjoint to s_0 . In fact, this left adjointness leads to the appearance of quotients and suffices to imply that each of the simplicial identities involving d_0 holds up to a natural isomorphism. As a consequence, one must apply a straightforward rectification functor to make the simplicial identities hold on the nose, which is reconstructible from Waldhausen's choices of quotients. Various implications will be presented. (Received June 27, 2011)