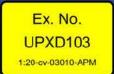
United States et al. v. Google, LLC

Testimony of Kinshuk Jerath, Ph.D.

REDACTED FOR PUBLIC FILING

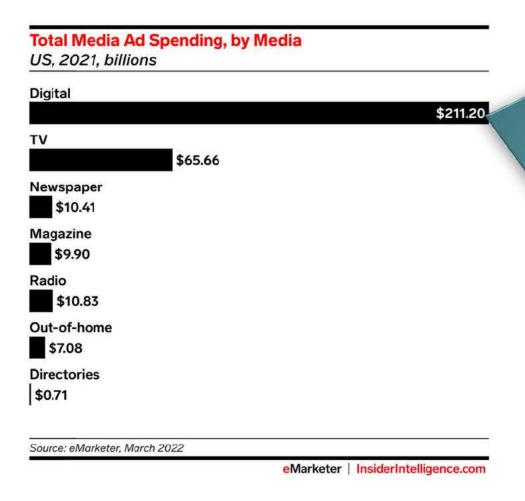
Redacted

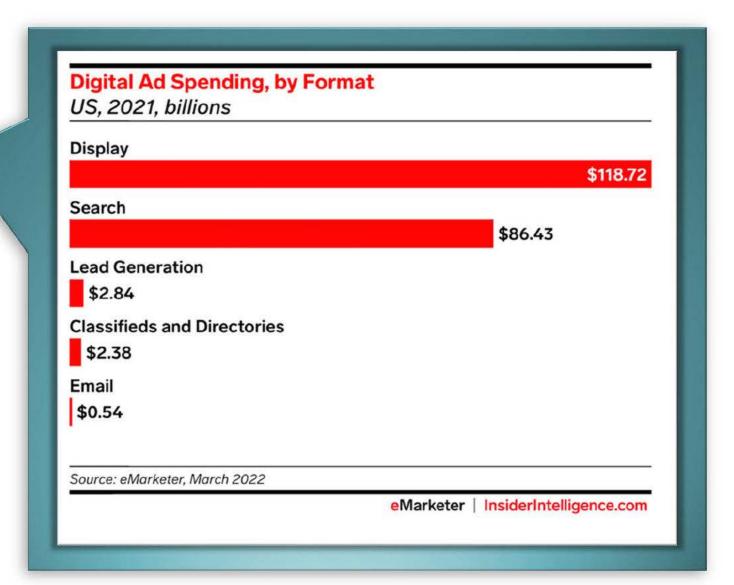


Opinions

- General Search Text Ads are a distinct product category
- Search Ads more broadly are a distinct product category
- 3 Effectively providing Text Ads and other Search Ads requires significant resources, and advertisers have few alternatives apart from Google
- Google harms advertisers through its withholding of information and control of the ad auction

Advertising: Multi-Billion-Dollar Industry



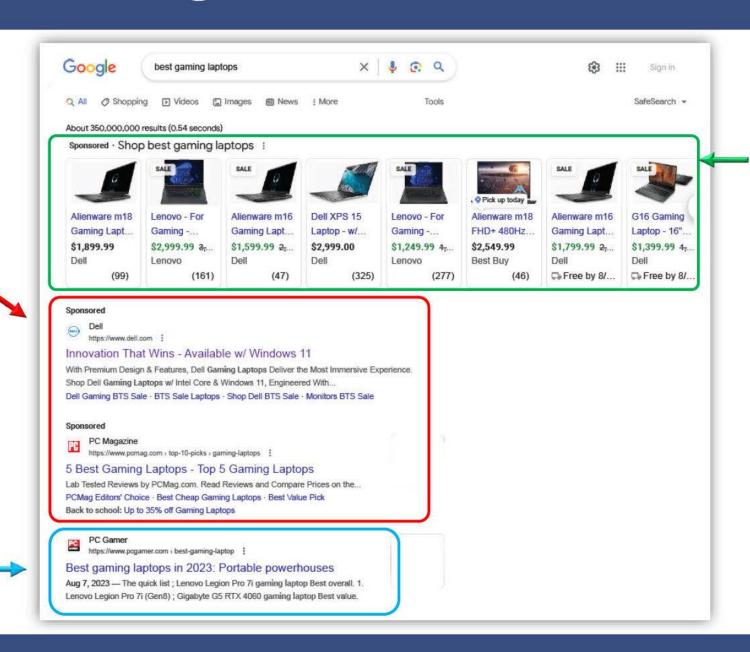


Overview of Advertising Channels: Text Ads and Other Search Ads

Text Ads

- Shown in response to real-time query
- Shown on general SERPs
- Appear similar to organic results
- Primarily text

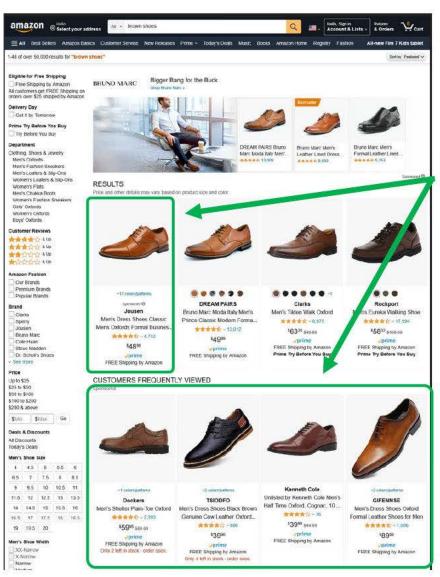




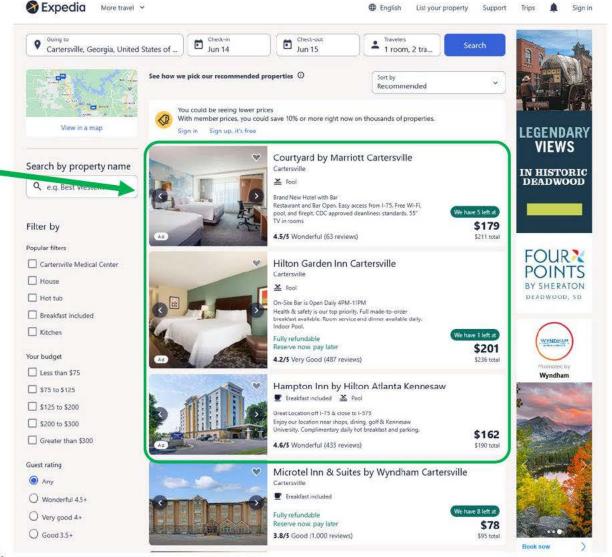
Other Search Ads - Shopping ads

- Shown in response to real-time query
- Shown on general SERPs, specialized SERP, app stores, etc.
- Include Shopping ads, Travel ads, etc.

Overview of Advertising Channels: Other Search Ads



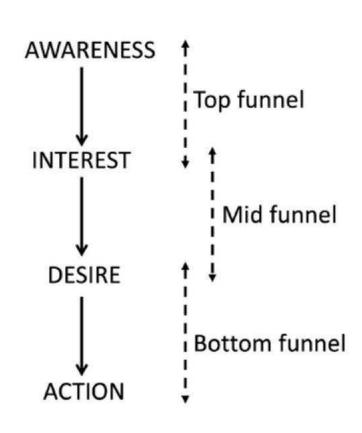
Other Search Ads

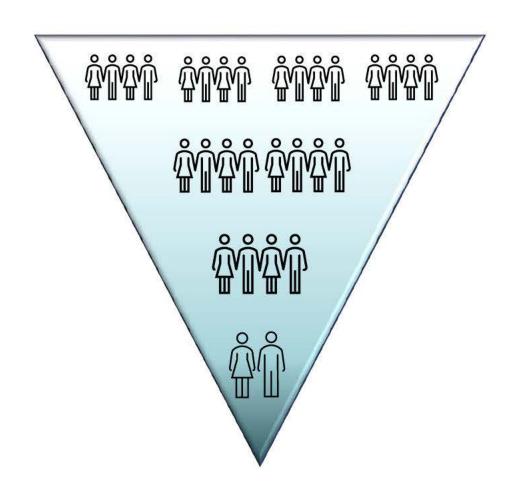


Sources: DOJ-JERREP-000019, -111

Consumer Purchase Funnel is a Conceptual Model

(1) Stages, and (2) Successive Narrowing





Source: Prof. Jerath Teaching Slides

Characteristics Advertisers Consider When Building Ad Campaigns



Targeting

Inferred Intent* from Signals

- Expected audience composition (e.g., demographics)
- Behavioral profiles (based on online behavior)
- Context

