

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

METARAIL, INC.,
Patent Owner.

Case IPR2024-01270
U.S. Patent No. 9,633,378

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S APPENDIX OF EXHIBITS

Exhibit	Description
EX2001	Declaration of Dr. Sam Malek
EX2002	Dr. Sam Malek Curriculum Vitae

I. INTRODUCTION

The Board should deny institution of *inter partes* review of U.S. Patent No. 9,633,378 (the “’378 patent”) because Petitioner fails to demonstrate a reasonable likelihood that any challenged claim is obvious.

The ’378 patent discloses a novel way of providing deep-linked advertisements through websites and applications. This new method involves the use of a “universal variable map” that maps relationships between the fields of one website or application to the fields of another website or application. Through this mapping in the universal variable map, user parameters inputted in a field at a first website/application can be correlated with and automatically transferred to a corresponding field of a second website/application. This allows advertisers to present ads to users that, when clicked, will land the user deep within the advertiser’s website/application with fields pre-filled, rather than simply directing the user to the home page of the website/application.

Petitioner’s proposed combinations of references fail to demonstrate any reasonable expectation that the claims would have been obvious. Each of Petitioner’s grounds relies on a single reference – Halevy – as purportedly teaching the “universal variable map,” which is a limitation in all of the challenged claims. But Halevy does not teach any “universal variable map” that maps relationships between fields belonging to different websites or applications. Instead, Halevy simply teaches

a search engine with improved capabilities of performing searches for websites where relevant data is accessible only through fillable forms. Moreover, Petitioner's expert's declaration merely parrots Petitioner's incorrect and conclusory arguments on this issue. This means that Petitioner fails to submit any credible evidence on the issue of whether Halevy teaches a "universal variable map." Because Petitioner cannot show that any of its proposed combinations teaches the required "universal variable map," Petitioner cannot show obviousness of any challenged claim.

Finally, even if Petitioner could show that any of its proposed combinations teach all the limitations of any challenged claim, a POSITA would not have been motivated to combine the references as proposed because the references address very different technological problems. The Petition therefore fails to present any reasonable likelihood of success on any ground, and institution should be denied.

II. THE '378 PATENT

United States Patent No. 9,633,378 issued on April 25, 2017. One of the inventors of the '378 patent, Narendra Nath, founded Wayfare Interactive in 2010. The company rebranded as Patent Owner Metarail, Inc. ("Metarail") in 2017. Metarail is an advertising technology company whose clients have included Expedia Group, Yahoo!, GoDaddy, Tripadvisor, Travelocity, Progressive, Kayak, and Assurance among others. The technological foundation of the company and its

products is Metarail's innovative deep-linking technology, which is described and claimed in various patents obtained by Metarail, including the '378 patent.

The '378 patent relates to improved methods and systems for providing "deep-linked" or "parameter-based" advertisements in electronic commerce, such as through websites and apps. As described in the '378 patent, these types of advertisements involve the user typing in search parameters relating to the product or service that the user is interested in. For example, a user viewing a travel site on the Internet might type in "search parameters, such as where s/he is traveling from, where to, travel dates, how many people in the party, class of travel, etc." EX1001, 2:43-49. "These search parameters are then passed along with each ad click to the appropriate advertiser." *Id.*, 2:49-51. The advertiser then uses this information to: "(a) hyper-target the placement of ads and customize the copy of ads presented on targeted web pages, and (b) automatically activate searches from their home page, thereby landing the web user 'deep' into their booking process rather than on their home page as is customary with other forms of ad clicks." *Id.*, 2:51-57.

At the time of the '378 invention, however, deep-linked ads were limited by the need for advertisers to manually program the code necessary to connect the initial publisher's site or app with the appropriate locations on the advertiser's site or app. *Id.*, 2:64-3:10. This problem stemmed from the fact that "each web site uses its own field descriptors and variable names, and the only way to create deep-linked ads has

been to manually obtain the names of the respective variables from both publishers and advertisers and then integrate them to each other through manual programming.”

Id., 3:10-15.

The '378 patent addresses this problem through the use of a novel “universal variable map” that maps relationships between the fields of one site to the fields of another site. As the '378 patent explains, this universal variable map provides the benefit that user parameters inputted in fields at a first site can be correlated with and automatically transferred to corresponding fields of a second site:

[T]hrough the universal variable map, forms and fields from one site can be associated with one or more relevant forms and fields from one or more different sites, even if the sites themselves may be in different verticals. Leveraging this unique and comprehensive universal variable map, embodiments can take a web site visitor from an initial stop (e.g., a home page of a first web site) directly and in real-time through a specific deep-link ad to a landing spot on another site (e.g., a checkout page of a second web site), or to a home page on another site with as much data pre-populated as available based on the user’s input in the context of the particular E-commerce transaction.

Id., 5:17-29. The '378 patent depicts an exemplary embodiment of a universal variable map as follows:

Web Sites	xxx.com	yyy.net	zzz.org	...	Normalized Variables
Variable 1	Orig	Depart_City	From	...	from
Variable 2	Dest	Arrival_City	To	...	to
Variable 3	...	...	...	...	...
...	...	...	...	...	...

Id., 9:66-10:8. As depicted in this example, the universal variable map links programming variables across multiple websites so that inputs to form fields in one website can be easily transferred to the appropriate form fields in other websites. For example, the field “Orig” in the website xxx.com corresponds to the field “Depart_City” in the website yyy.net and the field “From” in the website zzz.org. These fields are related to each other through the normalized variable “from” in the universal variable map.

