

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FOLEON INC.,

Petitioner

v.

TURTL SURF & IMMERSE LIMITED

Patent Owner

IPR2025-01525
Patent No. 12,118,290

**PETITION FOR *INTER PARTES* REVIEW
UNDER 35 U.S.C. § 312 AND 37 C.F.R. § 42.104**

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Petitioner's Exhibit List¹

Exhibit No.	Description
1001	U.S. Patent No. 12,118,290 B2 to Mason
1002	Prosecution History of U.S. 12,118,290
1003	Declaration of Ben Bederson
1004	<i>Curriculum Vitae</i> of Ben Bederson
1005	U.S. Patent Publication No. 2005/0080814 A1 to Hailey et al.
1006	International Publication No. WO 03/075191 A1 to Harrop et al.
1007	U.S. Patent No. 5,796,952 to Davis et al.
1008	U.S. Patent Publication No. 2004/0083474 A1 to McKinlay et al.
1009	U.S. Patent Publication No. 2005/0094205 A1 to Lo et al.
1010	U.S. Patent No. 4,712,174 to Minkler
1011	U.S. Patent 5,956,687 to Wamsley et al. (“Wamsley”)
1012	“How Users Read on the Web”
1013	<i>Information on RFC 3986</i> , RFC Editor
1014	“How to use the Mail Merge feature in Word to create and to print form letters that use the data from an Excel worksheet,” Microsoft
1015	“How People Read Online: The Eyetracking Evidence”

¹ Petitioner cites to exhibits' original page numbers. Unless otherwise noted, all emphasis in any quoted material has been added.

Exhibit No.	Description
1016	Rong Chen, Anne Rose, and Benjamin B. Bederson. 2009. How people read books online: mining and visualizing web logs for use information. In Proceedings of the 13th European conference on Research and advanced technology for digital libraries (ECDL'09). Springer-Verlag, Berlin, Heidelberg, 364–369
1017	NYTimes, Google Acquires Urchin Software, March 29, 2005
1018	Nataliia Bielova. 2017. Web Tracking Technologies and Protection Mechanisms. In Proceedings of the 2017 ACM SIGSAC Conference on Computer and Communications Security (CCS '17). Association for Computing Machinery, New York, NY, USA, 2607–2609.
1019	Tim Berners-Lee et al.. <i>The World-Wide Web</i> . 37 Communications of the ACM 76 (1994).
1020	Archived webpage regarding Web Parameter Tampering (April 27, 2020).
1021	Archived webpage regarding Information exposure through query strings in url description (April 22, 2020).
1022	U.S. Patent 8,661,342 to Lu et al. (“Lu”).

Claim Appendix

Claim Limitation	Claim Language
1[PRE]	1. A system for creating an interactive document, the system comprising:
1[A]	a memory for storing a set of software instructions, and one or more processors configured to execute the set of software instructions to perform one or more operations comprising:
1[B1]	(a) generating an interactive document comprising one or more modular items, wherein the one or more modular items are pulled from a master document based at least in part on one or more personalization parameters,
1[B2]	and wherein the interactive document comprises a tracking feature to collect data indicative of user interaction with the interactive document;
1[C]	(b) creating a link between the interactive document and the master document, wherein the link comprises the one or more personalization parameters;
1[D1]	(c) rendering the interactive document with aid of a content renderer,
1[D2]	wherein the content renderer is configured to use the link to apply a change to the one or more modular items based on a change to the master document.
2	2. The system of claim 1, wherein the one or more modular items from the master document are embedded with an assembly rule.

3	3. The system of claim 2, wherein the one or more modular items in the interactive document are not embedded with the assembly rule.
4	4. The system of claim 1, wherein the one or more operations further comprise providing a graphical user interface (GUI) for receiving the one or more personalization parameters.
5	5. The system of claim 4, wherein the GUI is configured to display a preview of the interactive document upon receiving a user input indicative of at least one of the one or more personalization parameters.
6	6. The system of claim 5, wherein the preview comprises automatically navigating to at least one of the one or more modular items corresponding to the user input.
7	7. The system of claim 1, wherein the master document is stored in a pre-defined document schema.
8	8. The system of claim 7, wherein the master document is stored as structured data in a document database.
9	9. The system of claim 8, wherein the structured data further stores an assembly rule associated with the one or more modular items.

10[PRE]	10. A computer-implemented method for creating an interactive document, comprising:
10[A1]	(a) generating an interactive document comprising one or more modular items, wherein the one or more modular items are pulled from a master document based at least in part on one or more personalization parameters,
10[A2]	and wherein the interactive document comprises a tracking feature to collect data indicative of user interaction with the interactive document;
10[B]	(b) creating a link between the interactive document and the master document, wherein the link comprises the one or more personalization parameters;
10[C1]	(c) rendering the interactive document with aid of a content renderer,
10[C2]	wherein the content renderer is configured to use the link to apply a change to the one or more modular items based on a change to the master document.
11	11. The computer-implemented method of claim 10, wherein the one or more modular items from the master document are embedded with an assembly rule.
12	12. The computer-implemented method of claim 11, wherein the one or more modular items in the interactive document are not embedded with the assembly rule.
13	13. The computer-implemented method of claim 10, wherein the one or more operations further comprise providing a graphical user

	interface (GUI) for receiving the one or more personalization parameters.
14	14. The computer-implemented method of claim 13, wherein the GUI is configured to display a preview of the interactive document upon receiving a user input indicative of at least one of the one or more personalization parameters.
15	15. The computer-implemented method of claim 14, wherein the preview comprises automatically navigating to at least one of the one or more modular items corresponding to the user input.
16	16. The computer-implemented method of claim 10, wherein the master document is stored in a pre-defined document schema.
17	17. The computer-implemented method of claim 16, wherein the master document is stored as structured data in a document database.
18	18. The computer-implemented method of claim 17, wherein the structured data further stores an assembly rule associated with the one or more modular items.

I. INTRODUCTION

Foleon Inc., (“Foleon” or “Petitioner”) respectfully requests the Board institute *inter partes* review of U.S. Patent No. 12,118,290 (“the ’290 Patent”), which is assigned to Turtl Surf & Immerse Limited (“Turtl” or “Patent Owner”). Petitioner has been accused of infringing the ’290 Patent and is proactively seeking early cancellation of claims 1-18 (“the Challenged Claims”) of the ’290 Patent to protect its product, market, and customers.

The ’290 Patent purports to describe a novel system and method for generating a document based on modular items, personalization parameters (*e.g.*, variables), and rules that govern the inclusion of one or more of the modular items. The patent further describes and claims “a tracking feature to collect data indicative of a user interaction” with the generated document (limitation 1[B2]). During prosecution the Examiner apparently believed that the incorporation of this limitation rendered the pending claims novel and non-obvious and, therefore, allowed the claims on this basis. The remaining limitations of the independent claims relate to generating an interactive document based on the modular items and personalization parameters, and linking the master document (which included the modular items), the generated document, and the personalization parameters.

However, as Petitioner demonstrates below, the claimed “tracking feature,” as well as the remaining limitations of the claim, were well-known in the art and

obvious over the prior art references presented herein. Indeed, document generation systems that build different output documents based on various parameters have been known for decades. For example, Hailey and Harrop both describe document generation systems that pre-date the '290 Patent by fifteen and seventeen years, respectively. As explained more fully below, these references taken alone and together teach the majority of the claimed features. Further, Davis, published twenty-two years before the '290 Patent, teaches a tracking feature included in a generated HTML document that collects data indicative of a user's engagement with the document.

Taken together, a POSITA would have found the system and methods recited in the independent claims of the '290 Patent (and several dependent claims) obvious over Hailey, Harrop, and Davis—this combination is the basis for Ground 1 of the petition. The remaining dependent claims (claims 5-6 and 14-15) are directed to a preview feature which previews the output document when a user inputs values for a given parameter. As explained regarding Ground 3, this feature is taught by Lo and when considered together with Hailey, Harrop, and Davis, a POSITA would have found these dependent claims to be obvious. Finally, Ground 2 is offered as an alternative ground to Ground 1 which adds McKinlay to demonstrate that a POSITA

would have found it obvious to implement features of Harrop by including personalization parameters specifically in a URL link.

As demonstrated herein, the Examiner allowed the patented claims without an awareness of any of the references cited here and, in particular, appeared to place allowability of the claims on the shoulder of the claimed “tracking feature” (limitation 1[B2]). Were Davis and the other references before the Examiner during prosecution, the claims of the '290 Patent would not have issued. Accordingly, institution of this petition is requested and a Final Written Decision invalidating the Challenged Claims is appropriate.

II. PETITION REQUIREMENTS

A. Grounds For Standing and Timeliness

Petitioner certifies that the '290 Patent is eligible for IPR and that Petitioner is not barred or estopped from requesting IPR. 37 C.F.R. §42.104(a). The '290 Patent was filed on July 24, 2023, and issued on October 15, 2024. It became eligible for IPR on July 15, 2025, nine months after issuance. *See* 37 C.F.R. §42.102(a)(1). The '290 Patent has been in force for just one year. As such, Patent Owner cannot reasonably claim settled expectations in the validity of its patent claims.

B. Payment of Fees

Pursuant to 37 C.F.R. §§42.103(a) and 42.15(a), the required fees are submitted herewith. If additional fees are due during this proceeding, the Office is authorized to charge Deposit Account 50-1943.

C. Identification of Challenge and Relief Requested

Pursuant to 37 C.F.R. §§ 42.22(a) and 42.104(b), Petitioner requests a final written decision that the Challenged Claims are unpatentable in view of the analysis below. *See* §VIII, *infra* (incorporated here). The effective filing date of the '290 Patent, for purposes of this Petition only, is assumed to be Jul. 6, 2020 (the “Effective Filing Date”). *See* §IV, *infra* (incorporated here). The following is the prior art that anticipates and/or renders obvious the Challenged Claims.

Exhibit	Description	Operative Date
1005	U.S. Patent Publication No. 2005/0080814 A1 (“Hailey”)	April 14, 2005
1006	U.S. Patent Publication No. 2006/0036612 A1 (“Harrop”)	February 16, 2006
1007	U.S. Patent No. 5,796,952 (“Davis”)	August 18, 1998
1008	U.S. Patent Publication No. 2004/0083474A1 (“McKinlay”)	April 29, 2004
1009	U.S. Patent Publication No. 2005/0094202A1 (“Lo”)	May 5, 2005

Each of Hailey, Harrop, Davis, McKinlay, and Lo are prior art under §102(a)(1) because each reference is a printed patent publication prior to the earliest effective filing date of the '290 Patent and none of the exceptions of §102(b)(1) or §102(b)(2) apply.

Petitioner requests cancellation of the Challenged Claims on the following grounds:

Ground	Claims	Obviousness under §103
1	1-4, 7-13, and 16-18	Obvious in view of Harrop, Hailey, and Davis
2	1-4, 7-13, and 16-18	In the alternative to Ground 1, Obvious in view of Harrop, Hailey, Davis, and McKinlay.
3	5-6 and 14-15	Obvious in view of Harrop, Hailey, Davis, (and/or McKinlay) and in further view of Lo.

III. TECHNOLOGICAL BACKGROUND

A. Modular Document Generation

Creating documents from modular or variable content has been known for decades. For example, in 1987, U.S. Patent No. 4,712,174 to Minkler describes “[a] computer-based system for generating text from a predetermined data base, in either prose or poetic form, in response to a plurality of input data provided by an operator in an interactive mode of operation with the computer.” EX1010, Abstract. Even four decades ago, Minkler describes that “it is well known in the prior art to generate

textual material by combining prewritten sentences, paragraphs or sections of text retrieved from data base files.” EX1010, 1:12-13. In particular, Minkler’s system “provide[s] a pseudorandom computer printout of text in response to a plurality of input data items related to the intended recipient and/or sender of that text.” EX1010, 2:17-20. In the 90’s systems for generating documents from variable data related to a specific field were also known. For example, U.S. Patent 5,956,687 to Wamsley et al. (“Wamsley”) describes a system that “automatically generate[s] a demand letter and calculate[s] settlement amounts from information gathered in the record during pursuit of [a] claim.” EX1011, Abstract. EX1003, ¶54.

As described in more detail below, both Hailey and Harrop, both published in the early 2000s, also describe systems for generating documents from variable or modular data or content. For example, Harrop teaches “A document assembly or document automation system includes an assembler for generating an instance document on the basis of a source document and one or more logic source documents referenced by the source document.” EX1006, Abstract. Similarly, Hailey teaches that “[d]ocument production systems that insert customer-specific content into a pre-fabricated document are known.” Hailey’s system, among other things, “create[es] documents by assembling document components and applying precedence and rules to create a desired document.” EX1005, ¶2; EX1003, ¶55.

More generally, a range of products in the early 2000s generated documents from templates. For example, many word processing programs supported a “mail merge” feature which used a word processing document as a template with fields marked with a delimiter. EX1003, ¶56.

As recognized by Minkler, Wamsley, Hailey, Harrop, and others, the use of assembly rules to instruct or influence which content or text to include in a generated document. Minkler teaches an algorithm with a series of assembly rules that direct which words, how many syllables, which pronouns, etc. should be included in the generated poem. *See* EX1010, 16:53-17:32. Wamsley teaches generating a demand letter with rules for which paragraphs and information to include in the letter. EX1011, 23:6-39. As discussed in Section VIII below, Harrop and Hailey also describe using assembly rules to determine what content to include in a generated document. EX1003, ¶57.

B. User Tracking

Since (practically) the beginning of the web, user tracking has been known and implemented ubiquitously. A POSITA would have known of several commonly used ways to track how people use the web. At the simplest level, a POSITA would know of and how to use “web logs” which are logs of every URL request to a web server that are kept by essentially all web server systems. These logs can be analyzed

to determine which pages are being viewed, from where, for how long, by how many different people, etc. There are numerous services that support such analysis of web logs. For example, Google Analytics has provided analysis of web logs since at least 1995. EX1017, EX1003, ¶58-60.