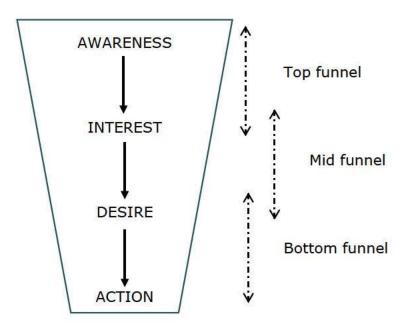
*inferences limited in accuracy

Declared Intent, in Real Time

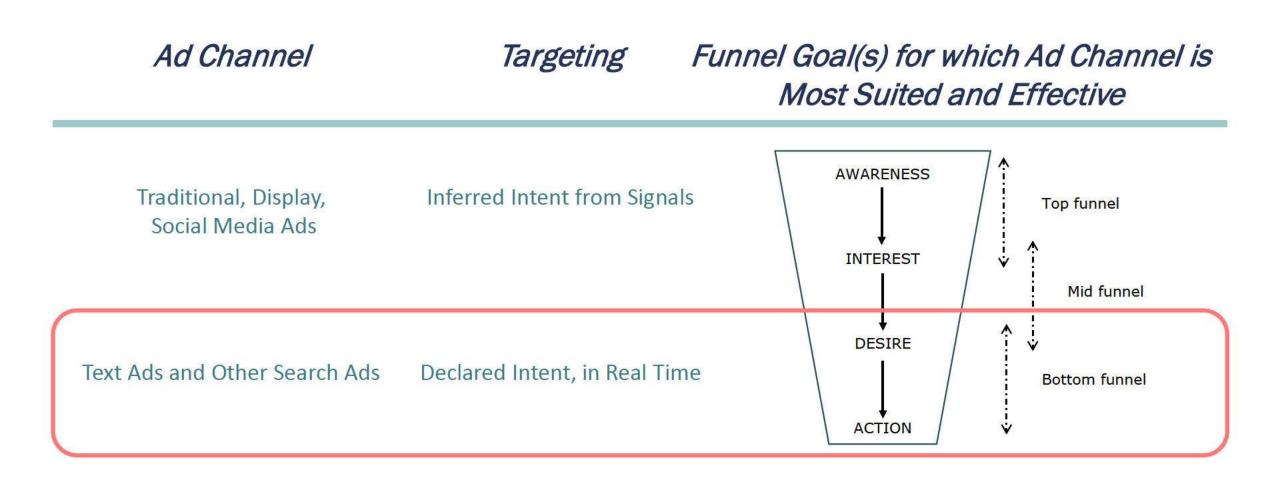
Query



Funnel Goal(s) for which Ad Channel is Most Suited and Effective



Advertisers Attach a Unique Value to Text Ads and Other Search Ads

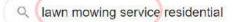


Opinions

- General Search Text Ads are a distinct product category
- Search Ads more broadly are a distinct product category
- Effectively providing Text Ads and other Search Ads requires significant resources, and advertisers have few alternatives apart from Google
- Google harms advertisers through its withholding of information and control of the ad auction

A Hallmark Feature of Text Ads: Keywords and Match Types







- Advertiser selects keywords and match types for their Text Ads
- Consumer enters query
- Google decides which Text Ads enter the auction and which ads are shown on the SERP

Exact Match

"same meaning as your keyword"

e.g., "grass cut services"

Phrase Match

"include[s] the meaning of your keyword"

e.g., "landscaping service to cut

grass"

Broad Match

"relate[s] to your keyword"

e.g., "lawn aeration prices"

Source: Based on Google Ads Help, "About keyword matching options" (UPX8023, at -.001)

Options with Text Ads vs. Constraints on Other Search Ads

Text Ads



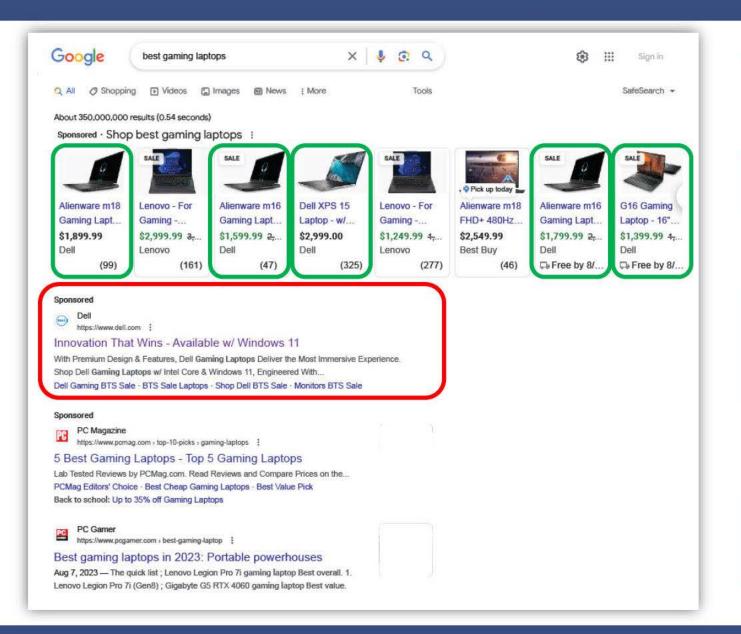
- Advertise virtually anything
- Select keywords and match types
- Submit ad copy/components
- Have one or more focal points for ad

Other Search Ads



- Advertise only products
- Select product category
- Submit live inventory and pricing feeds
- Show only one product at a time
- Adhere to rigid content and informational restrictions

Broader Scope, Wider Range of Targeting Options, Greater Control



Advertiser can—	Text Ads	Google Shopping ads?
Advertise virtually anything	✓	×
Influence reach and frequency of ad via keywords, match-type options	√	×
Determine visual appearance and message of ad (e.g., include slogan as headline)	✓)x
Select specific website for ad's main landing page	√	×
Include multiple additional focal points via extensions (e.g., to point to different product groups)	√	×

prepared by diana edair 11/09/10

Prep - Product Ads Roundtable

Date: Thursday, 11/11/10 Time: 11am - 12pm Where: University Theater, B40

Summary: We're organizing a small roundtable with advertisers and reporters for the launch of Product Ads. The goal is to host an intimate and conversational discussion that emphasizes the success of our advertisers who have been beta-testing this new ad format. We're also publishing the <u>Product Ads blog post draft</u> on the morning of that day.