Figure 11A in the ’378 patent depicts an example of how the universal variable map is used to transfer user-inputted information in a form on a first site to a form on a second site:

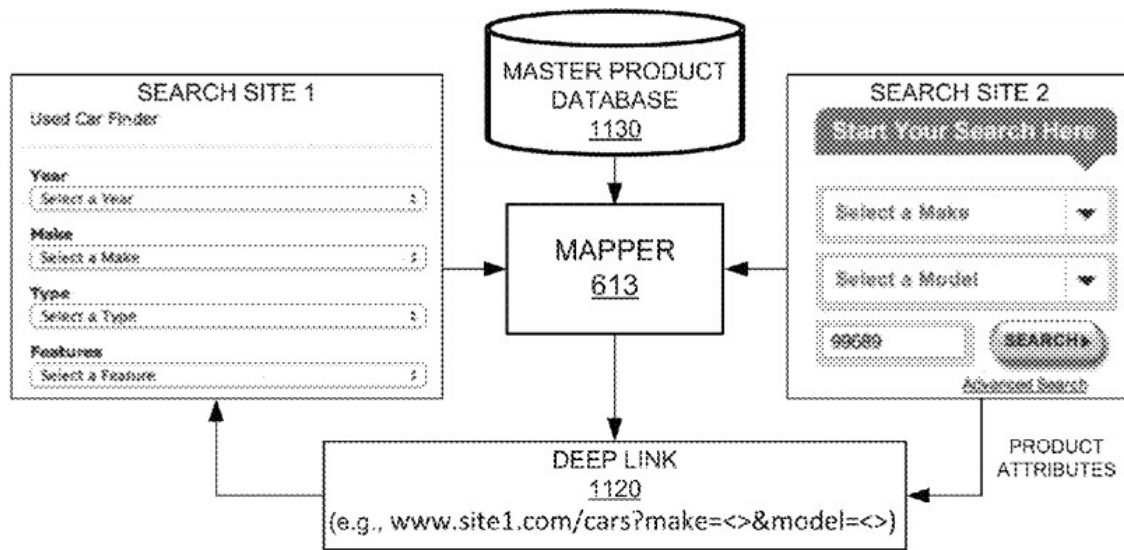


FIG. 11A

EX1001, Fig. 11A. As the '378 patent explains:

In the example of FIG. 11A, Search Site 2 wants to provide a deep-linked ad for Search Site 1. *Mapper 613 may access universal variable map or variable database 530 . . . , cross reference programming variables used by Search Site 2 with those used by Search Site 1, and automatically create a deep-linked ad* (deep link 1120 in this example). . . . When a user selects . . . deep link 1120 on Search Site 2, the user's browser is automatically directed to a network address indicated by deep link 1120 A form at the network address on Search Site 1 may be pre-populated with product attributes, along with any user input provided at Search Site 2.

Id., 13:61-14:11 (emphasis added).

The universal variable map appears as a limitation in all of the independent claims 1, 13, and 23 of the '378 patent. *Id.*, 22:11-60 (claim 1), 23:51-24:34 (claim 13), 25:14-26:24 (claim 23). For example, claim 1 recites:

1. A method, comprising:

at and by a server computer operating in a network environment and having at least one processor and non-transitory computer memory:

obtaining, utilizing a set of obtaining rules, a plurality of explicit or implicit computer-readable field identifiers from a plurality of sites or applications on the Internet;

applying via programming code a set of enhancing rules to enhance results of the obtaining of the plurality of computer-readable field identifiers;

mapping the plurality of computer-readable field identifiers to one another using a set of normalized variables stored in a normalized variable data database, the normalized variable data database representing a **universal variable map** of searchable classes and attributes of products or services on the Internet, the mapping linking computer-readable field identifiers of the plurality of sites or applications;

automatically programmatically generating a deep-linked ad utilizing the **universal variable map**, the deep-linked ad linking one or more of a set of computer-readable field identifiers used by a first site or application with one or more of a set of computer-readable field identifiers used by a second site or application;

placing the deep-linked ad on a page of the first site or application; and
in response to user interaction with the deep-linked ad on the page of
the first site or application on a user device:

extracting, from the user interaction with the deep-linked ad on the
page of the first site or application, values corresponding to the one
or more of the set of computer-readable field identifiers used by the
first site or application;

automatically directing the user device to display a page of the
second site or application; and

passing the values corresponding to the one or more of the set of
computer-readable field identifiers used by the first site or
application to the correspondingly linked one or more of the set of
computer-readable field identifiers used by the second site or
application such that the correspondingly linked one or more of the
set of computer-readable field identifiers used by the second site or
application are determined using the **universal variable map** and
such that one or more fields on the page of the second set or
application are explicitly or implicitly pre-populated with the values
extracted from the user interaction with the deep-linked ad on the
page of the first site or application without necessitating any pre-
existing relationship between the pages.

Id., 22:11-60 (emphasis added).

A. Person of Ordinary Skill in the Art (POSITA)

Petitioner and its expert state that a POSITA “would have had a bachelor’s degree in computer science or a related field, and at least two years of experience with web-programming and search engine systems.” Pet., 17. For purposes of this preliminary response, Patent Owner and its expert apply this definition, as the Petition fails under any definition of a POSITA. *See* EX2001, Malek Dec., ¶¶ 35-36.

III. OVERVIEW OF THE ASSERTED REFERENCES

A. Belanger (EX1008)

U.S. Patent Application Publication No. 2005/0144048 to Belanger et al. (“Belanger”) relates to “an improvement to a reservation booking website for rental vehicle reservations.” EX1008, Abstract. Belanger describes that “the on-line rental vehicle reservation process can be thought of as a multi-stage process, wherein each stage corresponds to receipt of a particular type of necessary reservation information from the customer.” *Id.*, [0007]. Belanger explains that a problem with then-existing reservation systems is that they require customers to input their information according to a specific order of steps, which can lead to customer frustration with the reservation process. *Id.*, [0008]-[0009]. To address this problem, Belanger teaches an improved reservation website that allows customers greater flexibility regarding the order in which they fill out information on the site. *Id.*, [0013] (“Toward this end, the inventors herein have developed an on-line reservation

transaction system wherein the customer can complete the stages of the reservation transaction via a customer-determined path, and not according to a strictly defined, straight-line architecture.”).

