1023-55-1445 **Rachel Schwell*** (schwell@math.uconn.edu), 40 Bolivia St. #2, Willimantic, CT 06226. *Solving Deligne's Conjecture via Polytopes.* Preliminary report.

Associahedra (or Stasheff polytopes) and cyclohedra are structures based on possible associations inserted into multiplicative words. These structures can be glued via appropriate boundary maps into a large CW complex; it turns out that by representing the associations (and thus the CW complex) through trees paired with a compatible boundary operator, we can homotopically reduce the CW complex to a much simpler one, namely one composed of simplices. We will then discuss how in doing so, we prove a specific case of a theorem found in algebraic topology known as Deligne's conjecture. (Received September 26, 2006)