Agenda: 11:00-11:15am

Buffer time

11:15-11:20am

Susan on New Ad Formats Initiative, vision, ads innovation

11:20-11:25am

Dennis to introduce beta advertisers, also on holiday retail shopping season

11:25-11:30am

Jerry/Jennifer on Product Ads, explanation of how it works, and live demo

11:30-11:40am

Nick from Campmor speaks about experience using Product Ads

11:40-11:50am

Michael from Diapers.com speaks about experience using Product Ads

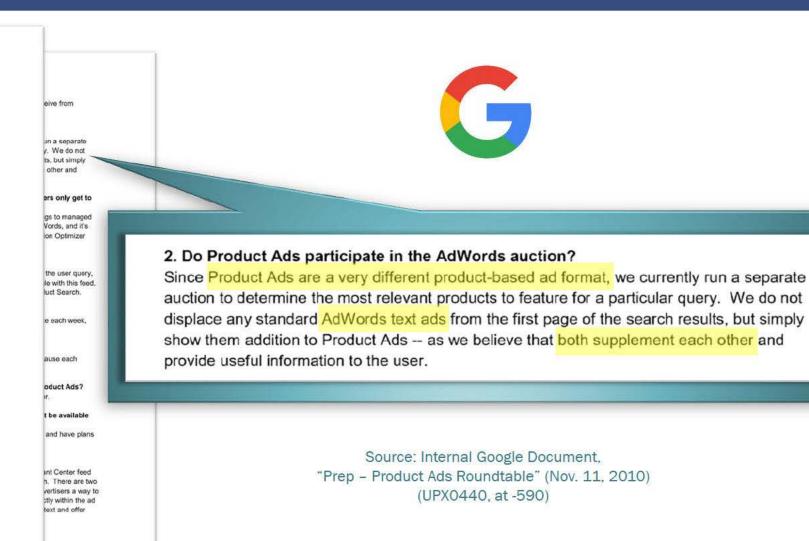
11:50-12:00pm

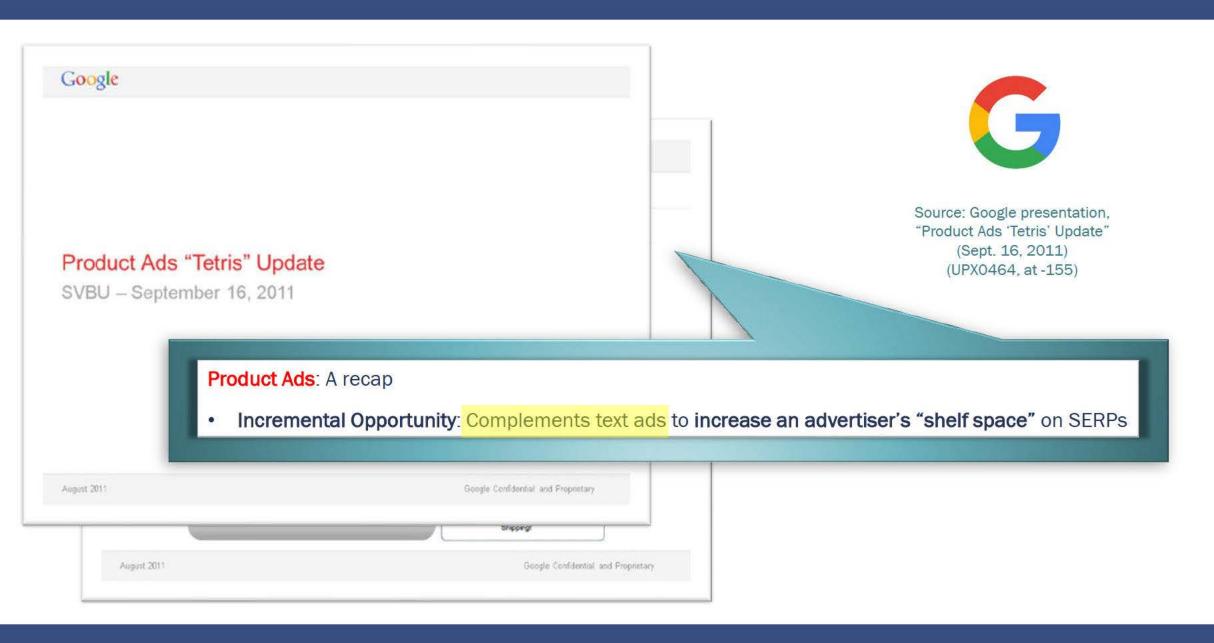
Q&A with reporters

Talking Points for Jerry and Jennifer:

We'd suggest that you focus your remarks on the specifics of the product, including the video and demo. We'd also like you to highlight the one year anniversary. You'll also have a few general slides behind you. Here are some suggested talking points:

- Product ads has been in beta for one year, and we've made improvements over time based on feedback from advertisers such as Campmor and Diapers.com.
- Ran over 100 experiments. Some examples of how it's changed over the beta ad quality, advords integration, features.
- Available to all US Advertisers
- · Short video and then live demo [Jliu to send sample queries]









Q: Shopping ads, or PLAs - I'm sorry, you like PLAs.

PLAs are a different species than text ads; is that right?

A: Yes

Source: Trial Transcript, Sept. 13, 2023, 423:12-423:14 (emphasis added)



Source: Trial Transcript, Sept. 19, 2023, 1355:03-1355:11 (emphasis added)



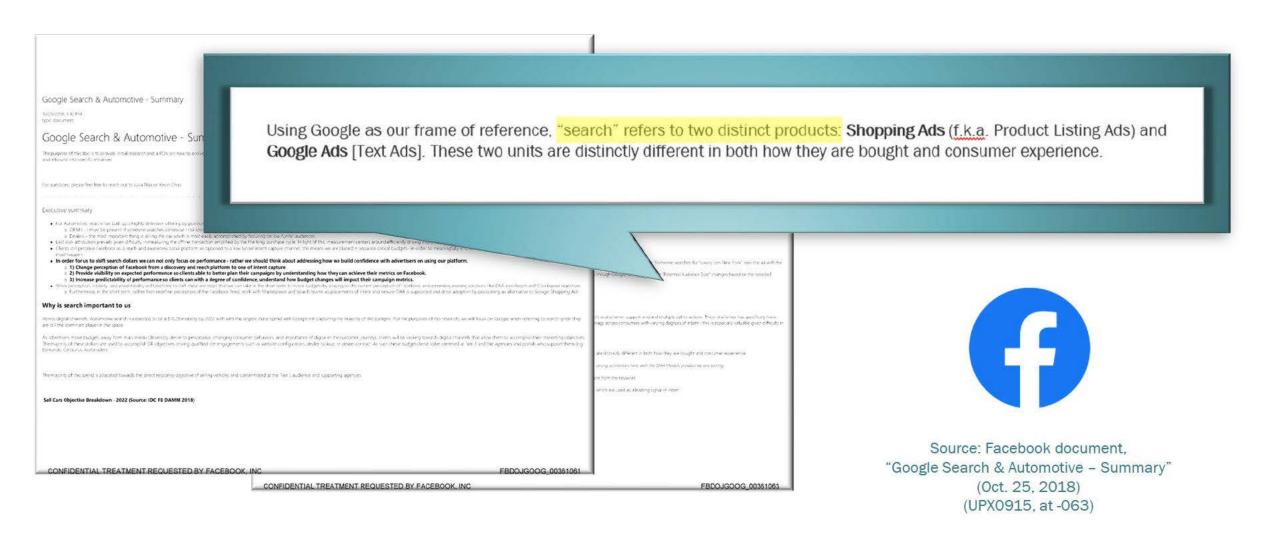
Q: Why would an advertiser want to have both a text ad and a shopping ad show up in response to the same query?

A: Because they can have different information.

And so -- shopping ads only refer to a specific product, but you can also, in text ad, have **more flexibility** to drive people to a category page or to a store.

In this case [DXD03, slide 1], Cole Haan wants to drive their user to a store with their text ad and to a specific product with their shopping ad.