Out of the 122 pages of Belanger’s disclosure, Petitioner relies on a mere handful of paragraphs that discuss one aspect of Belanger’s online reservation system relating to “promotional links.” *See* Pet., 17-20. Belanger describes that “[w]hen a customer selects such a promotional link to initiate a reservation transaction, it is preferable that the user begin the reservation transaction with the reservation data corresponding to promotional conditions set equal to those conditions, to thereby avoid unnecessarily requiring the customer to enter such data himself/herself or creating a situation where the customer may accidentally enter data that violates the conditions of the promotion.” EX1008, [0169]. As an example, Belanger describes that if the promotion is for the rental of a “standard” car, the user’s selection of the link will initiate a reservation where the vehicle type is automatically set to “standard.” *Id.*

While Belanger refers to the term “deep-linking,” Belanger’s definition of “deep-linking” is different from the deep-linking described in the ’378 patent. Belanger uses “deep-linking” to refer to the process where, “when a customer selects a promotional link or a particular corporate account, that customer is deep-linked into the reservation booking process” such that the conditions/parameters

corresponding to the promotion are already set for the user. *Id.*, [0019]. This is not the same as the “deep-linking” described in the ’378 patent, where a user enters search parameters into a first website or application and “[t]hese search parameters are then passed along with each ad click to the appropriate advertiser.” EX1001, 2:49-51.

Indeed, Petitioner incorrectly characterizes Belanger as teaching “outgoing deep-links that repurpose user-entered data (e.g., date and location of a car rental).” Pet., 20. There is no “repurposing” of user-entered data in Belanger’s promotional links. EX2001, Malek Dec., ¶ 48. Rather, as described in Belanger, the user’s selection of a promotional link results in the initiation of a reservation process where the conditions specific to that particular promotion have already been set for the user. EX1008, [0169], [0019]; EX2001, Malek Dec., ¶ 48.

B. Halevy (EX1006)

U.S. Patent Application Publication No. 2006/0230033 to Halevy et al. (“Halevy”) relates to a system that allows for keyword searching of websites where content is “not directly available on web pages, but is instead accessible through queries entered into web-based forms.” EX1006, [0003]. Halevy achieves this through the use of a “form engine” that engages in a web-crawling process to collect information about websites with web-based forms, which is then stored in a “form database.” *Id.*, [0034]-[0035]. When a user subsequently inputs a keyword search

query to the system, the form engine uses the data stored in the form database to identify forms that are most relevant to the search query and returns those results to the user along with links to the corresponding forms. *Id.*, [0036], [0136]-[0138]. The user can then click on any of the links to submit a query to the appropriate form. *Id.*

Halevy describes that each form in the “form database” is categorized in terms of search ontology classes and properties, which are referred to as “SO-classes” and “SO-properties.” *Id.*, [0038]. The SO-class of a form “specifies the types of objects that can be obtained by querying the form. For example, books, hotels, restaurants.” *Id.*, [0045]. The SO-properties of a form are “output properties” that “specif[y] the type of information we will obtain from answers to a successful form submission.” *Id.*, [0048]. The SO-classes and SO-properties are organized in a hierarchy, wherein each SO-class has its associated SO-properties. *Id.*, [0038] (“SO-properties have domains (the classes in the ontology they refer to) . . .”). These SO-classes and associated SO-properties are used to identify forms in the database that are relevant to the user’s keyword search query.

Figure 6 in Halevy shows how the SO-classes and SO-properties are used to retrieve relevant results from the form database in response to a user’s query:

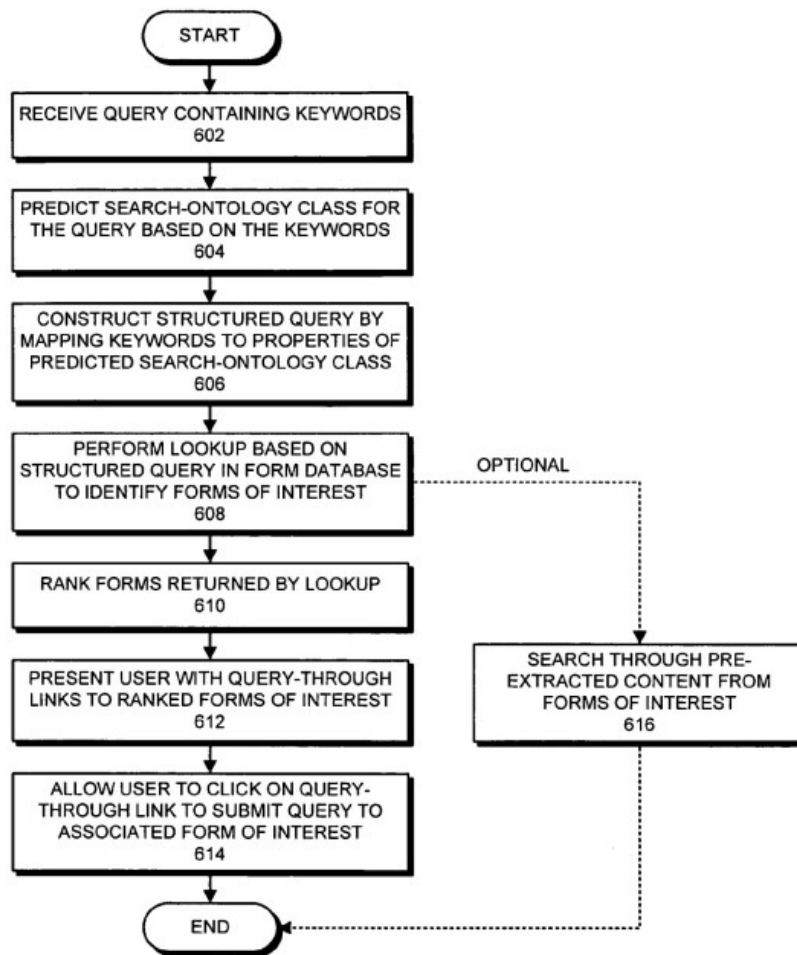


FIG. 6

Id., Fig. 6. As shown in Figure 6, when a user inputs a keyword search query (602), the first step performed by Halevy's system (604) is to predict the SO-class that is most relevant to the user's query. *Id.*, [0136]. Once the SO-class has been identified, the system then constructs a structured query that maps keywords in the query to SO-properties within the identified SO-class (606). *Id.* That structured query is then used to perform a lookup in the form database to identify relevant forms for the user (608). *Id.*, [0137].