As described in this 2017 summary of a tutorial about web tracking technologies, a wide variety of tracking technologies “from simple cookies to advanced cross-device fingerprinting” have been known in the art for decades. EX1018, Abstract; EX1003, ¶61.

As discussed below, Davis, a patent filed in 1997, describes the tracking of how people use documents including monitoring “time, keyboard events, mouse events, and the like, in order to track choices and selections made by a user”. EX1007, Abstract. Davis describes performing this tracking “by use of a tracking program embedded in the resource and executable by a client.” EX1007, 4:6-8. Davis explains that “the tracking program is embedded in an HTML document (such as a Web site, a Web page, or part of a Web page—e.g. an ‘ad banner’). EX1007, 5:14-17. It also describes that “the tracking program of the present invention may be implemented in the JAVA programming language.” EX1007, 10:48-50. EX1003, ¶62.

C. URL Parameters

The term ‘Uniform Resource Locator’ (URL) refers to the subset of URIs that, in addition to identifying a resource, provide a means of locating the resource by describing its primary access mechanism (e.g., its network ‘location’).” EX1003, ¶63.

URL’s were formalized in the 2005 Internet standard RFC3986 (2005), which provides an example to explain the various components of a “query.” EX1013, 16 (reproduced below). In this example, the query (“name=ferret”) shows a URL parameter where the parameter name is “name” and the value is “ferret”. EX1003, ¶64.

```
foo://example.com:8042/over/there?name=ferret#nose
  \_/_ \_/_ \_/_ \_/_ \_/_
   |  |  |  |  |
scheme authority path query fragment
```

A POSITA would have known that URL parameters are ubiquitous throughout the web and have been for decades. For example. Dr. Bederson implemented URL parameters in the International Children’s Digital Library to specify queries and to identify particular books. EX1003, ¶65.

The simplicity of URL parameters lies in their being plain text, and being able to be added onto an existing URL. This simplicity has led to URL parameters being ubiquitously used throughout the industry. They are used throughout the web to

access search engines, databases, e-commerce sites, newspapers, and service providers of all kinds. EX1003, ¶66.

IV. THE '290 PATENT

The '290 Patent issued on October 15, 2024, from Patent Application Serial No. 18/357,451 (“the 451 Appl.”), filed on July 24, 2023, by Turtl Surf and Immerse Ltd. (“Patent Owner” or “PO”). *See* EX1001, 1. The '290 Patent claims priority to U.S. Patent No. 11,755,816 which in turn claims priority to U.S. Patent No. 11,379,651 which claims priority to U.S. Provisional Application No. 63/048,512 which was filed on July 6, 2020. EX1001, 1-2 (field 51). Without conceding the issue, Petitioner treats all of the Challenged Claims of the '290 Patent as having an effective filing date of July 6, 2020.

A. Overview of the '290 Patent

The '290 Patent is directed to document assembly systems and methods for automatically assembling digital content or documents based on a set of modular content and parameters corresponding to the ultimate reader of the assembled document. EX1001, 1:38-44; 2:10-20. These assembled documents may take various forms including “report[s], brochures, digital magazines, case studies, product guides, sales playbooks, sales proposals, whitepapers, newsletters, company

handbooks, annual reports, presentations, *and various others* that may be utilized in various other fields.” *Id.*, 4:44-49. EX1003, ¶67.

The patent describes these documents as being “interactive” documents and broadly defines “interaction.” In one example, the patent describes interaction when a user has “read, edited, shared, [and/or] saved” a document. EX1001, 23:17-31. In another example, interaction amounts to a user “brows[ing], filter[ing], or select[ing] a content item (e.g., page, video) for viewing.” *Id.*, 25:17-19. Thus, the patent broadly defines “interaction” to include even passive activities like selecting a document to read or watching a video. EX1003, ¶68.

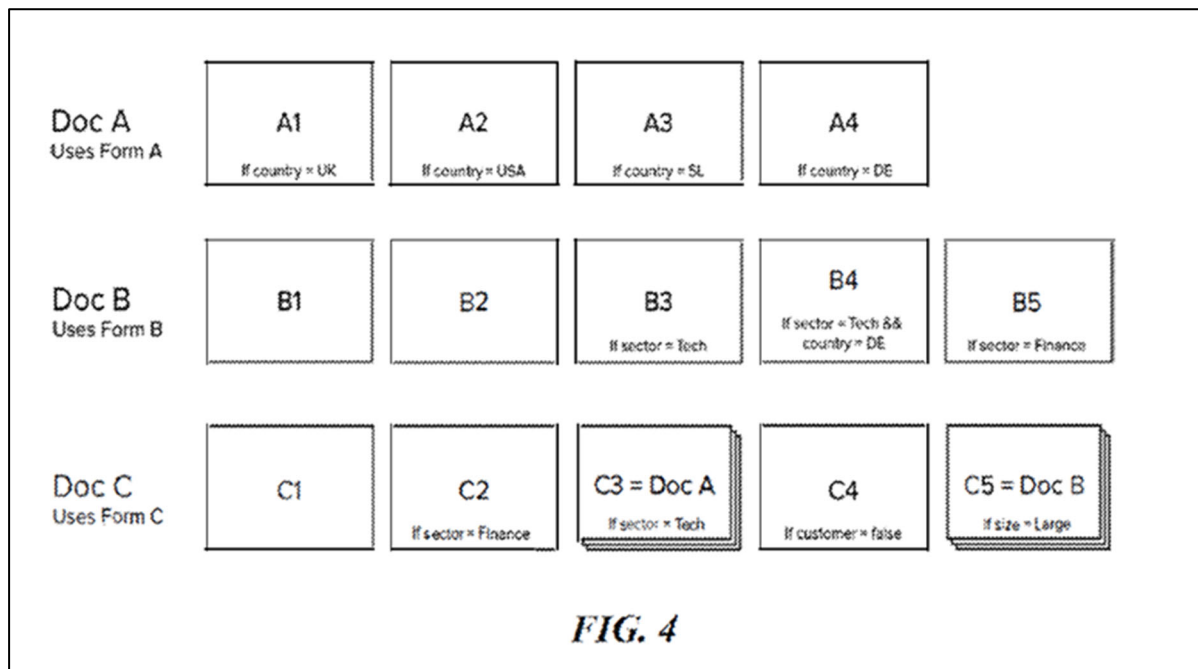
The patent’s discussion of “interaction” is related to its described collection of “data indicative of” a user’s interaction with a document. EX1001, 23:16-17 (“For instance, data may be collected indicative of user interaction with the document.”) While the patent describes a wide spectrum of interaction, it offers no description of what the collected data looks like—whether it is a particular type of data, stored in a specific document, or otherwise has a particular form. EX1003, ¶69. Despite the amorphous nature of the collected data, the patent describes using this collected data “indicative of user interaction with a document” to analyze “usage analytics”, “performance metrics,” “impact analytics,” and “various other analytics” to

“personalize further interactive content/document[s].” EX1001, 23:17-32; EX1003, ¶69-70.

Regarding the creation of personalized interactive documents, the patent describes using a “content creation and management system 121” which “permits users (e.g., creators, personalizers, analyzers, administrators, etc.) to create content and content items, generate a set of rules associated with a content item, customize a document[,], and manage various aspects of the platform.” EX1001, 8:20-25. Content items—also referred to as “modular content items”—may be “a page, a slide, a video, an image, a chart, [and/pr] a text file....” EX1001, 15:51-55; EX1003, ¶71.

The modular content items “may be automatically selected from one or more documents to be assembled into a personalized document assembly based on pre-determined assembly rules” which “define the conditions to meet in order to include a content item into a derivative/output document.” EX1001, 5:55-60. The patent refers to these “conditions” defined in the assembly rules as “personalization parameters.” EX1001, 5:60-67, 20:1-9. For example, the personalization parameter may require a certain geographic location (e.g., state) or revenue for the content associated with the rule to be displayed in the generated document. EX1001, 16:48-51. EX1003, ¶72.

The patent describes that the assembly rules may be “embedded” in a modular content item and offers Figure 4 (reproduced below) as an illustrative depiction of “at least one document page embedded with one or more assembly rules.” EX1001, 3:51-53. EX1003, ¶73.



As seen above, page A1 includes the rule “if country = UK” such that page A1 would be included in the generated document if the user location is “UK.” EX1001, 19:5-8. Beyond the depiction of an “embedded” rule shown in figure 4 and other similar figures, the patent does not give an example (e.g., example code, file type, pointer, etc.) of how an assembly rule would be “embedded” in a content item. Yet, the '290 patent provides no explanation, example, or discussion of an

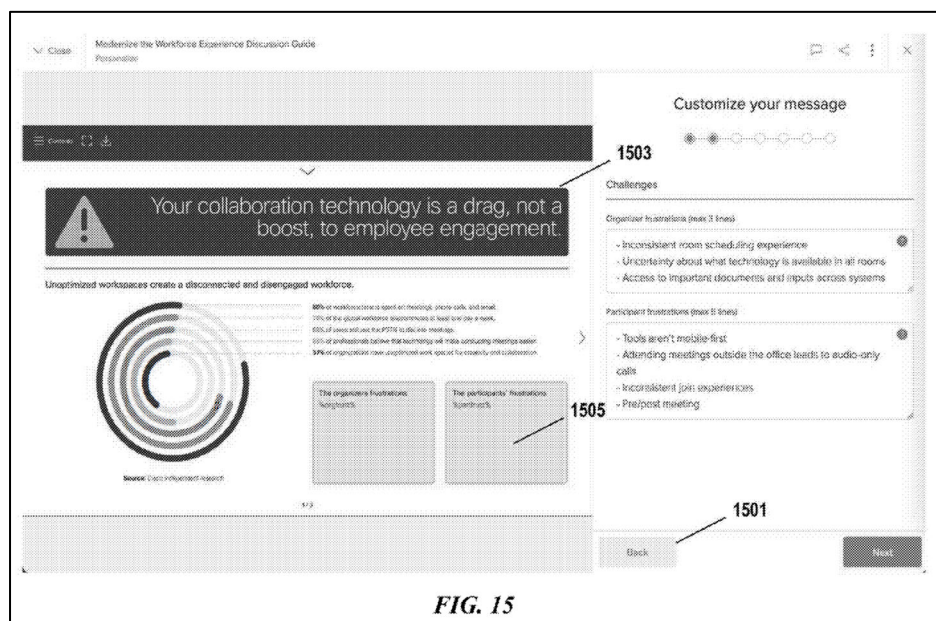
interactive document either including or excluding these assembly rules. EX1003, ¶74.

The patent describes a “content renderer for rend[er]ing the assembled document.” EX1001, 22:55-57. The function of content renderer is described at a high level including that the content renderer may “execute a script (e.g., JavaScript);” may “render the content or document as a web-page in a web browser;” and/or may “render content according to a brand theme/style mapping.” EX1001, 22:55-67. However, the patent does not provide any example of what a “content renderer” may be, other than describing the intended function. EX1003, ¶75.

Another aspect of the '290 Patent is the creation of a “link or connection between the source document and the derivative document.” EX1001, 6:11-13. When an output document is created “the personalization parameters (e.g., fields in the personalization form) that were provided during the personalization process and a reference to the source document may be stored in the system as a link or connection to the source document(s).” EX1001, 19:36-41. When the same output document is accessed by a reader, “the source document may be loaded and the stored link may be used to dynamically apply changes from the source documents.” EX1001, 19:42-44. Aside from a reference to the “stored link” and the “link or connection,” the patent offers no elaboration of what form the “link or connection”

takes (e.g., whether it is a data structure, a table, a dynamic reference, etc.). Further, the patent offers no description or explanation for how the personalization parameters are stored either as part of or along with the described “link or connection.” EX1003, ¶76.

Figure 15 of the patent (reproduced below) purports to depict a “user interface” that “display[s] content live when a user completes a personalization form.”



EX1001, Fig. 15, 22:43-45. The patent states that “[u]pon receiving an input in a field of the personalization form, the document 1503 may automatically navigate to the relevant page and highlight the content (e.g., blocks 1505) that is related to the field.” EX1001, 22:48-51. The patent does not describe whether “navigation” requires any specific action (e.g., scrolling, zooming, panning, etc.) other than

showing the user the portion of the document that is related to the field of the personalization form. EX1003, ¶77.

B. Prosecution History

The prosecution history of the '290 Patent is relatively uneventful. After filing the initial claims via a preliminary amendment on December 5, 2023, the Examiner initiated an interview on July 10, 2024. EX1002, 80, 125. During the interview the Examiner proposed amending the independent claims to include the user tracking data collection feature of dependent claims 3 and 13, respectively (limitation 1[B2] in the granted '290 Patent). EX1002, 256-260. After payment of the issue fees, the '290 Patent issued on October 15, 2024. EX1002, 268.

As is apparent from the Examiner's amendment, the Examiner (mistakenly) believed that "the interactive document compris[ing] a tracking feature to collect data indicative of user interaction with the interactive document," as recited in limitation 1[B2], made the pending claims allowable. *See* EX1002, 256-260. However, as explained in this petition, the "tracking feature" was known in the prior art and taught at least by Davis which was not considered by the Examiner. *See* EX1001, 2 (references cited). As discussed more thoroughly below, the granted claims are obvious over the prior art.

V. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSITA”) in the field of the ’290 Patent, as of its earliest possible filing date of July 6, 2020, would have been someone knowledgeable about and familiar with electronic document assembly systems and methods pertinent to the ’290 Patent. A POSITA would have had a bachelor’s degree in Computer Science or equivalent training, and approximately two years of programming experience developing client/server systems that create and render documents. Lack of work experience can be remedied by additional education, and vice versa. EX1003, ¶24-25.