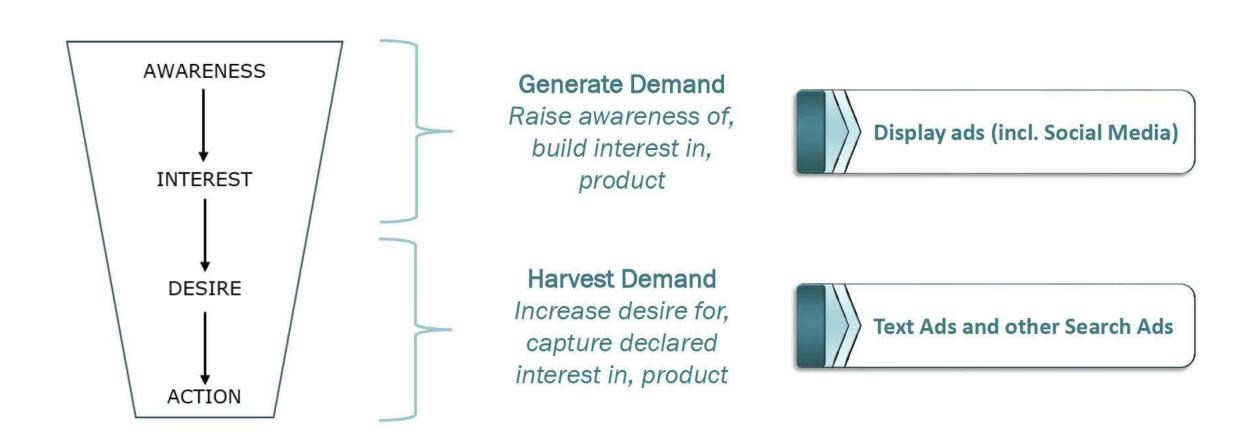
Industry Views Text Ads as Distinct From Other Search Ads



Opinions

- General Search Text Ads are a distinct product category
- Search Ads more broadly are a distinct product category
- B Effectively providing Text Ads and other Search Ads requires significant resources, and advertisers have few alternatives apart from Google
- Google harms advertisers through its withholding of information and control of the ad auction

Full-Funnel Marketing: Search Ads and Other Ad Channels Achieve Different and Complementary Goals



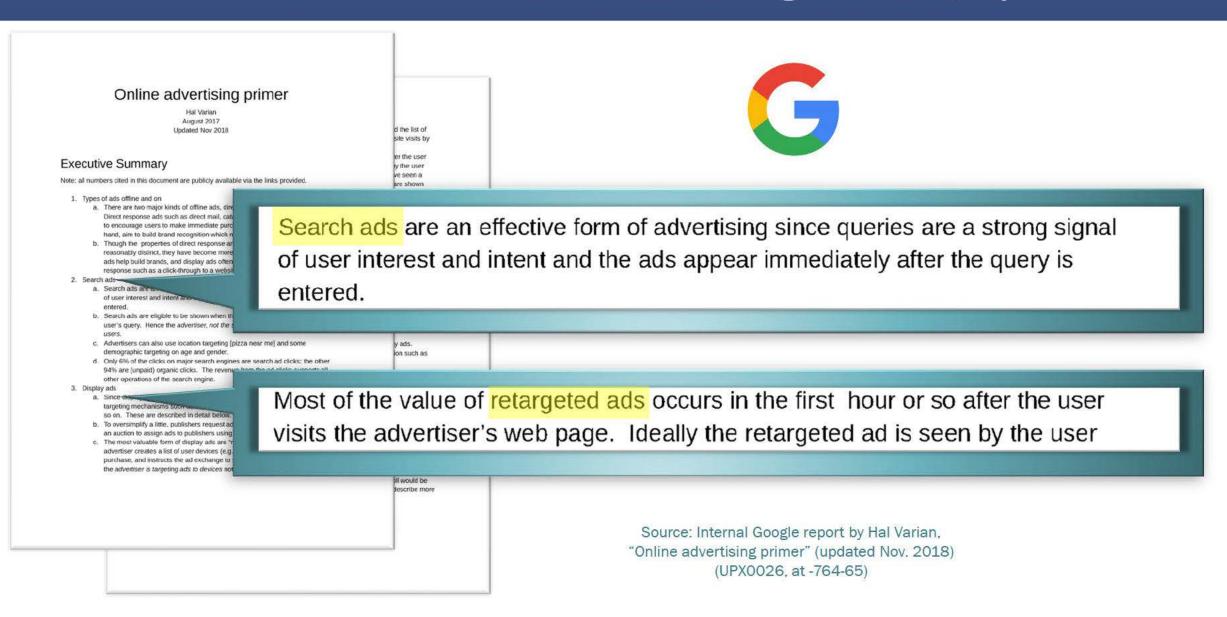
Search Ads vs. Retargeted Display Ads





Characteristic	Search Ads	Retargeted Display Ads
Targeting based on:	Real-time, declared intent	Potentially stale, inferred intent
Able to target:	Any consumer who types a relevant query	Only consumers who already visited the advertiser's website
Ad reflects:	What consumer is actually searching for	Potentially different products or services than those previously viewed
Impact of ongoing changes in consumer tracking:	Uniquely unaffected	Expected to become substantially less effective

Search Ads are Distinct from Retargeted Display Ads



Google Recognizes Search Ads as Distinct from Other Ad Channels

From: Amir Najmi < @google.com> on behalf of Amir Najmi
Sent: Thursday, April 03, 2008 4:58 PM

e: Paul Todd

Cc: Hall Varian; Brian A Armstrong; Nick F

Subject: Re: Search adverti

Hal, Paul,

I didn't mean to suggest that display advertising that purpose. The question is why is it that MSF1 given the huge amounts of research (much of it to question the value of Search advertising (in some numbers (that I have seen) on the value of display advertising, especially from MSF1 and YHOO is advertising. If I am right about there being no que hammer away at this point when they spread their is an act of faith.

On Wed, Apr 2, 2008 at 5.46 PM, Paul Todd <

Yes - I think success here is to demonstrate that in conjunction.

Moo! [thanks for the combined name Hal :)] clea of the current pie. While we clearly need to resp size of the pie by demonstrating positive ROI for both search and display advertising

When I see a display ad for a new fisel efficient Toyota, I might think "gee, maybe it's time to buy a new car". The display ad has stimulated some latent demand. When I go to Google and search for "toyota" I am now trying to satisfy that demand.

It is definitely hard to measure the impact of brand advertising since there is often considerable lag between exposure and purchase (at least for big ticket items like cars). But there are enough cases that indicate that at least some brand advertising is very effective. Paul Todd, Peter Kellis, Diane Lambert and others are working on ways to measure impact of brand advertising, but a big part of it is looking at how the brand exposure impacts search behavior.

Here's one of my columns on advertising impact in a market where it is relatively easy to measure conversions. http://people.ischool.berkeley.edu/~hal/people/hal/NYTimes/2006-06-01.html (However, I don't know how effective this particularl sort of ad would be online.)

On Wed, Apr 2, 2008 at 5:10 PM, Hal Varian < @google.com > wrote:

One way to think about the difference between search and display/brand advertising is to say that "search ads help satisfy demand" while "brand advertising helps to create demand."

When I see a display ad for a new fuel efficient Toyota, I might think "gee, maybe it's time to buy a new car". The display ad has stimulated some latent demand. When I go to Google and search for "toyota" I am now trying to satisfy that demand.



Source: Internal Google email chain (Apr. 2, 2008) (UPX0411, at -638)

Industry Recognizes Search Ads as Distinct from Other Ad Channels

Confidential version 1 February 2021

Booking.com ANSWERS to QUESTIONNAIRE FOR ADVERTISERS by the European Commission:

AT.40660 - Google Adtech, AT.40670 - Google Data-related practices Deadline: 18/01/2021 extended to 1/02/2021

Contact details and information on your undertaking

In order to facilitate possible further enquines, please indicate the person responsible for the replies to this questionnaire

Company	Booking.com	
Contact person	Anne-Claire Hoyeg	Phone:
Poskon:	Director, Global Competition and Consumer Law	Pax
e-mail:	@becking.com	
Address: Rombrandiptein, 1017 CT Amsterdam		Country Nethari

Questions * Answers

DEFINITIONS

For the purpose of this pursuonness, the following definition shall apply

Ast format: specifies the way in which advertising content is displayed, notal non-video ad (such as a last, image, banner or overlay) or a video ad.

Ad inventory: the amount of space on a website, application or online plat

Ad servers: informediaries in the online advertising value chain, which dyna advertising companies across available digital platforms. By determining in real be placed and when, then servery the ads, and measuring their performance. S for advertisers as well as publishers.