Halevy describes that the process of translating the user's query into a search of the form database is handled by a "query analyzer." *Id.*, [0089]. The query analyzer receives the keyword query from the user and "predict[s] the SO-class in the ontology that is most relevant to the query." *Id.* Halevy teaches three different ways of performing this prediction process: "(1) word-based prediction; (2) property-based prediction; and (3) feedback-based prediction." *Id.*, [0090]. In word-based prediction, "the predicted class is the one that is most likely to generate the words in the search query," as determined using a set of mathematical calculations to find the "marginal probability estimation" for each word. *Id.*, [0092]-[0094]. In property-based prediction, "property recognizers are employed to identify interesting constants in user queries," and "SO-classes can be predicted based on the properties recognized." *Id.*, [0095]. In feedback-based prediction, the SO-class is predicted based on the number of "the first 20 hits from just a keyword query" that are web forms that have been labeled for a particular SO-class. *Id.*, [0104].

Once Halevy's system has predicted a SO-class for a particular user query, "a structured query is constructed by mapping the individual words in the query to properties of the chosen search class." *Id.*, [0112]. This process involves "recognizers" that attempt to identify "a particular word (or sequence of words) in the query with some confidence to be an example value of a particular SO-property (or a set of properties). Using this information, the query description module tries to

match each word in the user query to the most likely search class property.” *Id.* The end result is a structured query that is then used to perform a lookup of relevant forms in the form database. *Id.*, [0112], [0137].

The focus of Halevy is therefore a search engine that can return, in response to a user’s keyword search query, websites that contain forms that are responsive the user’s query. As discussed in greater detail below, Halevy is far afield from the deep-linking advertisement technology of the ’378 patent.

C. Haveliwala (EX1019)

U.S. Patent No. 7,756,887 to Haveliwala (“Haveliwala”) relates to an improvement in search engine technology that allows for “collecting user feedback with respect to informational items presented in response to a search query and adjusting the relevancy values of the items in accordance with the user feedback, even if there is no click through information about one or more of the informational items.” EX1019, 1:55-60. Haveliwala’s system accomplishes this by monitoring the user’s placement and movement of the pointer in a web browser as the user is viewing search results on a web page. *Id.*, 3:4-11.

**IV. THE PETITION FAILS TO DEMONSTRATE A REASONABLE
LIKELIHOOD OF SUCCESS AS TO ANY CHALLENGED CLAIM**

The Petition presents four grounds. In ground 1, Petitioner challenges claims 1-6, 9-12, 13-16, 19-22, 23-24, and 26 as obvious over Belanger in view of Halevy. Pet., 13. For ground two, Petitioner challenges these same claims as obvious over

Belanger and alleged “Applicant Admitted Prior Art” (or “APA”) in view of Halevy. *Id.* For ground three, Petitioner challenges claims 7-8, 17-18, and 25 as obvious over Belanger and Halevy in view of Haveliwala. *Id.* For ground four, Petitioner challenges claims 7-8, 17-18, and 25 as obvious over Belanger, APA, and Halevy in view of Haveliwala. *Id.*, 14.

All of Petitioner’s grounds fail to demonstrate a reasonable likelihood that the challenged claims would have been obvious.

Even if it would have been obvious to combine the references identified by Petitioner, none of the combinations teach the “universal variable map” that is required in each of the challenged claims. Furthermore, it would not have been obvious to combine Belanger, Halevy, or Haveliwala because each of these references is directed to a very different technological problem.

A. Ground 1 Fails

- 1. The proposed combination would not have rendered obvious “mapping the plurality of computer-readable field identifiers to one another using a set of normalized variables stored in a normalized variable data database, the normalized variable data database representing a universal variable map of searchable classes and attributes of products or services on the Internet, the mapping linking computer-readable field identifiers of the plurality of sites or applications” (element [1C], [13E], [23C]).**

Element [1C] in claim 1 recites the step of “mapping the plurality of computer-readable field identifiers to one another using a set of normalized variables

stored in a normalized variable data database, the normalized variable data database representing a universal variable map of searchable classes and attributes of products or services on the Internet, the mapping linking computer-readable field identifiers of the plurality of sites or applications.”¹ EX1001, claim 1. Independent claims 13 and 23 include this same limitation. *Id.*, claims 13 (element [13E]), 23 (element [23C]). And all the other challenged claims in ground 1 also include this limitation by their dependency on claims 1, 13, or 23. *Id.*, claims 2-6, 9-12, 14-16, 19-22, 24, 26. As the proposed combination of Belanger and Halevy does not teach or suggest the claimed “mapping” of field identifiers using normalized variables in a universal variable map, the Petition fails to present any reasonable expectation of success on ground 1.

a) “mapping the plurality of computer-readable field identifiers to one another using a set of normalized variables stored in a normalized variable data database”

The first part of this element recites “mapping the plurality of computer-readable field identifiers to one another using a set of normalized variables stored in

¹ Petitioner identifies this element as [1C] in the argument section of its Petition (*see* Pet., 46), but also identifies it as [1D] in the Claim Listing at the end of the Petition (*see* Pet., 84).

a normalized variable data database.” Petitioner relies solely on Halevy as allegedly teaching this limitation. *See* Pet., 46-48. But Petitioner misreads the disclosures in Halevy, which do not teach any such mapping.

The recited “field identifiers” are, as set forth in the earlier element [1A], “field identifiers from a plurality of sites or applications on the Internet.” Petitioner argues that the “field identifiers” disclosed in Halevy are the “parameter names” for the fields in the forms identified through Halevy’s crawling process through websites. Pet., 43-44. Petitioner further argues that Halevy teaches “mapping the plurality of computer-readable field identifiers to one another” because “[t]he ‘SO-classes’ are identified for each form and used to *map* the fields in the form (i.e., ‘*the plurality of computer-readable field identifiers*’) to one another using ‘SO-properties,’ as shown below in annotated Figure 3.” Pet., 46. Petitioner’s argument is critically flawed, for several reasons.

As an initial matter, Petitioner fails to present a consistent argument across the claim. With respect to element [1A], Petitioner argues that the “parameter names” of the fields are the “computer-readable field identifiers,” but then with respect to element [1C] Petitioner argues that the fields themselves are the “computer-readable field identifiers.” *Compare* Pet., 44 *with* Pet., 46. Regardless, under either reading, Halevy does not teach “mapping the plurality of computer-readable field identifiers to one another” because Halevy’s system does not map

parameter names of fields (or fields) between any forms in Halevy's form database, as required under Petitioner's theory.

