

Towards an unbased theory of calculus

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This is work in progress with Brenda Johnson and Randy McCarthy.

The calculus of homotopy functors, also known as Goodwillie calculus, has been studied and used now for many years to gain information about homotopy functors from a basepointed category. It would be useful to be able to expand this theory to categories which are NOT basepointed, such as the category of unbased topological spaces or of modules which are left modules over one ring and right modules over another one. Tom Goodwillie has already given some indication of how this can be done homotopy-theoretically. In joint work with Johnson and McCarthy, we provide an algebraically motivated analogue of the theory of unbased calculus. In this talk I will endeavor to explain this model of calculus and provide some examples of the resulting tower of approximations.