European Economic Area ("EEA"): refers to Member Status of the Europe foreign and the European Economic Area, as amended over the select or organised EEA composes the EU Member Status sopetime with icetand Lucido Lucido Area (EEA composes the EU Member Status sopetime with icetand Lucido and Compose (EEA composes the EU Member Status sopetime with icetand Lucido (EEA composes the EU Member Status and EU Member Status and

Demand-Side Platform ("DSP"): demand-side platforms are intermedial fechnology to automatize the purchase of uniter ad inventory on behalf of advertisers or media apprices to buy advertising inventing from many sources.

Header Bidding: programmatic advertising technique that allows multiple bi inventory at the same time. In client-side header bidding, the auction is rue



Source: Booking.com document, "Booking.com Answers to Questionnaire for Advertisers by the European Commission" (Feb. 1, 2021) (UPX0435, at -058)

(b) whether you consider online search advertising and online display advertising as substitutes³ for each other or complements and for what reasons;

Confidential Reply:

February 2021

We consider these as complementary rather than substitutes.

Search and Display Ads are not seen as substitutable to one another by Booking.com because they target users in very different situations/environments, providing a variety of contexts for influencing potential customers.

Search Ads are targeting users who are often in a high intent situation, who are actively seeking out an answer to a specific problem or need.

Display Ads are targeting users (audiences) who are, more often than not, doing something very different to the adverts they are being shown - therefore, a lower intent environment and exhibit lower engagement.

As a result of the different contexts the user engagement and resulting performance is very different between Search & Display advertising - further underlining why they are not substitutable. Both ad formats have their place in a balanced advertising portfolio, as they help to influence potential customers throughout their decision making journey and at various touchpoints.

The United Kingdom withdrew from the European Union as of 1 February 2 prind, Union Law — with contain law-inde exceptions which are irrelevant for this per applicable to and in the United Kingdom and are reference to Monaber States unicknowed as technique the United Kingdom Thandoo, the United Kingdom is a measurement.

Industry Recognizes Search Ads as Distinct from Other Ad Channels





Testimony of Joshua Lowcock, Global Chief Media Officer, Universal McCann (part of Interpublic Group)

Display advertising is primarily to drive awareness, what we would call brand advertising. Search advertising is lower funnel, primarily intended to capture intent.

I would not consider them substitutable.

Source: Trial Transcript, Oct. 3, 2023, 3824:20-3825:03, 3826:11-3826:18, (emphasis added)

I would go so far as **search would be mandatory** in any advertising campaign.

Realities of ROI/ROAS

So you want to work on the

An introductory guide for Research collaborators and Thres

0

NB: All of the content and documents linked in confidential. Please do not share any of this mater Auction and Prediction Stack SWEs/PMs without of

Introduction

Background

Value Reserve Pricing Format Pricing Squeening Whole Page Auction

Quality Based Pre-Auction Disabling Quality Tuning and Ads Blindness How advertisers really use our product Advertiser Response The Budget Effect

Problems we are thinking about these days Requirements for Auction design

Introduction

The Thresholds team develops and maintains the Search Ad Auton. Our main concern is text ads on Google come but the auction also decides whether or not to show PLAs in the top side; based on expected revenue and utility. A version of our auction is also running on some Google owned and operated search properties (e.g. Play Store Search, YouTube viral) and AFS, but there are teams which manage a tweaked version of our auction for those properties.

The auction determines the following three key aspects for text ads on Google.com:

- Allocation. Whether ads get to show or not for the query, and what kind of UI (e.g. extensions) we show along with the ad
- . Ranking: The order of ads on the page.
- Pricing: The price that advertisers have to pay for the ad (currently, always a cost per cick, or CPC)

Advertisers do care about the incrementality of their advertising spend, but it is difficult to measure. For example, a common method is to turn off advertising in certain regions and observe sales differences between regions. There are no good tools to measure online incrementality for mid-size and below companies, but large companies can partner with Google to run special randomized studies. There is also a push towards building models to attribute the incremental value of spend and set bids and budgets based on this, but these models are extremely simplistic and often overly rely on correlation or strong modeling assumptions.



Source: Google document, "So you want to work on the Auction" (Aug. 31, 2017) (UPX0430, at -586)

Interpreting Shifts in Ad Spend: Conceptual Takeaways

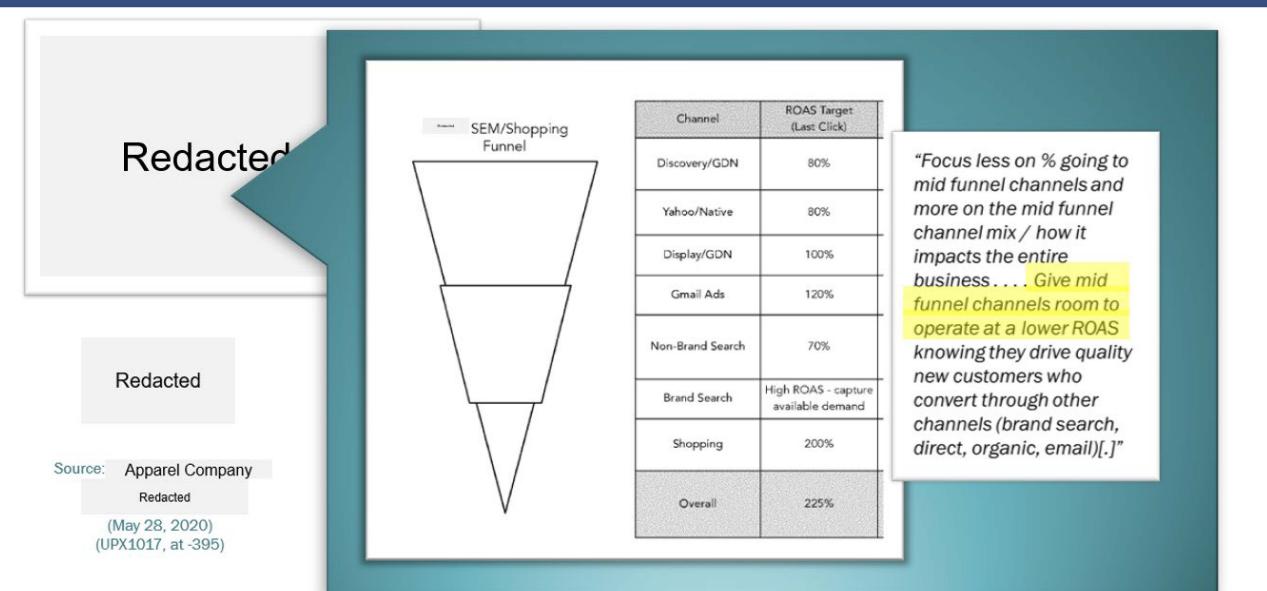


Attempting to measure or use ROI/ROAS of different ad channels does not mean ad channels are interchangeable



Even moving spend across ad channels <u>does not</u> necessarily mean ad channels are interchangeable

Using ROI/ROAS Does Not Mean Ad Channels Are Interchangeable



Using ROI/ROAS Does Not Mean Ad Channels Are Interchangeable



Source: Trial Transcript, Oct. 3, 2023, 3980:04-3981:02 (emphasis added)



Testimony of Joshua Lowcock, Global Chief Media Officer, Universal McCann (part of Interpublic Group)

[T]he ability to substitute or shift spend between channels really depends on what you're trying to drive in the funnel. . . . So you wouldn't necessarily move out of a channel that -- that might individually look like it's not performing because you know it actually contributes to driving media performance everywhere.