VI. CLAIM CONSTRUCTION

Claim terms in an IPR are construed according to their “ordinary and customary meaning” to those of skill in the art. 37 C.F.R. § 42.100(b); *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Petitioner submits that, for the purposes of this proceeding and the grounds presented herein, no claim term requires express construction. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

VII. SUMMARY OF THE PRIOR ART

A. Harrop

Just like the ’290 Patent, Harrop teaches a computer-based document assembly system that generates different output documents (called “instance

documents”) from XML source documents and personalized information provided by a user or database. EX1006, 8:1-20; EX1003, ¶78.

In one embodiment, a user may use their computer’s web browser to access the document assembly system. Over a network connection the assembly system accesses assembly modules 108, invokes a processing engine 202 to generate an instance document, and uses rendering engine 204 to send the rendered document to the user’s web browser. EX1006, 7:8-19. Figure 2 of Harrop (reproduced below and annotated to include the names of each component) depicts many of the components of Harrop’s system. EX1006, Fig. 2 (reproduced, annotated, below). EX1003, ¶79.

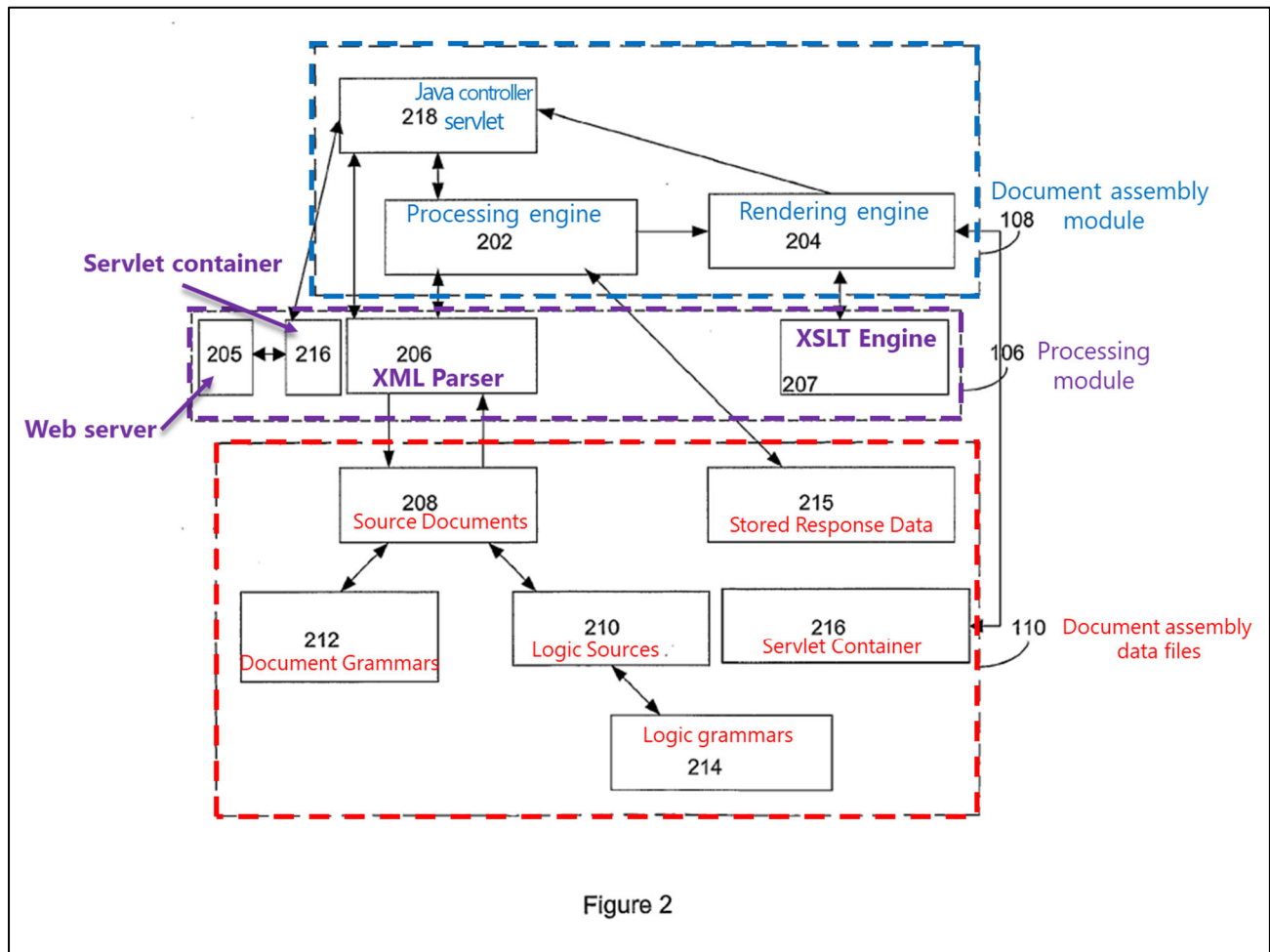
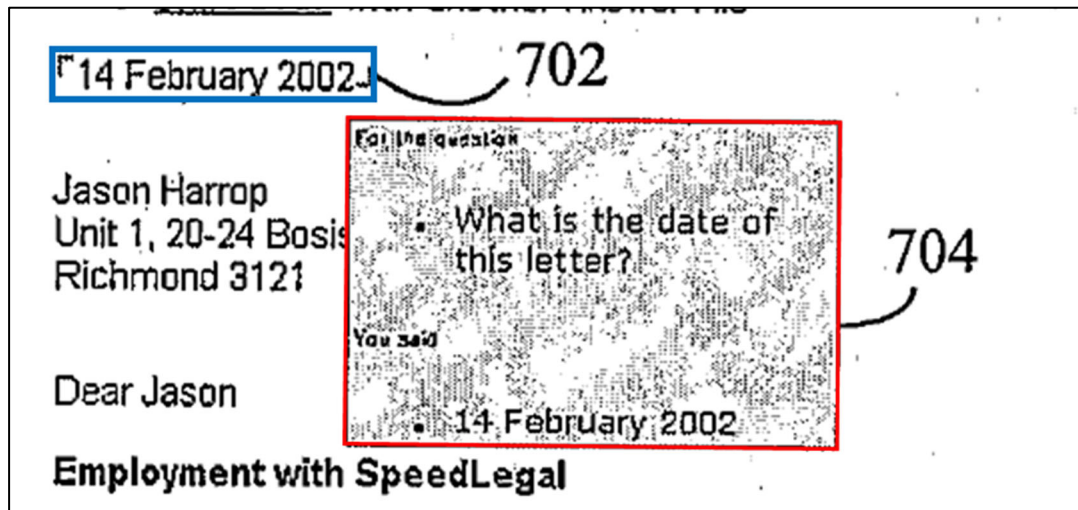


Figure 2

Harrop's system uses XML source documents 208 and information provided by a user or a data source to generate one or more instance documents. EX1006, 8:1-5. Where a user is the data source, the processing engine 202 uses logic sources 210 to generate questions and solicit necessary responses from the user; together, Harrop refers to the question and answers as "interview data" stored as "response data 215." EX1006, 8:5-7, 9:15-19, 11:23-26, 12:8-12. The logic sources function as rules which, when evaluated by the processing engine and combined with interview data,

instruct which text from the XML source document should be included in the generated instance document. EX1006, 9:11-15. Harrop describes that logic sources 210 may be separate from the source documents 208 or the logic sources may be incorporated in the source documents through embedded references to the logic sources. EX1006, 20:4-12; EX1003, ¶80.

As part of the question-and-answer interview process, Harrop's processing engine can reset questions as requested by the user and re-display the question to solicit a new answer. EX1006, 15:10-15; 68:7-9, 68:20-22. Once a new answer is provided (and all questions are answered), a new instance document may be generated. EX1006, 15:15-16. Specifically, Harrop describes "hypertext anchors" as part of a generated HTML instance document that, when a user moves their mouse over the hypertext anchor, a pop-up window showing the question and answer that led to the text being included. EX1006, 15:8-10. Further, when the hypertext anchor is clicked "the processing engine 202 generates a new interview round including the relevant question, allowing the user to provide a different response to that question." EX1006, 15:10-13. Figure 7 (reproduced-in-part below and annotated) depicts the **hypertext anchor** and the **pop-up window** showing the relevant question and answer. EX1006, Fig. 7 (annotated).



Specifically, Harrop describes that the pop-up 704 is generated on mouse-over based on “JavaScript and the anchor element’s HTML onMouseOver event.” EX1006, 68:14-18; EX1003, ¶81.

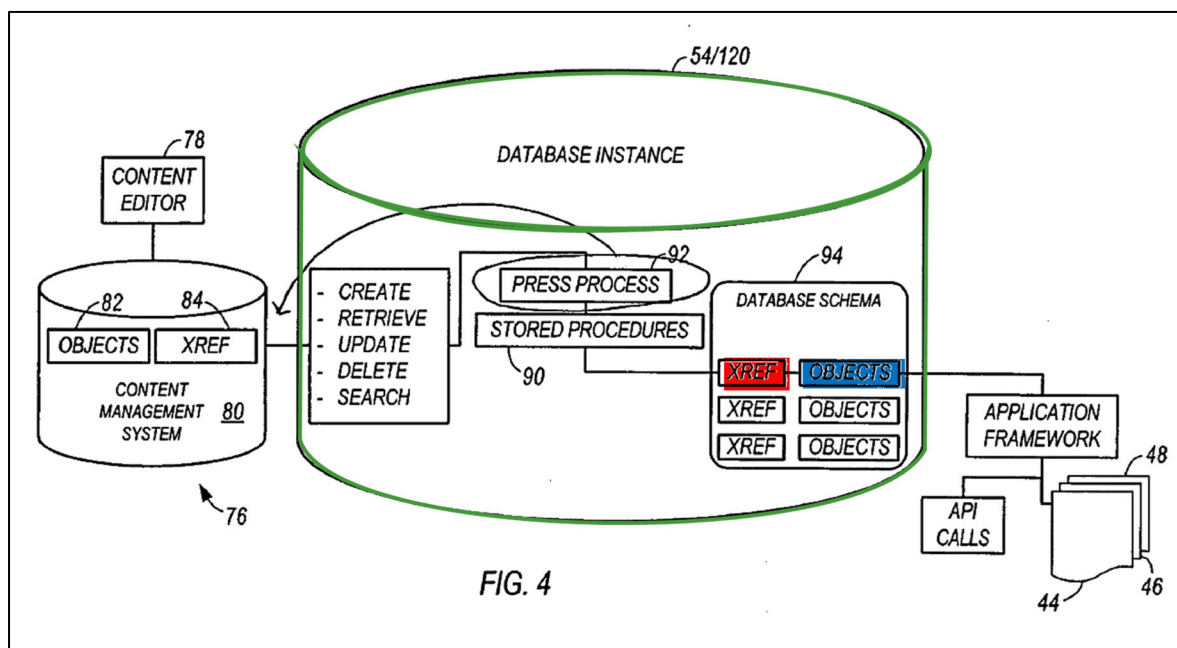
After the processing engine 202 has resolved all the processing-instructions logic, the rendering engine 204 renders the instance document into a desired format, such as HTML. EX1006, 9:30-10:7. Additionally, in one embodiment, Harrop’s system can generate a document “in HTML (without controls), XML, or in rich text format (RTF).” EX1006, 15:20-23; EX1003, ¶82.

B. Hailey

Just like the ’290 Patent, Hailey teaches a document generation system that uses input information regarding the document needed (e.g., “type of transaction, number of parties, amount of loan, price, governing law, etc.”) and generates an appropriate output file based on the input information. EX1005, ¶7. Hailey’s output

file (or document) may be in one of a variety of file formats including PDF and HTML. EX1005, ¶42; EX1003, ¶83.

Hailey's output documents are built from content and rules (cross-references called "Xref") held within a knowledge base. EX1005, ¶¶44-45. Figure 4 illustrates one example of how the content (objects), rules (Xrefs), and knowledge base 54/120 can be arranged in Hailey's system. EX1005, ¶64, Fig. 4 (annotated).



As seen in figure 4 above, the knowledge base 54/120 is depicted as a "database instance." *Id.*, Fig. 4, ¶95 ("embodiments of the invention may include a database or knowledge base"). In addition, Hailey describes that the xref-object pairs shown in database schema 94 are stored as associated pairs. EX1005, ¶64; EX1003, ¶¶84-85.

In one example, Hailey describes one type of input information (location) where the appropriate consumer protection clause is included in the instance document depending on the location of the transaction (e.g. New York). EX1005, ¶5; EX1003, ¶86.

C. Davis

Davis teaches “a method for tracking the use and interaction of a user with a resource...by use of a tracking program embedded in the resource.” EX1007, 4:3-5. Davis teaches that, even in 1997, including user tracking features in an HTML document was known. Specifically, Davis teaches at least one embodiment where “the tracking program is embedded in an HTML document (such as a Web site. a Web page. or part of a Web page-e.g. an ‘ad banner.’” EX1007, 5:13-16; EX1003, ¶87.