As previously discussed, Halevy discloses a system that allows for keyword searching of websites where content is "not directly available on web pages, but is instead accessible through queries entered into web-based forms." EX1006, [0003]. Halevy's keyword search system relies on a "form database" to store information about websites that include web-based forms, which is used to return results to the user regarding forms of potential interest based on the user's search query. *Id.*, [0136]-[0138]. However, nothing in Halevy's form database links any field identifiers of one form with field identifiers of another form, as required in Petitioner's proposed combination.

Figure 3 in Halevy shows an example of the entries stored in Halevy's form database:

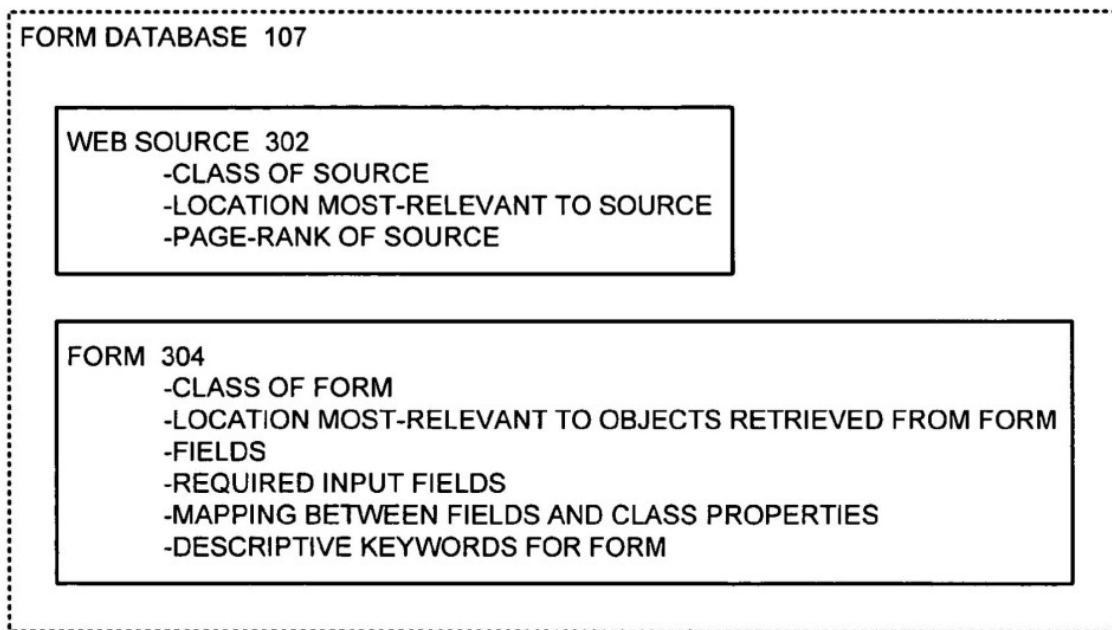


FIG. 3

EX1006, Fig. 3; *see also id.*, [0028]. As depicted in Figure 3, each form (304) in the form database (107) is a separate entry in the database, and has information associated with it such as its class, its fields, and keywords associated with the form. EX2001, Malek Dec., ¶ 63. Halevy makes no mention of creating any relationships between different forms in the form database. *Id.*, ¶ 64. Rather, keyword searches inputted by the user result in the entire database being searched to identify forms that are responsive to the user's query. EX1006, [0137] (“[T]he system performs a lookup based on the structured query in the form database to identify forms of interest (step 608) and ranks these forms (step 610).”); EX2001, Malek Dec., ¶ 64. Thus, in Halevy's form database, there is no “mapping” of field identifiers for different websites or applications “to one another,” as required in the claims, whether

one considers Halevy's fields or parameter names to be the "field identifiers." EX2001, Malek Dec., ¶ 65. Instead, each form entry associated with a website in Halevy's form database exists independently of other form entries, with no linkages of the fields or parameter names (or any other information) between them. *Id.* Indeed, no such linkages are contemplated in Halevy because Halevy's system is not designed to assess the extent to which forms on different websites might be related to each other; instead, the data collected about forms and stored in Halevy's form database is simply used to generate a ranked list of forms of interest in response to a user's search query. EX1006, [0137] ("Next, the system performs a lookup based on the structured query in the form database to identify forms of interest (step 608) and ranks these forms (step 610)."); EX2001, Malek Dec., ¶ 66.

In addition, element [1C] further recites that the mapping of field identifiers of different sites/applications to each other is achieved "using a set of normalized variables stored in a normalized variable data database." The '378 patent provides the following exemplary illustration of how normalized variables are stored in a normalized variable data database of the universal variable map:

Web Sites	xxx.com	yyy.net	zzz.org	...	Normalized Variables
Variable 1	Orig	Depart_City	From	...	from
Variable 2	Dest	Arrival_City	To	...	to
Variable 3	...	...	...	...	...
...	...	...	...	...	...

EX1001, 9:66-10:8. As shown in this example, the normalized variable “from” provides the mapping between the “Orig” field in the xxx.com site, the “Depart_City” field in the yyy.net site, and the “From” field in the zzz.org site. There is no such mapping of form fields from different sites using normalized variables in Halevy.

Petitioner argues that “[t]he ‘SO-classes’ are identified for each form and used to *map* the fields in the form (i.e., ‘the plurality of computer-readable field identifiers’) *to one another* using ‘SO-properties,’” and asserts that this is shown in “annotated Figure 3,” reproduced below:

