

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETFLIX, INC.,

Petitioner

v.

VL COLLECTIVE IP LLC,

Patent Owner

IPR2023-00891
U.S. Patent 8,605,794

PATENT OWNER'S RESPONSE

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Unified Patents, LLC v. VL Collective, IP LLC

IPR2022-01086 (PTAB December 18, 2023) *passim*

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PATENT OWNER'S EXHIBIT LIST

Exhibit	Description
2001	Joint Claim Construction Statement in <i>VideoLabs, Inc. et al. v. Amazon.com, Inc. et al.</i> , No. 22-cv-00079-ADA-DTG
2002	VideoLabs' Answering Claim Construction Brief, <i>Starz Entertainment, LLC et al. v. VL Collective IP, LLC et al.</i> , No. 21 -cv-1448-JLH (excerpted)
2003	Markman Hearing Transcript, <i>Starz Entertainment, LLC et al. v. VL Collective IP, LLC et al.</i> , No. 21-cv-1448-JLH
2004	Declaration of Jaime F. Cardenas-Navia in Support of Motion for Admission <i>Pro Hac Vice</i>
2005	Discovery Requests from Netflix
2006	Unified Website FAQ, https://www.unifiedpatents.com/faq
2007	Unified LinkedIn Post, https://www.linkedin.com/posts/sambwani_videolabs-794-video-codec-patent-likely-activity-7011105082129743872-66mK
2008	Unified Website Zones, https://www.unifiedpatents.com/sep
2009	Unified Website Seeking Prior Art, https://www.unifiedpatents.com/insights/2023/10/30/8000-for-videolabs-digital-content-patents-prior-art
2010	Unified's Newsletter Regarding Found Prior Art, https://www.unifiedpatents.com/insights/2024/3/1/videolabsdigital-content-patents-prior-art-found
2011	Declaration of Dr. Michael T. Goodrich
2012	Deposition Transcript of Dr. Benjamin Bederson
2013	U.S. Patent No. 7,428,696 to Shin
2014	U.S. Patent No. 5,598,352 to Rosenau et al.
2015	Dr. Immanuel Freedman Deposition Transcript from <i>Unified Patents, LLC v. VL Collective IP, LLC</i> , IPR2022-01086
2016	Jim Heckroth, <i>A Tutorial on MIDI and Wavetable Music Synthesis</i> , Cirrus Logic, Inc., AN27REV4, 1-24, February 1998
2017	Jim Heckroth, <i>Tutorial on MIDI and Music Synthesis</i> , The MIDI Manufacturers Association, April 2006

2018	Music Theory (https://www.musictheory.net/lessons/11#:~:text=The%20length%20of%20time%20that,duration%20of%20a%20whole%20note.).
2019	The MIDI Manufacturers Association, Standard MIDI Files 1.0, February 1996.

VL Collective IP LLC (“Patent Owner”) submits this Response to the Petition of Netflix, Inc. (“Petitioner”) regarding the *inter partes* review (“IPR”) of U.S. Patent No. 8,605,794 (“the ’794 patent”). The Response is supported by the declaration of Dr. Michael T. Goodrich.

I. INTRODUCTION

The ’794 patent is concerned with how to efficiently synchronize segments of audio and video content from distinct data streams (e.g., for presenting on a television or mobile device). Historically, this process had been slow and resource-intensive. The inventors improved upon existing techniques by using “assignment rules” to create relationships between the audio and video segments that can be applied quickly and flexibly to synchronize content. While some techniques existing at the time would synchronize content by periodically adjusting the timing of one of the data streams, the ’794 patent took a different approach. Its assignment rules assign data segments to one another rather than altering timing of segments, and the assignment rules apply to ***all*** the data segments that are being output, not ***just some*** of them. This ensures that all the data segments are output sequentially and chronologically.

Petitioners’ primary reference, Comps, describes techniques that fall squarely into the category of synchronization techniques that function by altering the timing of just some of the outputted data segments. Comps seeks to make the

synchronization of multiple data tracks more efficient by only synchronizing “important” events in the multimedia. Comps thus does not have an “assignment rule” that applies to “each” data segment being outputted, as the claims require; it instead disclosed SYNCH commands that are executed intermittently for only some of the data segments. And, because the data synchronization occurs only periodically, Comps accepts that some content will be presented out of synch, and that “unimportant” events in the multimedia may be skipped in their entirety. As a result, the data in Comps is presented neither sequentially nor chronologically.

For this and many other reasons, all claims should be upheld as patentable.

II. BACKGROUND

A. Overview of the '794 Patent

In the early 2000s, the inventors of the '794 patent realized that the way audiovisual content (e.g., television shows and movies) was transmitted to consumers was fundamentally changing. For decades, content was transmitted to consumers primarily through televisions, and, within each global region (e.g., the United States), was encoded in a single formatting standard (e.g., the NTSC standard). (EX1001, 1:23-33.)

But with the increasing importance of the Internet, the devices to which content could be transmitted were proliferating. (*Id.*, 1:34-43.) Content could now

be streamed to computers, laptops, PDAs, and other electronic devices that could play content encoded in any number of formats based on their capabilities. (*Id.*)

The varying strength of Internet connections, particularly on wireless devices, also necessitated multiple content formats. (*Id.*, 1:34-43, 1:64-2:20.) For example, while a desktop computer might be capable of playing high resolution content, doing so is not desirable if the Internet connection is slow. It is a better viewer experience for a lower quality version of the content to be transmitted more quickly instead of the user waiting for higher quality content to download.

The inventors also knew there were benefits to being able to change the quality of the content during a stream. (*Id.*, 1:64-2:20.) When an Internet connection is weak, send lower quality content; when the connection is strong, send higher quality content.

These changes in technology and consumer expectations led to new techniques for managing and processing audiovisual content. Content was no longer stored as a single file in a single location. Instead, the various versions of a movie's audio and video data files were broken up into numerous "segments" stored on various Internet servers. (*Id.*, 1:44-2:20 (describing using metadata languages such as XML to define segmented data streams).) These segments were more quickly transmitted over the Internet to consumer devices, and content could be played as

soon as the first few segments arrived instead of waiting for the entire file to download.

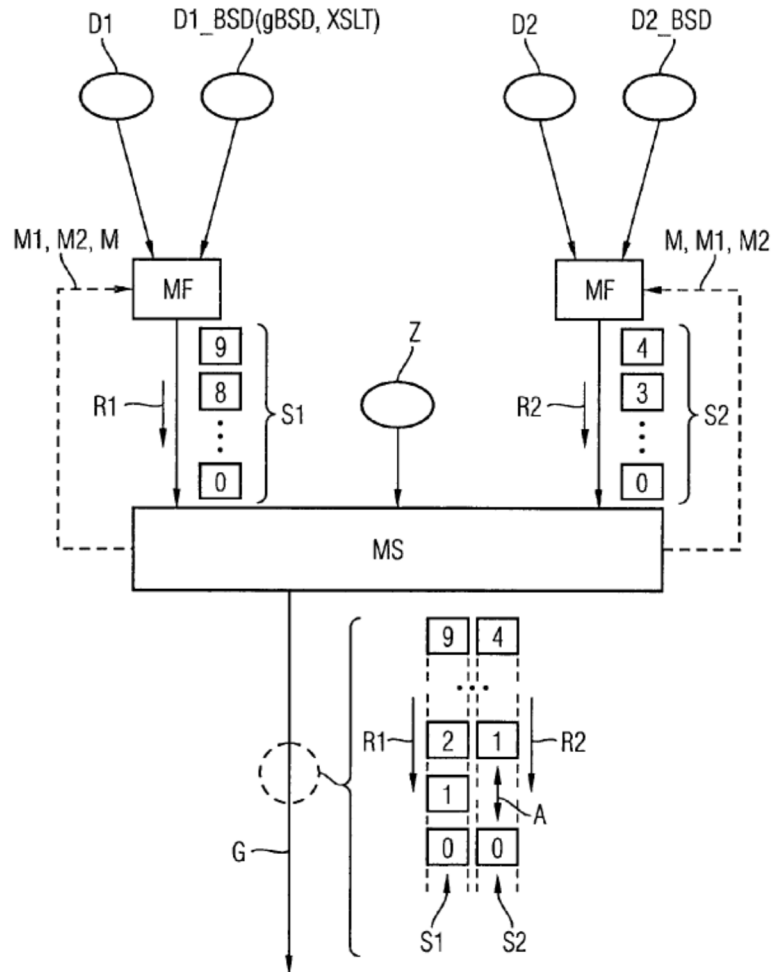
Prior to the innovations of the '794 patent, however, there was not a suitable method for aligning the various segments from their respective audio and video data files. The need was all the greater when switching between audio or video formats midstream (e.g., to account for changing Internet bandwidth) or skipping to different points within a piece of content. (*Id.*, 1:56-2:9.) Techniques existed but had large overhead and could be slow and resource intensive. (*Id.*, 2:4-12.) These old techniques generally used timestamps or other precise timing information to synchronize the data segments. (*Id.*, 2:4-12, 42-43.) The '794 patent improves upon prior technologies. It describes a novel technique that uses “assignment rules” to govern the alignment of data segments. More specifically, assignment rules flexibly define relationships between data segments from one data file (e.g., an audio file) and data segments of another data file (e.g., a video file). Assignment rules enable data segments from different data files to be efficiently output sequentially, chronologically, and synchronously. (*Id.*, 2:36-3:3, claims 1, 9.) These assignment rules associate data segments “without the use of timestamps.” (*Id.*, 2:42-43.)

Figure 1 of the '794 patent demonstrates the operation of an exemplary assignment rule. **D1** represents a video data file that is fragmented into video data segments numbered **0** through **9**. (*Id.*, 3:67-4:53.) **D2** represents an audio data file,

which is fragmented into segments numbered **0** through **4**. (*Id.*, 3:67-4:53, 5:5-9.)

That there are 10 video segments and only 5 audio segments could indicate that the audio segments are twice as long timewise as the video segments or that the total duration of every set of 2 video segments is the same as the duration of each consecutive audio segment. The precise duration of any individual data segment, and the absolute point in time at which any given data segment is output, need not be known for the synchronization techniques of the '794 patent to operate.

Rather, the assignment rule in Figure 1 requires that each audio data segment is assigned to every second video data segment, which is sufficient to maintain the proper alignment between the audio and video segments. During synchronization, audio segment **0** is output together with video segment **0**; video segment **1** comes next; then audio segment **1** is output together with video segment **2**; and so forth, until all audio and video segments are output. (*Id.*, 4:54-5:4.)



(*Id.*, Fig. 1.) Additional assignment rules are described in the specification; the assignment rule of the '794 patent can take many forms, including equations that describe the relationship between segments, and lists that align corresponding segments. (*Id.*, 5:35-6:42, Figs. 2, 4-5; Goodrich Decl. (EX2011), ¶¶36-42.)

B. The Claims of the '794 Patent

Exemplary independent claim 1 is shown below:

A method for synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file, the method comprising:

sequentially outputting, by a device for synchronizing content-related data, the content-related first data segments and the content-related second data segments according to their chronological sequence in such a way that, and each of the content-related second data segments is output together with an associated one of the content-related first data segments on the basis of an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments.