Davis teaches embedding a tracking program in an HTML document that is sent from a server to a client with the tracking program executing on the client machine. EX1007, 8:6-8. The tracking program “may monitor various indicia. such as time, mouse events, keyboard events, and the like, in order to track a user's interaction with the Web page.” *Id.*, 8:6-13. Thus, Davis explains, that in one embodiment “the tracking program may simply monitor the amount of time the user spends interacting with the Web page. or may monitor details of choices (such as

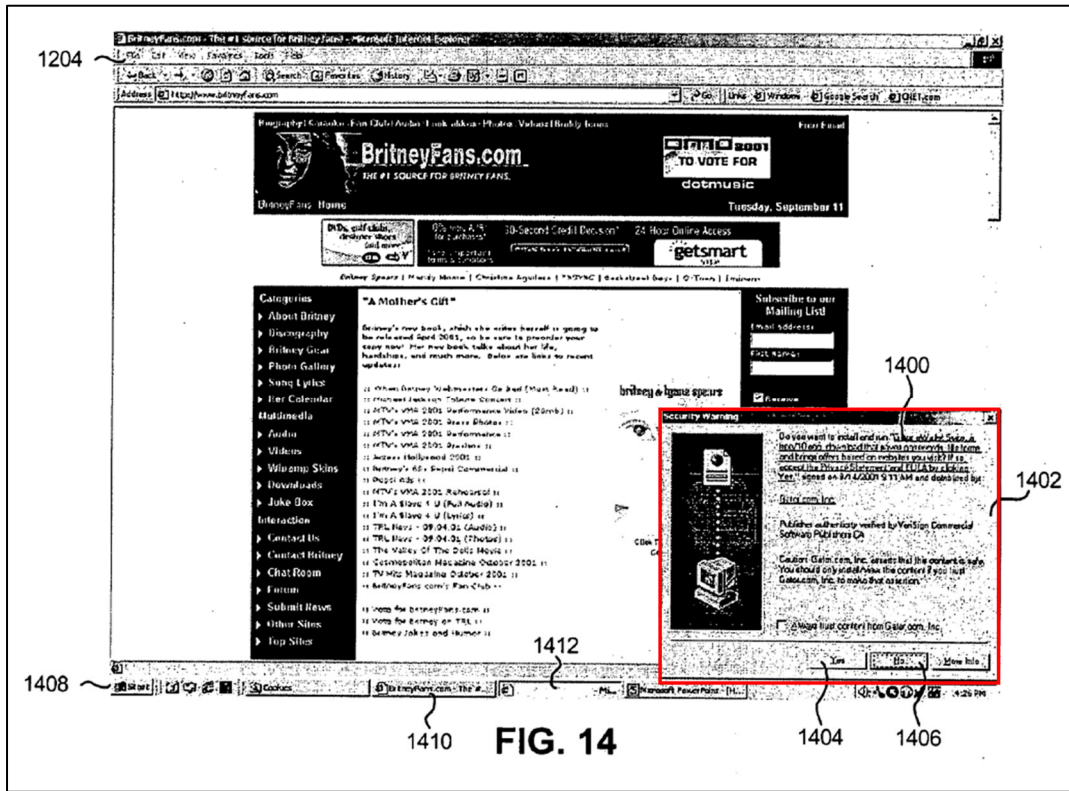
links) made by individual users within a particular Web page.” *Id.*, 8:13-20. In another embodiment, “[t]he tracking program may monitor operation of a peripheral input device connected to the client machine, such as a keyboard or mouse, keep a record of which choices, if any, are made by a user, and may monitor the length of time the user has displayed the Web page in addition to the time spent interacting with a particular part of it.” *Id.*, 8:30-38. Davis explains that tracking these user interactions “provide[s] meaningful data to the server concerning the user's interaction with the Web page.” EX1007, 8:64-9:2; EX1003, ¶88.

Davis teaches that “[t]he tracked information may be used to assemble resources geared toward the user's interests.” EX1007, 14:47-48. For example, “[b]ased upon the historic user profiles created in the server database, downloading of information to the same client on a subsequent visit to the same or different Web page may be done on a more intelligent basis.” EX1007, 14:48-52. The tracked information can be used to create user profiles that include “details of choices created by individual users within a particular resource.” EX1007, 4:24-32. Davis teaches using this tracked information to generate resources (e.g., HTML documents) based on, for example, a historic user profile. *Id.*, 4:33-36. Thus, just like Harrop and Hailey, Davis also teaches a system that creates customized documents based on personalization parameters (e.g., a user's profile). EX1003, ¶89.

D. McKinlay

As described below, McKinlay is relied upon only in Ground 2 as an alternative to Ground 1. *See* §VIII.B, *infra*. Specifically, McKinlay provides details of one example for how to implement a pop-up window based on JavaScript and HTML coding similar to Harrop's description of hypertext anchors. EX1003, ¶90.

McKinlay teaches one example of using URL parameters in a URL hyperlink and JavaScript code to generate a pop-up window with particular information. EX1008, ¶86. In addition, McKinlay provides example URL and JavaScript code used to generate the desired pop-up window. *Id.*, ¶¶86-93. Figure 14 depicts one example of McKinlay's described **pop-up window 1402**. EX1008, ¶83, Fig. 14. EX1003, ¶91.

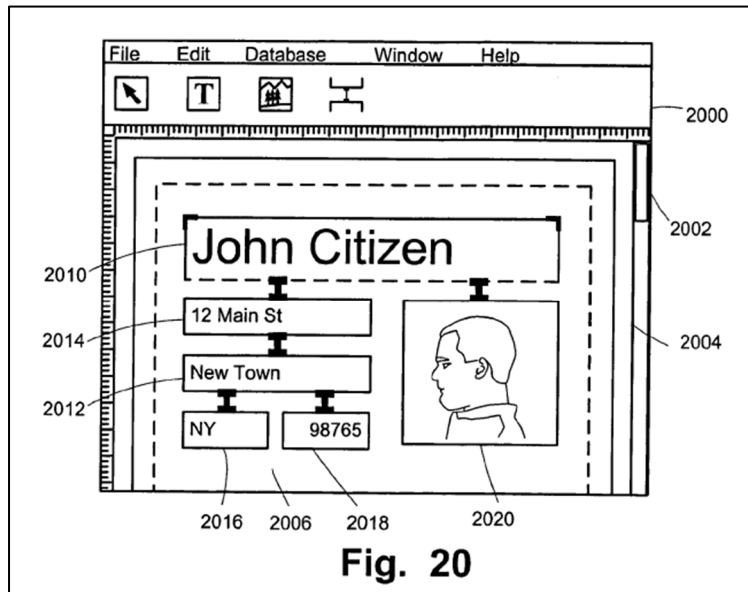


E. Lo

Lo teaches a document creation and printing system that allows multiple documents to be created from a single document template, “where each document is customized for its intended readers.” EX1009, ¶¶5, 79. Lo’s customized documents are “are created by inserting variable data into a document template.” *Id.*, ¶6; EX1003, ¶92.

Further, Lo teaches using “live proofing” to “display[] variable data merged with the variable document template interactively and on-demand.” EX1009, ¶428. As shown in figure 20 (reproduced below), Lo’s live proofing shows “what part of [a] record would look like if printed” including “extra borders 2004 and colors

2006...to make visible the constraints defined within the variable document template.” EX1009, ¶428, Fig. 20.



As seen in Figure 20 above, Lo’s “live proofing” view shows only the portion of the document that is relevant to the edited variables in the document template. More specifically, Lo teaches that a “record” is a set of data used to produce one instance document. EX1009, ¶87. Thus, Lo teaches display what a “part” of a record (i.e., data set) will look like—as opposed to displaying the entire data set. EX1003, ¶¶93-94.

Lo explains that “[l]ive proofing is advantageous over a separate merging process because errors in the design of the template are likely to be found earlier through interactive navigation.” EX1009, ¶429; EX1003, ¶95.

VIII. GROUNDS FOR UNPATENTABILITY

A. Ground 1: Claims 1-5, 7-14, and 16-18 are rendered obvious by Harrop, Hailey, and Davis

As explained in this section, Claims 1-5, 7-14, and 16-18 are obvious based on the combined teachings of Hailey, Harrop, and Davis. As discussed below, a POSITA would find it obvious to combine the teachings of Hailey, Harrop, and Davis to arrive at the claimed invention. The combined teachings of Hailey, Harrop, and Davis are referred to below as the “Hailey/Harrop/Davis combination.” EX1003, ¶96.

i. Reasons to combine

A POSITA would have been motivated to combine Harrop, Hailey, and/or Davis to arrive at the features of claims 1-5, 7-14, and 16-18 for numerous reasons presented below. EX1003, ¶97.

a. Analogous Art

Harrop, Hailey, and Davis are in the same field of endeavor as the '290 Patent, namely document assembly and creation. *See* EX1001, Abstract; 1:36-56; EX1003, ¶96. Hailey, for example, is directed to the creation of documents by assembling document components and applying rules to create a derivative document. EX1005, Abstract, ¶2. Harrop is directed to document assembly and systems and methods for document assembly, or the generation of a derivative document from one or more

source documents. EX1006 at Abstract, ¶¶2-3. Davis also teaches generating a document (HTML web page) based on personal information (e.g., a user profile). EX1007, 14:46-52. Further, the '290 Patent is classified in International Patent Class G06F, Electronic Digital Data Processing and generally describes document creation and assembly systems and methods for use on the Internet. *See* EX1001 at (51), 4:63-5:24. Harrop, Hailey, and Davis are all classified in International Patent Class G06F and also relate to the application of document creation systems and methods for use on the Internet, including standard hyper-text markup language (“HTML”) documents. *See* EX1005, 1 (field (51)), ¶42 (output file in HTML format); EX1006, 1 (field (51)), 6:28-7:6 (document assembly system can be accessed by a user over the Internet), 15:18-28 (output document in HTML format); EX1007, 1 (field (51)), 4:1-10, 4:33-36, 5:14-18 (collecting user tracking information and using it to generate a customized HTML document). EX1003, ¶98.

b. Motivation to Combine

A POSITA would recognize that the systems of Hailey and Harrop are closely related and would have found it obvious to combine various teachings within each reference to improve the system of the other reference. For example, a POSITA would have found it obvious to include Harrop’s teaching of linking portions of the interactive document, the master document, and the personalization parameters

through hypertext anchors in a generated HTML document. In particular, a POSITA would have appreciated Harrop's described benefit of the feature as a way for users to inspect portions of a final document quickly (i.e., via a pop-up) and edit those sections by adjusting the input variables. EX1006, 67:28-68:18. Hailey describes a similar user-input interface in its origination platform and teaches soliciting further answers from a user when more information is needed to generate a document. EX1005, ¶¶40-41. Accordingly, a POSITA would be motivated to include Harrop's teaching of hypertext anchors which generate a pop-up with associated questions and answers and which reset associated answers when clicked to allow a user to make relatively quick changes to the content included in a portion of a generated document. EX1003, ¶¶99-100.

Further, as discussed above, Davis teaches including a tracking features in an interactive document. EX1007, 5:14-18; *see* §VII, *supra* (incorporated here). Davis teaches embedding a tracking program in an HTML document to gain information regarding user preferences, collect information regarding specific user interactions and create user profiles based on the tracked information. *See* EX1007, 4:3-8 (“a tracking program embedded in the resource and executable by a client.”), 4:19-23, (“creating a database of user profiles for use by advertisers and/or marketers to determine the effectiveness and value of network-based advertisements and/or

marketing resources”), 4:33-36 (“assembling a resource, such as a Web page or a highly targeted ad banner, in accordance with a historic user profile.”). Specifically, Davis’s tracking feature monitors various user interactions including “time, mouse events, keyboard events,” (*id.*, 8:13-20) as well as, “details of choices created by individual users within a particular resource.” *Id.*, 4:24-32. Davis teaches using these tracked interactions to assembly a customized resource (*e.g.*, HTML webpage) based on a user’s profile which includes the tracked information. *Id.*, 4:33-36. EX1003, ¶101.

Accordingly, a POSITA would have been motivated to include in the systems of Hailey and/or Harrop a tracking feature that collects data indicative of user interactions with interactive documents, as taught by Davis, to use that collected data to improve the respective systems in various ways. For example, a POSITA would have been motivated to track user interaction with the interactive documents generated by Hailey and Harrop to glean information regarding user preferences to respective variations of user documents including preferences as to the formatting, size, color, file type, delivery method, etc. of the interactive documents. For example, a POSITA would understand that tracking a user’s responses to questions posed by Hailey or Harrop’s system regarding a user’s name, entity, or job can be tracked using the tracking program described by Davis and that information can be

reused in Hailey or Harrop's systems when assembling new interactive documents. Further, a POSITA would have known that user tracking information can be used to understand what works well and what does not for their users, thereby improving system designs and ensuring the system works as intended. EX1003, ¶102.

c. Reasonable Expectation of Success

The references include similar arrangements of well-understood components and use predictable technology in routine and conventional ways. EX1003, ¶103.

For example, a POSITA would have found it routine and predictable to implement Harrop's hypertext anchors in the system of Hailey through known technologies like URL parameters and/or javascript functions. Indeed, Harrop itself teaches that the pop-ups associated with the hypertext anchors are generated through "JavaScript and the anchor element's HTML on MouseOver event...." EX1006, 68:20-22. Similarly, Hailey teaches reviewing a generated (assembled) document and, if information is missing (*e.g.*, a loan amount), querying the assembly engine in order to request the missing information from the user or database. EX1005, ¶40. In other words, Hailey also provides a way for the system to correct a generated document by querying a user for additional information. A POSITA would have recognized these well-known and commonly used web-based document languages and would have found it routine to implement the same or similar JavaScript and/or

HTML coding in Hailey's generated HTML output file to accomplish the same or similar pop-up generation and reset of associated variables/questions. A POSITA would have considered the combination of these teachings nothing more than the implementation of well-known concepts in well-known systems that had been known for decades prior to the '290 Patent. EX1003, ¶104.

Further, a POSITA would have found it routine and predictable to include the user tracking feature of Davis in the systems of Harrop and Hailey. Each of Davis, Harrop, and Hailey describe generating or assembling documents in an HTML format. Further, Davis teaches that his tracking feature can be embedded as part of an HTML document. EX1007, 5:14-15 ("In one embodiment of the present invention, the tracking program is embedded in an HTML document"). A POSITA would have understood that implementing Davis's user tracking program would have merely required implementing known code functions (*e.g.*, Davis's tracking program) in a known way (*e.g.*, using known HTML or JavaScript functions) in known systems (*i.e.*, HTML documents). EX1003, ¶105.

ii. **Claim 1**

a. **Limitation 1[PRE]: A system for creating an interactive document, the system comprising:**

To the extent the preamble is limiting, and without conceding the issue, the Hailey/Harrop/Davis combination renders the elements of the preamble obvious. EX1003, ¶106.