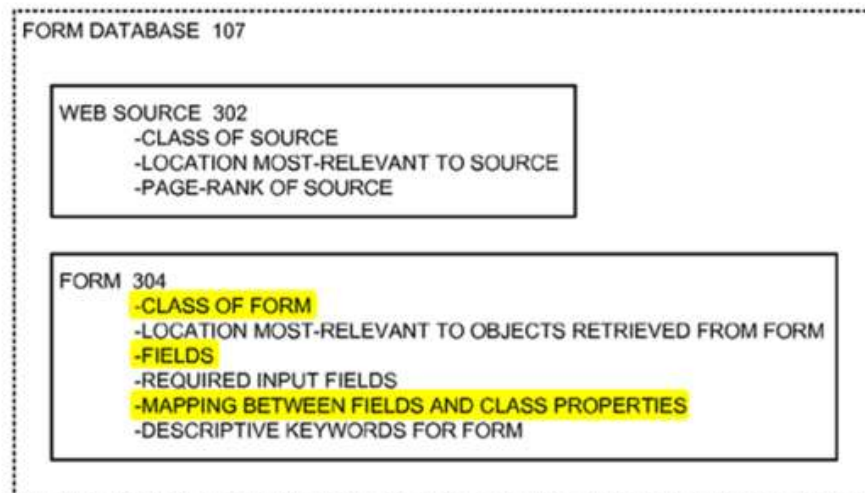


FIG. 3

Pet., 46-47. But Petitioner makes several mistakes in its analysis. First, the language highlighted by Petitioner in Figure 3 does **not** actually show that “[t]he ‘SO-classes’ are . . . used to *map* the fields in the form . . . *to one another* using ‘SO-properties.’” Pet., 46. Rather, the language in Figure 3 highlighted by Petitioner merely shows that, for any given form, there is “mapping between fields” of **that** form and “class properties.” EX1006, Fig. 3. In other words, Halevy teaches that a form is tagged to a class, and the fields in that form are mapped to properties associated with the class of the form **itself**. Figure 3 does not show any mapping of fields **to each other**, as Petitioner argues. EX2001, Malek Dec., ¶ 69.

Petitioner attempts to fill this hole in Halevy’s disclosure by arguing that, “[s]ince Halevy’s crawling process maps the fields of various forms to a set of SO-properties associated with the form’s SO-class, POSAs would have recognized the SO-properties to be ‘*a set of normalized variables*’ that are *used* to ‘*map[] the plurality of computer-readable field identifiers to one another.*’” Pet., 47-48. This is incorrect.

First, the SO-properties are not used to “map[] the plurality of computer-readable field identifiers to one another.” As discussed, Petitioner mischaracterizes Figure 3 in Halevy, which does not show mapping of field identifiers to one another. Rather, Figure 3 merely shows that, for each form entry in the form database, the fields in that form are mapped to SO-properties. EX2001, Malek Dec., ¶ 69.

The mere fact that fields in forms for different websites might have the same SO-properties does not mean that the SO-properties are performing any “mapping” between field identifiers of different websites or applications. EX2001, Malek Dec., ¶ 71. Indeed, Halevy does not teach that the SO-properties establish any relationship between different websites or applications. Rather, the SO-properties are simply used by Halevy’s search engine to identify forms relevant to the user’s keyword search, as shown in Figure 6 of Halevy:

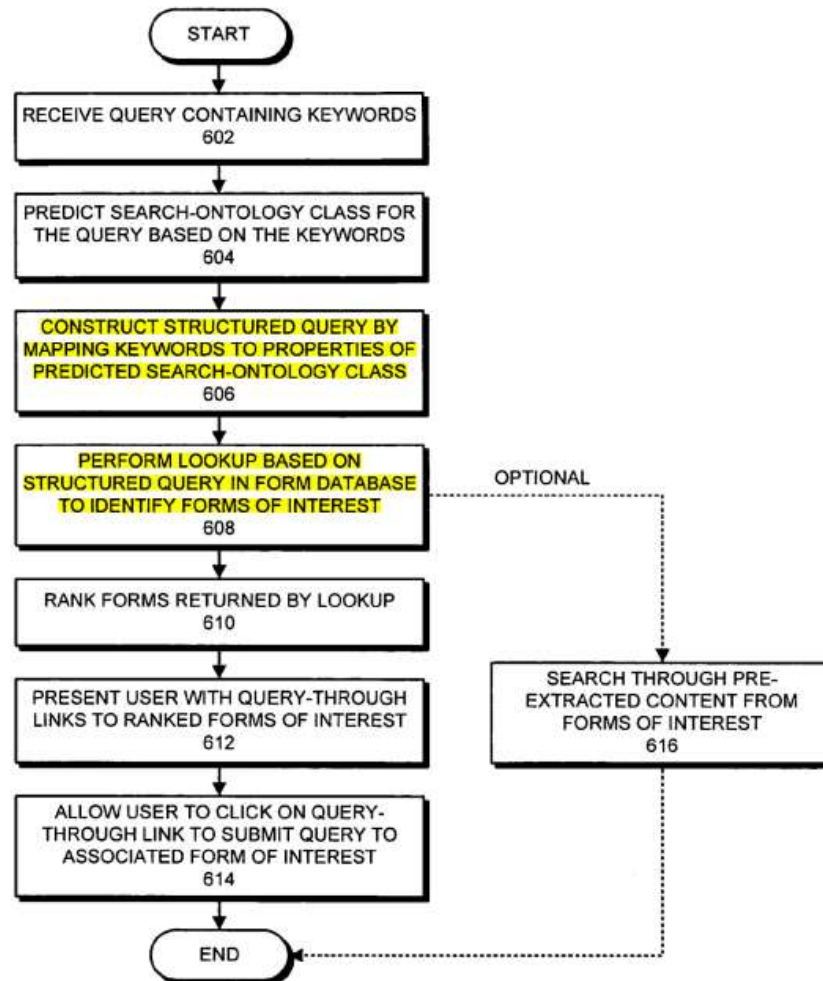


FIG. 6

EX1006, Fig. 6 (annotated). *See also id.*, [0136]-[0137]. Thus, Halevy's SO-properties do not provide the functionality of "mapping the plurality of computer-readable field identifiers to one another using a set of normalized variables." EX2001, Malek Dec., ¶ 71. Instead, they are simply search filters that assist Halevy's search engine in determining a form's degree of relevancy to the user's keyword search query. *Id.*, ¶¶ 70-71, 50-53.

Second, the SO-properties in Halevy are not "a set of normalized variables." *Id.* Halevy provides no teaching of the SO-properties performing any "normalizing" function or creating any "normalized" relationships between forms or fields. Nor does Petitioner clearly articulate why it contends that SO-properties are "normalized variables." Instead, Petitioner merely relies on the conclusory assertion that the SO-properties are "normalized variables" because they allegedly provide mapping between field identifiers of different sites, which as discussed above is not what Halevy teaches. *See Pet.*, 47-48.