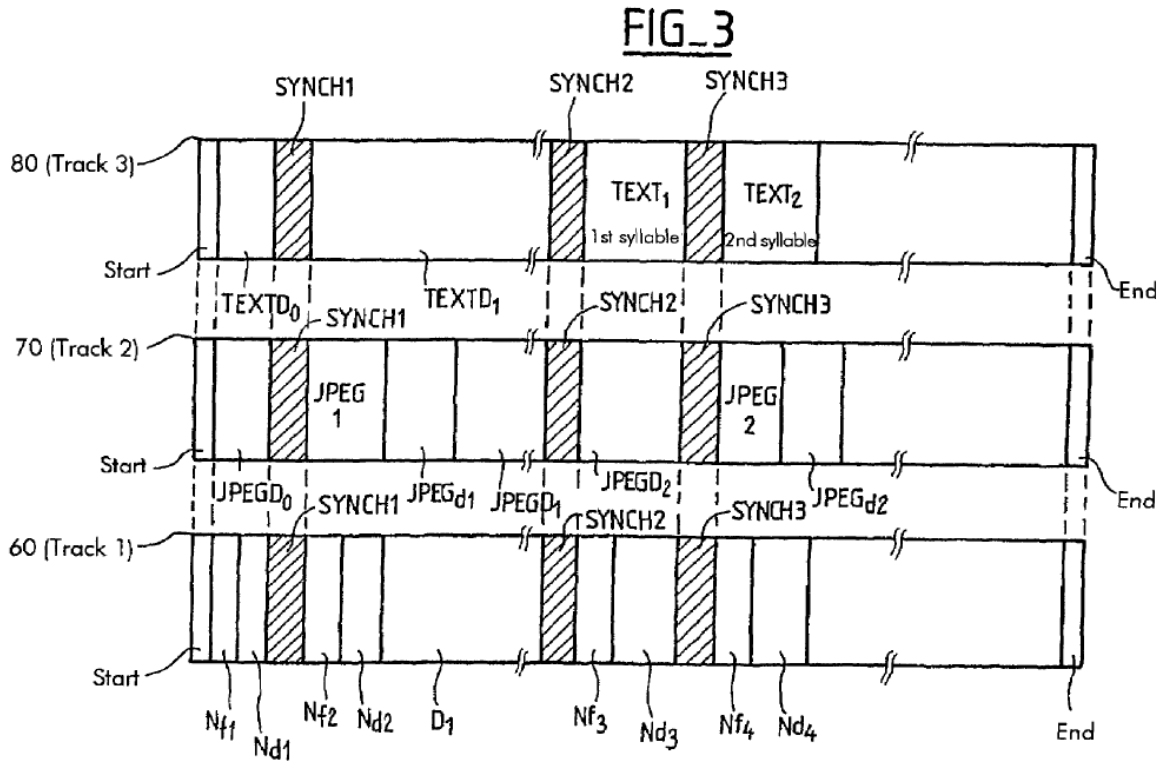
C. Overview of Comps

Comps discloses the use of SYNCH commands to ensure that “important” multimedia events are presented synchronously (e.g., that a sound effect is made at the same time that an image is displayed). (EX1004, Abstract, 2:6-34.) More specifically, Comps describes a multimedia file that may contain multiple tracks of data. (*Id.*, 2:42-57, Figs. 2, 3.) Each track may consist of “sound, text or picture” data as well as “time” data, and the data in each track is stored in timewise order. (*Id.*, 2:43-64, Fig. 3.) The tracks are to be presented simultaneously, and a different processor is used to scan and output the data for each track. (*Id.*, 2:60-67.) The

tracks in Comps do not contain audiovisual content, but instead contain computer instructions for generating or presenting content data. (*Id.*, 2:60-3:41.)

Because of differences in the frequency of the processors, the data in the different tracks fall out of alignment over time. (*Id.*, 1:26-40, 4:25-57.) Comps uses SYNCH commands to periodically restore synchronicity across the tracks. Specifically, Comps categorizes the presentation of certain data within the tracks (e.g., picture, sound, or text data) as “important” events. (EX1004, 2:6-23.) All other data in the tracks correspond to “unimportant” events. (*Id.*) Comps then uses SYNCH commands to ensure synchronicity for the important events and accepts that there may not be synchronicity for the unimportant events. (*Id.*, 2:6-34, 4:25-57.) This limited synchronization of the data in the tracks is a touted benefit of Comps, as it reduces the number of synchronization commands as compared with other techniques. (*Id.*, 1:41-2:34, 4:25-57.)

Figure 3 shows a multimedia file of Comps that consists of three tracks (Track 1, Track 2, Track 3). Each track consists of three types of “fields”: (1) audio, picture, or text data (e.g., N_{f1} , $JPEG_1$, $TEXT_1$); (2) timing data (e.g., N_{d1} , D_1 , $JPEGD_0$, $JPEG_{d1}$, $TEXTD_0$); and (3) SYNCH commands (e.g., SYNCH1, SYNCH2).



(EX1004, Fig. 3.)

In Track 1, N_{f1} is the first field, followed by N_{d1}. N_{f1} indicates the frequency of a first note, while N_{d1} indicates its duration. (*Id.*, 3:22-30, Fig. 3.) The SYNCH1 command is the next field. It is followed by important event N_{f2} and then N_{d2}, which indicate the frequency and duration of a second note, respectively. (*Id.*) Then comes D₁, which represents a time duration during which no audio is played. (*Id.*) Squiggly lines in the D₁ event indicate that there may be additional events before the next important event, N_{f3}. (*Id.*) N_{f3} represents a third note and N_{d3} represents its duration. (*Id.*) It is preceded by the SYNCH2 command. (*Id.*) The SYNCH3 command follows N_{d3} and indicates that a fourth note, N_{f4}, is an important event. (*Id.*) N_{f4} has a duration N_{d4}. (*Id.*) It is followed by any number of important and unimportant

events (as indicated by the squiggly lines in the unlabeled final block of Track 1).

(*Id.*) Track 1 then concludes.

Track 2 similarly contains a variety of fields, including important events (JPEG₁, JPEGD₂, JPEG₂) and unimportant events (JPEGD₀, JPEG_{d1}, JPEGD₁, JPEG_{d2}). (*Id.*, 3:31-37, Fig. 3.) Same for Track 3. (*Id.*, 3:38-44, Fig. 3 (describing important events (TEXTD₁, TEXT₁, TEXT₂) and unimportant events (TEXTD₀)).) The SYNCH commands appear at the same point in time in each track. (*Id.*)

During playback, the fields in each track are generally executed from left to right. (*Id.*, 3:48-4:57, Fig. 3.) Track 1 is considered the “master” track and Tracks 2 and 3 are the “slave” tracks. (*Id.*) The SYNCH commands ensure that the fields in slave tracks that are *intended* to be output in synchronicity with the master track’s important fields are *actually* executed at the same time as the corresponding fields in the master track. (*Id.*, 3:42-4:24.)

To achieve this synchronicity, when the microprocessor for the master track reaches a SYNCH command, it sends synchronization data to the microprocessors for the slave tracks. (*Id.*, 4:25-28.) At that point, for each slave microprocessor, “[t]wo situations arise:”

If, at the moment it receives data, the slave microprocessor dedicated to track *i*, which is lagging behind, has not yet encountered the field SYNCH₁ in track *i*, it continues to scan its file *without executing the*

commands encountered, in order to reach the field SYNCH1 as quickly as possible. It then resumes execution of commands encountered after the field SYNCH1.

If, before receiving the data, the slave microprocessor dedicated to track i had already reached the field SYNCH1, it stops reading the fields of track i until it receives the first synchronization data sent by the master microprocessor. It then resumes reading the fields of track i and executes the commands described.

(*Id.*, 4:30-43 (emphasis added).)

Comps thus describes the use of SYNCH commands to synchronize important events across tracks in a multimedia file. Synchronicity is achieved by adjusting the timing of the ensuing events in the slave track(s). The use of SYNCH commands may result in part or all of the field(s) preceding a SYNCH command to be skipped entirely. (EX2011, ¶¶43-48.)

III. PRIORITY DATE OF THE '794 PATENT

Petitioner assumes a priority date of April 12, 2005. (Pet., 13.) Patent Owner reserves all rights to establish its preferred priority date in this or other proceedings but does not dispute this priority date here.

IV. LEVEL OF ORDINARY SKILL

Petitioner sets forth a level of ordinary skill. (Pet., 13.) Patent Owner’s expert proposes a somewhat different level, but this Response establishes that Petitioner’s arguments fail even under its definition. (EX2011, ¶¶50-54.)

V. CLAIM CONSTRUCTION

Patent Owner presents three proposed claim constructions.

A. “content-related ... data segments”

Term	Patent Owner’s Proposed Construction
“content-related ... data segments” (Claims 1, 9, 22)	segments of content data that have a syntactical meaning within the respective data file

The inventors acted as their own lexicographers and defined “content-related . . . data segments,” which Patent Owner’s proposed construction reflects. The Detailed Description section of the specification defines the term “content-related” as it applies to data segments of a data file:

For every first and second data file D1, D2 there exists in each case a fragmentation description file D1_BSD, B2_BSD. Said fragmentation description file D1_BSD, B2_BSD specifies how *content-related first and content-related second data segments S1, S2 can be obtained from the respective first and second data file D12, D2. The term*

“content-related” is understood to mean that first and second data segments have a syntactical meaning within the respective data file,

such as e.g. a plurality of succeeding second data segments represent the speech signal of a specific speaker within a dialog sequence.

(EX1001, 4:9-22 (emphasis added).)

When a term in the specification “is set off by quotation marks,” as here, it is “often a strong indication that what follows is a definition.” *Sinorgchem Co., Shandong v. Int’l Trade Comm’n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007). “Moreover, the word ‘is,’ again a term used here in the specification, may ‘signify that a patentee is serving as its own lexicographer.’” *Sinorgchem*, 511 F.3d at 1136 (internal citations omitted). The Federal Circuit has held that the specification expressly defines a term when it states what the term “shall be understood to mean.” *Chevron U.S.A. Inc. v. Univ. of Wy. Research Corp.*, 978 F.3d 1361, 1366 (Fed. Cir. 2020). There are thus three strong indications of lexicography: (1) “content-related” is set off by quotation marks; (2) the patentee used the word “is” to describe the term “content-related”; and (3) the patentee states what “content-related” is “understood to mean.”

There is widespread agreement that the inventors of the ’794 patent acted as lexicographers and defined the term “content-related . . . data segments” as “segments of content data that have a syntactical meaning within the respective data

file.” In the litigation between Patent Owner and Starz Entertainment, the parties and the Court agreed that the patentee defined this term, and Judge Hall, a District Court judge for the District of Delaware, adopted the construction that Patent Owner proposes here. (EX1019, 4.) Further, in *Unified Patents, LLC v. VL Collective IP, LLC*, IPR2022-01086 (the ’086 IPR), a proceeding between Patent Owner and Unified Patents, LLC (“Unified”) that also involves the ’794 patent, Unified and its expert agreed that this term was defined in the patent and agreed that if a construction is adopted, it should be consistent with Patent Owner’s presently proposed construction. *Unified Patents, LLC v. VL Collective, IP LLC* IPR2022-01086, Paper 23 at 6 (PTAB June 26, 2023) (Petitioner stating “If the Board construes ‘content-related...data segments,’ the Board should adopt the same definitional construction the district court adopted”); EX2014 (Deposition Transcript of Dr. Freedman, Unified’s expert in the ’086 IPR)¹ at 38:13-43:18 (“[A]s I’ve stated here, the district court judge construed that phrase to mean segments of content data that have a syntactical meaning within the respective data file, and that to me certainly seems to be a reasonable construction.”)

Petitioner was fully aware of the Markman Order in the Starz litigation for “content-related . . . data segments” and of the positions of Patent Owner and Unified in the ’086 IPR yet elected not to argue for or against any of those claim construction

¹ EX2014 from the ’086 IPR is submitted herein as EX2015.

positions or set forth its own claim construction positions. (Pet., 20-26.) Petitioner instead applied the plain and ordinary meaning for all claim terms, while also addressing the constructions from other proceedings in case they were adopted by the Board. (*Id.*) Petitioner has thus forfeited the right to contest Patent Owner's proposed construction or offer a competing construction. Indeed, Petitioner sought to reserve the right to make claim construction arguments in other litigations, but not in the present IPR proceeding. (*Id.* at 21, n.4.) Patent Owner's proposed construction is therefore unopposed and should be adopted. (EX2012, Bederson Tr. at 12:15-26:3.)