For example, Hailey and Harrop each teach creating documents for display in a web browser. *See, e.g.,* EX1005, ¶42 (“The output file (or document) may be in one of a variety of file formats as is illustrated by three exemplary file format blocks (or documents) 44, 46, and 48 (.pdf, HTML, and other)”; EX1006, 15:2-6 (“the instance [i.e. generated] document is then displayed by the web browser, as shown in FIG. 7.”). A POSITA would understand that when a document is displayed in a web browser, a user may interact with the document in various ways including scrolling, activating links, interacting with animations and/or dynamic objects, etc. and that the same interactions may be present in a PDF document as well. EX1003, ¶107. Accordingly, a POSITA would understand that Harrop and Hailey both teach creating interactive documents. *Id.*

As discussed above, the ’290 Patent describes “interaction” as including user actions such as reading, editing, savings, browsing, filtering, and/or selecting video or web page. EX1001, 6:25-32, 25:15-20; EX1003, ¶108. Accordingly, Harrop and

Hailey teach this feature at least in as much detail as the '290 Patent. *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1570 (Fed. Cir. 1997) (patent owner cannot demand a greater level of detail from the prior art than the challenged patent teaches).

Thus, Hailey, Harrop, and Davis each teach creating interactive documents and the Hailey/Harrop/Davis combination renders limitation 1[pre] obvious.

b. Limitation 1[A]: a memory for storing a set of software instructions, and one or more processors configured to execute the set of software instructions to perform one or more operations comprising:

The Hailey/Harrop/Davis combination renders this limitation obvious. Each of Hailey, Harrop, and Davis teach this limitation. EX1003, ¶¶109-113.

Hailey teaches implementing its document creation system “in software which may be stored as instructions on a computer readable medium... and executed by a microprocessor or a similar device.” EX1005, ¶99; EX1003, ¶110.

Harrop discloses the example of a computer server such as a Sun Fire® 15K server, and processing modules 106, 108, and 112 of the document assembly system implemented as software modules stored on hard disk storage 104 of the server 102.” EX1006, 7:23-26; EX1003, ¶111.

Davis teaches a system that can be implemented via a client computer and server, each of which includes memory, a processor, and software. EX1007, 6:35-42, 6:52-67, 7:30-49, Fig. 1, Fig. 2; EX1003, ¶112.

A POSITA would recognize any of these example environments as teaching a memory for storing a set of software instructions, and one or more processors configured to execute the set of software instructions to perform one or more operations. Thus, Hailey, Harrop, and Davis each teach Limitation 1[A] and, therefore, the Hailey/Harrop/Davis combination renders the limitation obvious. EX1003, ¶113.

- c. **Limitation 1[B1]: (a) generating an interactive document comprising one or more modular items, wherein the one or more modular items are pulled from a master document based at least in part on one or more personalization parameters,**

The Hailey/Harrop/Davis combination renders this limitation obvious. Each of Hailey and Harrop teach this limitation. EX1003, ¶¶114-121.

Hailey teaches using content (modular items) stored in a knowledge base (master document) and to create output files (interactive documents) based on various input values (personalization parameters). EX1005, ¶39. Similarly, the '290 Patent describes that the master document may be “stored as structured data in a document database.” *See, e.g.*, EX1001, 27:16-18 (claim 17); 2:4-9; 13:38-14:25; 15:37-50. A POSITA would understand that Hailey’s knowledge base which contains the content is a “master document” and that the various content are pulled from this database (i.e., the knowledge base). EX1003, ¶115. Hailey teaches that the

content stored in database 54/120 as groups of “objects” and associated rules (“Xref”). EX1005, ¶64, Fig. 4. These grouped rules (XREF) and objects form one or more modular items that are used to generate interactive documents 44, 46, 48. EX1005, ¶64 (“The content is used... to create documents such as the documents 44, 46, and 48.”); EX1003, ¶115.

Hailey further teaches that the content (i.e. objects and rules) are pulled from the database (master document) based on various data input (i.e. personalization parameters) into the system. EX1005, ¶40 (“[T]he document generation module 22 performs four basic functions. The document generation module 22 validates incoming data (as is represented by a validation module 24), applies precedence (as is represented by precedence module 26), applies rules to the content (as is represented by a rules application module 28), and performs document assembly (as is represented by an assembly module 30).”) For example, Hailey describes processing location data (e.g., Texas or California) input into origination platform 12 to select and generate an output file that includes appropriate content for the relevant location. EX1005, ¶40-41. Hailey further describes soliciting additional input data from origination platform 12 to resolve any remaining questions and complete document assembly. EX1005, ¶40 (“For example, if the amount of a loan has not been specified in the input data originally provided by the origination

platform 12, a question module 32 queries the origination platform 12 to request needed information or data 34.”), Fig. 1. Accordingly, the data input into the origination platform are personalization parameters which influence, at least in part, which content is assembled into the final output file. EX1003, ¶116.

Similarly, Harrop teaches generating an instance document (interactive document) based on XML modules (modular items) that include text options which are pulled from one or more XML source documents (master documents) based on the values of variables relevant to the circumstances (e.g., based on information specific to the parties involved and the circumstances of their relationships). EX1006, 8:1-20, 8:22-9:23; EX1003, ¶117.

In one example, Harrop teaches using a user’s answers to interview questions to “determine values for variables” which “determine content for the resulting instance document.” EX1006, 14:7-11. “The user's responses are used to assign values to variables, such as setting Boolean variables to a value of true or false for determining whether an associated portion of text is to be included in a generated instance document.” EX1006, 9:19-22. Thus, whether a portion of text is to be included in the output document is at least partly based on the user’s responses (i.e., personalization parameters). EX1003, ¶118.

Harrop provides an illustrative example regarding the creation of a letter of employment for a prospective employee (“Jason”). EX1006, 14:21-31, Fig. 6. Figure 6 illustrates one example of an interview question at reference number 604: “What are the core hours when Jason is expected to attend the office?”; with the user (e.g., HR admin) answers: “10am – 12 pm and 2pm – 4 pm.” Id., Fig. 6. Once all the questions about Jason and his employment are answered, Harrop’s system “generates at step 510 an instance document in HTML format on the basis of responses provided by the user, and the instance document is then displayed by the web browser, as shown in Figure 7.” EX1006, 15:1-6. EX1003, ¶119.

Thus, Harrop uses the variables corresponding to the questions asked and answers provided by a user as personalization parameters. The answers are applied to the appropriate XML module (modular item) to resolve an associated logic and the appropriate a portion of text is pulled from the XML source document (i.e., master document) and the text included in the instance document (i.e., interactive document) is at least partly based on the values (i.e., answers) of those variables (i.e., personalization parameters). EX1003, ¶120.

Thus, as Dr. Bederson confirms, both Hailey and Harrop teach generating an interactive document comprising one or more modular items (e.g., content objects / modular text), wherein the one or more modular items are pulled from a master

document (*e.g.*, database / XML source document) based at least in part on one or more personalization parameters (information related to the parties / variables holding answers as values). EX1003, ¶121. Thus, Hailey and Harrop each teach Limitation 1[B1] and the Hailey/Harrop/Davis combination render this limitation obvious. *Id.*

d. **Limitation 1[B2]: and wherein the interactive document comprises a tracking feature to collect data indicative of user interaction with the interactive document;**

The Hailey/Harrop/Davis combination teaches this limitation. EX1003, ¶¶122-124.

Davis teaches a tracking feature that collects data indicative of user interaction with the interactive document. For example, Davis teaches embedding a tracking program in an HTML document, the tracking program monitoring and collecting information regarding how a user interacts with the HTML document. *See* EX1007, 8:13-20 (“the tracking program may simply monitor the amount of time the user spends interacting with the Web page or may monitor details of choices (such as links) made by individual users within a particular Web page.”). Davis uses the tracked information to generate personalized documents (*e.g.*, HTML documents). EX1007, 4:33-36 (“...another object of the present invention to provide means for

assembling a resource, such as a Web page or a highly targeted ad banner, in accordance with a historic user profile.”); EX1003, ¶123.

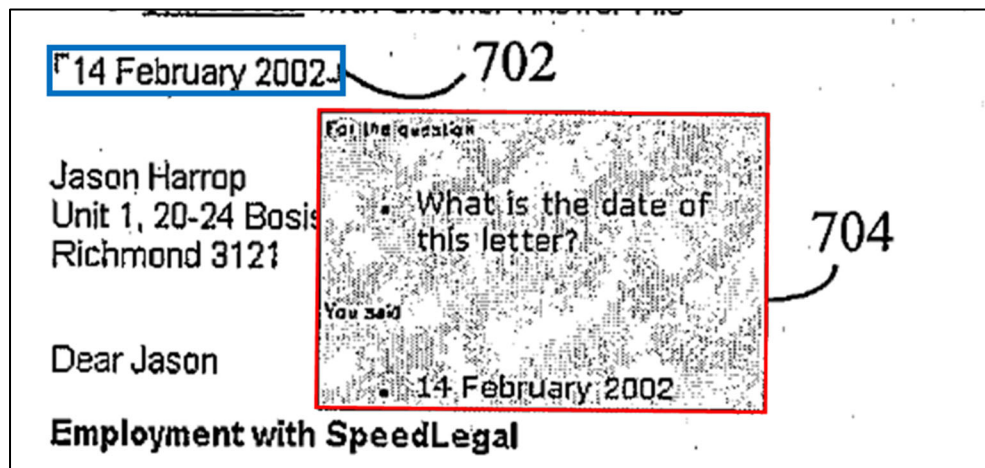
As discussed above, a POSITA would find it obvious to include a tracking feature to collect data indicative of user interaction—such as the one taught by Davis—in the systems of Hailey and/or Harrop. Accordingly, the combined teachings of Hailey, Harrop, and Davis render obvious limitation 1[B2]. EX1003, ¶124; *see* §VIII.A.i, *supra*.

e. **Limitation 1[C]: (b) creating a link between the interactive document and the master document, wherein the link comprises the one or more personalization parameters;**

The Hailey/Harrop/Davis combination teaches this limitation. EX1003, ¶¶125-130.

Limitation 1[C] recites creating a link between the source and output documents, where the link includes personalization parameters. The '290 Patent describes that a “the personalization parameters (e.g., fields in the personalization form) that were provided during the personalization process and a reference to the source document may be stored in the system as a link or connection to the source document(s)” so that changes made to source documents can be reflected when rendering derivative documents. EX1001, 19:36-41. The patent does not describe any form or data structure for the “link or connection.” EX1003, ¶126.

Harrop teaches a link between the instance document (interactive document) and a master document (XML source document). For example, Harrop teaches rendering an HTML instance document where certain text is rendered as “a hypertext anchor” to indicate the question and answer that resulted in that particular text being included in the rendered document. EX1006, 67:28-68:5. Specifically, Harrop teaches that hovering (or mousing over) the hypertext anchor “displays the question and response that resulted in the anchor text being included.” EX1006, 68:1-2. Figure 7 of Harrop depicts one example of a **pop-up window** showing the question and answer associated with the **included hyperlinked text**.



EX1006, Fig. 7 (reproduced-in-part, annotated). EX1003, ¶127.

Further, Harrop teaches that when a hypertext anchor is clicked on by a user, the processing engine 202 is invoked to “reset” the questions associated with the linked text. EX1006, 68:14-18. The processing engine 202 uses XML source

documents 208 and logic sources 210 to resolve all logic in the source document including all questions and required answers. *See* EX1006, 8:22-9:9, 9:30-10:7, 14:13-19, 15:1-6. Specifically, Harrop teaches that the Processing Engine 202 “resolves logic associated with an XML source document 208.” EX1006, 9:5. Figures 1 and 2 show that the processing engine 202 is a component of the document assembly modules 108, which is shown as operating on the server 102. EX1006, Figs 1 and 2, 6:28-29 (“As shown in Figure 1, a document assembly system includes a server 102 having a number of modules 106 to 112.”), 7:8-9 (“The document assembly modules 108 include a Java controller servlet 218, a processing engine 202 and a rendering engine 204.”). Accordingly, Harrop’s processing engine 202 operates on the server 202. In addition, Harrop describes that when the hypertext anchors are clicked by a user, the processing engine 202 will generate a new round of interview questions to allow a user to select a different response and generate a new instance document. EX1006, 15:8-16. Based on Harrop’s teachings, a POSITA would understand that when Harrop’s processing engine is invoked to rest the relevant questions, the processing engine would access the relevant XML source document and that a reference, pointer, or other information would be included in the generated HTML document for the source document to be accessed. EX1003, ¶128.

As Dr. Bederson explains, a POSITA would understand that Harrop's teaching of displaying the specific question and answer associated with hypertext anchor and also resetting the questions associated with the hypertext anchor, means that Harrop's system includes a link between the interactive document (the HTML instance document containing the hypertext anchor) and the master document (XML source document). More specifically, a POSITA would understand that for the processing engine 202 to reset the relevant question, the hypertext anchor and/or the HTML code associated with the anchor would include information that allows the processing engine to access the relevant portion (*i.e.*, the question) in the relevant XML source document. Further, to display a pop-up window which shows the relevant question and answer, Harrop's system would include information that allows the web-browser to render the relevant question and answer in the pop-up window. EX1003, ¶129. The collection of information and the hypertext anchors that Harrop's system uses to perform the functions associated with the hypertext anchors creates a "link" between the interactive document (HTML instance document) and the master document (XML source document). As a POSITA would understand, Harrop's system links the hypertext anchor, the question and answer (*i.e.*, the personalization parameters), and the XML source document (master document) together. EX1003, ¶129. Accordingly, Harrop teaches a "creating a link

between the interactive document and the master document, wherein the link comprises the one or more personalization parameters,” as claimed. EX1003, ¶129.

