

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION**

R2 Solutions LLC,

Plaintiff,

vs.

American Airlines, Inc.,

Defendant.

Civil Action No. 4:22-cv-00353

JURY TRIAL

**DEFENDANT AMERICAN AIRLINES, INC.'S P.R. 4-2 PRELIMINARY CLAIM
CONSTRUCTIONS AND EXTRINSIC EVIDENCE**

Pursuant to Patent Rule 4-2 and the Court's Docket Control Order), American Airlines, Inc. ("American") respectfully submit their Preliminary Proposed Claim Constructions and Extrinsic Evidence for the claim terms, phrases, or clauses contained in the asserted patents that the parties identified for claim construction purposes pursuant to Patent Rule 4-1. American's extrinsic evidence is being produced and/or provided to R2 contemporaneously herewith in accordance with the local patent rules.

American bases these constructions upon their current knowledge, understanding, and belief as to the facts and information available as of this date. American reserves the right to further amend these preliminary proposed claim constructions as the parties proceed with discovery and work toward the preparation of a final Joint Claim Construction Statement. In particular, American reserves the right to modify or supplement these P.R. 4-2 disclosures to facilitate agreement with R2 or defendants in other R2 matters, to avoid duplication of terms or phrases, to reflect newly-received information, or in response to any changes in R2's P.R. 3-3 and P.R. 3-4 disclosures. To the extent necessary to clarify the issues for the Court or otherwise avoid ambiguity or confusion,

American reserves the right to address a word or phrase separately from the terms listed below, if addressing that word or phrase separately will assist in the resolution of the parties' disputes.

American also reserves their right to revise their proposals regarding claim terms in view of R2's proposals and as discovery proceeds. American specifically reserves the right to modify or supplement their preliminary proposed constructions once they have had an opportunity to review R2's preliminary proposed constructions. American further reserves the right to rely on extrinsic evidence identified for other terms, identified by R2, and to add additional extrinsic evidence, particularly for constructions on which the parties disagree. Furthermore, American reserves the right to update their citations to additional relevant extrinsic evidence, such as inventor testimony and testimony from attorneys responsible for prosecuting the asserted patents, as well as to identify additional dictionary definitions and prior art.

American also reserves the right to amend these disclosures to the extent R2 supplements or amends its invalidity contentions or claim construction disclosures. American specifically reserves the right to modify the terms and proposed constructions identified herein within a reasonable time of R2 being permitted to serve any supplemental contentions.

To confirm the proper construction, in addition to the extrinsic evidence cited below, American may rely on the patents and other references cited during the prosecution of the asserted patents. American also may rely on one or more of the prior art systems and/or publications identified in its Invalidity Contentions to explain the state of the art and/or to show the ordinary meaning of certain claim terms. Furthermore, American may rely on any public statement of Yahoo, R2 and/or its representatives (including statements made in prosecution of foreign counterparts to the asserted patents), or any current or former employee of Yahoo or R2; any of the named inventors and/or prosecuting attorneys; and/or any information from other sources,

including discovery produced in this case. American may also rely on documents produced by R2 pursuant to Patent Local Rule 3-2 to the extent those documents evidence the ordinary meaning of claim terms and/or any different meaning assigned to claim terms by the inventors. American may also rely on testimony from one or more of the inventors and/or the prosecuting attorney elicited in ongoing discovery in this case.

As noted below, American may also rely on testimony from one or more expert witnesses, including any identified by R2. Such expert evidence may address the relevant field of art, the level of ordinary skill in the art, the definiteness of certain terms, and the meaning that certain claim terms would have to a person of ordinary skill in the art based on the asserted patents' disclosure and associated prosecution history, including any extrinsic evidence offered by R2, American, or defendants in related R2 matters concerning one or more of the same patents.

