

This is a section-by-section list of all the major results, with their dependencies.

1. INTRODUCTION

Nothing to say here, I think.

2. ACTION OPERADS

Definition. symmetric operad

Definition. non-symmetric operad

Definition. braided operad

Definition. operad map

Definition. action operad

Definition. map of action operads

Definition/Example. ribbon braids, and their (action) operad

Result (1). π is a map of operads. **Dependency:** defs

Result (2). Operads internal to groups are action operads. **Dependency:** (1)

Result (3). The kernel of an action operad is an action operad. **Dependency:** (1,2)

Result (4). The image, in Σ of an action operad is an action operad. **Dependency:** (1)

Result (5). A kernel/image short exact sequence. **Dependency:** (3,4)

Result (6). Some calculations with e'_i 's. **Dependency:** defs

Result (7). Some calculations with $\Lambda(0)$. **Dependency:** (6)

Result (8). The big β, δ theorem. **Dependency:** (1)

Result (9). π is zero or surjective. **Dependency:** (8)

Examples. Cyclic, reflexive, hyperoctahedral, alternating. **Dependency:** (8)

Definition. lfp stuff

Result (10). The category of action operads is lfp. **Dependency:** defs, external

Result (11). $U : \mathbf{AOp} \rightarrow \mathbf{Sets}/\mathcal{S}$ preserves limits and filtered colimits. **Dependency:** defs **Note:** seriously check proof

Result (12). $F : \mathbf{Sets}/\mathcal{S} \rightarrow \mathbf{AOp}$ left adjoint to U . **Dependency:** external

Definition. presentations for action operads **Dependency:** (12)

3. OPERADS WITH EQUIVARIANCE

Definition. Λ -operad

Definition. map of Λ -operads

Definition. category of Λ -operads

Result (13). Λ is a Λ -operad. **Dependency:** defs

Definition. algebra over a non-symmetric operad **Note:** delete?

Definition. algebra over a Λ -operad

Definition. category of algebras over a Λ -operad

Result (14). Endomorphism operad is a Λ -operad. **Dependency:** defs **Note:** should have independent endomorphism operad def beforehand, maybe rework all this stuff

Result (15). Change-of-operad functor. **Dependency:** defs

Result (16). Algebras are operad maps into endomorphisms operad. **Dependency:** (14)

Definition. monad associated to a Λ -operad

Result (17). Monad algebra category is operad algebra category. **Dependency:** defs

Result (18). Λ -algebras, as a Λ -operad, are monoids. **Dependency:** defs, maybe (16) **Note:** unclear hypotheses, should say in sets I think

Result (19). Three-part theorem about the adjunction between Λ - and Σ -operads and their categories of algebras. **Dependency:** defs **Note:** check proof

Definition. monad map [Note: some text after that needs to be in an environment](#)

Definition. cocomplete SMC [Note: no emph in def, is wrong](#)

Result (19). Lax symmetric monoidal functors transport operads, with a comparison monad map. [Dependency: FUTURE! Note: eep in general! where did we define the tensor product over a group notation?](#)

Result (20). Operad maps induce monad maps. [Dependency: stuff that isn't in an environment above](#)
[Note: continued eep](#)

Result (21). Combining to get an adjunction. [Dependency: \(19, 20\) Note: continued eep](#)

Definition. collections, maps, the category thereof

Definition. substitution product of collections

Result (22). Substitution product gives monoidal structure, and monoids are operads. [Dependency: \(19, 20\)](#)

Result (23). $B\Lambda$ is a strict monoidal category. [Dependency: FUTURE! also \(6\)](#)

Result (24). n -fold Day convolution is a functor $B\Lambda \rightarrow \mathbf{Sets}$. [Dependency: \(23\)](#)

Result (25). Substitution product as coend using Day convolution. [Dependency: ?? Note: seriously check proof](#)

Proof of (22). [Dependency: \(23,24,25\) Note: seriously check proof](#)

4. OPERADS IN THE CATEGORY OF CATEGORIES

5. THE BOREL CONSTRUCTION FOR ACTION OPERADS

6. MONOIDAL STRUCTURES AND MULTICATEGORIES