As discussed above, a POSITA would have found it obvious to include Harrop’s link in the system of Hailey to connect generated interactive documents and the master documents at least for the reasons discussed above. EX1003, ¶130; *see* §VIII.A.i, *supra*. Accordingly, limitation 1[C] is obvious in view of the Hailey/Harrop/Davis combination.

f. **Limitation 1[D1]: (c) rendering the interactive document with aid of a content renderer,**

The Hailey/Harrop/Davis combination teaches this limitation. As discussed with respect to limitation 1[PRE], Hailey, Harrop, and Davis each teach creating interactive HTML and/or PDF documents. *See* §VIII.A.ii.a, *supra* (incorporated here). Further, Harrop and Davis teach rendering the HTML file to display in a user interface. EX1006, 67:28-31 (“The instance [HTML] document can be rendered....”); EX1007, 8:53-60 (“As noted above, a client process, such as a Web browser running on the client machine, uses a TCP/IP connection to pass a request to a Web server running an HTTP service.... The HTTP service then responds to the request, typically by sending a Web page formatted in the Hypertext Markup Language, or HTML, to the browser. The browser displays the Web page using local resources (e.g., fonts and colors).”). Harrop further teaches a “rendering engine 204”

used to render the HTML instance document on a display. EX1006, 67:28-31. EX1003, ¶131.

Indeed, as explained by Dr. Bederson, a POSITA would readily understand that displaying HTML documents on a display device includes rendering visual content from the HTML document. Accordingly, a POSITA would understand that each of Hailey, Harrop, and Davis contemplate using a web browser as a content renderer to display the generated documents. EX1003, ¶132. Therefore, Harrop, Hailey, and Davis all teach or suggest rendering a viewable image of the interactive document with the aid of a content renderer (e.g., web browser). EX1003, ¶132

Accordingly, each of Hailey, Harrop, and Davis individually and their combination collectively teach and suggest limitation 1[D1].

- g. **Limitation 1[D2]: wherein the content renderer is configured to use the link to apply a change to the one or more modular items based on a change to the master document.**

The Hailey/Harrop/Davis combination renders this limitation obvious. As discussed with respect to limitation 1[C], Harrop teaches and/or renders obvious creating a link between the interactive document and the master document, wherein the link comprises the one or more personalization parameters. §VIII.A.ii.e, *supra* (incorporated here); EX1003, ¶134.

Harrop further teaches that the link (i.e., the connection between the interactive document, master document, and variables/answers) is used to apply a change to one or modular items based on a change to the master document. That is, a POSITA would understand that Harrop's system is designed to render the instance document based on the XML source document and that any changes to the XML source document would result in a change to the instance document the next time the instance document is generated and rendered. EX1006, 10:5-7, 15:2-6, 15:8-16 (resetting questions, querying new answers, rendering a new HTML instance document). For example, if a user clicks the hyperlink anchor in Harrop's HTML instance document, the question will be reset, and a user will have to provide a new answer. EX1006, 15:8-16; EX1003, ¶135. If the source XML associated with the reset question has been modified since the HTML instance document was first rendered, then the re-rendered instance document—which now contains a new answer—will reflect the change made to the XML source document. EX1003, ¶135. A change to question, text options, or answer choices in an XML source document is also change to the master document itself. EX1003, ¶135.

To the extent that Harrop does not expressly teach that its content renderer uses Harrop's link to “apply a change to the one or more modular items *based on a change to the master document*,” a POSITA would have found it obvious to modify

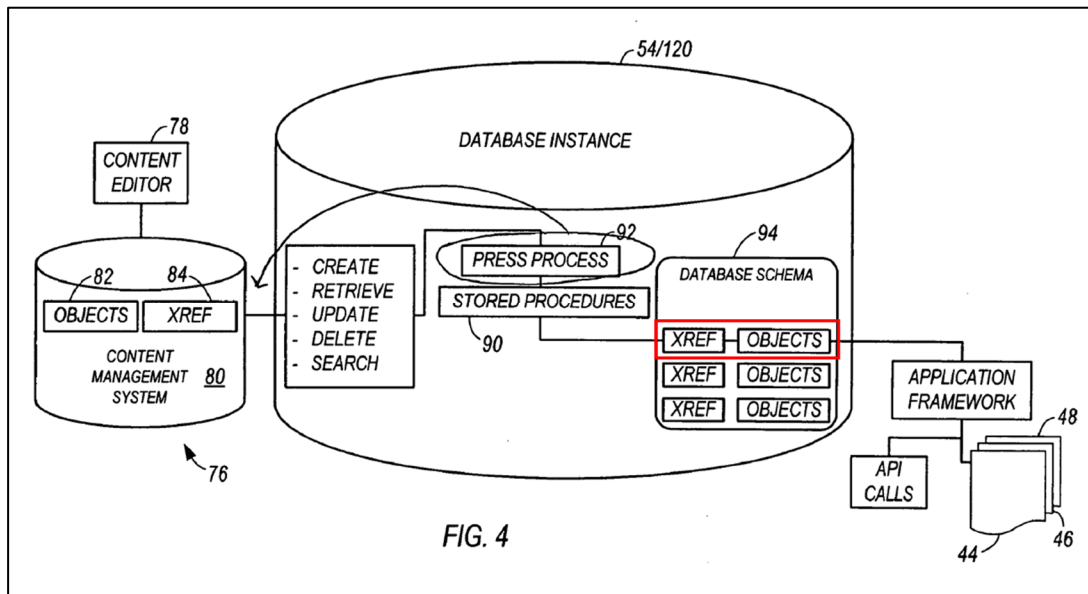
Harrop to apply a change to the modular items based on a change to the master document. EX1003, ¶136. Harrop teaches using reference links to incorporate XML code module into a given XML source to automatically update the resulting instance document based on changes in the XML module. EX1006, 55:22-24 (“Alternatively, the user can import into the document a link to the module—this can point to a current version of the module, and any modifications subsequently made to the module are automatically reflected in the resulting document.”). A POSITA would have understood that Harrop teaches the advantage of using links to source documents—in this case, an XML module—so that changes to the source can be automatically updated in the resulting document. EX1003, ¶136. A POSITA considering Harrop’s disclosure of this benefit and Harrop’s teaching of linking the master document, instance document, and personalization parameters, as discussed regarding limitation 1[C], would have found it obvious to use Harrop’s links to automatically update an instance document and the modular items (i.e. text) contained therein, based on changes to the source document. EX1003, ¶136.

Therefore, it would have been obvious to a POSITA, to include in the systems of Harrop and Hailey a rendering engine that uses a link to apply a change to a modular item based on a change to the master document. This combination of teachings is applicable to both Harrop—since it contains the teachings and

suggestions—as well as Hailey for the reasons discussed in §VIII.A.i above (incorporated here). EX1003, ¶137. Accordingly, the Hailey/Harrop/Davis combination renders limitation 1[D2] obvious.

iii. **Claim 2: The system of claim 1, wherein the one or more modular items from the master document are embedded with an assembly rule.**

As discussed above, the Hailey/Harrop/Davis combination renders obvious all the limitations of claim 1 and further renders claim 2 obvious. *See* §VIII.A.ii, *supra* (incorporated here). As discussed regarding limitation 1[B1], Hailey teaches that content (modular items) are stored in the database as groups of XREF (rules) and objects. *See* §VIII.A.ii.c, *supra* (incorporated here); EX1005, ¶¶39-41, 64; EX1003, ¶138. “[T]he rules take the form of rules markup created using an XML script or schema (or, more broadly, an architecture or namespace) and may be referred to as ‘xref’ embedded rules.” EX1005, ¶45. These XREF rules 56/84 are “used to determine a set of documents” and are, therefore, assembly rules. EX1005, ¶77; EX1003, ¶138. Figure 4 of Hailey (annotated below) shows that the **content** (modular items) contained in the database 54/120 are embedded with the XREF rules since they are contained within each XREF-Object grouping that forms a content. EX1003, ¶138.



In addition, Harrop also teaches embedding the processing instructions in the XML modules in the source documents 208 (i.e., master document) with the logic sources 210. EX1006, 20:4-12. In one example of an XML source document provided by Harrop (annotated below), the logic source is embedded in a processing instruction: `<?SpeedLegal?>`.

```

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE Letter SYSTEM "file:///home/speedlegal/dtd/xhtml1-letter/dtd/xhtml1-letter.dtd">
<Letter>
  <?SpeedLegal
    <LogicSources>
      <LogicSource ID="LogicSource_1" uri="/files/logic/LS1WD.lgc"/>
      <LogicSource ID="LogicSource_2" uri="/files/logic/LS2WD.lgc"/>
      <PartyMapping>
        <PartyMap From="Contractor" To="Employee">
          <PartyDetailMap From="Shortname" To="Firstname"/>
          <PartyDetailMap From="Fullname" To="Firstname"/>
        </PartyMap>
      </PartyMapping>
    </LogicSources>
  ?>
  <?SpeedLegal
    <MetaInformation>
      <rdf:RDF xmlns:dc="http://purl.org/dc/elements/1.1/"
        xmlns:rdf="http://www.w3.org/TR/WD-rdf-syntax-ns#">

```

```

<LetterHead>
  <Date/>
  <Salutation/>
</LetterHead>
<LetterBody>
  <p>
    <?SpeedLegal
      <Condition IDREF="PaidLeave" LogicSource="LogicSource_1"/>
    ?>
    <?SpeedLegal
      <PartyReference IDREF="Employee" LogicSource="LogicSource_1"
        Style="Pronoun" Type="PartyDetail_1"/>
    ?> shall be eligible for paid leave.</p>
  <p>

```

EX1006, 48:15-38, 18:18-31. As Dr. Bederson explains, a POSITA would understand that the above example shows embedded assembly rules (i.e., the logic sources) which instruct the processing engine how to assemble the appropriate text once the appropriate questions are answered. EX1003, ¶139. Accordingly, Harrop teaches embedding an assembly rule (i.e., logic source) in a modular item (i.e., XML processing instruction module) in a master document (i.e., XML source document). EX1003, ¶139.

iv. **Claim 3: The system of claim 2, wherein the one or more modular items in the interactive document are not embedded with the assembly rule.**

As discussed above, the Hailey/Harrop/Davis combination renders obvious all the limitations of claims 1 and 2, and further renders claim 3 obvious. §§VIII.A.ii-iii, *supra* (incorporated here); EX1003, ¶¶140-142.

Claim 3 further limits claim 2 such that “the assembly rule” which is embedded in the modular item in the master document is *not embedded* in the modular items in the interactive document. EX1003, ¶141. Although the ’290 Patent describes the embedding of assembly rules in modular items in a master document, the ’290 Patent provides no description or example of an interactive document that *does not* include the assembly rule. *See* EX1001, 3:51-53; EX1003, ¶141. Nevertheless, a POSITA would have been able to understand the plain and ordinary meaning of this limitation and would have found the claim to be obvious over the Hailey/Harrop/Davis combination. EX1003, ¶141.

Hailey and Harrop both describe using source (master) documents and variables (personalization parameters) to generate output (interactive) documents in HTML and PDF documents. *See* §VIII.A.ii.c, *supra* (incorporated here); EX1005, ¶¶39, 40-41, 64, Figs. 1, 4.; EX1006, 8:1-9:23, 14:7-11, 14:21-15:6, Fig. 7. A POSITA would understand that a generated HTML or PDF document would not

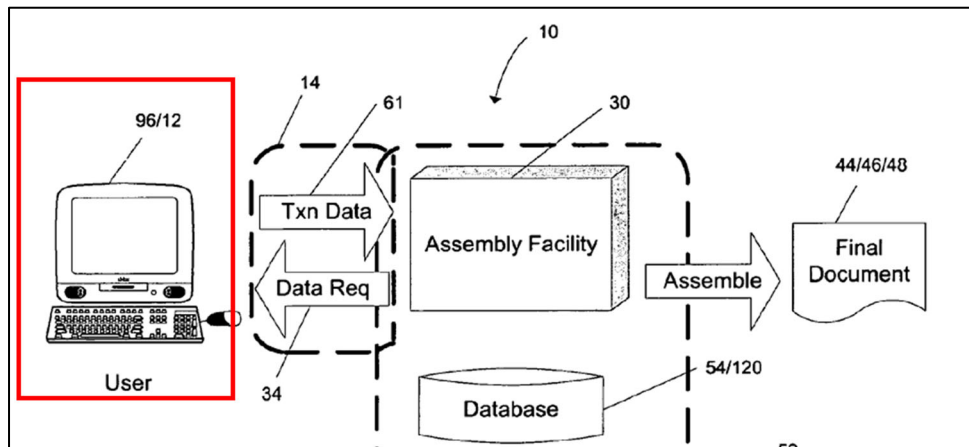
include the assembly rule used to assemble the generated document. As Dr. Bederson explains, it would be obvious to *exclude* the assembly rules after they are evaluated and only populate the generated document with the object or text content for several reasons. For example, a POSITA would recognize that including assembly rules in a generated would unnecessarily complicate the generated document, limit the file types that the generated document use. Additionally, a POSITA would understand that including the assembly rules in the generated document would introduce a security risk because an end-user could then potentially manipulate the value of parameters in the generated document relying on the rules to modify the document in ways unintended by the owner of the master document. *See, e.g.*, EX1020, EX1021; EX1003, ¶142. Moreover, a POSITA would understand that the typical approach would be to use the assembly rules to decide what content is included in the final generated document and leave the rule itself in the source/master document. In other words, a POSITA would have found it obvious to use assembly rules from modular items to select content and create an interactive document, and not import those assembly rules into the final, generated document. EX1003, ¶142.

- v. **Claim 4: The system of claim 1, wherein the one or more operations further comprise providing a graphical user interface (GUI) for receiving the one or more personalization parameters.**

As discussed above, the Hailey/Harrop/Davis combination renders obvious all the limitations of claim 1 and further renders claim 4 obvious. §VIII.A.ii, *supra* (incorporated here). EX1003, ¶¶143-146.

Harrop teaches that a web browser (i.e., a GUI) displays interview questions to solicit answers from a user and generate an instance document. EX1006, 14:21-31, Fig. 6. A web browser is or at least includes a graphical user interface (GUI). EX 1003, ¶144.