Further, in the Final Written Decision for IPR2022-01086, the Board agreed that the inventors acted as lexicographers for this claim term. *Unified*, IPR2022-01086, Paper 37 at 16-18 (PTAB December 18, 2023). But the Board then adopted a construction that contained only a portion of the patentee's definition, construing "content-related . . . data segments" as "segments of content data that have a syntactical meaning." *Id.* at 18. In its institution decision, this Board found that the patentee defined the term, but similarly omitted part of the inventors' definition from its construction. (*Id.* at 9-10.)

This is improper. There is no dispute that the inventors acted as lexicographers and defined the term. This lexicography of the inventors of the '794 patent is controlling. *Martek Biosciences Corp. v. Nutrinova Inc.*, 579 F.3d 1363,

1380 (Fed. Cir. 2009) (“When a patentee explicitly defines a claim term in the patent specification, the patentee’s definition controls.”); *Phillips v. AWS Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (“[T]he specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs. . . . [T]he inventor has dictated the correct claim scope, and the inventor’s intention, as expressed in the specification, is regarded as dispositive.”). The Board suggests that it need not adopt the latter part of the inventors’ definition because it need not decide whether the preambles of the independent claims of the ’794 patent are limiting with respect to requiring data files. *Unified*, IPR2022-01086, Paper 37 at 9-10 (PTAB December 18, 2023). But the appropriate construction of “content-related . . . data segments” does not turn on whether the preamble requires two distinct data files; it is based entirely on how the inventors defined the term — which is undisputed. The Board should thus adopt Patent Owner’s proposed construction for “content-related . . . data segments.” *Nestle USA, Inc. v. Steuben Foods, Inc.*, 686 F. App’x 917, 919 n.1 (Fed. Cir. 2017) (“A patentee cannot partially serve as a lexicographer for a claim term: either the specification includes a binding definition of that term by way of lexicography, or it is to be read consistent with the plain and ordinary meaning.”). (EX2011, ¶¶57-60.)

B. Preambles

Term	Patent Owner's Proposed Construction
Preamble (Claims 1, 9, 22)	The preambles are construed to be limiting. The first data file and the second data file are distinct from each other.

There are two claim construction issues related to the Preambles of claims 1, 9, and 22 of the '794 patent: (1) whether the preambles are limiting; and (2) whether the “first data file” and the “second data file” must be different data files.

1. The Preambles Are Limiting

For independent claims 1, 9, and 22, the preambles are limiting because they provide antecedent basis for multiple terms in the bodies of the claims, provide necessary structure for the claimed inventions, and capture the essence of the invention.

“Whether a preamble is limiting is ‘determined on the facts of each case in light of the overall form of the claim, and the invention as described in the specification and illuminated in the prosecution history.’” *Bio-Rad Labs., Inc. v. 10X Genomics Inc.*, 967 F.3d 1353, 1369 (Fed. Cir. 2020) (quoting *Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1572-73 (Fed. Cir. 1996)). “No litmus test defines when a preamble limits claim scope. Some guideposts, however, have emerged from various cases discussing the

preamble’s effect on claim scope.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (citation omitted).

“[D]ependence on a particular disputed preamble phrase for antecedent basis may limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention.” *Id.*; *Eaton Corp. v. Rockwell Int’l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003) (“When limitations in the body of the claim rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed invention.”). Further, “[a] preamble limits the claimed invention if it recites essential structure or steps, or if it is ‘necessary to give life, meaning, and vitality’ to the claim.” *Bio-Rad*, 967 F.3d at 1369 (citation omitted). Likewise, when the preamble is essential to understand limitations or terms in the claim body, the preamble limits claim scope. *Catalina*, 289 F.3d at 808. “On the other hand, ‘[i]f the body of the claim sets out the complete invention,’ then the language of the preamble may be superfluous.” *Eaton*, 323 F.3d at 1339 (citation omitted); *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003); *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1350 (Fed. Cir. 1998).

The preambles of independent claims 1, 9, and 22 each provide antecedent basis for two sets of claim terms. First, the preambles recite “content-related first data segments” and “content-related second data segments.” (EX1001, claims 1, 9.)

The bodies of both claims then refer back to these claim elements, as they recite “*the* content-related first data segments” and “*the* content-related second data segments.” (*Id.* (emphasis added).) Many dependent claims also rely on the preambles of claims 1 and 9 for antecedent basis for these terms. (*Id.*, claims 2-4, 6, 10, 11.) This supports that the preambles limit both the independent and dependent claims.

Second, the preambles provide antecedent basis for the terms “first data file” and “second data file.” The term “content-related . . . data segments” has been expressly defined in the ’794 patent to mean “segments of content data that have a syntactical meaning within *the respective data file*.” (EX1001, 4:9-22 (emphasis added); *supra*, Section VI.A.1.) Thus, through the definition of “content-related . . . data segments,” the bodies of claims 1, 9, and 22 refer to “the respective data file” for “the content-related first data segments” and “the respective data file” for “the content-related second data segments.” The antecedent basis for each “respective data file” is provided in the preamble, which recites “content-related first data segments *of a first data file*” and “content-related second data segments *of a second data file*.” (EX1001, claims 1, 9, 22 (emphasis added).)

The preambles’ “first data file” and “second data file” also provide antecedent basis for dependent claims 5, 13, 18, and 19. (EX1001, claims 5, 13, 18, 19.) The way the data files are referenced in these dependent claims presumes that they are already-existing claim limitations. Claims 18 and 19 state that “the assignment rule

is maintained in *a* file separate from *the* first data file and *the* second data file.” (*Id.*, claims 18, 19 (emphasis added).) Claims 18 and 19 thus introduce a new file (“*a* file”) that contains the assignment rule that is distinct from already-existing files (“*the* first data file” and “*the* second data file”), which are the source of the first and second content-related data segments. (*Id.* (emphasis added).) That the first and second data files are understood to be preexisting in claims 18 and 19 demonstrates the inventors’ intent for their introduction in the preambles of claims 1 and 9 to be limiting.

The preambles of claims 1 and 9 provide antecedent basis for four claim terms that are used in the bodies of the claims, which is strong evidence that the preambles are limiting. *Bio-Rad*, 967 F.3d at 1369 (finding that the preamble providing antecedent basis for two terms in the body of the claim “is a strong indication that the preamble acts ‘as a necessary component of the claimed invention.’”)

The preambles are also limiting for a separate, commonsense reason: “data segments” cannot exist in a vacuum. A “segment” is necessarily part of a larger *something*, from which the segment is apportioned. Referring to a “data segment” without knowing what was segmented to create it would be like walking to a deli counter and saying, “I’ll have a piece.” That just begs the question: A piece *of what*?

The preambles resolve that question. The “content-related first data segments” come from “a first data file,” and are synchronized with the “content-related second

data segments” that that are being synchronized come from “a second data file.” (EX1001, claims 1, 9, and 22.) The preambles’ recitations of the relationship between the content-related data segments and their respective data files provide essential structure for the claimed inventions. *See Shoes by Firebug LLC v. Stride Rite Children’s Group, LLC*, 962 F.3d 1362, 1365-69 (Fed. Cir. 2020) (finding preamble limiting where it introduced “footwear” and the body of the claim referred to this essential structure as “the footwear”).

The preambles should also be found to be limiting because they set out the relationships between the content-related data segments and their respective data files, and these relationships are part of the “essence of the invention.” *Boehringer*, 320 F.3d at 1345 (“[P]reamble language will limit the claim if it recites not merely a context in which the invention may be used, but the essence of the invention without which performance of the recited steps is nothing but an academic exercise. This principle holds true here, as it frequently does for method claims[.]”).

The inventors expressly define “content-related . . . data segments” in the context of the data files from which they were obtained. (EX1001, 4:9-22.) Moreover, every embodiment disclosed in the ’794 patent describes synchronizing data segments that came from corresponding data files. (EX1001, 3:65-7:3 (describing various uses of assignment rules in relation to content-related data segments fragmented from data files D1 and D2), Figs. 1-3 (referencing the data

files D1 and D2); *see also id.*, 7:4-20, Fig. 4 (describing embodiments with content-related data segments from more than two data files).) The relationship between the content-related data segments and their respective data files (plural) is even mentioned in the Title, further demonstrating that they were viewed by the inventors as core to the invention. (*Id.*, Title (“Method for Synchronizing Content-Dependent Data Segments of Files”).) Additionally, claims 1, 9, and 22 identify the very purpose of the claims: “synchronizing,” and the body of the claim describes how the synchronizing is performed.

Because the preamble is not just a context in which the invention operates, but is essential to the invention, it is limiting. *Boehringer*, 320 F.3d at 1345 (finding that the preamble was limiting because “‘growing’ and ‘isolating’ are not merely circumstances in which the method may be useful, but instead are the *raison d'être* of the claimed method itself”); *Applied Materials*, 98 F.3d at 1572-73 (finding the preamble limiting because “[t]he term ‘cold purge’ has its roots in the specification” and was central to the problem being solved).

Finally, in the two related district court cases in which there have been claim construction proceedings, all parties agreed that the preamble is limiting. (EX2001, 4; EX2002, 22.) That multiple, sophisticated parties that have an interest in vigorously litigating the ’794 patent (Amazon.com and Starz Entertainment) agreed that the preambles are limiting is notable. Judge Hall then adopted the parties’

agreement into her claim construction order. (EX1019, EX2001.) As with the previous claim term, Petitioner was fully aware of these events and Patent Owner's claim construction position yet chose not to address it in its Petition. (Pet., 20-26; EX2012, 12:15-26:3.) Accordingly, Petitioner has forfeited its right to contest this construction or offer a competing construction. (EX2011, ¶¶57, 61-67.)

2. The “First Data File” and “Second Data File” Must Be Different Data Files

Within the preambles, “a first data file” and “a second data file” are set forth as separate limitations and so should be required to be met by distinct data files. Indeed, “[t]he use of the terms ‘first’ and ‘second’ is a common patent-law convention to distinguish between repeated instances of an element or limitation.” *3M Innovative Props. Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003) (citing *Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1304 (Fed. Cir. 2003) (“first” and “second” sidewall surfaces understood to be different surfaces)); *Springs Window Fashions LP v. Novo Indus., L.P.*, 323 F.3d 989, 992 (Fed. Cir. 2003) (“first” and “second” opposed ends understood to be different ends).

Patent Owner's request for clarification that the first data file and second data file are different data files is based on well-trodden Federal Circuit law. *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1373 (Fed. Cir. 2005) (“The claim is thus clearly not using the ordinals—first, second, third— to show a consecutive

numerical limit *but only to distinguish or identify the various members of the group.*

The case law of this court supports this reading of the claim language ‘first, second, and third.’”) (emphasis added) (citing *3M Innovative*, 350 F.3d at 1371). Also, there is abundant evidence that the inventors understood their invention to be about synchronizing content-related data segments from two separate data files. (’794 patent, 3:65-7:20, Figs. 1-4, Title; *supra*, Section VI.A.2.a.) And in the related district court litigations, all parties agreed on this claim construction issue — the first and second data file are distinct. (EX2001, 2; EX2002, 22).

