Automating Relevance Banding in eCommerce Search using Click Model

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Abstract. eCommerce is burgeoning: in the past five years, both in the USA and the UK, eCommerce retail sales have overtaken brick-and-mortar stores for the first time. Search is a primary means for users engaging in eCommerce. eCommerce companies often perform laborious human-intensive mappings of queries to various categories in their product taxonomies—a process called "banding." This is done in order to improve recall and precision of their search engines. In this paper, we propose a fully automated alternative to this manual process. We use statistical properties of the click-model that is constructed using query-click logs in order to automate this process. We propose an algorithm—probability banding—that performs banding in a fully automated manner. In large-scale A/B testing, our algorithm demonstrates considerable revenue and orders increase over the manual banding baseline. Our algorithms are now deployed at scale at CorpX—a multi-billion dollar eCommerce major.

Full paper available upon request.