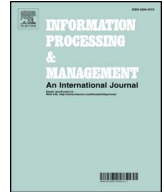




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Keyword length and matching options as indicators of search intent in sponsored search



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ABSTRACT

Sponsored search is an online advertising channel that has gained momentum worldwide. The key challenge is deciding on the types of keywords to bid on and matching options to utilise for the keywords. In this paper, we address this problem by providing a broad analysis on how the various traffic search metrics (length, CTR, average cost per click (CPC), average position, and quality score) influence the bidding results as the keyword matching option becomes broader, that is, from exact, to phrase to broad. Drawing on the shopping goals theory, we also establish the profile of the metrics associated with a more focused search intent across the matching options. Using a random sample of keywords selected from 9 640 keywords that online advertisers have bid on, spanning a variety of markets, the results indicate that as the matching option becomes narrower, that is, from broad to exact, the keyword traffic metrics increase in general, except for cost, which does not differ significantly across the matching options. Longer keywords, which are typically associated with a more focussed search intent, generate more clicks and have a higher quality measure on average across all matching options. The longer keywords are cheaper for the exact match option, but more expensive for the other matching options. The results are inconclusive with regard to the position that longer keywords occupy on a results page across the matching options. Thus, the narrower matching options and longer keywords matching those that a customer would typically use to search for a company's goods and services need to be targeted to ensure higher visits to a company's website.

1. Introduction

Search engine marketing, also referred to as sponsored/paid search or keyword advertising, is an online advertising channel through which advertisers bid for keywords relevant to their business in order for their advertisements to gain prominence on a search engine results page. When a user enters a search query, also referred to as a search term/phrase, the search results pages include both sponsored advertisements, and organic (free) advertisements (note that in this paper, the term *search query* is used to refer to a string of text that consumers type into a search box, and *keyword* to denote the string of text that advertisers bid on). Search engines differ in how they display sponsored advertisements on a results page, with the top of the page and/or the right-hand column of the page, or bottom of the page below the organic results, being the most common display positions for sponsored advertisements. The advertisements are ranked from top to bottom, with the highest-ranked advertisement occupying the top position. If there are competing advertisers, the ranking is determined through a dynamic keyword auction, as well as a keyword's past click performance (Agarwal, Hosanagar, & Smith, 2011; Jansen & Schuster, 2011).

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The search query that triggers an advertiser's advertisement, referred to as an impression, corresponds to the keyword the advertiser has bid on. Thus, the search query and keyword need to match to some extent. This depends on the keyword matching options specified by the advertiser (exact match, phrase match, broad match, modified broad match, etc.), for the keyword to be deemed relevant. For example, with an exact match, the keyword “banana hat” will be associated only with the search query “banana hat”. With a phrase match, the keyword “banana hat” may also be associated with any search queries that include the keywords in the order in which they appear, such as “how to make a banana hat”, “banana hat shaped bread”, etc. A broad match, on the other hand, is similar to the phrase match option, except that the search queries do not have to include the keyword, and may differ in length and order. Thus, the association may be via a more distant semantic association to other fruit or related topics when using this option. Other keyword matching options enable advertisers to exclude (–) or include (+) specific words or content, depending on the search engine.

If the search query closely matches the advertiser's keyword(s), taking into consideration the matching option, the likelihood of the keyword's Click Through Rate (CTR), defined as the ratio of clicks to the number of impressions, is increased. A high CTR implies that more traffic is being directed to a company's website. Since an advertiser is charged only when the advertisement is selected under the pay-per-click model, a high CTR can be costly if the click is not profitable. Industry experts advocate bidding on a large number of low-traffic or less popular keywords, since they tend to be cheaper as there is less competition for the keywords, and they have better conversion rates. Less popular keywords are keywords that are not individually searched often, but collectively have the potential to drive up traffic to a company's website. The superiority of less popular keywords is consistent with the long tail phenomenon popularised by Anderson (2004, 2006, 2008), which states that niche products collectively generate more online sales and downloads than products typically perceived to be more popular. This notion was further illustrated in research by Zhang, Zhang, Gao, Yuan, and Liu (2014) on bidding for less competitive but relevant keywords.

The rationale behind bidding on less popular keywords has to do with a consumer's goal when searching online, which can be very general or specific (Hoffman & Novak, 1996). Generic search queries are typically popular and shorter, and are associated with consumers who are at the initial stages of a search. Less popular search queries are usually longer, and are used as a search query is refined (Lau & Horvitz, 1999). Thus, bidding on longer keywords may be more effective because of the specificity in expressing a consumer's goal, involvement or language or mental model (Jerath, Ma, & Park, 2014; Ji, Rui, & Hansheng, 2010; Pan and Li, 2011).

The length of the search query (that is, the number of words contained in a search query) however, impacts the likelihood of an impression dependent on the keyword matching option. For a broad match, the word combinations that could trigger an advertisement and potentially generate traffic increase rapidly as the length increases. The relevance of sponsored advertisements, however, is not guaranteed as coverage increases. The exact and phrase match options, on the other hand, require the search query and keyword to match, with the phrase match allowing for consumers to add more words to a particular keyword. For businesses to maximise their profits, the choice of match option, as well as a sound selection of keywords that match the search queries used by consumers to search for a company's goods and services as the search query is refined, is an important aspect of any search engine marketing campaign.

There is limited academic research that investigates the performance of keyword traffic metrics across the matching options, as well as the traffic metrics of shorter and longer keywords across the matching options. The focus of the majority of papers on sponsored search has been on providing specific solutions for better bidding results. In contrast, we provide a broad analysis on how the various traffic search metrics (length, CTR, average cost per click (CPC), average position, and quality score) influence the bidding results as the keyword matching option becomes broader, that is, from exact, to phrase to broad. To our knowledge, there is no literature that profiles the metrics across all three matching options.

We also contribute to the existing theory on search intent by providing evidence on the differences in the traffic search metrics for shorter and longer keywords for the three matching options, in order to establish the profile of the traffic metrics associated with a more focused search intent in sponsored search. Since we are using real-world data, the findings will offer insights into the current online advertising practices on keyword management, thus helping businesses and researchers to better understand some subtle but vital phenomena regarding the different types of keywords and matching options.

The rest of the paper is organised as follows: In the next section the theoretical framework adopted for this research is outlined, and the literature on the performance of various traffic metrics and match options pertinent to the types of search queries used at different stages of a search is reviewed. The methodology adopted for this research is then explained, followed by the findings of the data analysis. We subsequently discuss the findings, before concluding and exploring the research implications as well as future research directions.

2. Literature review

2.1. Theoretical framework

Extant research reveals that the types of search queries that often result in a sale are specific search queries (Agarwal et al., 2011; Jansen & Schuster, 2011; Jerath et al., 2014; Ji et al., 2010; Lau & Horvitz, 1999; Lu & Zhao, 2014; Ortiz-Cordova & Jansen, 2012; Ramlall, Sanders, Tewkesbury, & Ndzi, 2011; Rutz, Trusov, & Bucklin, 2011). In order to understand what leads to these specific search queries, this study adopted the shopping goals theory (Lee & Ariely, 2006) to explain a user's intent in choosing the types of words used for online decision-making. This theory is based on the information-seeking behaviour framework (Wilson, 2000), which explains the manner in which humans interact with information to satisfy some goal.

According to the shopping goals theory, there are various types of online search consumers at different stages of searching, hence

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