The first and second “content-related . . . data segments” do not exist in a vacuum, but rather, are expressly defined in the context of the data files from which they were created. (*Supra*, Section VI.A.1.) Thus, while it is content-related data segments that are output together according to an assignment rule, and not the files themselves, the *effect* of synchronizing the data segments is that the data files are synchronized. Indeed, that is the *purpose* of the invention. The ’794 patent addresses the challenge of efficiently and flexibly streaming video content, such as television broadcasts. (EX1001, 1:23-2:12.) Such content is maintained in data files, not an assortment of disconnected data segments. (*Id.*) Data files are thus central to the invention. The term “data file” is part of every disclosed embodiment and appears in the ’794 patent 60 times, including in the Title, Abstract, and all claims. (*Id.*, 3:65-7:20, Figs. 1-4, Title, Abstract, claims.)

For all these reasons, the “first data file” and “second data file” should be required to be distinct data files. And again, Petitioner was fully aware of Patent Owner’s claim construction position but chose not to address it in its Petition. (Pet., 20-26; EX2012, 12:15-26:3.) Petitioner has thus forfeited its right to contest this construction or offer a competing construction. (EX2011, ¶¶57, 68-69.)

C. “assignment rule” Limitations

Term	Patent Owner’s Proposed Construction
“assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments” / “assignment rule for assigning each one of the content-related second data segments to each one of the content-related first data segment” / “assigning, according to an assignment rule, each of the ordered content-related second data segments . . . with a corresponding one of the ordered content-related first data segments” (Claims 1 / 9 / 22)	assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments, wherein the assigning is not performed by adjusting the timing of the content-related data segments / assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments, wherein the assigning is not performed by adjusting the timing of the content-related data segments / assigning, according to an assignment rule, each of the ordered content-related second data segments . . . with a corresponding one of the ordered content-related first data segments, wherein the assigning is not performed by adjusting the timing of the content-related data segments

The “assignment rule” of the ’794 patent marked a paradigm shift in how content data segments are synchronized. Prior to the ’794 patent, content data segments from different data files were output in parallel based on timing information — usually timestamps — for each of the data segments. (EX1001, 2:36-46; *see also* EX1002, 268-69, 203-205.) The timing information in the streams could then be adjusted —usually by adjusting the timestamps — to achieve or restore synchronicity. (*Id.*)

By contrast, with the assignment rule, each of the data segments from one data stream (e.g., audio) are assigned to a data segment from a different data stream (e.g., video), and these interrelations are used to output streams of audiovisual content sequentially and chronologically. (EX1001, claims 1, 9, 22.) Assignment rules do not involve adjusting timing information for the content data segments, but instead assign each segment within one data stream to the segments of the other. This provides many benefits over time-based synchronization techniques, including lower data requirements, overhead, and costs; enhanced flexibility; and compatibility with standards. (EX1001, 2:6-9, 2:24-27, 2:37-39, 2:51-54, 2:55-61, 3:8-10, 3:14-19.)

That the assignment rules operate without adjusting the timing of content-related data segments is an essential and distinguishing feature of the ’794 patent. In the “Summary” section of the specification, assignment rules are described as

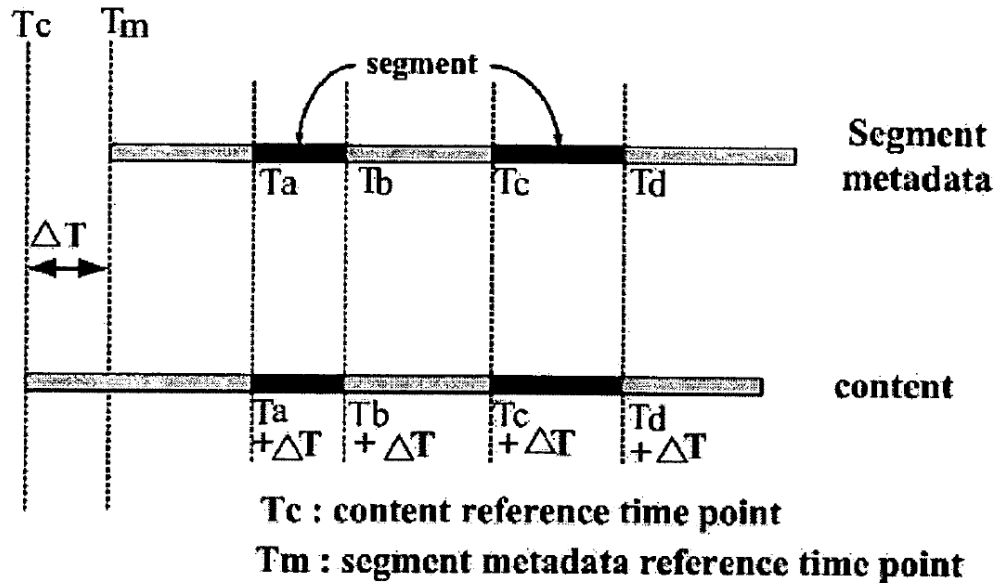
advantageous because “the assignment is carried out without the use of timestamps.” (EX1001, 2:39-43; *see also id.*, 2:24-63 (describing the advantages that result from not using timestamps.) That is, content-related data segments are not assigned to one another by adjusting their timestamps. Assignment rules are described throughout the specification and in the claims consistent with this understanding. For instance, there are no embodiments or references where an assignment rule is implemented by adjusting the timing of any of the data segments that are being synchronized. (*Id.*, 3:65-7:20.) Rather, in all embodiments, content-related data segments are assigned to one another without reference to timing information. (*Id.*)

The prosecution history reinforces this understanding of assignment rules. During examination, the patentee twice expressly distinguished the claims of the ’794 patent over references that synchronized data segments in different data streams by adjusting the timing of the data segments, arguing that these references did not describe an “assignment rule.” In both instances, the Examiner agreed with the patentee’s description of the ’794 patent and the reference, and determined that the claims overcame the asserted reference.

The first such reference that the patentee distinguished was U.S. Patent No. 7,428,696 (“Shin”).² Shin discloses a system in which different streams of data that are intended to be presented simultaneously are provided from different sources. (EX2013, 2:26-59.). For instance, one data stream might be video, while the other is metadata created based on the video. (*Id.*, 1:20-2:59.) Because the data streams come from different locations, they may arrive at different times. (*Id.*, 1:20-2:15.). If they do and are then reproduced as soon as they are received, the content will be presented asynchronously. (*Id.*, 2:16-22.)

Shin addresses this problem by adjusting the timing of the metadata segments. This technique is described with reference to Figure 6B of Shin:

² The Examiner’s rejection was based on the related European Patent, EP1494430. (EX1002, 280-81 (2012/03/07 Non-Final Rejection, 4-5).) The patentee then overcame the rejection with reference to Shin, the U.S. Patent counterpart. (*Id.*, 268-69 (2012/04/11 Amendment, 8-9).)



(*Id.*, Fig. 6B.) Reference time points, T_C and T_M , are calculated for each of the two data streams. (*Id.*, 7:36-8:67.) Then, the difference between the reference times, ΔT , is calculated, which corresponds to the time offset (i.e., the out-of-synchness) between the two streams. (*Id.*) This offset is then added (or subtracted) to one of the streams to ensure synchronicity for each of the data segments. (*Id.*) The result is that the corresponding content and metadata segments are aligned and output together. (*Id.*)

The patentee expressly distinguished the Shin reference because it aligned the data segments from the two data streams by adjusting the timing of the data segments within one of the streams, stating:

Shin discloses a method for synchronizing content segments with metadata in response to user requests. Shin, col. 2, lines 31-35. The content data and metadata *each include time information for*

synchronization. Shin, col. 2, lines 33-36. In response to user content requests, a synchronizer determines reference time points from the time information contained within the content data and the metadata. Shin, col. 2, lines 35-40 and col. 8, lines 1-6. ***The synchronizer then determines a relative time point and synchronizes the content data and metadata based on the determined time point.*** Shin, col. 2, lines 42-45.

The Examiner equates the relative time point of Shin to “an assignment rule” of claim 1. However, this time point does not assign “each second data segment to a first data segment.” On the contrary, Shin at best determines a point in time in content and metadata so that they are synchronized. ***Segments of one type of data are not assigned to segments of the other type; rather, a synchronization time is calculated.***

(EX1002, 268-69 (2012/04/11 Amendment, 8-9) (emphases added).) In essence, the patentee argued that Shin’s disclosure of adjusting the timing for the metadata segments (by calculating a synchronization time) is not an “assignment rule” because there is no assigning of one type of data segments with another. The Examiner agreed with these arguments and withdrew its rejection. (EX1002, 223

(2012/11/29 Final Rejection, 6) (“Applicant’s arguments . . . have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.”).)

The patentee distinguished U.S. Patent No. 5,598,352 (“Rosenau”) during prosecution on a similar basis. Rosenau discloses a synchronization technique to address the problem that, over time, audio and video content can get out of synch. (EX2014, 1:24-3:38.) Essentially, Rosenau tracks how out-of-synch the audio and video content are using the timestamps in the content and a system clock, and once the level of asynchronicity passes a threshold time, corrective action is taken: a video frame is either repeated or skipped to (approximately) re-synchronize the audio and video (*id.*, 5:65-6:59), as shown below:

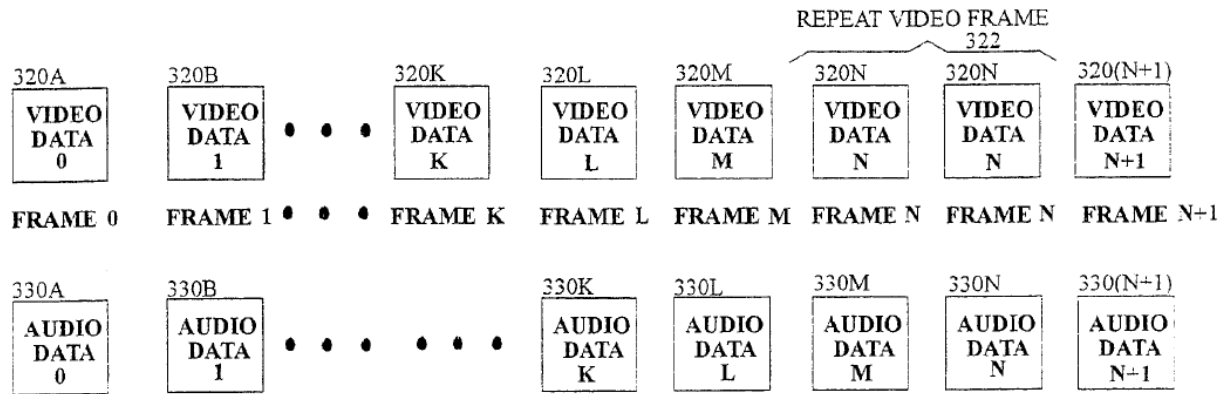


FIGURE 3B

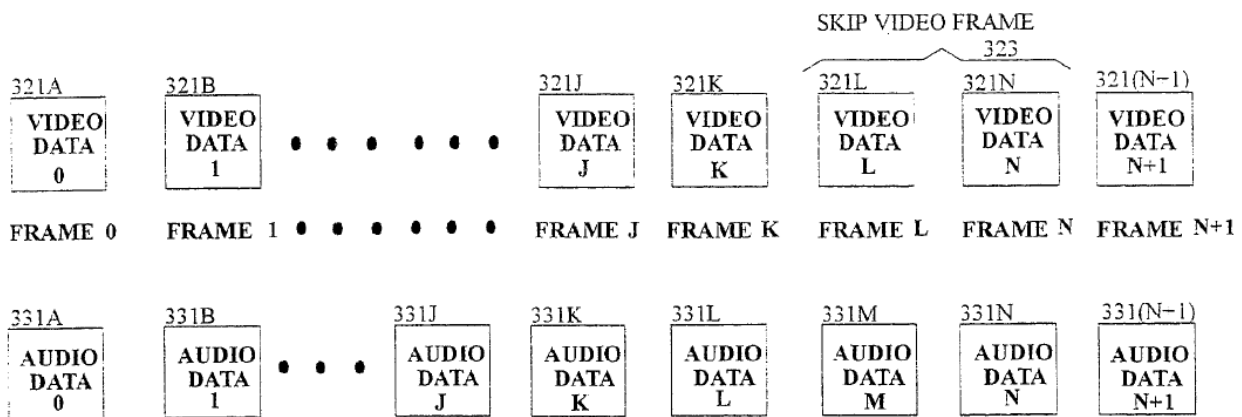


FIGURE 3C

(*Id.*, Figs. 3B, 3C.) As shown, video frames are individually identified and output in parallel with similarly identified audio frames (e.g., **Video Data 0** and **Audio Data 0**). But when the corresponding video and audio frames become out of synch by more than a certain amount of time (here, the length of a video frame), a video frame is repeated or skipped. The effect of repeating or skipping a video frame is that the subsequent video frame is then played out at a later or earlier point in time than it would otherwise have been.

