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An unsatisfying bijection

Let I be the smallest Borel-fixed ideal containing the monomial $(x_1, x_2, \cdots, x_n)$. Recently we discovered that the graded Betti numbers of I count the pointed pseudo-triangulations of a geometric configuration called the *single chain*. The connection was purely numerical, so shed no light on the combinatorial structure of either object. Now, we define bijections connecting pointed pseudo-triangulations, marked binary trees, and a basis for the resolution of I. These bijections are unsatisfying in the sense that the differential from the resolution does not appear to correspond to a natural map on pointed pseudo-triangulations.

All work is joint with Chris Francisco and Jay Schweig.