Term	Patent/Claim	American's Preliminary Proposed Construction	American's Preliminary Extrinsic Evidence
"keyword"	'157 Patent, Claims 1, 2	"a characteristic word, phrase or code in a query used to perform searching operations"	U.S. Patent No. 9,367,608) ("Zhang"); U.S. Patent No. 7,689,585 ("Zeng"); IPR2022-01456, EX 1016 - Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022); Manning, Introduction to Information Retrieval (2008); Microsoft Internet and Networking Dictionary (2003) "keyword" "a characteristic word, phrase, or code that is stored in a key field and is used to conduct sorting or searching operations on records in a database". One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the

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			'157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"token"	'157 Patent, Claims 1, 2	"an individual textual element into which a query is parsed"	U.S. Patent No. 9,367,608) ("Zhang"); U.S. Patent No. 7,689,585 ("Zeng"); IPR2022-01456, EX 1016 - Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022); Manning, Introduction to Information Retrieval (2008); Microsoft Internet and Networking Dictionary (2003) "token" "any non-reducible textual element in a data that is being parsed". One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to

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			arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“intent(s)”	'157 Patent, Claims 1, 2	indefinite; alternatively, “a mapping from many combinations of keywords to a set of common goals that users pursue in a search query or session of multiple queries”	IPR2022-01456, EX 1016 - Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022); One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not

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			limited to other defendants in present and/or prior R2 matters.
"classifying the query ... into at least one of the plurality of intents"	'157 Patent, Claims 1, 2	"assigning the query to one or more of the plurality of intents determined from the at least one query keywords"	U.S. Patent No. 7.689,585 ("Zeng"); IPR2022-01456, EX 1016 - Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022); Manning, Introduction to Information Retrieval (2008); American Heritage College Dictionary 4th ed. (2007) "classify" "to arrange or organize by class or category"; Merriam Webster's Collegiate Dictionary 11th ed. (2004) "classify" "to assign to a category". One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"data object"	'157 Patent, Claims 1, 11,	"an individually addressable unit of	U.S. Patent No. 7.689,585 ("Zeng"); IPR2022-01456, EX 1016 -

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	12, 14, 16 and 22	information that is searched for"	Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022); Manning, Introduction to Information Retrieval (2008); Newton's Telecom Dictionary (21st ed) (2005) "data object" "An individually addressable unit of information, specified by a data template and its content..."). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"display entry"	'157 Patent, Claims 1, 12, 16 and 22	"an entry in the results transmitted to the user that corresponds to one of the ranked plurality of data objects"	U.S. Patent No. 7.689,585 ("Zeng"); IPR2022-01456, EX 1016 - Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022).

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			One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"profile information"	'157 Patent, Claims 1, 2	"information about a user stored in a user's profile"	U.S. Patent No. 7.689,585 ("Zeng"); IPR2022-01456, EX 1016 - Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022); Manning, Introduction to Information Retrieval (2008); Amy N. Langville & Carl D. Meyer, Google's PageRank and Beyond: The Science of Search Engine Rankings (2006); Webster's Collegiate Dictionary 11th ed. (2004) "profile" "a set of data portraying the significant features of something"; U.S. Pub. No. 2009/0193007 (Mastalli); U.S. Pub. No. 2009/0228439 (Manolescu).

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			One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"presentation rule"	'157 Patent, Claims 12, 13, 14, 16 and 22	"a predefined rule used to construct a display entry in the search results page when matched with a ranked data object"	U.S. Patent No. 7.689,585 ("Zeng"); IPR2022-01456, EX 1016 - Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022); Manning, Introduction to Information Retrieval (2008); Amy N. Langville & Carl D. Meyer, Google's PageRank and Beyond: The Science of Search Engine Rankings (2006); Computer Desktop Encyclopedia (1996) "rules" "a set of conditions or standards which has been agreed upon". One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of

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			the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"at least some"	'157 Patent, Claim 1, 2	"more than one"	American Heritage College Dictionary 4th ed. (2007) "some" "being a considerable number or quantity". One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications

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			and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"ranking"	'157 Patent, Claims 1 and 2	plain and ordinary meaning, which is "assigning a rank"	U.S. Patent No. 7.689,585 ("Zeng"); IPR2022-01456, EX 1016 - Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022); '329 patent at 1:60-2:5, 2:6-13; Jerri L. Ledford, Search Engine Optimization Bible (2009); U.S. Patent Publication No. 2007/0073894 (Erickson); U.S. Patent No. 6,285,999 (Page); U.S. Patent Publication No 2006/0129552 (Yang); U.S. Patent Publication No 2009/0157652 (Barbosa); U.S. Patent No. 8,180,754 (Ershov); U.S. Patent No. 8,548,995 (Curtiss); WO Patent Publication No. 2007/121490 (Erickson); U.S. Patent No. 8,090,736 (Knapp); U.S. Patent No. 6,526,440 (Bharat); Manning, Introduction to Information Retrieval (2008); Amy N. Langville & Carl D. Meyer, Google's PageRank and Beyond: The Science of Search Engine Rankings (2006). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite),