The patentee distinguished Rosenau on the basis that skipping a frame does not meet the “assignment rule” claim limitation:

Rosenau discloses a system that synchronizes a video display with audio playback. The synchronization is done by utilizing a system time clock. The synchronization is based on the timing information parsed from a data stream, which is loaded into a system time clock counter and incremented according to a predetermined clock frequency. *Rosenau*, col. 3, 1.57-col. 4, 1. 7; col. 4, 1. 3-7; col. 5, 1. 8-10, 37-40, 65-66; col. 6, 1. 24-25.

Additionally, *Rosenau* discloses that over time video data may lag the audio data. If a video frame leads an audio data by one frame, then the video frame may be skipped in order to resynchronize the video data frame with the audio data. Moreover, if the audio and video are out of sync by more than one frame, then it may be desirable to skip or repeat multiple frames. *Rosenau* col. 6, 1. 25-51.

However, the skipping and/or repeating of frames for resynchronization is not “an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments”, as required by Claim 1 (emphasis added). Instead, Rosenau merely discloses that when outputted audio data

and video data fall out of sync, they may be resynchronized by skipping one or more video frames.

(EX1002, 203-05 (2012/11/29 Response After Final Rejection, 13-15) (emphases added).) The patentee thus described how Rosenau synchronizes by skipping frames, and argued that this skipping — which restores synchronization by altering the timing of the ensuing video frames — does not assign data segments to one another (i.e., it is not an assignment rule).

In the Notice of Allowance, the Examiner agreed with the patentee's characterization of Rosenau and the “assignment rule” and reiterated that skipping a frame (and thereby adjusting the timing of the ensuing, synchronized video frame) is not the same as assigning data segments to one another:

The above discussion can be summarized as the frame synchronization is based on the timing information parsed from a data stream, which is loaded into a system time clock counter and incremented according to the clock frequency. And also the frame may be skipped in order to resynchronize the frame with audio data. Therefore, *synchronizing the frame and skipping the frame to resynchronize is not the equivalent to the “sequentially outputting data segments on the basis of an assignment rule for assigning one of the content-related second data segments . . . to one of the content-related first data segments”.*

(EX1002, 39-40 (2013/08/01 Notice of Allowance, 4-5) (emphases modified).)

The patentee’s distinction of Shin and Rosenau thus confirmed the proper scope of an “assignment rule.” *Traxcell Techs., LLC v. Nokia Solutions and Networks Oy*, 15 F.4th 1136, 1144-45 (Fed. Cir. 2021) (limiting claim scope based on statements made to distinguish prior art during prosecution that were consistent with the specification and claims). Alternatively, this prosecution history triggered prosecution disclaimer. *See Tech. Properties Ltd. LLC v. Huawei Techs. Co.*, 849 F.3d 1349, 1357-59 (Fed. Cir. 2017) (finding disclaimer of claim scope consistent with arguments made repeatedly and clearly to overcome prior art references); *see also Personalized Media Commc’ns, LLC v. Apple Inc.*, 952 F.3d 1336, 1345 (Fed. Cir. 2020) (“Even where ‘prosecution history statements do not rise to the level of unmistakable disavowal, they do inform the claim construction.’ An applicant’s repeated and consistent remarks during prosecution can define a claim term—especially where, as here, there is ‘no plain or ordinary meaning to the claim term’ and the specification provides no clear interpretation. . . . Assuming without deciding that [the patentee’s] statements and amendments were inadequate to give rise to a disclaimer, we still find that the prosecution history provides persuasive evidence that informs the meaning of the disputed claim phrase and addresses an ambiguity otherwise left unresolved by the claims and specification.”) (citations

omitted); *Sunovion Pharms., Inc. v. Teva Pharms. USA, Inc.*, 731 F.3d 1271, 1274-76 (Fed. Cir. 2013).

Regardless of whether the prosecution history confirms or necessitates how the POSITA would understand the term “assignment rule,” it is clear that an assignment rule must not assign data segments to one another by adjusting their timing. It would be directly contrary to how the Examiner interpreted the term and inconsistent with the Patent Office’s decision to allow the claims of the ’794 patent over the Shin and Rosenau references to interpret it in that manner. (EX2011, ¶¶72-79)

As further support for Patent Owner’s proposed construction, Petitioner’s expert testified that assignment rules are distinct from timing, stating that the ’794 patent “primarily uses time stamps to distinguish from assignment rules.” (EX2012, 67:1-10.) The expert of the petitioner from the Unified IPR offered similar testimony, repeatedly explaining that assignment rules render timing information superfluous:

- “Exact timing information . . . is superfluous to the claims and to the patent if the assignment rule is implemented.”
- “So timestamps existed, but my reading of this patent appears to suggest that they are superfluous as such provided an assignment rule can match

up the audio and the video, which piece of audio goes -- which data segments of the audio go with which data segments of the video.”

- “I perceive timestamps as being superfluous to the main claims, the independent claims of this patent.”

(EX2015 (Dr. Freedman’s ’086 IPR deposition transcript), 30:20-37:3.) These candid admissions by multiple adverse experts further supports Patent Owner’s proposed construction. Adjusting the timing information of data segments to achieve synchronicity is not the type of assigning that is encompassed within the claimed “assignment rule.”

For all these reasons, the “assignment rule” claim limitations should be construed to require that “. . . the assigning is not performed by adjusting the timing of the content-related data segments.” (EX2011, ¶¶57, 70-79.)

VI. ARGUMENT

A. Comps Does Not Disclose “Content-Related . . . Data Segments”

According to the inventors’ express lexicography, “content-related . . . data segments” are “segments of *content* data that have a syntactical meaning within the respective data file.” *See supra*, § V.A (emphasis added). That is, the data segments of the ’794 patent cannot be *any* kind of data — they must be *content* data. This would include audio content data (e.g., WAV data), video content data (e.g., MPEG-4 data), or metadata content data (e.g., subtitles). (*E.g.*, EX1001, 3:4-10.)

Data segments that contain just *computer instructions* and not *content* do not meet the “content-related . . . data segments” limitation. (EX2011, ¶¶83-96.)

Petitioner maps “events” in Comps — which are sometimes also referred to as “commands,” or “fields” — to the “content-related . . . data segments” limitations. (Petition, at 27-28.) In particular, Petitioner maps certain sound-related events to the “content-related first data segments” claim limitation and certain image and text-related events to the “content-related second data segments” claim limitation. (*Id.*) Petitioner’s mapping fails because these events do not contain *content* data. They are instead merely computer instructions that indicate that audio, image/video, or text is to be presented. The actual content data is not stored as part of the events. It is either generated at the time of the presentation (e.g., by a MIDI synthesizer) or stored elsewhere (e.g., on the device that presents the content).

Comps uses the words “events,” “commands,” and “fields” to describe the data stored in its tracks. (*E.g., id.*, 2:10-23.) These words indicate that what is stored is computer instructions, not content data. In accordance with this understanding, in its only disclosed embodiment, Comps describes each track as “contain[ing] data organized in the form of commands which are executed sequentially by the microprocessor (for example to display a picture or text).” (*Id.*, 3:5-7.) Thus, “events,” “commands,” and “fields” in Comps are computer instructions to display

or present content but are not themselves content. This makes sense. It would be unusual to use these words to describe audiovisual content. (EX2011, ¶¶85-86.)

Critically, Comps' **only** embodiment describes the audio track **1** as containing MIDI sound data. (*Id.*, 3:11-14.) MIDI sound data merely includes instructions for generating sound data, and the actual sound content:

Originally developed to allow musicians to connect synthesizers together, the MIDI protocol is now finding widespread use *in the generation of sound* for games and multimedia applications. There are several advantages to *generating sound with a MIDI synthesizer rather than using sampled audio* from disk or CD-ROM. The first advantage is storage space. Data files used to store digitally sampled audio in PCM format (such as .WAV files) tend to be quite large. This is especially true for lengthy musical pieces captured in stereo using high sampling rates. MIDI data files, on the other hand, are extremely small when compared with sampled audio files. For instance, files containing high quality stereo sampled audio require about 10 MBytes of data per minute of sound, while a typical MIDI sequence might consume less than 10 KBytes of data per minute of sound. This is because *the MIDI file does not contain the sampled audio data, it contains only the instructions needed by a synthesizer to play the sounds*. These instructions are in the form of MIDI messages, which instruct the synthesizer which sounds to use, which

notes to play, and how loud to play each note. *The actual sounds are then generated by the synthesizer.*

(EX2016, MIDI Tutorial 1998, 1.) Thus, in MIDI, the sound data is not actually sound *content* data; it is merely instructions for how to play sound content data that is stored or generated by the synthesizer. (See EX2016, 1; see also EX2017, 1; EX2012, 44:12-46:21 (Dr. Bederson admitting that MIDI is an industry standard that “probably includes some kind of data format for representing musical information that can be used to control playback of music, such as synthesizers”).)

Comps’ sole embodiment relies on MIDI for generating sound data. MIDI, like Comps, describes its sound generating instructions as “events,” and they are associated with time values. (EX2019, Standard MIDI Files, 5 (“Each track chunk is simply a stream of MIDI events (and non-MIDI events), preceded by delta-time values.”); *Id.*, 12-14 (describing the coding for various sound “events” in MIDI, all of which correspond to the presentation of audio data but none of which contain sound *content* data).) Comps’ only embodiment thus discloses the sound data being MIDI data, and MIDI data does not include content data. (EX2011, ¶¶87-92.)

As in the MIDI documentation, Comps sometimes refers to “sound data.” But this sound data consists of instructions for playing sounds, not the actual sound content data. Indeed, Comps describes the sound track as containing “data relating to sound,” such as a “first field Nf_1 [that] represents the frequency of a first note and

a second field Nd₁ that represents its duration.” (EX1004, 3:22-26.) This is very clearly not sound *content* data, but information for instructing a device how to generate the desired sounds. (See EX2012, 43:18-44:11 (Dr. Bederson admitting that Nf₁ included the frequency of a note and might not include anything else).)

Image and text data is similarly described in Comps as “events,” “commands,” and “fields” rather than *content* data. For instance, Comps describes the image track as follows:

Track 2 contains data *corresponding to* sequences of JPEG images. In this example, two JPEG images *represented by* the fields JPEG1 and JPEG2 must be presented to the user for a given time represented by the field JPEGd₁ for the image JPEG1 and the field JPEGd₂ for the image JPEG2.

