

2010

## From Permutahedron to Associahedron

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### Recommended Citation

Watt, C. & Brady, T. (2008). From Permutahedron to Associahedron. *Proceedings of the Edinburgh Mathematical Society*, series 2, vol. 53, pp 299-310. doi:10.1017/S0013091508000448

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# FROM PERMUTAHEDRON TO ASSOCIAHEDRON

THOMAS BRADY AND COLUM WATT

ABSTRACT. For each finite real reflection group  $W$ , we identify a copy of the type- $W$  simplicial generalised associahedron inside the corresponding simplicial permutahedron. This defines a bijection between the facets of the generalised associahedron and the elements of the type- $W$  non-crossing partition lattice which is more tractable than previous such bijections. We show that the simplicial fan determined by this associahedron coincides with the Cambrian fan for  $W$ .

This article has appeared in the Proceedings of the Edinburgh Mathematical Society, (2), Volume 53, (2010), Issue number 2, pages 299–310.

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