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			including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“network”	'157 Patent, Claims 1, 2	plain and ordinary meaning, which is “any communication link between two or more computers and any associated devices”	Microsoft Press, Computer Dictionary (3rd ed. 1997); Webster's New World Computer Dictionary 251 (10th ed. 2003); Computer Networks (4th ed. 2003); The New Penguin Dictionary of Computing, Penguin Books (2001); Microsoft Internet and Networking Dictionary (2003), “network” “a group of computers and associated devices that are connected by communication facilities.” One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2

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			regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“each of the plurality of intents indicates a type of information that is likely to be desired by a user submitting the query”	'157 Patent, Claims 1, 2	indefinite; alternatively, “each of the plurality of intents indicates a category of information that has a high probability of being desired by a user submitting the query”	IPR2022-01456, EX 1016 - Declaration of B. Davis ISO Plaintiff's First Amended Complaint (April 15, 2022); Merriam Webster's Collegiate Dictionary 11th ed. (2004) “likely” “having a high probability of occurring or being true; very probable”; Merriam Webster's Collegiate Dictionary 11th ed. (2004) “type” “category”. One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications

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			and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“determining, at least the one computing device, a plurality of intents from the at least one keyword, each of the plurality of intents indicates a type of information regarding the query keyword that is likely to be desired by a user submitting the query”	'157 Patent, Claims 1, 2	indefinite	One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
order of the steps in claims 1 and 2	'157 Patent, Claims 1, 2	The receiving, analyzing, determining and classifying steps must occur in the recited order. The identifying, assigning/ranking, building and	One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '157 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '157 Patent would have understood this claim term (including whether or not the term is or is not definite),

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		transmitting steps must occur in the recited order, where the assigning and ranking steps can occur simultaneously or before or after one another.	including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"ranking"	'329 patent claims 1, 8	plain and ordinary meaning, which is "assigning a rank"	Jerri L. Ledford, Search Engine Optimization Bible (2009); Amy N. Langville & Carl D. Meyer, Google's PageRank and Beyond: The Science of Search Engine Rankings (2006); U.S. Patent No. 6,285,999 B1 to Page; U.S. Patent No. 6,526,440 B1 to Bharat; U.S. Patent No. 8,090,736 B1 to Knapp et al; U.S. Patent No. 8,180,754 B1 to Ershov; U.S. Patent No. 8,548,995 B1 to Curtiss; U.S. Patent Publication No. 2006/0129552 A1 to Yang et al; U.S. Patent Publication No. 2007/0073894 A1 to Erickson et al; U.S. Publication No. 2009/0157652 A1 to Barbosa et al; WO Patent Publication No. 2007/121490 A2 to Erickson et al. One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '329 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the

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			'329 Patent would have understood this claim term, including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"each document of said certain documents containing at least one section that is not used by said search engine for recall"	'329 patent claims 1, 8	"each document of said certain documents containing a <noindex> tag"	One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '329 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '329 Patent would have understood this claim term, including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.

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"search engine index" (noun)	'329 patent claims 5, 12	"an ordered list of information accompanied with the location of the information"	U.S. Patent. 8,509,266 to Borkovsky et al. One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '329 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '329 Patent would have understood this claim term, including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"document"	'329 patent claims 1, 8	"any unit of information that may be indexed by search engine indexes"	One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '329 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '329 Patent would have understood this claim term, including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was

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			used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"section"	'329 patent claims 1, 8	"defined portion within the structure of a document"	One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '329 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '329 Patent would have understood this claim term, including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"recall"	'329 patent claims 1, 8	"generating results for a search engine query"	One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '329 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '329 Patent would have understood

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			this claim term, including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"abstract"	'329 patent claims 4, 11	"a short descriptive paragraph that provides a concise description of a document"	One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '329 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '329 Patent would have understood this claim term, including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.