(EX1004, 3:31-37 (emphases added).) Again, whenever Comps refers to image data in Track 2, it is referring to data related to presenting images, not the image *content* data. This is why Comps uses the same terminology and formatting for Track 2 as it does for the MIDI Track 1. Indeed, like with MIDI, Comps’ techniques are intended to “reduce the size of the multimedia files.” (EX1004, 1:5-10, 2:3-5; see also EX2016, 1 and EX2017, 1 .) Comps does so by not including the actual content data in its multimedia files. Track 3 similarly contains computer instructions for displaying text, not content. (EX1004, 3:18-19, 38-41; EX2011, ¶¶94-95.)

In sum, Comps does not disclose any embodiments in which the events contain content data, such as WAV, MPEG, or text data. The events in Comps only ever contain computer instructions for presenting these types of data. Petitioner's invalidity analysis thus necessarily fails for all petitioned claims and grounds. Further, and for the same reasons, Comps does not meet the claim limitations in dependent claims that require the content-related data segments to contain specific kinds of content data. (EX1001, claim 5 (“media data”), claim 12 (“video and audio data”), claim 13 (“media data and metadata”), claim 14 (“metadata encoded according to the XML standard”), claim 15 (“media data”); EX2011, ¶¶83-96.)

B. Comps Does Not Disclose the “Assignment Rule” Limitations

As explained above, the “assignment rule” limitations all require that “. . . the assigning is not performed by *adjusting the timing* of the content-related data segments.” (*Supra*, Section V.C (emphasis added).) Yet what Petitioner points to in Comps as the alleged “assignment rule” — the SYNCH commands — does exactly that. Comps therefore does not meet the “assignment rule” limitation for any of the petitioned claims. (EX2011, ¶¶97-102.)

Comps describes having a “master” track and one or more “slave” tracks. (EX1004, 3:51-54, 4:18-24.) Each track has its own processor, and by default, the events in each track are executed by the track's processor according to the timing information in each track. (*Id.*, 3:22-41.) For instance, for track 1, each of the four

notes Nf_1 , Nf_2 , Nf_3 , and Nf_4 have durations Nd_1 , Nd_2 , Nd_3 , and Nd_4 , respectively.

(*Id.*, 3:22-30, Fig. 3.) There is also a waiting time between notes of duration D_1 .

(*Id.*) Track 2 similarly has duration data for each image and several waiting times.

(*Id.*, 3:31-37, Fig. 3.)

Track 1 — the master track — will always execute its events according to its precise timing information. (EX1004, 3:48-4:43.) But Tracks 2 and 3 — the slave tracks — operate differently. Tracks 2 and 3 will execute their events according to their respective timing information only between SYNCH commands. (*Id.*) When Track 1 executes a SYNCH command, such as SYNCH1, its microprocessor sends synchronization data to the microprocessors for Tracks 2 and 3. (*Id.*) If the slave tracks have not yet encountered their own SYNCH1 commands, they will skip all events until it reaches the SYNCH1 command and resume executing the commands that follow the SYNCH1 command. (*Id.*, 4:25-43.) Alternatively, if the slave processors had reached their own SYNCH1 commands before receiving synchronization data from the master microprocessor, they will have paused executing commands, and will only resume executing commands once the synchronization data is received. (*Id.*)

In short, the microprocessors for Tracks 2 and 3 *adjust the timing* of the events that follow SYNCH commands to match the timing of the corresponding events in Track 1. But the intrinsic evidence makes clear that the “assignment rule”

limitation is not met if “the assigning is [] performed by adjusting the timing of the content-related data segments.” (*Supra*, Section V.C.)

Indeed, with respect to the alleged “assignment rule,” Comps is indistinguishable from the Rosenau reference that was overcome during the prosecution of the ’794 patent in every way that matters. In Rosenau, there is an audio data stream comprised of audio frames and a video data stream comprised of video frames. (EX2014, 5:65-6:5.) When corresponding video and audio frames become out of synch by more than a certain amount of time (such as the length of a video frame), a video frame is repeated or skipped. (*Id.* at 6:1-46.) The effect of repeating or skipping a video frame is that the subsequent video frame is then played out at a later or earlier point in time than it would otherwise have been. (*Id.*) This results in re-synchronization of the audio and video frames. (*Id.*) It is this synchronization of frames following the repeating or skipping of a video frame that the Examiner alleged satisfied the “assignment rule” claim limitations. (EX1002, 226-28.) But the patentee argued that Rosenau does not meet the assignment rule limitation and the Examiner agreed. (*Id.*, 38, 160, 203-205; EX2011, ¶¶100-101.)

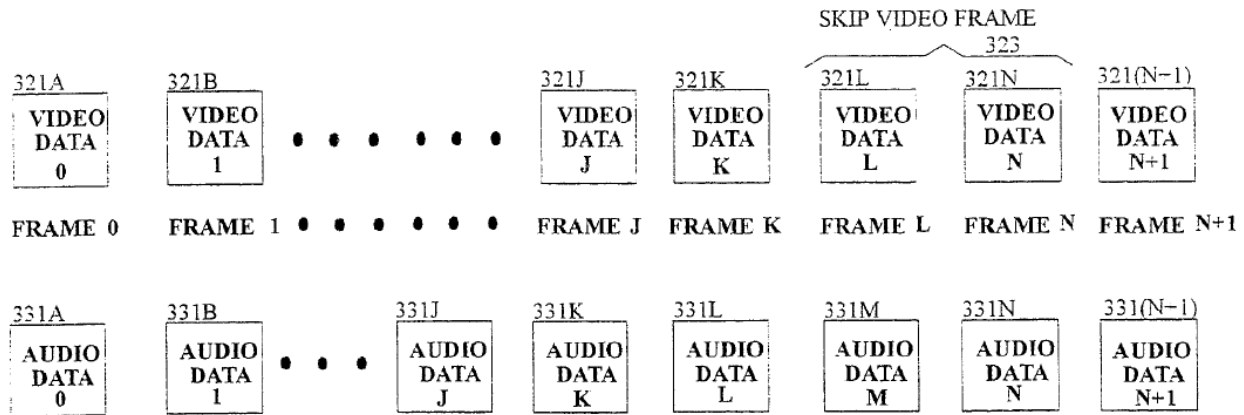


FIGURE 3C

(EX2014, Fig. 3C.)

Petitioner alleges that Comps’ SYNCH commands constitute an “assignment rule.” (Pet., 32-35.) But like in *Rosenau*, the SYNCH commands do not “assign[] each one of the content-related second data segments to one of the content-related first data segments.” (See EX2014, 6:1-46; see also EX1004, 4:18-50.) They instead adjust the timing of certain data segments by causing them to be processed at an earlier or later time. (EX1004, 2:24-34 (“The device is characterized in that one of the first data reading means is designated as having the highest priority and forces the first means to synchronize with it.”), 4:18-50.) The alleged assignment rule of Comps is thus of the same kind as the alleged assignment rule in *Rosenau*. (See EX2012, 57:16-60:21, 64:5-66:11, 76:11-77:18 (Dr. Bederson agreeing that the tracks all include timing information and that the timing of certain events is adjusted to conform with the timing of the master track when a SYNCH command is executed).) Because there is no meaningful distinction between the two in this

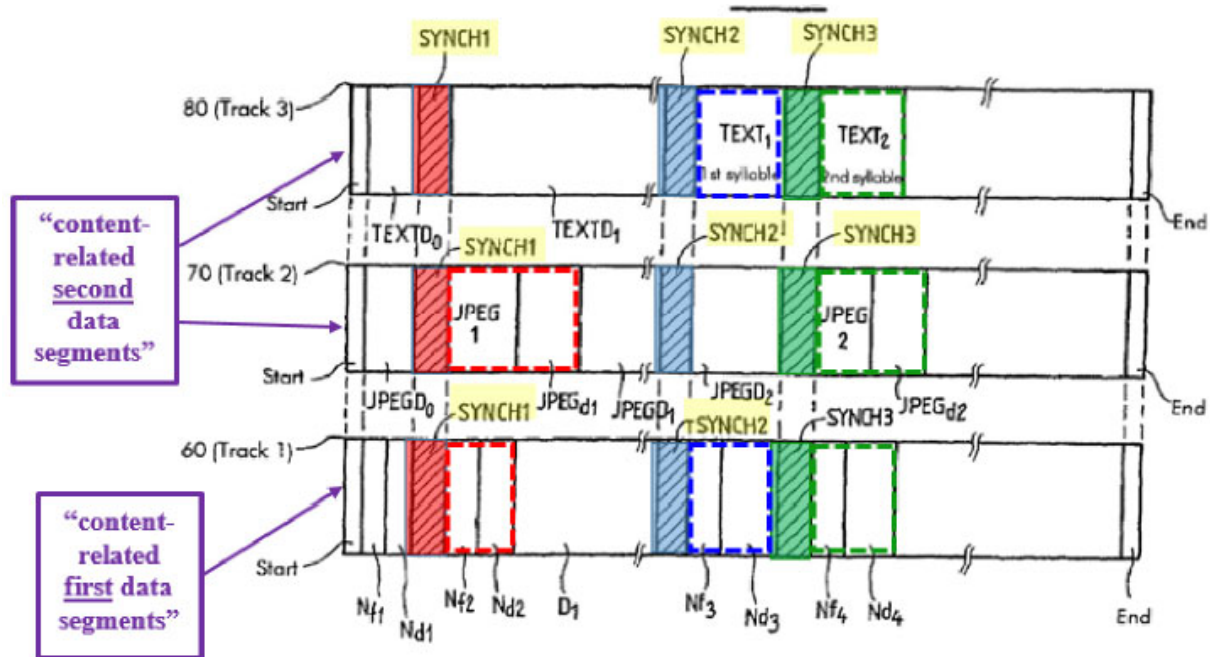
regard, it necessarily follows that Comps does not disclose the “assignment rule” claim limitation for any claims of the ’794 patent. (EX2011, ¶¶97-101.)

C. Comps Does Not Disclose Outputting “Each” of the Content-Related Second Data Segments Together with a Content-Related First Data Segment Based on an Assignment Rule

Comps at most discloses techniques for assigning *some* outputted events in a first track (i.e., the important events) with events of a second track using SYNCH commands. By contrast, every petitioned claim requires assigning *each* outputted content-related data segment in a first data file with content-related data segments of a second data file. (EX1001, claims 1, 9, 22.) Because every embodiment and disclosure in Comps is about synchronizing a *subset* of the outputted events instead of *each* outputted event, the Petition fails to establish the invalidity of any claims. (EX2011, ¶¶103-117.)

As shown in the figure below, which is excerpted from the Petition, Petitioner points to certain fields that are executed following SYNCH commands and asserts that this meets the limitations of outputting “each” data segment based on an assignment rule. (Pet., 30-35; *see also* EX1004, Fig. 3.) Specifically, Petitioner identifies JPEG1/JPEG_{d1} and JPEG2/JPEG_{d2} as the “content-related second data segments” (or alternatively TEXT1 and TEXT2). (Pet., 27-28.) But these events are just a subset of the outputted events from the respective tracks (which Petitioner maps to the claimed “data file[s]”). (*Id.*) The events JPEGD₀, JPEGD₁, and JPEGD₂

in Track 2 (or TEXTD₀ and TEXTD₂ in Track 3) are not output together with events in Track 1 on the basis of a SYNCH command.



(Pet., 34 (depicting EX1004, Comps, Fig. 3 (annotations added by Petitioner))).

Petitioner does not explain why it cherry picks certain outputted events in each track and ignores others. But in all cases, doing so is improper and precludes a finding of anticipation:

As we have stated numerous times . . . in order to demonstrate anticipation, the proponent must show “that the four corners of a single, prior art document describe every element of the claimed invention.” This statement embodies the requirement in section 102 that the anticipating invention be “described in a printed publication,” and is, of course, unimpeachable. But it does not tell the whole story. Because the hallmark of anticipation is prior invention, the

prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements “arranged as in the claim.”

...