Indeed, as described in Halevy, SO-properties are specific to particular SO-classes. EX1006, [0038] ("SO-properties have domains (the classes in the ontology they refer to)"). Moreover, the fact that Halevy's system requires a complex set of prediction algorithms implemented by a "query analyzer" to predict which SO-classes and SO-properties might be relevant to a user's query, prior to searching the form database, further shows that the form database does not provide the

predetermined linking between sites or applications in a universal variable map as contemplated in the '378 patent. EX2001, Malek Dec., ¶ 73. The SO-properties in Halevy are therefore very different from the normalized variables described in the '378 patent that are used to relate programming variables across sites in the universal variable map. *See* EX1001, 9:66-10:8; EX2001, Malek Dec., ¶¶ 72-73.

b) “the normalized variable data database representing a universal variable map . . . the mapping linking computer-readable field identifiers of the plurality of sites or applications;

Element [1C] further recites “the normalized variable data database representing a universal variable map . . . the mapping linking computer-readable field identifiers of the plurality of sites or applications.” This language further reinforces that the required mapping in the normalized variable data database must provide “linking” between field identifiers of a “plurality of sites or applications.” As discussed above, Halevy does not teach any such linking between field identifiers of the alleged multiple websites or applications.

Petitioner argues that Halevy’s form database is a “universal variable map” that provides the necessary linking “because form fields (including parameter names) from different websites are linked to each other in the form database by being mapped to the same SO-properties associated with an SO-class.” Pet., 49. Once again, Petitioner makes the flawed argument that there is linking between websites

in Halevy's form database because multiple websites can have forms that have the same SO-properties. But as discussed, the mere fact that forms on different websites might be categorized in Halevy's database using the same SO-properties does not mean that there is any "linking" between the websites. EX2001, Malek Dec., ¶¶ 71, 75. Because Halevy's form database does not provide the required linking between field identifiers of different websites or applications, it does not teach the "universal variable map" recited in the claims. *Id.*, ¶ 75.

Petitioner's citation to col. 17:42-46 in the '378 specification does not support its position. Pet., 48-49. That portion of the specification merely discusses different types of variables and fields that might appear in different types of forms and says nothing about what constitutes a "universal variable map," contrary to Petitioner's suggestion. EX1001, 17:42-46 ("Variations of linking data variables and fields may include"); EX2001, Malek Dec., ¶ 76. Indeed, Petitioner does not offer any explanation of how it believes the cited language in the '378 specification supports that a POSITA would understand that *Halevy's* database contains the claimed universal variable map. Likewise, the declaration testimony of Petitioner's expert that a POSITA would understand Halevy's form database to be a "universal variable map" is also unconvincing. *See* EX1003, ¶ 108. Petitioner's expert simply parrots back the same conclusory arguments as in the Petition and includes the same inexplicable reference to the irrelevant portion of the '378 specification. *Compare*

Pet., 48-49 *with* EX1003, ¶ 108. Thus, Petitioner’s expert offers no reliable evidence that Halevy teaches a “universal variable map.” *See Xerox Corp. v. Bytemark Inc.*, IPR2022-00624, Paper 12, at 2 (PTAB Feb. 10, 2023) (Director review designating institutional denial decision as precedential, where institution was denied when declaration merely parroted petition, “was conclusory and added little to the assertions the testimony was offered to support.”).

2. **The proposed combination would not have rendered obvious “automatically programmatically generating a deep-linked ad utilizing the universal variable map, the deep-linked ad linking one or more of a set of computer-readable field identifiers used by a first site or application with one or more of a set of computer-readable field identifiers used by a second site or application” (element [1D], [13F], [23D]).**

For the same reasons discussed in Section IV.A.1. above with respect to the “mapping” limitation of elements [1C], [13E], and [23C], the proposed combination also does not teach the limitation in elements [1D], [13F], and [23D] of “automatically programmatically generating a deep-linked ad utilizing the universal variable map, the deep-linked ad linking one or more of a set of computer-readable field identifiers used by a first site or application with one or more of a set of computer-readable field identifiers used by a second site or application.” In its proposed combination, Petitioner points to Halevy’s form database as the “universal variable map” that is utilized to automatically programmatically generate a deep-

linked ad. Pet., 51. But as discussed, Halevy’s form database is not a “universal variable map” as recited in the challenged claims. Thus, by necessity Petitioner also cannot show that the proposed combination of Belanger and Halevy teaches “automatically programmatically generating a deep-linked ad utilizing the universal variable map.” EX2001, Malek Dec., ¶ 77.

3. **The proposed combination would not have rendered obvious “passing the values corresponding to the one or more of the set of computer-readable field identifiers used by the first site or application to the correspondingly linked one or more of the set of computer-readable field identifiers used by the second site or application such that the correspondingly linked one or more of the set of computer-readable field identifiers used by the second site or application are determined using the universal variable map . . .” (element [1I], [13H3], [23F3]).**

For the same reasons discussed in Section IV.A.1. above with respect to the “mapping” limitation of elements [1C], [13E], and [23C], the proposed combination also does not teach the limitation in elements [1I], [13H3], and [23F3] of “passing the values corresponding to the one or more of the set of computer-readable field identifiers used by the first site or application to the correspondingly linked one or more of the set of computer-readable field identifiers used by the second site or application such that the correspondingly linked one or more of the set of computer-readable field identifiers used by the second site or application are determined using the universal variable map” In its proposed combination, Petitioner once again

points to Halevy's form database as the "universal variable map" that is utilized to determine the field identifiers of the first site or application that are "correspondingly linked [to] one or more of the set of computer-readable field identifiers used by the second site or application." Pet., 60. But as discussed, Halevy's form database is not a "universal variable map," and does not provide any linking between field identifiers of different sites or applications. Thus, by necessity Petitioner also cannot show that the proposed combination of Belanger and Halevy teaches "passing the values corresponding to" field identifiers of a first site/application to linked field identifiers of a second site/application "such that the correspondingly linked one or more of the set of computer-readable field identifiers used by the second site or application are determined using the universal variable map" Malek Dec., ¶ 78.

In sum, Petitioner fails to show that the combination of Belanger and Halevy teaches all of the limitations of any of the challenged claims.