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"a plurality of data partitions that each have a plurality of key-value pairs"	'610 Patent, Claims 1, 17	"more than one data partition, each such partition having more than one key-value pair."	Microsoft Press, Computer Dictionary (5th ed. 2002); Hung-chih Yang, et al., <i>Map-Reduce-Merge: Simplified Relational Data Processing on Large Clusters</i>, SIGMOD '07: Proceedings of the 2007 ACM SIGMOD International Conference on Management of Data (2007); Jeffrey Dean et al., <i>MapReduce: Simplified Data Processing on Large Clusters</i>, Sixth Symposium on Operating System Design and Implementation (2004); Kimberly Tripp, "SQL Server 2005: Partitioned Tables and Indexes," SQLSkills.com (Sep. 24, 2004); Oracle Database SQL Reference 10g. One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '610 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not

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			limited to other defendants in present and/or prior R2 matters.
"a plurality of mapping functions that are each user-configurable"	'610 Patent, Claims 1, 17	"two or more mapping functions that are each configurable by a user"	Microsoft Press, Computer Dictionary (5th ed. 2002); Hung-chih Yang, et al., <i>Map-Reduce-Merge: Simplified Relational Data Processing on Large Clusters</i>, SIGMOD '07: Proceedings of the 2007 ACM SIGMOD International Conference on Management of Data (2007); Jeffrey Dean et al., <i>MapReduce: Simplified Data Processing on Large Clusters</i>, Sixth Symposium on Operating System Design and Implementation (2004); Kimberly Tripp, "SQL Server 2005: Partitioned Tables and Indexes," SQLSkills.com (Sep. 24, 2004); Oracle Database SQL Reference 10g. One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '610 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention.

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			All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"data group"	'610 Patent, Claims 1-5, 17-21	"a group of data and a mechanism for identifying data from that group" The preamble is limiting	Microsoft Press, Computer Dictionary (5th ed. 2002); Hung-chih Yang, et al., <i>Map-Reduce-Merge: Simplified Relational Data Processing on Large Clusters</i>, SIGMOD '07: Proceedings of the 2007 ACM SIGMOD International Conference on Management of Data (2007); Jeffrey Dean et al., <i>MapReduce: Simplified Data Processing on Large Clusters</i>, Sixth Symposium on Operating System Design and Implementation (2004); Kimberly Tripp, "<i>SQL Server 2005: Partitioned Tables and Indexes</i>," SQLSkills.com (Sep. 24, 2004); Oracle Database SQL Reference 10g. One or more experts, including Dr. Michael Goodrich may testify regarding the technology of the '610 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention.

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			All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"data partition[s]"	'610 Patent, Claims 1, 17	"data group[s] within a single larger data group"	Microsoft Press, Computer Dictionary (5th ed. 2002); Hung-chih Yang, et al., <i>Map-Reduce-Merge: Simplified Relational Data Processing on Large Clusters</i>, SIGMOD '07: Proceedings of the 2007 ACM SIGMOD International Conference on Management of Data (2007); Jeffrey Dean et al., <i>MapReduce: Simplified Data Processing on Large Clusters</i>, Sixth Symposium on Operating System Design and Implementation (2004); Kimberly Tripp, "SQL Server 2005: Partitioned Tables and Indexes," SQLSkills.com (Sep. 24, 2004); Oracle Database SQL Reference 10g. One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '610 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications

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			and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"data set"	'610 Patent, Claims 1, 17	indefinite	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '610 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"identifiable to that data group"	'610 Patent, Claims 1, 17	indefinite	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '610 Patent, including the relevant state of

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			the art, how a person of ordinary skill in the art as of the priority date of the '610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"independently output a plurality of lists of values"	'610 Patent, Claims 1, 17	"each mapping function outputs more than one list of values"	Microsoft Press, Computer Dictionary (5th ed. 2002); Hung-chih Yang, et al., <i>Map-Reduce-Merge: Simplified Relational Data Processing on Large Clusters</i>, SIGMOD '07: Proceedings of the 2007 ACM SIGMOD International Conference on Management of Data (2007); Jeffrey Dean et al., <i>MapReduce: Simplified Data Processing on Large Clusters</i>, Sixth Symposium on Operating System Design and Implementation (2004); Kimberly Tripp, "SQL Server 2005: Partitioned Tables and Indexes," SQLSkills.com (Sep. 24, 2004); Oracle Database SQL Reference 10g. One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '610

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			Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“the at least one output data group is a plurality of output data groups”	'610 Patent, Claims 2, 18	indefinite	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '610 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications

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			and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“the corresponding intermediate data being stored such that metadata associated with [a/the] manner of storage is identifiable to the data group”	'610 Patent, Claims 3, 19	indefinite	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '610 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“the data of the first data group is mapped differently than the data of the second data	'610 Patent, Claims 1, 17	“the data of the first data group is mapped by a different map function than the	Microsoft Press, Computer Dictionary (5 th ed. 2002); Hung-chih Yang, et al., <i>Map-Reduce-Merge: Simplified Relational Data Processing on Large Clusters</i> , SIGMOD '07: Proceedings of the 2007 ACM SIGMOD

