



2010

From Permutahedron to Associahedron

Colum Watt

Technological University Dublin, colum.watt@dit.ie

Thomas Brady

Dublin City University, thomas.brady@dcu.ie

Follow this and additional works at: <https://arrow.dit.ie/scschmatart>

 Part of the [Mathematics Commons](#)

Recommended Citation

Watt, C., Brady, T.: From Permutahedron to Associahedron. *Proceedings of the Edinburgh Mathematical Society*, series 2, vol. 53, pp 299-310

This Article is brought to you for free and open access by the School of Mathematics at ARROW@TU Dublin. It has been accepted for inclusion in Articles by an authorized administrator of ARROW@TU Dublin. For more information, please contact yvonne.desmond@dit.ie, arrow.admin@dit.ie, brian.widdis@dit.ie.



This work is licensed under a [Creative Commons Attribution-NonCommercial-Share Alike 3.0 License](#)



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.

SCHOOL OF MATHEMATICAL SCIENCES, DUBLIN CITY UNIVERSITY, GLASNEVIN,
DUBLIN 9, IRELAND

E-mail address: tom.brady@dcu.ie

SCHOOL OF MATHEMATICAL SCIENCES, DUBLIN INSTITUTE OF TECHNOLOGY,
KEVIN ST., DUBLIN 8, IRELAND

E-mail address: colum.watt@dit.ie