Opinions

- General Search Text Ads are a distinct product category
- Search Ads more broadly are a distinct product category
- 3 Effectively providing Text Ads and other Search Ads requires significant resources, and advertisers have few alternatives apart from Google
- Google harms advertisers through its withholding of information and control of the ad auction

Advertisers Perceive Limited Alternatives to Google

Confidential version 1 February 2021

Booking.com ANSWERS to QUESTIONNAIRE FOR ADVERTISERS by the European Commission:

AT.40660 - Google Adtech, AT.40670 - Google Data-related practices Deadline: 18/01/2021 extended to 1/02/2021

Contact details and information on your undertaking

In order to facilitate possible further enquiries, please indicate the person responsible for the replies to this questionnaire

Company:	Booking.com	
Contact person:	Anne-Claire Hoyng	Phone:
Position:	Director, Global Competition and Consumer Law	Fac
e-mait	Booking.com	
Address: Rembrandiplein, 1017 CT Amsterdam		Country: Netherlands

Questions + Answers

DEFINITIONS

For the purpose of this questionness, the following definitions shall apply:

Ad format: specifies the way in which advertising content is displayed, notably whether the ad is a non-video ad (such as a text, image, banner or overlay) or a video ad.

Ad inventory: the amount of space on a website, application or online platform where ads can be displayed.

Ad servers: intermediaries in the online advertising value chain, which dynamically manage online advertising carrgagins across available digital platforms, by determining in real time which ads should be placed and when, then serving the ads, and measuring their performance. Specific ad servers exist for advertisers as well as publishers.

European Economic Area ("EEA"): refers to Member States of the European Union, the United Kingdom' and the European Economic Area, as amended over the period of time for which data is requested. EEA comprises the EU Member States together with located, Linchtenstein and Norway.

Demand-Side Platform ("DSP"): demand-side platforms are intermediantes which provide the technology to automatize the purchase of online ad inventory on behalf of advertisers. They allow advertisers or media agreencies to buy advertisers or media agreencies to buy advertisers.

Header Bidding: programmatic advertising technique that allows multiple SSPs to bid for the same inventory at the same time. In client-side header bidding, the auction is run by the user's browser



Booking.com

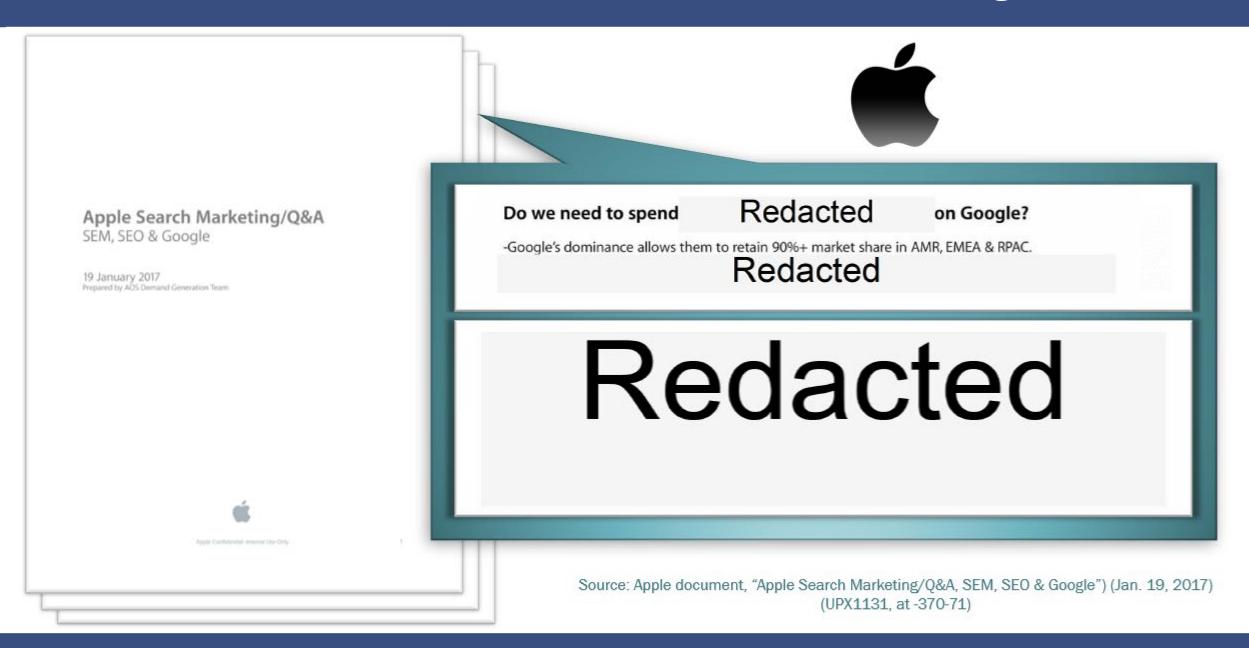
We feel there are a variety of platforms where we need to be present as this is where a lot of people are spending their time on. Google has by far the richest audiences and has the vast lion share of Search and Video [YouTube]. We deem it therefore essential to be present on Google Search and YouTube when running any type of campaigns. If we would not be able to advertise on these platforms, we would lack a Redacted alternative to reach the same number of users. This would likely lead to a Redacted reduction in bookings, and consequently a Redacted in turnover of our company.



Source: Booking.com document, "Booking.com Answers to Questionnaire for Advertisers by the European Commission" (Feb. 1, 2021) (UPX0435, at -062)

⁴ The United Kingdom withdrew from the European Union as of 1 February 2020. During the transition period, Union Limi-with certain limited exceptions which are truthers for the questionaxia = continuous to be applicable to and in the United Kingdom and any reference to Member States in the Union law shall be understood as including the United Kingdom Therefore, the United Kingdom is included in the scope of this operator and the Union of Continuous Continuous.

Advertisers Perceive Limited Alternatives to Google



Advertisers Perceive Limited Alternatives to Google

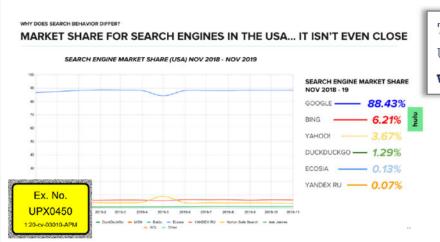


Source: Trial Transcript, Oct. 3, 2023, 3831:09-3831:19, 3834:08-3834:11, 3834:22-3835:01 (emphasis added)



Testimony of Joshua Lowcock, Global Chief Media Officer, Universal McCann (part of Interpublic Group)

The primary purpose of advertising is to reach audiences and to reach people at scale like -- and "scale" means large audience sizes. And so the more scale a search engine has the more important it is to buy advertising on that platform.



The purpose of [the graph in UPX450, page 17] is to indicate why we always buy Google Search ads.

[B]ased on market share, there's a limit to the amount of keywords we could buy on Bing.

Opinions

- General Search Text Ads are a distinct product category
- Search Ads more broadly are a distinct product category
- B Effectively providing Text Ads and other Search Ads requires significant resources, and advertisers have few alternatives apart from Google
- Google harms advertisers through its withholding of information and control of the ad auction

Google Harms Advertisers Through Its Withholding of Information and Control of the Ad Auction

Examples

- Google restricts what advertisers can know about their own ad spend through Search Query Reports
- 2. Google controls the rules and influences the outcomes of its Text Ad and Search Ad auctions, which are a "Black Box" to advertisers

Significance

- Each example impedes advertisers' ability to assess their ad spend and manage their costs
- Each example can result in higher prices to advertisers
- Advertisers have limited alternatives to Google

Google Restricts What Advertisers Can Know About Their Own Ad Spend



About the search terms report

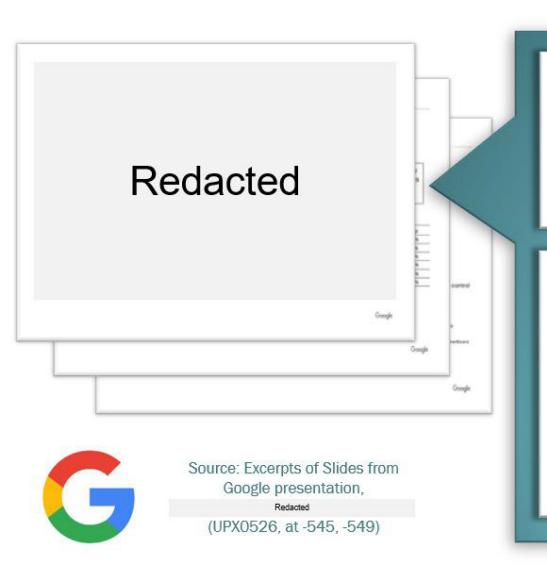
Use the search terms report to know how your ads performed when triggered by actual searches within the **Search Network**. This article describes the search terms report and how to use it.