[O]ur precedent informs that the “arranged as in the claim” requirement applies to all claims and refers to the need for an anticipatory reference to show all of the limitations of the claims arranged or combined in the same way as recited in the claims, not merely in a particular order. The test is thus more accurately understood to mean “arranged or combined in the same way as in the claim.”

Net MoneyIN, Inc. v. VeriSign, Inc., 545 F.3d 1359, 1369-1371 (Fed. Cir. 2008); *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972) (stating that the prior art reference must “clearly and unequivocally disclose the claimed [invention] or direct [POSAs] to [it] without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference.”).

The plain language of the claims is clear. For “content-related second data segments of a second data file,” “**each** one of the content-related second data segments” must be assigned to “one of the content-related first data segments” and outputted. (EX1001, claims 1, 9, 22 (emphasis added).) Comps does not meet these claim limitations because *there is no disclosure in Comps in which “each” of the*

outputted events in a track are assigned to an event in a second track. (EX2011, ¶¶103-109.)

This is undisputed. Petitioner does not assert that every outputted event in Tracks 2 or 3 are assigned to events in Track 1. More broadly, Petitioner does not contend that Comps discloses an embodiment where “each” event in a set of events is assigned to events in another set. To the contrary, Comps specifically discloses that SYNCH commands are only to be used for a subset of events, i.e., the “important” events. (EX1004, 1:4-10, 1:41-2:23, 2:60-4:2, 4:18-50.) Thus, Petitioner only alleges that a subset of the events in Tracks 2 and 3 are assigned to events in Track 1 because that is all that Comps discloses.

It would be unavailing for Petitioner to contend that Comps’ disclosure of synchronizing a subset of the outputted events could meet the “each” requirement. A hypothetical demonstrates this point. One could imagine a modified version of claim 1 of the ’794 patent, where instead of requiring that “each” of the content-related second data segments were assigned a content-related first data segment, the claim instead required that “only some” of the second data segments were assigned to a first data segment. In this instance, if every embodiment of a prior art reference disclosed assigning *every* second data segment to a first data segment, there would be no question that it did not anticipate the hypothetical claim — the claim requires assigning “only some” of the segments, and “every” is not the same as “only some.”

The inverse must also be true. Given that the claims of the '794 patent require assigning “each” second data segment with a first data segment, Comps’ disclosure of allegedly assigning “only some” of the second events to first events is not anticipatory. Just as “every” is not the same as “only some,” so too is “only some” not the same as “every.” Both here and in the hypothetical, a finding of anticipation would require legally improper picking and choosing or modifying the reference.

The Petition does not argue that the “each” limitation can be met by the “only some” disclosures of Comps. It instead appears to argue that only certain events should be considered “content-related . . . data segments.” (*See also* EX2012, 35:4-39:15, 47:9-48:5, 51:20-55:1, 63:3-64:4 (Dr. Bederson providing his view on which events in Comps are “content-related data segments”).) This view is premised on an incorrect and inconsistent understanding of Comps.

Petitioner contends that certain sound and picture events (e.g., N_{f2} , JPEG1) and distinct events that describe the durations of those events (e.g., N_{d2} and JPEG_{d1}) are not “content-related . . . data segments” when considered independently, but when considered together, the combinations constitute “content-related . . . data segments.” (Pet., 26-29.) Petitioner also appears to contend that certain text events (e.g., TEXT₁) by themselves are content-related data segments — even though these events are directly analogous to the sound and picture events (e.g., N_{f2} , JPEG1) that Petitioner believes are not content-related data segments. (*Id.*, 27.) Finally,

Petitioner does not view waiting time events (e.g., D_1 , $JPEGD_1$, $TEXTD_1$) as content-related data segments. (*Id.*, 14, 27-28, 36.)

There is no valid basis to draw these distinctions. Comps describes all types of track information as “events,” “fields” and “data.” (EX1004, 2:43-51, 3:20:42.) And while Comps does distinguish between important and unimportant events, any type of event can fall into either category. And Petitioner does not rely on the distinction between important and unimportant events, as Petitioner includes and excludes both types of events from its mapping of “content-related . . . data segments.” (Pet., 13-14, 27-28, 36 (e.g., $JPEG_{d1}$ and $JPEGD_1$ are unimportant events and are included and excluded, respectively, and $JPEG_1$ and $JPEGD_2$ are important events and are included and excluded, respectively).) Moreover, it is illogical to view certain sound and picture events (e.g., N_{f2} , $JPEG_1$) and the events that describe the durations of those events (e.g., N_{d2} and $JPEG_{d1}$) as not being “content-related . . . data segments” when considered separately, yet simultaneously view their combination as a single content-related data segment. Two data segments are not the same as one data segment. And if there is no “content” data when the two events are considered separately, how can there be content data when the events are considered together? Petitioner’s views are untenable.

As Patent Owner explained above (*supra*, Section VI.A), ***none*** of the events in Comps are content-related data segments because they do not contain ***content***

data. But in all cases, if waiting times are not content-related data segments because they do not contain content data, then it necessarily follows that note durations are also not content-related data segments because they also do not contain content data (or alternatively they must both be content-related data segments — the point is that there must be consistency in the analysis). This deficiency cannot be resolved by grouping them with the adjacent sound and image events. Comps treats note durations as distinct events from the sound and image events that Petitioner claims contain content data. Ignoring this separation between these events would again constitute the type of picking and choosing or flat-out modification of prior art that is not permitted in an anticipation analysis. *Net MoneyIN*, 545 F.3d at 1369-1371. Petitioner does not explain why two events (JPEG1/JPEG_{d1}, JPEG2/JPEG_{d2}, N_{f3}/N_{d3}, N_{f4}/N_{d4}) can constitute a single data segment, or how there could be anticipation when it is modifying Comps in this way. (Pet., 13-14, 27-28, 36; EX2011, ¶¶110-117.)

Moreover, in presenting multimedia content, knowing how long to wait before playing the next note or displaying the next image is just as important as knowing how long to play a particular note or display a particular image. (EX2018.) Indeed, the absence of sound or video can have just as much of an impact on the experience as any note or image that is presented. As an example, the absence of image data means that no image will be displayed (and so, e.g., a black screen will be displayed),

while the absence of specific text data means that any displayed text is taken down. (EX1004, 3:24-41.) Said another way, the absence of sound (or an image) itself constitutes sound (or image) data. Indeed, as the famed French composer Claude Debussy put it, “music is the silence between the notes.” Treating waiting times as fundamentally different than other audiovisual events is arbitrary and unsupported. (See EX2012, 39:16-44:11 (Dr. Bederson admitting that audio “content” in the ’794 patent can include silence); EX2011, ¶¶110-117.)

In sum, all petitioned claims require outputting “each” content-related . . . data segment for the two data files, and not just a subset of them. Petitioner relies on just a subset of events in Comps’ only embodiment as the purported “content-related . . . data segments,” which precludes a finding of anticipation. Moreover, even looking at the subset of events that Petitioner focuses on, Petitioner improperly combines some events and ignores others — and does so without explanation or justification. Petitioner thus fails to show that any of the challenged claims are unpatentable.³ (EX2011, ¶¶103-117.)

³ Petitioner also does not show how “*each* one of the content-related second data segments” is assigned to “*each* one of the content-related first data segments.” (EX1001, claim 9.) Specifically, Petitioner identifies Track 1 as containing the “content-related first data segments,” but does not contend that any alleged content-

D. Comps Does Not Disclose Outputting the Content-Related First and Second Data Segments “Sequentially” or “Chronologically”

Comps describes executing the events in its master track sequentially. (EX1004, 4:25-50.) However, Petitioner improperly relies on a mere subset of the executed events in tracks, and so the complete set of alleged data segments in the alleged data files are not output based on the assignment rule, much less sequentially and chronologically. (Pet., 13-14, 27-28; EX2011, ¶¶118-126.)

Moreover, the subset of events in Comps that Petitioner maps to the “content-related . . . data segments” are not executed sequentially, as there are intermittent events that are output between them. (Pet., 27-30, 36; *see also* EX1004, 3:22-43, 3:57-4:2.) In particular, Petitioner alleges that events N_{f1}/N_{d1} , N_{f2}/N_{d2} , N_{f3}/N_{d3} , and N_{f4}/N_{d4} are “content-related first data segments” and JPEG1/JPEG_{d1} and JPEG2/JPEG_{d2} in Track 2 and TEXT1 and TEXT2 in Track 3, are “content-related second data segments.” (Pet., 13-14, 27-28, 36.) However, these events are not output sequentially because fields such as D_1 in Track 1, JPEGD₁ and JPEGD2 in Track 2, and TEXTD₁ in Track 3 are output in between the alleged content-related data segments. (EX1004, 3:22-43, 3:57-4:2.)

related second data segments (from Tracks 2 or 3) are assigned to the events N_{f1} and N_{d1} in Track 1. This is a clear failure of proof in the Petition.

The Petition fails for this reason, as every claim requires sequential outputting, and the limited events that Petitioner relies on are not output sequentially. (EX2011, ¶¶119-122.)

More broadly, Comps' SYNCH commands may lead to entire events in the slave tracks being skipped. (EX1004, 25-43; *supra* Section II.C.) Thus, by design, Comps does not meet the limitation of "sequentially" outputting "each" alleged data segment in the tracks. Comps necessarily fails as an anticipatory reference for this reason as well. (EX2011, ¶¶119-122.)

Comps discloses executing the events in its master track in a timewise order (though as described above, that is not necessarily true for the events in the slave tracks, as events may be skipped). (*Id.*, 2:43-64, Fig. 3; *supra* Section II.C.) Again, by mapping just a subset of the events in the tracks to the data segments limitations and skipping multiple events, Petitioner ends up relying on events that are not in chronological order.

For instance, for Track 1, without accounting for event D₁ (and any other events indicated by the squiggly lines in the event), all the ensuing events will not be in their chronological order — they will be too early, and so out of alignment with the other tracks. (EX1004, Fig. 3.) This is similarly true for Tracks 2 and 3. (*Id.*)

Finally, for the slave tracks, because their events are not even necessarily executed at all (i.e., if they precede a SYNCH command and end up being skipped

to ensure synchronicity), Comps does not describe outputting each alleged data segment in chronological order. (*Id.*, 4:25-57; *supra* Section II.C.) That is, if an event is skipped because of a SYNCH command, then the ensuing event is not executed in chronological order, but in a new, unintended order that omits certain content. (*Id.*) Comps thus necessarily fails as an anticipatory reference for this reason as well. (EX2011, ¶¶123-127.)

E. Comps Does Not Disclose An “Assignment Rule” That Is Not Based on a Timestamp

Claims 20 and 21 of the '794 patent further limit claims 1 and 9, respectively, by specifying that “the assignment rule is not based on a timestamp.” (EX1001, claims 1, 9.) Comps does not meet this claim limitation because the “assignment rule” that Petitioner relies on is based on the timestamps of the master track. That is, the SYNCH commands of Comps synchronize important events by forcing the slave tracks to follow the precise timing data (i.e., the “timestamps”) of the master track. Thus, the alleged assignment rule of Comps is based on the timestamps of the master track. (EX2011, ¶¶128-135.)

