



# Differentiation of online text-based advertising and the effect on users' click behavior



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## ABSTRACT

Online syndicated text-based advertising is ubiquitous on news sites, blogs, personal websites, and on search result pages. Until recently, a common distinguishing feature of these text-based advertisements has been their background color. Following intervention by the Federal Trade Commission (FTC), the format of these advertisements has undergone a subtle change in their design and presentation. Using three empirical experiments, we investigate the effect of industry-standard advertising practices on click rates, and demonstrate changes in user behavior when this familiar differentiator is modified. Using three large-scale experiments ( $N_1 = 101$ ,  $N_2 = 84$ ,  $N_3 = 176$ ) we find that displaying advertisement and content results with a differentiated background results in significantly lower click rates. Our results demonstrate the strong link between background color differentiation and advertising, and reveal how alternative differentiation techniques influence user behavior.

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## 1. Introduction

Advertising is the primary revenue stream for many of the “free” services provided to Internet users (Castro, 2012) and is essential to the continued economic sustainability of many services, such as email, news and search. The immense value for both the end-user and the commercial entity providing these services is demonstrated by organizations such as Google, which in 2013 derived over 90% of its \$55.5 billion revenue from advertising (Google., 2014).

While large organizations can directly negotiate with advertisers, smaller organizations typically outsource their advertising to advertising-networks, such as those offered by Google, Microsoft, and Yahoo (Evans, 2008). These networks provide syndicated, context-sensitive adverts to webpage publishers in the form of discrete ad units consisting of one or more text links, in exchange for a proportion of the revenue generated from users clicking on these adverts (Broder, Fontoura, Josifovski, & Riedel, 2007). Such strategies entrust much of the control over advertising content, presentation, and cost-per-click to the advertising network, which dynamically displays ad units directly to web users viewing the content, with little, if any, interference from the webpage

publisher. Advertising networks may offer advice to publishers on how to best present their adverts. For instance, in order to help publishers maximize their return from the AdSense program, Google offers suggestions to publishers to “customize the colors and fonts of your ads to match your site’s look and feel” (Google., 2010).

In addition to colors and fonts, the location of an advert is also considered an important factor in user recognition. Fox, Smith, Chaparro, and Shaikh (2009) suggest that adverts should be located high on the page and use a contrasting color scheme. By maximizing visibility, adverts are expected to build brand recognition and it is suggested that this increased recognition will result in increased click rates (Fox et al., 2009). However, for pay-per-click adverts, brand recognition alone is not sufficient to generate revenue for the website publisher. It is also necessary for the advert to be clicked. While presentation of text-based advertising is much practiced, little research can be found to suggest which styles might be appropriate for content publishers, or how presentation information might be integrated into advert selection methods used by advertising networks.

### 1.1. Presentation and user engagement

The literature differs on the importance of measuring actual user engagement with advertising. Hofacker and Murphy (1998) suggest that banner advertising can be effective for the advertiser

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without actually being clicked, however, they also highlight the importance of measuring clicks as this can be a determining factor in choosing which advertisements to display when offered on a pay-per-click basis. Gathering click-stream data can improve the understanding of users' experience and their interactions with recommendations, personalization, and advertising. Using click data allows advertisers to form a more nuanced picture of how users move from content, to advertising, to purchase (Ting, Clark, Kimble, Kudenko, & Wright, 2007).

To generate revenue for publishers of pay-per-click advertising, users must act and click an advert. Improved recall of advertising does not necessarily change user behavior or lead to an increase in purchase intent (Goldfarb & Tucker, 2011). Simply making an advert more visible may not increase advertising-derived revenue. Goldfarb and Tucker (2011) suggest that users react negatively to more obtrusive targeted advertising including video, pop-ups, and overlays as users fear exposure of private information. While their work investigated the effects of high-profile multimedia adverts, they also hypothesize that the success of text-based, context-sensitive advertising might be due to its reduced intrusiveness.

Until the end of 2013, Google used two different differentiation techniques for text-based, contextual advertising. For advertisements to the right of the content area, a simple "Ads" header is used, as seen in Fig. 1. In the content-area, in addition to an "Ads" header, a background color is used to differentiate these advertisements from the content results that follow. While Google is legally obliged to use some method to indicate advertising content, under Federal Trade Commission guidelines (2000), the method of indicating this is entirely up to the publisher. However, more recent guidance has provided additional direction.

In an open letter to search engines, and other organizations dependent on Internet advertising, the FTC reiterated its stance on differentiating advertising from content (Federal Trade Commission., 2013). The FTC continued their encouragement of clarity and prominence of advertising disclosures, however new focus was directed in particular towards the contemporary use of visual cues and text labels. In the letter the FTC also raised concerns regarding the display of advertising on computer monitors

and mobile devices with their potentially differing display capabilities.

We have observed that, increasingly, search engines have introduced background shading that is significantly less visible or "luminous" and that consumers may not be able to detect on many computer monitors or mobile devices.

[Federal Trade Commission, 2013]

Fig. 1 shows an example of the styling discussed. Since the publication of the FTC letter, Google has changed advertising presentation to use a simple line delimiter coupled with a yellow "Ad" marker, removing the background coloration identified as problematic by the FTC. With publishers adjusting practice to maintain compliance with the mandated guidance, it is important to validate their recommendations. If users have become accustomed to particular cues to identify advertising, the removal of background coloration could be detrimental to the FTC's intention of enhancing clarity.

## 1.2. Hypotheses and contributions

In this paper we investigate the changes in users' click behavior when users encounter advertising and content with and without different types of background differentiation, the most common method of distinguishing text adverts on websites. Investigations into user behavior are crucial to provide appropriate guidance and recent interest in presentation styles by legislative bodies and oversight organizations, such as the FTC, has made this more crucial than ever. For publishers displaying advertising, an increased understanding of the effect of visual features on click rates can help to achieve a more enticing, or less detracting, presentation while maintaining compliance with the relevant guidance and legislation.

We further investigate whether background differentiation of advertisements has led to a priming effect that has consciously or subconsciously trained users to avoid content results with background differentiation—even though these content results might be the most relevant. We investigate the following hypotheses:

**H1.** background differentiation of advertising reduces click rates; and

Ads related to **google advertising** ⓘ

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Fig. 1. Google Search result page for "google advertising". Note: additional 'content' results followed.

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