4. A POSITA would not have been motivated to combine Belanger and Halevy.

Even if Petitioner could show that the combination of Belanger and Halevy teaches all the elements of claims 1-6, 9-12, 13-16, 19-22, 23-24, and 26 of the '378 patent, Petitioner cannot show that a POSITA would have been motivated to combine Belanger and Halevy. These two references relate to very different technologies designed to address very different problems, and thus a POSITA would

not be motivated to combine them. Belanger relates to an improved design of a website for a car rental service. The goal of Belanger's system is to improve the customer's experience with the reservation booking process on the site, by giving the customer greater freedom in how the customer completes a reservation on the site. *See* EX1008, [0013] (“[T]he inventors herein have developed an on-line reservation transaction system wherein the customer can complete the stages of the reservation transaction via a customer-determined path, and not according to a strictly defined, straight-line architecture.”). By contrast, Halevy relates to an improved search engine system that facilitates searches of websites that include content accessible through fillable forms. *See* EX1006, [0003] (“[T]he present invention relates to a method and an apparatus that facilitates searching through content which is not directly available on web pages, but is instead accessible through queries entered into web-based forms.”). The design goals described in Belanger and Halevy are therefore entirely different. EX2001, Malek Dec., ¶¶ 81-83.

The architecture of Belanger and Halevy's systems are also significantly different. Belanger's system requires users to fill in multiple different fields on a web page as part of the process of completing a reservation transaction. *See* EX1008, Fig. 37. Halevy's system, on the other hand, requires users to enter a single search query string, which is processed by a search engine to come up with relevant search

hits. *See* EX1006, [0112] (discussing an example user search query “Telephone David Ko 98102”). In light of the different inputs and outputs of these systems, it would not be obvious to a POSITA how or why to integrate the disparate systems of Belanger and Halevy into a single system. EX2001, Malek Dec., ¶ 84.

Given all of these differences, a POSITA would not be motivated to combine the teachings of Belanger and Halevy to create the deep-linking methods of the ’378 patent claims. EX2001, Malek Dec., ¶ 85.

B. Ground 2 Fails

Petitioner’s ground 2 fails for the same reasons that its ground 1 fails. The only difference between ground 2 and ground 1 is that, in ground 2, Petitioner points to APA as further support “[t]o the extent that explicit disclosure is required regarding travel websites utilizing deep-linking advertising.” Pet., 73. Whether a POSITA would know that travel websites can utilize deep-linking advertising is irrelevant to Patent Owner’s arguments set forth above for why the combination of Belanger and Halevy does not render the challenged claims obvious. Thus, none of Petitioner’s additional arguments in ground 2 have any impact on Patent Owner’s ground 1 arguments, which apply equally with respect to ground 2. *See* EX2001, Malek Dec., ¶¶ 86-87.

In addition, Petitioner argues that the need for automation of the mapping of fields and variables on websites, as discussed in the ’378 specification, would have

motivated a POSITA to look to Halevy's form database. Pet., 74-75. But as discussed above, Halevy's form database does not teach the "universal variable map" recited in the challenged claims. In addition, as discussed above, Halevy has nothing to do with online advertisements, and thus a POSITA would have no reason to combine Belanger with Halevy to create the deep-linking invention recited in the '378 patent claims. EX2001, Malek Dec., ¶ 88.

C. Ground 3 Fails

In ground 3, Petitioner asserts that the combination of Belanger, Halevy, and Haveliwala renders obvious claims 7-8, 17-18, and 25 of the '378 patent. Pet., 75-80. Petitioner relies on Haveliwala solely for the purpose of the additional limitations in these dependent claims requiring the deep-linked ad to be generated or refined based on "information provided by a user's implicit action on the page of the first site or application." *Id.*, 78-80. Petitioner does not contend that Haveliwala teaches any part of the "universal variable map" limitation of independent claims 1, 13 or 23. Thus, for the same reasons as discussed above for ground 1, Petitioner fails to show that the combination of Belanger, Halevy, and Haveliwala renders claims 2 and 3 obvious. *See* EX2001, Malek Dec., ¶¶ 89.

In addition, a POSITA would not have been motivated to combine Haveliwala with Belanger, for the same reasons discussed with respect to ground 1 as to why a POSITA would not have been motivated to combine Halevy with Belanger. Like

Halevy, Haveliwala is directed to an improvement in search engine technology, which is very different from Belanger's focus on improving the user experience with the booking process for a car rental website. *See* EX1019, 1:10-12 ("The present invention relates generally to the field of search engines, and in particular, to a system and method of modulating a search result relevancy with user feedback."); EX2001, Malek Dec., ¶ 90. A POSITA would therefore not consider combining the search engine improvements in Halevy or Haveliwala with Belanger to create the deep-linking methods and systems of the '378 patent claims. EX2001, Malek Dec., ¶ 90.

D. Ground 4 Fails

Petitioner's ground 4 is the same as ground 3, except that Petitioner also incorporates into ground 4 its ground 2 arguments "to the extent that explicit disclosure is required regarding travel websites utilizing deep-linking advertising." Pet., 80. For the same reasons discussed above with respect to grounds 1-3, Petitioner's ground 4 also fails. *See* EX2001, Malek Dec., ¶ 91.

V. CONCLUSION

It would not have been obvious to combine Belanger, Halevy, or Haveliwala as proposed. Even if it were, the proposed combination still fails to teach or suggest the "mapping" of field identifiers using normalized variables in a universal variable

map, as recited in the challenged claims. The Petition therefore fails to present any reasonable likelihood of success on any ground, and institution should be denied.

Dated: January 28, 2025

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**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION,
TYPEFACE REQUIREMENTS, AND TYPE STYLE REQUIREMENTS**

1. This Patent Owner's Preliminary Response complies with the type-volume limitation of 14,000 words, comprising 7,064 words, excluding the parts exempted by 37 C.F.R. § 42.24(a)(1).

2. This Patent Owner's Preliminary Response complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft Word in 14 point Times New Roman.

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CERTIFICATE OF SERVICE

Petitioner has consented to e-mail service in this proceeding. Pursuant to 37 C.F.R. §42.6, the undersigned certifies that on January 28, 2025, a copy of the foregoing document was served by email upon the following counsel at the below email addresses:

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