More specifically, as described above (*supra*, Section VI.B), the master track always executes its events according to the precise timing information specified within the track. Hence, for Track 1, each of the four notes (Nf₁, Nf₂, Nf₃, and Nf₄) and the waiting time (D₁) are executed at specified points in time for the specified

amount of time. (EX1004, 3:22-30, Fig. 3.) These points in time and amounts of time are both timestamps.⁴

Slave track similarly have timestamps for their events. (*Id.*, 3:31-37, Fig. 3.) But slave tracks (Tracks 2, 3) execute their events according to their respective timing information only between SYNCH commands. (*Id.*, 3:31-41, 4:18-41.) When SYNCH commands are present, they force the slave tracks to output the ensuing event according to the timestamps of the master track (i.e., the event durations and waiting periods). (*Id.*, 4:25-43.) Petitioners' alleged assignment rule is thus based on timestamps. (*See* EX2012, 57:16-60:21, 64:5-66:11, 76:11-77:18 (Dr. Bederson agreeing that the tracks all include timing information and that the

⁴ In the '794 patent, timestamps refer to either absolute times or absolute time ranges. (EX1001, 6:43-49; EX2011, ¶132.) This understanding aligns with how the term is used in the intrinsic evidence, the understanding of the POSITA, and the expert of Unified in the '086 IPR. (*Unified*, IPR2022-01086, EX1005 (Dr. Freedman's Declaration) at ¶167 ("In the context of the '794 patent, a *timestamp* or "time code" (*see* '794 Patent (EX1001), 6:47) would be understood to be an absolute time or time range, e.g., 0:00.00-0:01.00.") (emphasis original).) Neither the Petition nor Petitioner's expert Dr. Bederson took a position on the meaning of the term "timestamp." (Pet., 48-50; EX2012, 67:1-69:18.)

timing of certain events is adjusted to conform with the timing of the master track when a SYNCH command is executed); EX2011, ¶¶133-135.)

Petitioner makes much of Comps' description of SYNCH commands as "not temporal commands." (Petition, 49; EX1001, 3:44-47.) But Petitioner misinterprets Comps. As Comps goes on to explain, the SYNCH commands are not temporal commands in the sense that they are "not present in the track at regular time intervals." (EX1001, 3:44-47.) Comps thus contrasts its use of SYNCH commands only before important events with prior art that synchronizes data streams at set time intervals, such as "every 3 μ s." (*Id.*, 1:41-46.) Comps thus equates "not temporal" with the lack of a time-based cadence for SYNCH commands.

A lack of temporal synchronizing in this very limited sense is not determinative of whether the "not based on a timestamp" limitation of claims 20 and 21 is met. An analysis of mapping Comps to these claims must be performed. And, as described above, Comps' SYNCH commands do not meet this claim limitation. (EX2011, ¶¶128-135.)

F. Comps and Wan Do Not Anticipate or Render Obvious Claim 22

Independent claim 22 of the '794 patent includes several limitations that are not present in independent claims 1 and 9. Pertinently, claim 22 requires "the content-related first data segments being ordered according to the corresponding first content-related markers and the content-related second data segments being ordered

according to corresponding second content-related markers.” (EX1001, claim 22.)

Neither Comps nor Wan disclose these requirements of claim 22. (EX2011, ¶¶136-139.)

Petitioner points to disclosures in Wan related to a Scene description stream. (Pet., 58-60.) But it does not order any data segments and is not a content-related marker. Petitioner also points to Comps’ labeling of events. (*Id.*) But those labels do not order the events and are not content-related markers.

Moreover, the POSITA would not find it obvious or be motivated to modify Comps with Wan’s alleged content-related markers to determine the order of outputting the alleged data segments. Comps only describes tracks in which the desired order of the alleged data segments is already determined, as the microprocessors scan each track linearly. (EX1004, Fig. 3, 3:55-4:24.) Adding Wan’s alleged content-related markers to Comps to determine the order of outputting the alleged data segments would require reconfiguring the microprocessors to scan the tracks based on the content-related markers. This would require additional non-obvious modifications to SYNCH commands so that Comps can maintain its essential functionality of forcing the slave tracks to be synchronized with the master track by adjusting the timing of events. (*Id.*, 3:53-54.)

For example, Comps forces the slave tracks to be synchronized with the master track based on the timing at which the master microprocessor encounters the

SYNCH command in the master track as compared to the timing at which the slave microprocessors encounter the corresponding SYNCH command in the slave track(s). (*Id.*, 4:19-50.) Adding Wan's alleged content markers to Comps would further complicate matters as the microprocessors would have to first determine the order of the alleged data segments based on the content markers and then determine if the encountered SYNCH commands in the different tracks correspond with each other. Petitioner has failed to make a prima facie case of why such modifications to Comps would be obvious to the POSITA. (EX2011, ¶¶136-139.)

G. The Petition Fails to Show That Many Dependent Claim Limitations Are Disclosed Or Rendered Obvious

For many dependent claims, the Petition contains conclusory and superficial analysis that fails to address the claim limitations. These claims are thus neither anticipated nor obvious for the additional reasons explained below.

Claim 2: The Petition asserts that Comps anticipates claim 2. (Pet., 36.) It does not. First, Petitioner only alleges that certain events in Track 2 correspond to the alleged content-related second data segments, and does not rely on Track 3 at all. So, to the extent Track 3 is determined to be needed to anticipate claim 1, claim 2 is not anticipated. Second, Petitioner incorrectly asserts that the combinations of JPEG₁/JPEGd₁ and JPEG₂/JPEGd₂ are assigned to precisely one of the data segments from Track 1. These events from Track 2 are instead assigned to multiple data segments in Track 1 (e.g., Nf₂ and Nd₂). Third, the alleged assignment is not carried

out after a number of sequentially succeeding content-related first data segments. There could be any number of first data segments between the assignment. There is no disclosure in Comps of it being after a particular number of data segments; to the contrary, the squiggly lines near the middle of Track 1 and 2 in Figure 3 indicate that any number of data segments could exist between the alleged first data segments. Comps is very different than claim 2, which is described with exemplary embodiments in the '794 patent. (EX1001, 5:35-6:3, Fig. 4.; EX2011, ¶¶140-143.)

Claim 3: Comps does not disclose that “for each of the content-related second data segments, the content-related first data segments are assigned by a specification of a number, the number representing a position of the content-related first data segments within the order of content-related first data segments.” (EX1001, claim 3; Pet., 37-38.) The SYNCH commands and events in Comps are each numbered. But the SYNCH commands, which Petitioner alleges does the assigning, does not represent the position of the events within the order of the tracks. And the data segment numbers do not assign the data segments to one another. Moreover, multiple events in the same track have the same numbers. This is in contrast with the requirements of the claims and the corresponding disclosure in the '794 patent. (EX1001, 5:35-6:42, Figs. 1-5; EX2011, ¶¶144-145.)

Claims 7 and 8: For similar reasons as discussed for claim 22 (*supra*, Section VI.F), claims 7 and 8 are not disclosed or rendered obvious by Comps and/or Wan. (EX2011, ¶¶146-148.)

Additionally, with respect to claim 7, the POSITA would not find it obvious or be motivated to modify Comps to add Wan's alleged content-related markers to determine which of the alleged content-related data segments are to be output first in time based on the file structure of Comps's tracks. Specifically, Comps's microprocessors always start scanning each track at the beginning of the track. (EX1004, 2:60-67, 4:18-42.) There is no need to determine which event is to be output first in Comps, as it will always be the one at the beginning of the track. As such, a POSITA would not be motivated to add Wan's alleged content-related markers in Comps's tracks. (EX2011, ¶¶147.)

Furthermore, with respect to claim 8, Petitioner alleges that Wan's updates to scene graphs are content-related markers. (Pet., 54-56.) However, claim 8 depends from claim 7, which requires using the content-related markers to determine which of the alleged content-related data segments are to be output first in time. (EX1001, claims 7 and 8). Petitioner does not make any showing of how the updates to scene graphs can be used in Comps to determine which of the alleged content-related data segments are to be output first in time. Indeed, Wan is completely silent whether

updates to scene graphs can be used for determining which of the alleged content-related data segments are to be output first in time. (EX2011, ¶¶148.)

Claims 18 and 19: Claims 18 and 19 require that the assignment rule is maintained in a file separate from the first data file and the second data file. (EX1001, claims 18, 19.) Petitioner alleges that the claims are obvious based on Comps in view of Kim. Petitioner points to Kim’s storage of “management information file storing management information for controlling reproduction of all of recorded audio data” as maintaining the data about music in a different file from the content itself. (Pet., 68-72.) Petitioner alleges that the “combination of Comps and Kim would store the SYNC ids of Comps in a file separate from its content files.” (*Id.*) There are two flaws with Petitioner’s arguments.

First, Petitioner does not map assignment rule to a “SYNCH ID.” (Pet., 32-35.) Instead, it maps the assignment rule to the SYNCH commands. (*Id.*) Based on this alone, Petitioner’s arguments fail. Second, storing a SYNCH command in a separate file would break Comps. The only way that Comps keeps track of whether the audio/video/text is synchronized is by detecting the SYNCH commands in the data files as the data files are being scanned. (*See* EX1004, 4:18-50.) Particularly, by keeping the SYNCH command in the tracks, the microprocessors are able determine whether the slave tracks need to catch up or slow down to synchronize with the timestamps of the master track. (*Id.*) Maintaining the SYNCH commands

in a different file would require additional coordination between the tracks and different file(s), as there is additional logic and processing beyond the SYNCH commands themselves, including synchronization data that is sent from the master track to the slave tracks. This type of reengineering of Comps is not discussed in Comps, Kim, or the Petition.

More broadly, the POSITA would not find it obvious or be motivated to modify Comps with Kim to store Comps' SYNCH commands and related logic and processing (i.e., the alleged assignment rule) in a separate file. The only way that Comps keeps track of whether the alleged data segments in the different tracks are synchronized is based on the SYNCH commands in the respective tracks. (*Id.*, 4:25-50.) That is, by keeping the SYNCH command in the tracks, the microprocessors are able determine whether the slave tracks need to catch up or slow down with the master track based on when a SYNCH command is encountered in the track. (*Id.*) Removing the SYNCH commands from the tracks to maintain them in a separate file would prevent the microprocessors from encountering a SYNCH command and essentially prevent Comps from performing its intended purpose. As such, making such a modification would not be obvious to the POSITA. (EX2011, ¶¶151.)

Furthermore, the POSITA would not be motivated to make such a modification as it provides no benefit. Petitioner provides no reason why the POSITA would remove the SYNCH commands from the tracks to maintain them in

a different file. This is because there is no practical reason to do so. In fact, maintaining the SYNCH commands in a different file would require additional coordination between the tracks and different file(s). This additional coordination would require additional network bandwidth and processing power to fetch data from the different file(s). Therefore, the POSITA would not be motivated to make such a modification to Comps. (EX2011, ¶¶149-151.)

VII. CONCLUSION

The Petition thus fails to show that any challenged claim are unpatentable.

Dated: May 2, 2024

By: /Christine E. Lehman/
Christine E. Lehman
PTO Reg. No. 38,535
Counsel for Patent Owner

CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that Patent Owner's Response consists of 13,938 words, excluding the table of contents, certificate of service, this certificate of compliance, or table of exhibits. The Response complies with the type-volume limitation of 14,000 words as mandated in 37 C.F.R. § 42.24. In preparing this certificate, counsel has relied on the word count of the word-processing system used to prepare this paper (Microsoft Word).

Dated: May 2, 2024

Respectfully submitted,

/Christine E. Lehman /

Christine E. Lehman

PTO Reg. No. 38,535

Counsel for Patent Owner

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing **PATENT OWNER'S RESPONSE** was served on, via electronic mail, as agreed to by counsel, upon the following counsel for Petitioner:

Aliza George Carrano (Reg. No. 70,637)
accarrano@willkie.com
Indranil Mukerji (Reg. No. 46,944)
imukerji@willkie.com
Stephen A. Marshall (*pro hac vice*)
smarshall@willkie.com
Netflix-VL_WFG@willkie.com
WILLKIE FARR & GALLAGHER LLP
1875 K Street NW
Washington, DC 20006

Dated: May 2, 2024

/Jaime F. Cardenas-Navia /
Jaime F. Cardenas-Navia