In addition, Hailey teaches that an origination platform 12 is used to solicit data from a user, which data (personalization parameter) is used to select the appropriate content for the generated document. *See* §VIII.A.ii.d, *supra* (incorporated here); EX1005, ¶¶39-41, 64, Fig. 1. As shown in figure 4A (annotated below), Hailey describes that a **computer** is used to input data into the origination platform 96/12. EX1005, Fig. 4A, ¶66 (“A user 96 interacting with the origination platform 12 enters transaction data 61”). EX1003, ¶¶145-146.



vi. **Claim 7: The system of claim 1, wherein the master document is stored in a pre-defined document schema.**

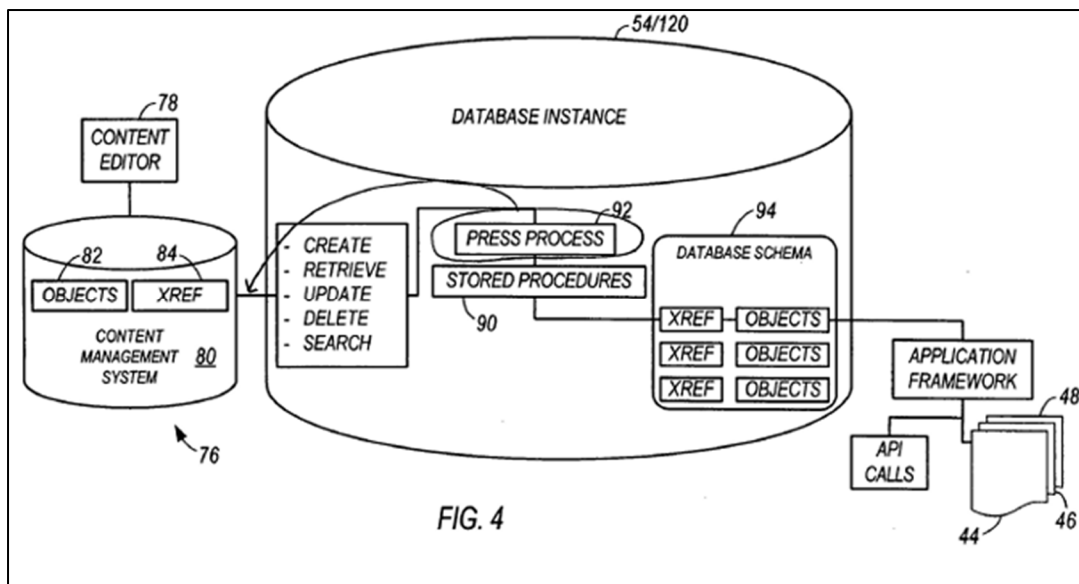
As discussed above, the Hailey/Harrop/Davis combination renders obvious all the limitations of claim 1 and further renders claim 7 obvious. §VIII.A.ii, *supra* (incorporated here); EX1003, ¶147.

Hailey teaches storing objects (content) using an XML schema. EX1005, ¶¶45-58, 87, Fig. 18. Similarly, Harrop teaches that source documents are in an XML format which can be validated against an XML schema. EX1006, ¶¶78-79. An XML schema is a pre-defined document schema. Accordingly, both Hailey and Harrop teach storing the master document in a pre-defined document schema (i.e., an XML schema). EX 1003, ¶148.

vii. **Claim 8: The system of claim 7, wherein the master document is stored as structured data in a document database.**

As discussed above, the Hailey/Harrop/Davis combination renders obvious all of the limitations of claims 1 and 7, and further renders claim 8 obvious. §VIII.A.ii, vi, *supra* (incorporated here); EX1003, ¶149.

Hailey teaches storing content (*e.g.*, objects) in a knowledge base (shown as a runtime database 120 in FIGS. 8 and 4) from which the content (*e.g.* objects) for a particular document can be extracted. EX1005, ¶95. Figure 4 (reproduced below) demonstrates that this data is stored in a structured manner. EX1003, ¶150.



Similarly, Harrop teaches that the source documents 208 XML documents (*i.e.*, structured data files) in data files 110, which are stored in a hard drive (*i.e.*, database). EX1006, 7:21-31; EX1003, ¶150.

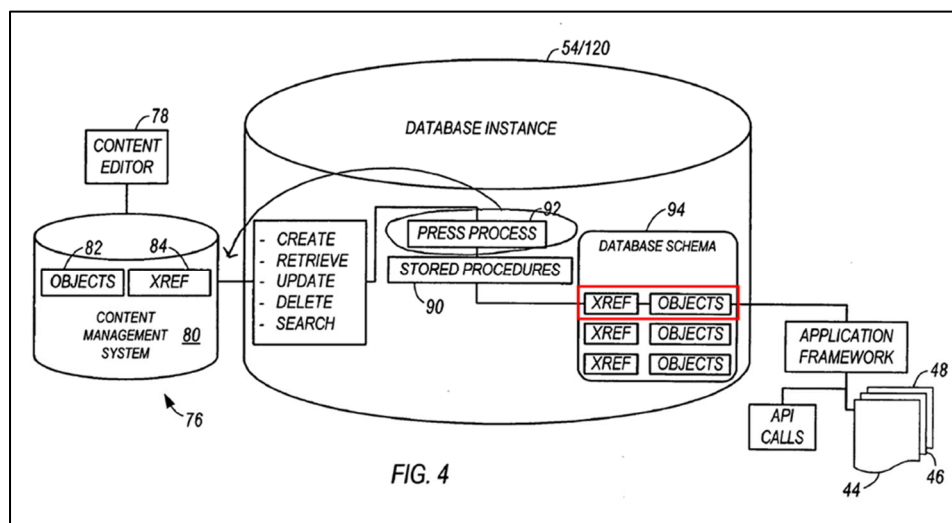
Accordingly, the Hailey/Harrop/Davis combination renders claim 8 obvious.

viii. **Claim 9: The system of claim 8, wherein the structured data further stores an assembly rule associated with the one or more modular items.**

As discussed above, the Hailey/Harrop/Davis combination renders obvious all of the limitations of claims 1, 7, and 8, and further renders claim 9 obvious.

§VIII.A.ii, vi, vii *supra* (incorporated here); EX1003, ¶151.

As discussed regarding limitation 1[B1], Hailey teaches that content (modular items) are stored in the database as groups of XREF (rules) and objects. *See* §VIII.A.ii.c, *supra* (incorporated here); EX1005, ¶¶39, 40-41, 64; EX1003, ¶152. Figure 4 of Hailey (annotated below), depicts that the **content** (modular items) includes the assembly rules (XREF) and objects and, therefore, the XREF assembly rules are associated with each modular item (**content**). EX1005, ¶64, Fig. 4.



ix. **Claim 10**

Claim 10 is directed to a computer-implemented method, reciting limitations that are substantially identical to the recitations in claim 1. Thus, claim 10, for at least the same reasons as claim 1, is unpatentable over Hailey, Harrop, and Davis. VIII.A.ii, *supra* (incorporated here); EX1003, ¶154.

a. **Limitation 10[PRE]: A computer-implemented method for creating an interactive document, comprising:**

As discussed regarding limitations 1[pre] and 1[A], the Hailey/Harrop/Davis combination renders this limitation obvious. *See* §§VIII.A.ii.a-b, *supra* (incorporated here); EX1003, ¶155.

b. **Limitation 10[A1]: (a) generating an interactive document comprising one or more modular items, wherein the one or more modular items are pulled from a master document based at least in part on one or more personalization parameters,**

As discussed regarding limitations 1[B1], the Hailey/Harrop/Davis combination renders this limitation obvious. *See* §VIII.A.ii.c, *supra* (incorporated here); EX1003, ¶156.

- c. **Limitation 10[A2]: and wherein the interactive document comprises a tracking feature to collect data indicative of user interaction with the interactive document;**

As discussed regarding limitations 1[B2], the Hailey/Harrop/Davis combination renders this limitation obvious. *See* §VIII.A.ii.d, *supra* (incorporated here); EX1003, ¶157.

- d. **Limitation 10[B]: (b) creating a link between the interactive document and the master document, wherein the link comprises the one or more personalization parameters;**

As discussed regarding limitations 1[C], the Hailey/Harrop/Davis combination renders this limitation obvious. *See* §VIII.A.ii.e, *supra* (incorporated here); EX1003, ¶158.

- e. **Limitation 10[C1]: (c) rendering the interactive document with aid of a content renderer,**

As discussed regarding limitations 1[D1], the Hailey/Harrop/Davis combination renders this limitation obvious. *See* §VIII.A.ii.f, *supra* (incorporated here); EX1003, ¶159.

- f. **Limitation 10[C2]: wherein the content renderer is configured to use the link to apply a change to the one or more modular items based on a change to the master document.**

As discussed regarding limitations 1[D2], the Hailey/Harrop/Davis combination renders this limitation obvious. *See* §VIII.A.ii.g, *supra* (incorporated here); EX1003, ¶160.

- x. **Claim 11: The computer-implemented method of claim 10, wherein the one or more modular items from the master document are embedded with an assembly rule.**

As discussed regarding claim 2, the Hailey/Harrop/Davis combination renders this claim obvious. *See* §VIII.A.iii, *supra* (incorporated here); EX1003, ¶161.

- xi. **Claim 12: The computer-implemented method of claim 11, wherein the one or more modular items in the interactive document are not embedded with the assembly rule.**

As discussed regarding claim 3, the Hailey/Harrop/Davis combination renders this claim obvious. *See* §VIII.A.iv, *supra* (incorporated here); EX1003, ¶162.

- xii. **Claim 13: The computer-implemented method of claim 10, wherein the one or more operations further comprise providing a graphical user interface (GUI) for receiving the one or more personalization parameters.**

As discussed regarding claim 4, the Hailey/Harrop/Davis combination renders this claim obvious. *See* §VIII.A.v, *supra* (incorporated here); EX1003, ¶163.

- xiii. **Claim 16: The computer-implemented method of claim 10, wherein the master document is stored in a pre-defined document schema.**

As discussed regarding claim 7, the Hailey/Harrop/Davis combination renders this claim obvious. *See* §VIII.A.vi, *supra* (incorporated here); EX1003, ¶164.

- xiv. **Claim 17: The computer-implemented method of claim 16, wherein the master document is stored as structured data in a document database.**

As discussed regarding claim 8, the Hailey/Harrop/Davis combination renders this claim obvious. *See* §VIII.A.vii, *supra* (incorporated here); EX1003, ¶165.

- xv. **Claim 18: The computer-implemented method of claim 17, wherein the structured data further stores an assembly rule associated with the one or more modular items.**

As discussed regarding claim 9, the Hailey/Harrop/Davis combination renders this limitation obvious. *See* §VIII.A.viii, *supra* (incorporated here); EX1003, ¶166.

B. [Alternate] Ground 2: Claims 1-5, 7-14, and 16-18 are rendered obvious by Hailey, Harrop, Davis, and McKinlay

This Ground is included as an alternative to the arguments presented regarding limitations 1[C] above. All other arguments regarding the other limitations of claim 1 and all other claims follow the same rationale presented above. §VIII.A.ii, *supra* (incorporated here). Accordingly, as discussed in more detail below, this ground focuses on the addition of McKinlay which teaches a link that comprises personalization parameters, as required by limitation 1[C].

i. Reasons to Combine

a. Analogous Art

McKinlay is analogous art to Haiely, Harrop, Davis, and the '290 Patent. McKinlay teaches a system that initiates a download of a software component based on custom parameters (e.g., download authorization and preferences). EX1008, Abstract. Similar to Harrop's pop up preview, McKinlay teaches a user interface (web browser) and uses URL parameters and JavaScript to generate a pop-up window with specific information. EX1008, ¶86. Thus, Harrop and McKinlay both teach similar to solutions (e.g. showing a pop-up window) to similar problems (e.g., displaying specific information to a user). Further, just like Harrop, Hailey, Davis, and the '290 Patent, McKinlay is classified in International Patent Class G06F, Electronic Digital Data Processing. Accordingly, a POSITA would have considered McKinlay to be analogous art to Hailey, Harrop, Davis, and the '290 Patent. In particular, a POSITA would have recognized McKinlay's teaching regarding creating a pop-up with specific information is analogous to Harrop's teaching of hypertext anchors that generate pop-up windows with the associated question and answer. EX1003, ¶168.

b. Motivation to combine

A POSITA would have been motivated to implement Harrop's pop-up window and hypertext anchor as a URL link with URL parameters and JavaScript coding, as taught by McKinlay. Viewing Harrop's teaching of the hypertext anchor, a POSITA would have known that the hypertext anchors, pop up window, and resetting the associated questions could be implemented in several different ways including URL parameters and JavaScript. Indeed, Harrop teaches using "JavaScript and the anchor elements HTML" (EX1006, 68:15-16), but does not expressly describe using URL parameters in the anchor element's HTML code. McKinley, however, describes generating a pop-up using JavaScript and URL parameters and includes example code to implement those features. EX1008, ¶86. A POSITA would have found it obvious to combine the teachings of McKinlay and Harrop to implement the hypertext anchors taught by Harrop using URL parameters and JavaScript, as taught by McKinlay, to display to the user the questions and answers that led to the inclusion of the linked text and allow resetting of the question, as taught by Harrop. EX1003, ¶169.

c. Reasonable Expectation of Success

A POSITA would have found it routine and predictable to implement Harrop's hypertext anchor, pop up, and question-resetting using McKinlay's URL

parameters and JavaScript. McKinlay provides examples of how to implement pop ups with specific information and a POSTIA would have readily understood that similar programming could be used to implement Harrop's described features. Implementing code similar to McKinlay's in Harrop's system would have merely required including known technologies (i.e., URL and JavaScript coding) in known systems (Harrop's generated instance document and system). Accordingly, in view of the clear teachings of both Harrop and McKinlay, a POSITA would have found had a reasonable expectation of success in combining the teachings of McKinlay with Hailey, Harrop, and/or Davis. EX1003, ¶170.

ii. Claim 1

a. Limitations 1[pre], 1[A], 1[B1], 1[B2], 1[D1], and 1[D2]

As discussed above in regard to Ground 1, the Hailey/Harrop/Davis combination renders obvious all of the features recited in limitations 1[PRE], 1[A], 1[B1], 1[B2], 1[D1], and 1[D2]. The combination of Hailey, Harrop, Davis, and McKinlay render the same limitations obvious for the same reasons presented above. See §VIII.A.ii.a-VIII.A.ii.d, VIII.A.ii.f-VIII.A.ii.g, *supra* (all incorporated here). EX1003, ¶171.

b. Limitation 1[C]: (b) creating a link between the interactive document and the master document, wherein the link comprises the one or more personalization parameters;

As discussed above regarding Ground 1, the Hailey/Harrop/Davis combination renders obvious all the features recited in limitations 1[C]. §VIII.A.ii.e, *supra* (incorporated here).