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group”		data of the second data group”	International Conference on Management of Data (2007); Jeffrey Dean et al., <i>MapReduce: Simplified Data Processing on Large Clusters</i>, Sixth Symposium on Operating System Design and Implementation (2004); Kimberly Tripp, “<i>SQL Server 2005: Partitioned Tables and Indexes</i>,” SQLSkills.com (Sep. 24, 2004); Oracle Database SQL Reference 10g. One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the ’610 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the ’610 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“a database configured to store information	’317 Patent, Claim 1	indefinite	Microsoft Press, Computer Dictionary (5 th ed. 2002).

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about events in the computer database system"			One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"partial query"	'317 Patent, Claims 1, 2, 8, 11-14	"a shorthand way of expressing a typical search query"	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The

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			expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“a partial query submitted at a remote user client system” / “the submitted partial query”	'317 Patent, Claims 1, 8, 11, 12	“a partial query that a user has entered and transmitted by entering a carriage return or by otherwise committing a deliberate act of submission at a remote user client system”	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“submitted”	'317 Patent, Claims 1, 2, 4-5, 8, 11-14	“entered and transmitted by entering a carriage	Microsoft Press, Computer Dictionary (5 th ed. 2002).

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		return or by otherwise committing a deliberate act of submission”	One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“alternative queries”	'317 Patent, Claim 11	(in the singular) “a query that matches a partial query but is not selected as a reconstructed full query”	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the

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			meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“better representative of the entire search query desired by the user”	'317 Patent, Claims 1, 8	indefinite	Microsoft Press, Computer Dictionary (5th ed. 2002); Merriam Webster Collegiate Dictionary (11th ed. 2003-2005). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“events”	'317 Patent, Claim 1	indefinite	Microsoft Press, Computer Dictionary (5 th ed. 2002).

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			One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“information based on frequency counts for the respective previously submitted queries”	'317 Patent, Claim 8	“information based on frequency counts of previous queries that users entered and transmitted by entering a carriage return or by otherwise committing a deliberate act of submission”	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The

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			expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“information stored in the database about queries previously-submitted by users”	'317 Patent, Claims 1, 4	“information stored in the database about previous queries that users entered and transmitted by entering a carriage return or by otherwise committing a deliberate act of submission”	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“not fully representative	'317 Patent, Claims 1, 8	indefinite	Microsoft Press, Computer Dictionary (5 th ed. 2002); Merriam Webster

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of an entire search query desired by the user"			Collegiate Dictionary (11th ed. 2003-2005). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
"query data management server"	'317 Patent, Claims 4, 5	"a server that analyzes historic query data"	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to

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			arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.
“query data representative of previously submitted queries”	'317 Patent, Claim 8	“information stored in the database exemplifying previous queries that users entered and transmitted by entering a carriage return or by otherwise committing a deliberate act of submission”	Microsoft Press, Computer Dictionary (5th ed. 2002); Merriam Webster Collegiate Dictionary (11th ed. 2003-2005). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not

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			limited to other defendants in present and/or prior R2 matters.
"storing in memory data about previously received queries at the computer database system"	'317 Patent, Claim 8	"data stored in the memory of a server of the computer database system about previous queries that users entered and transmitted by entering a carriage return or by otherwise committing a deliberate act of submission"	Microsoft Press, Computer Dictionary (5th ed. 2002). One or more experts, including Dr. Michael Goodrich, may testify regarding the technology of the '317 Patent, including the relevant state of the art, how a person of ordinary skill in the art as of the priority date of the '317 Patent would have understood this claim term (including whether or not the term is or is not definite), including in light of the specification and file history, and/or in rebuttal to arguments made by or on behalf of R2 regarding claim construction. The expert(s) may also analyze the meaning of this term in light of evidence of how this term was used in textbooks, patents, patent publications and other extrinsic evidence around the purported time of invention. All extrinsic evidence identified by any other party including, but not limited to other defendants in present and/or prior R2 matters.

Dated: December 7, 2022.

Respectfully submitted,

/s/ John B. Campbell

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**ATTORNEYS FOR DEFENDANT
AMERICAN AIRLINES, INC.**

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the above and foregoing Document has been served on all counsel of record via the electronic mail on December 7, 2022.

/s/ John B. Campbell