How it works

The search terms report is a list of search terms that a significant number of people have used, and that resulted in your ad being shown. Depending on your keyword matching options, the search terms listed might be different from your keyword list.

Source: Google Ads Help, https://support.google.com/google-ads/answer/2472708?hl=en

Google Recognizes Impact of Its Restrictions on Advertisers



Customer relations: Data loss from SQR will be substantial if 1-click clause is removed

Analysis of 3 months of data:

50% of all segments will see less than 16% of rows dropped 50% of all segments will see less than 33% of spend obfuscated

Overall ~86% of rows will be preserved

Potential mitigation: Provide more transparency by clustering queries (e.g. Contra concepts) (1 Contra eng FTE + BP FE/UX resources)

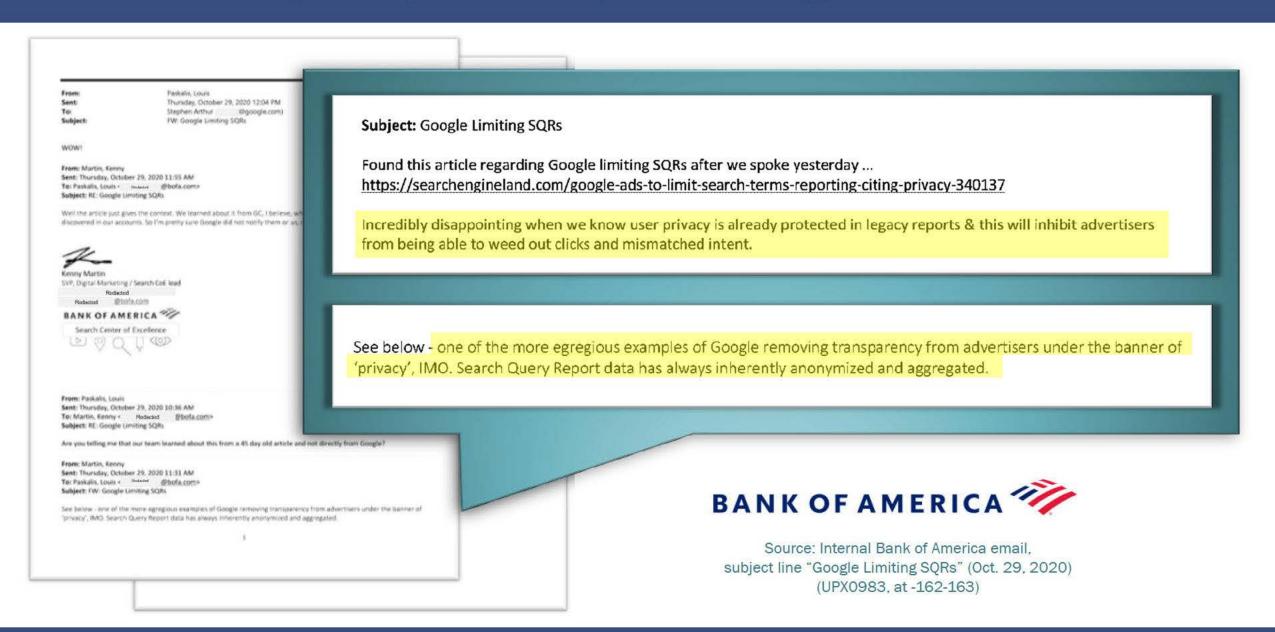
Customer relations: Some LCS advertisers may be resistant to this change, esp. during COVID + b/c of other changes that can reduce control and transparency

Data sharing dynamics and reduced control: Negative optics of Google expecting advertisers to share more data (e.g. conversion values) and moving towards more "black box" automation, while removing controls previously in place (e.g. changing match type behavior)

Performance and optimization

- Impact on internal tools or systems that rely on SQR, especially if not given advanced notice
- Inability to source negative keywords (more relevant to manual bidders)
- Risk that advertisers shift to SKAG and/or increased Exact match usage (+ more complex accounts) in attempt to increase control
 and data availability

Industry Perspective: Impact of Google's Restrictions



Industry Perspective: Impact of Google's Restrictions



The Fallout

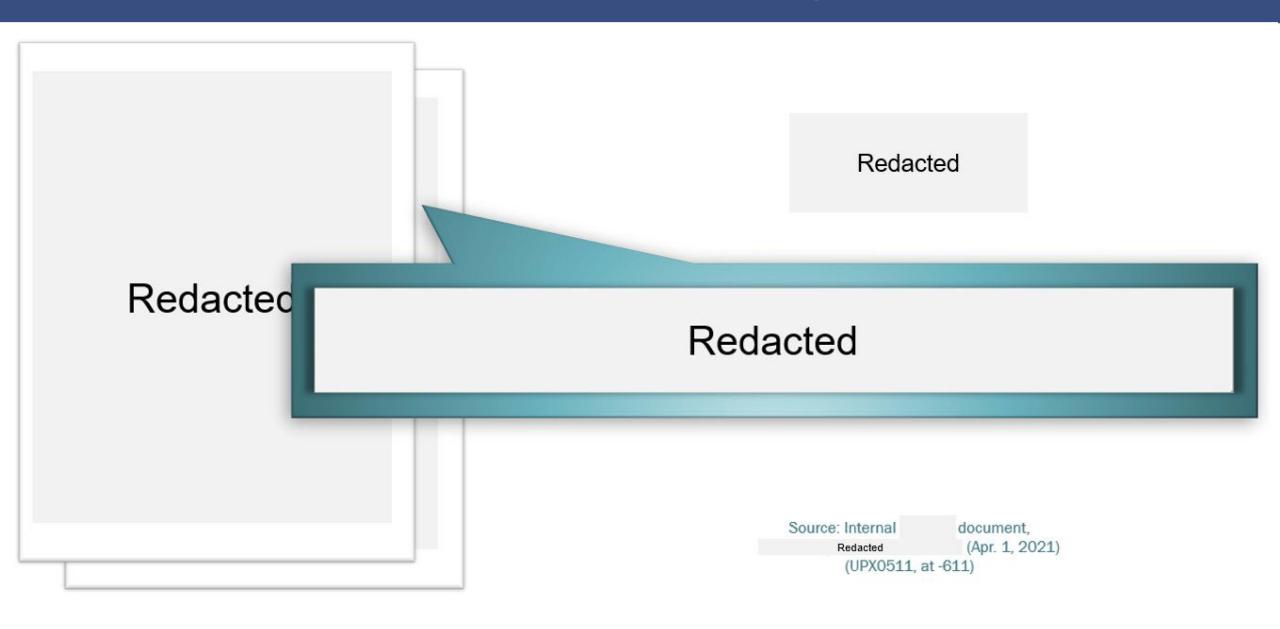
from Google's September Search Terms Update

Taking a look across dozens of long-standing Tinuiti advertisers spending millions on Google search ads per month, there was a significant drop in the share of spend attributed to search queries across ad formats and device types from August to September.

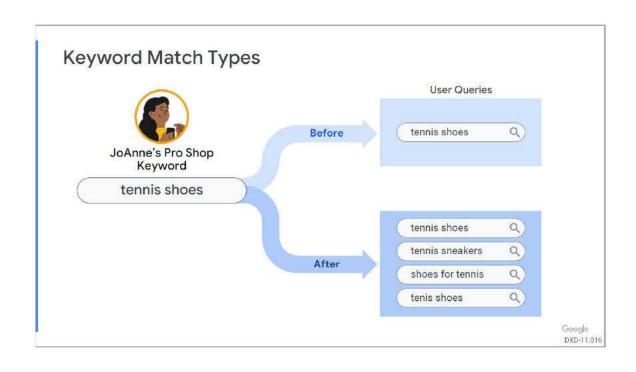
This is a massive decrease in query visibility, making it more difficult for paid search marketers to effectively identify poor-matching queries to weed out via keyword negatives. It also makes it more difficult to identify new query variations driving traffic which might be performing well and should be launched as new keywords.