In addition, or in the alternative, to the reasons stated above and to the extent that the claimed “link” must be a specific data structure or specific data reference that “comprises the one or more parameters,” a POSITA would have found it obvious to implement Harrop’s hyperlink anchors as a URL hyperlink containing web parameters that specify the answers (personalization parameters) associated with the text included in the generated instance document, as taught by McKinlay. EX1003, ¶173.

URL web parameters were well known both by the time the ’290 Patent was filed and, in 2006, when Harrop was published. As Dr. Bederson explains, a POSITA would have known that URL web parameters can be used to embed particularized information into a URL link. A POSITA would have understood, upon reading Harrop’s disclosure regarding hypertext anchors, that an obvious way to implement the hypertext anchors would be to embed a URL containing parameters that includes

the question and answer associated with the hyperlinked text so that, on mouse over, the pop up is created and displayed as intended by Harrop. EX1003, ¶174.

Indeed, McKinlay teaches an example of using a URL that includes a defined parameter “yic=YIC_HIC_Site_Home” combined with the JavaScript function “window.open()” to define a link that opens a pop-up window displaying the webpage that includes the customized defined parameter. EX1008, ¶86-94; EX1003, ¶175. Similarly, Harrop mentions using “JavaScript and the anchor elements HTML” to implement its hypertext anchor and pop-up window. EX1006, 68:14-18. EX1003, ¶175.

For the reasons presented above, a POSITA would have found it obvious to implement the hypertext anchor and pop-up window taught by Harrop using a URL anchor that includes personalization parameters (i.e., web parameters), as taught by McKinlay. EX1003, ¶176.

Thus, limitation 1[C] is obvious over the Harrop/Hailey/Davis combination and, in the alternative, the Harrop/Hailey/Davis/McKinlay combination. EX1003, ¶177.

iii. Claims 2-4, 7-14, and 16-18

As discussed above regarding Ground 1, the Hailey/Harrop/Davis combination renders obvious all the features recited in claims 2-4, 7-14, and 16-18.

§VIII.A.iii-VIII.A.xv, *supra* (all incorporated here). For the same reasons discussed above, the Hailey/Harrop/Davis/McKinlay combination renders obvious all the features recited in these same claims. More specifically, the addition of McKinlay's teachings would not alter any of the features of Hailey, Harrop, or Davis discussed regarding claims 2-4, 7-14, and 16-18. EX1003, ¶178.

C. Ground 3A: Claims 5-6 and 14-15 are rendered obvious by Harrop, Hailey, and Davis (and, alternatively McKinlay), in further view of Lo

This Ground is presented as adding the teachings of Lo to the teachings of Hailey, Harrop, and Davis, as presented in Ground 1 or to the teachings of Hailey, Harrop, Davis, and McKinlay, as presented in Ground 2. In both cases, the features of claims 5-6 and 14-15 are taught by Lo and rendered obvious when combined either with the references of Ground 1 or Ground 2.

i. Reasons to Combine

a. Analogous Art

Lo is analogous art to the Harrop, Hailey, and Davis, as well as the '290 Patent. Lo is in the same field of endeavor, namely document assembly and creation. EX1009, ¶2 ("methods and processes for creation, editing, and of documents composed of text and graphics and, in printing particular, to the creation, editing and printing of variable data documents."). As with the '290 Patent, Lo is classified in

International Patent Class G06F, Electronic Digital Data Processing. EX1009, 1 (field (52)). Accordingly, a POSITA would have considered Lo to be analogous art to Hailey, Harrop, Davis, and the '290 Patent. EX1003, ¶179.

b. Motivation to combine

A POSITA would have been motivated to combine the teachings of Lo with the teachings of Hailey, Harrop, and Davis. Lo teaches that “[l]ive proofing is advantageous over a separate merging process because errors in the design of the template are likely to be found earlier through interactive navigation.” EX1009, ¶381. Similarly, a POSITA would have recognized that Hailey and Harrop each appreciate the importance of previewing and/or catching errors before a final output document is generated. For example, Harrop describes document previews (i.e., pop-up windows) to assist a user in adjusting the final document. EX1006, 15:8-16, 67:28-68:18. Likewise, Hailey’s system includes a mechanism to allow a user a “change or replace paragraphs or sections, add content, etc.” in a generated document. EX1005, ¶69; EX1003, ¶180.

A POSITA would have been motivated to combine Lo’s teaching of live-proofing previews with the teachings of Hailey, Harrop, and/or Davis to enable a user to find errors in document design at an earlier stage, as taught by Lo. EX1003, ¶181.

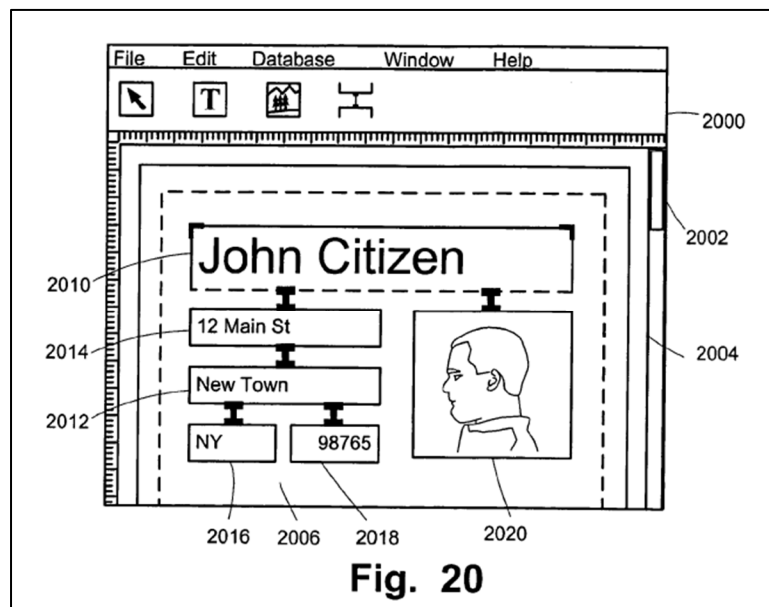
c. Reasonable Expectation of Success

A POSITA would have had a reasonable expectation of success in modifying the systems of Hailey, Harrop, and/or Davis to include the live-proofing previews taught by Lo. The implementation of previews into a GUI would have required nothing more than incorporating known concepts (*i.e.*, previews in a GUI) into known systems (*i.e.*, the interfaces taught by Harrop, Hailey, and Davis). In particular, Hailey and Harrop teach user interfaces through which a user inputs data or answers questions relative to the variables that influence which content is included in the generated documents. *See* §VIII.A.v, *supra* (incorporated here). A POSITA would have found it routine to modify the already-existing user interfaces of Hailey, Harrop, and/or Davis to include Lo's teachings regarding the live-proofing preview feature. EX1003, ¶182.

ii. Claim 5: The system of claim 4, wherein the GUI is configured to display a preview of the interactive document upon receiving a user input indicative of at least one of the one or more personalization parameters.

As discussed above, the Hailey/Harrop/Davis combination renders claim 4 obvious. Claim 5 is rendered obvious over Hailey, Harrop, Davis, and, in further view of Lo. *See* §§VIII.A.ii, VIII.A.v, *supra* (both incorporated here); EX1003, ¶183.

Lo teaches “live proofing” a template document to “display[] variable data merged with the variable document template interactively and on-demand.” EX1009, ¶428. Figure 20 of Lo shows “what part of [a] record would look like if printed” including “extra borders 2004 and colors 2006...to make visible the constraints defined within the variable document template.” EX1009, ¶¶380, 428-429. Fig. 20.



Thus, Lo teaches displaying a preview of an interactive document (as shown in figure 20) where the preview reflects a user input regarding a personalization parameter (e.g., Lo’s “variable data”). EX1003, ¶¶184-185.

For the reasons discussed above, a POSITA would have found it obvious to include Lo’s live-proofing feature in the Hailey/Harrop/Davis combined system to provide the user with a preview of how the generated interactive document would

change depending on changes to input variables. *See* §VIII.C.i, *supra* (incorporated here); EX1003, ¶186. Accordingly, the Hailey/Harrop/Davis combination as modified by Lo renders claim 5 obvious.

iii. **Claim 6: The system of claim 5, wherein the preview comprises automatically navigating to at least one of the one or more modular items corresponding to the user input.**

As discussed above, the Hailey/Harrop/Davis combination in view of Lo renders claim 5 obvious. The same combination renders claim 6 obvious. *See* §§VIII.A.ii, VIII.A.v, VIII.C.ii *supra*; EX1003, ¶187.

As discussed above, figure 20 of Lo shows a preview that automatically depicts the portion of the interactive document that is modified based on the changed input variable. EX1009, Fig. 20, ¶428. Specifically, Lo teaches that the preview of figure 20 shows “what *part* of that *record* would look like.” EX1009, ¶428. Indeed, Lo describes its live proofing as “interactive navigation.” EX1009, ¶381. Accordingly, a POSITA would have understood that Lo’s live-proofing preview automatically navigates to the “part of [the document]” that corresponds to the part of the record data modified by the user. EX1003, ¶188.

- iv. **Claim 14: The computer-implemented method of claim 13, wherein the GUI is configured to display a preview of the interactive document upon receiving a user input indicative of at least one of the one or more personalization parameters.**

For the same reasons discussed regarding claims 5, 6, 10, and 13 above, the Hailey/Harrop/Davis combination in view of Lo renders claim 14 obvious. See §§VIII.A.ix, VIII.A.xii, VIII.C.ii, VIII.C.iii, *supra* (incorporated here); EX1003, ¶189.

- v. **Claim 15: The computer-implemented method of claim 14, wherein the preview comprises automatically navigating to at least one of the one or more modular items corresponding to the user input.**

For the same reasons discussed in regard to claims 5, 6, 10, 13, and 14 above, the Hailey/Harrop/Davis combination in view of Lo renders claim 15 obvious. See §§VIII.A.ix, VIII.A.xii, VIII.C.ii, VIII.C.iii, VIII.C.iv, *supra* (all incorporated here); EX1003, ¶190.

IX. DISCRETIONARY DENIAL IS NOT WARRANTED

“Early challenges to patents favor robust, predictable patent rights and weigh against discretionary denial.” *Imperative Care, Inc. v. Inari Med., Inc.*, IPR2025-00289, Paper 9 at 2 (PTAB June 12, 2025). The ’290 Patent issued less than a year ago, on October 15, 2024. Patent Owner sent Petitioner a notice of alleged infringement of the ’290 Patent and a demand to cease and desist the use and sale of

the accused product approximately two weeks later, on November 1, 2024. The '290 Patent became eligible for IPR about five months ago on July 15, 2025. Therefore, PO cannot claim any settled expectations in the '290 Patent. *See Cambridge Indus. USA Inc. v. Applied Optoelectronics, Inc.*, IPR2025-00434, Paper 11 at 2-3 (PTAB June 26, 2025) (denying requests for discretionary denial on three petitions challenging patents that “have not been in force for a significant period of time (issued in 2020, 2019, and 2019)”, finding that “Patent Owner has not developed strong settled expectations that favor discretionary denial as to at least those patents”). Petitioner, therefore, is proactively challenging the '290 Patent to protect the market for its products and its customers from improper infringement allegations by PO that threaten Petitioner’s compelling economic and business interests.

Further, none of the references relied on in this petition were before the Office during prosecution. Had the Examiner reviewed the petition and evidence cited herein, the '290 Patent would not have been issued. In other words, it would have been a material error by the Office to issue the '290 Patent had the Examiner been aware of Davis’s teaching of a tracking feature, in combination with the teachings of Harrop and Hailey. Thus, the circumstances surrounding this Petition weigh strongly against discretionary denial.

X. CONCLUSION

Petitioner has established a reasonable likelihood that the Challenged Claims are unpatentable.

Respectfully submitted,

Dated: October 20, 2025

By: / Ryan N. Miller /
Ryan North Miller
Reg. No. 68,262

Counsel for Petitioner, Foleon Inc.

PETITIONER MANDATORY NOTICES

Real Party-in-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner certifies that Foleon, Inc., Newion Investments Capital Early Stage Fund B.V., Newion II B.V., and CC&P IM B.V. are real parties-in interest.

Related Matters

Pursuant to 37 C.F.R. § 42.8(b)(2), to the best knowledge of the Petitioner, the '290 Patent is not involved in any pending cases.

Lead and Back-up Counsel and Service Information

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Respectfully submitted,

Dated: October 20, 2025

By: / Ryan N. Miller /
Ryan North Miller
Reg. No. 68,262

Counsel for Petitioner, Foleon, Inc.

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioner hereby certifies, in accordance with and in reliance on the word count provided by the word-processing system used to prepare this Petition, that the number of words in this paper is 13,386. Pursuant to 37 C.F.R. § 42.24(a)(1), this word count excludes the table of contents, table of authorities, mandatory notices under § 42.8, certificate of service, certificate of word count, appendix of exhibits, and any claim listing.

Dated: October 20, 2025

/ Ryan N. Miller /

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Foleon, Inc.

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.205(b), the undersigned certifies that on the 20th day of October, 2025, a complete and entire copy of this Petition for Inter Partes Review and all supporting exhibits was provided via Federal Express to:

Courtesy Copies emailed to:

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