Source: Tinuiti presentation,
"Google Ads Benchmark Report" (Q3 2020)
(UPX0987, at -124-126)

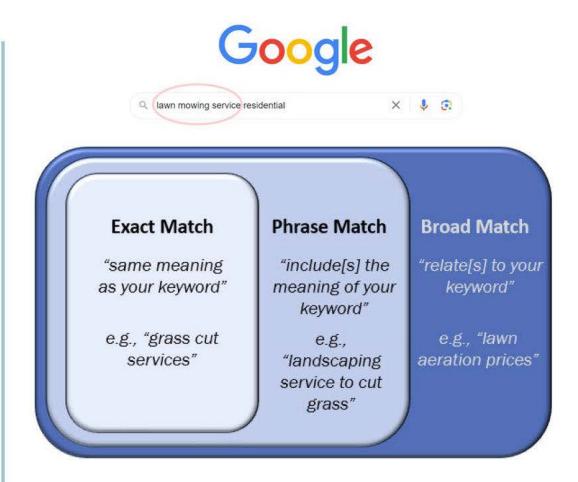
Industry Perspective: Impact of Google's Restrictions



Comparing Dr. Juda's Demonstrative to Google's Match Types

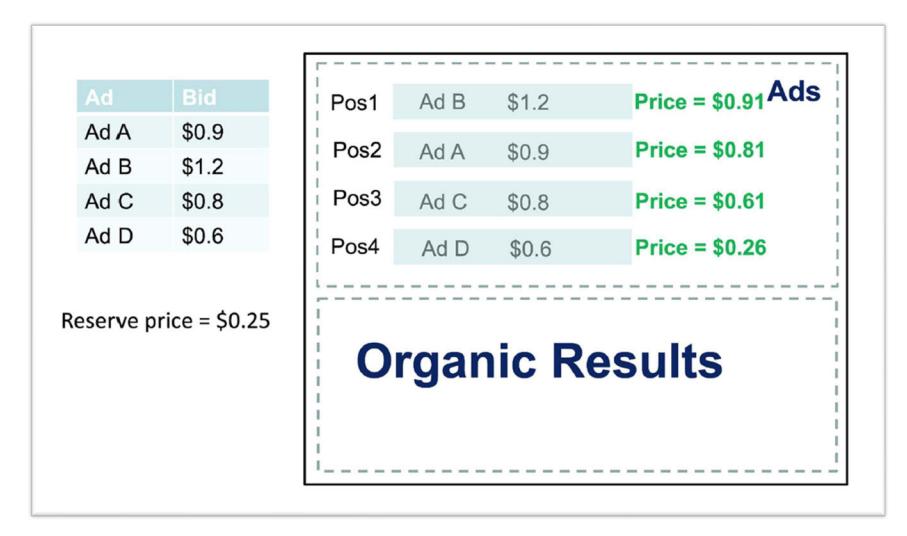


Source: DXD-11.016



Source: Based on Google Ads Help, "About keyword matching options" (UPX8023, at -.001)

Generalized Second-Price (GSP) Auction



Source: Prof. Jerath Teaching Slides

Google's Ad Rank and Quality Score Metrics are a "Black Box"

Ad Rank (Long-Term Value to Google, on ad basis)

Quality Score (1-10, on keyword basis)

pCTR, Ad Relevance, Landing Page Quality (Below Average, Average, Above Average)

Google does not tell advertisers--

- How Ad Rank is actually calculated
- ► The actual Ad Rank for any of their ads

- Aggregation of already aggregated components
- Not actually used in any individual auction

- Coarse
- Based only on exact matched queries
- Aggregated over extended period

Google Influences the Outcomes of Its "Black Box" Auctions

Pricing Knob: rGSP

Google artificially inflates Ad Rank of Runner-Up

e.g., Winner's Ad Rank is 32; Runner-Up's Ad Rank was originally 20; Google inflates Runner-Up's rank to be above 20

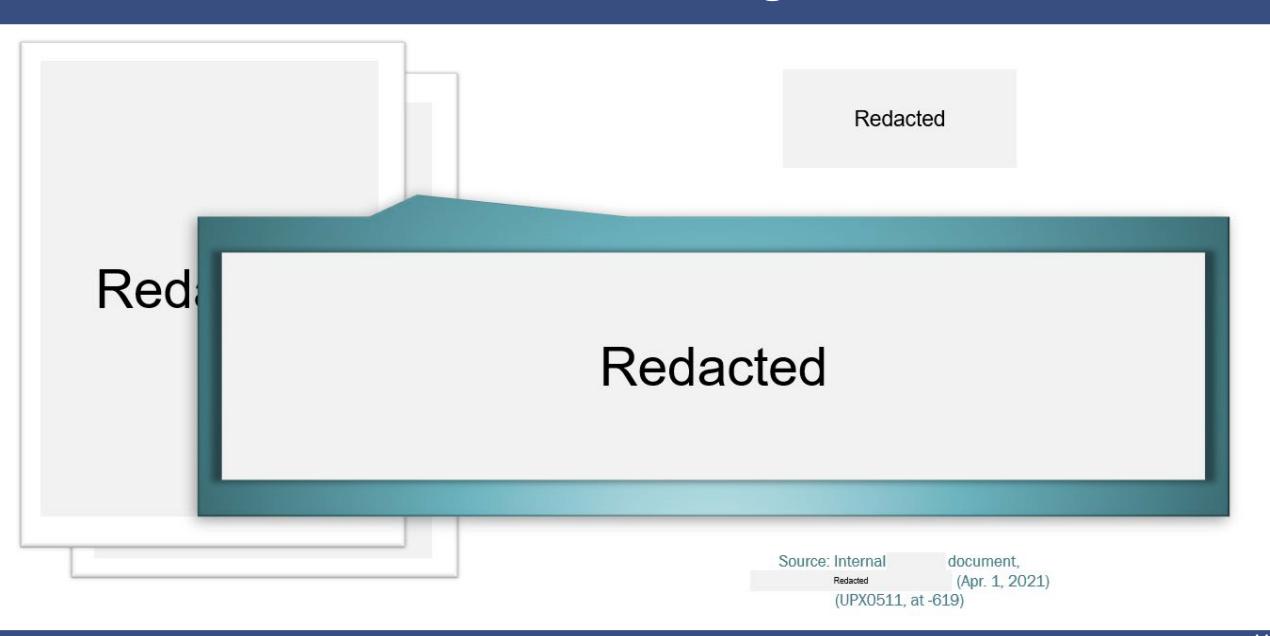
Winning Ad may lose

Depending on difference in Ad Ranks of the Winner and Runner-Up, Google may switch their ad positions, e.g.: Runner-Up ad in 1st position and Winning Ad in 2nd position

Winning Ad's price increases

- When Winning Ad is not swapped, inflated Ad Rank of Runner-Up ad results in higher price of Winning Ad
- Winning ad's price
 - is not based on Runner-Up ad's actual bid or Ad Rank
 - is now set at amount needed to equal <u>inflated</u> Ad Rank

Cumulative Effects of Google's Control



Effects of Google's "Black Box" Auctions and Reporting Restrictions

Advertisers Can Know
About Their Own Ad Spend
(e.g., removing data previously
provided in SQRs)



Thicker Auctions/ Higher Ad Prices

Unwanted Ad Spend

Google controls the rules and influences the outcomes of its
"Black Box" auctions
(e.g., how Ad Rank calculated; pricing knob of rGSP)



Higher Ad Prices

